

FOIA MARKER

This is not a textual record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Council of Economic Advisers
Series/Staff Member: Subject Files
Subseries:

OA/ID Number: 21614
FolderID:

Folder Title:
Global Climate Change Qs and As Talking Points [1]

Stack:	Row:	Section:	Shelf:	Position:
S	21	4	10	3

State Spring 2000

Expectations for COP-6

- COP-6 will be a critical juncture in the development of the international climate change regime.
- COP-5 was a success in terms of laying out a road-map to get to COP-6. But COP-5 focused mostly on process. Now we need to reach decisions on the major substantive issues before us.
- So, at a COP-6, we have a much, more demanding task than we did at COP-5. We need to take not merely a small step; we need to take a really significant step forward in elaborating the Kyoto Protocol so that it is effective, has real integrity, and allows countries to meet their targets in a cost-effective manner.
- When I say, we need to take a really major step forward at COP-6, what do I mean? In our view, there are four major elements that we will need to address at COP-6: (1) the Kyoto mechanisms – emissions trading, joint implementation and CDM; (2) sinks; (3) compliance; and (4) developing country participation. Let me say a bit more on each of these.

Mechanisms

- First, we need to adopt rules for how the three Kyoto mechanisms will work. This is enormously challenging task. But failure is not an option, since the Kyoto mechanisms are vital to enabling countries to meet their targets in a cost-effective way.
- Let me be clear. The United States is already taking significant domestic actions to reduce its GHG emissions. Just last week, on Earth Day, the President and Vice-President announced major new initiatives. And we intend to do much more domestically to achieve our Kyoto target.
- But we cannot accept artificial quantitative limits on the use of the Kyoto mechanisms. This is simply not negotiable for us. What we need to do instead is find creative ways of addressing the question of domestic action without imposing artificial caps, which were not part of the Kyoto deal.
- And what we also need to do is to ensure that each of the Kyoto mechanisms has real environmental integrity, so that they are a means of achieving countries' targets, not evading them. We need to ensure:
 - That countries have systems to effectively monitor and report their emissions
 - That there is an airtight accounting system to track the units of assigned amount
 - That overselling is deterred or prevented, and
 - That emissions reductions units generated under the Clean Development Mechanism represent real benefits to the atmosphere.

Sinks

- Second, we need to make decisions on sinks at COP-6, including both definitions under Article 3.3 as well as additional activities under Article 3.4.
- Terrestrial sinks such as forests are a crucial part of the carbon cycle and can make an enormous contribution – either positive or negative – to achieving the goal of combating climate change. We need to make sure that the Protocol encourages positive actions to enhance sequestrations, and deters negative actions that result in emissions.
- Terrestrial sinks were also an important part of the package adopted at Kyoto, and enabled some countries such as the United States to accept the target that they did.
- Finally, sinks have important benefits for other environmental goals, such as protecting biodiversity, preventing soil erosion, and improving water quality. In particular, sinks projects under the Clean Development Mechanism could help developing countries meet their sustainable development objectives, by spurring economic growth while providing local environmental benefits.
- For all of these reasons, it is vital that we address the sinks issue at COP-6. We have a great deal of work to do, and we will need to redouble our efforts in the coming months in order to reach a satisfactory outcome at COP-6.

Compliance

- Third, we need to adopt a compliance system at COP-6. In our view, an effective compliance system, including mandatory consequences for non-compliance, is vital to the environmental integrity of the Protocol.
- One of the major advances of the Kyoto Protocol was that it includes legally-binding targets, not just statements of good intent. But what does this really mean, without an effective compliance system? Without an effective compliance system, there is the danger that Kyoto will simply represent more words, rather than significant action.
- One of the crucial elements of a credible compliance system is that it apply even-handedly to all Annex I parties, whether or not they are using the Kyoto mechanisms.
- We have set forth detailed views about how we think the compliance system should work, including what the mandatory consequences should be for failing to meet one's targets. We hope that others will do the same, so that we can complete our work on this crucial subject as quickly as possible.

Developing country participation

- Finally, COP-6 must take steps to enhance developing country participation in the Protocol.
- Enhancing developing country participation has a number of important elements:
 - For one, we need to take decisions at COP-6 on capacity building. We cannot expect developing countries to take action on climate change, unless they have the wherewithal to do so.
 - We also need to address the issue of technology transfer. Significant progress has been made already, through the technology transfer consultative process. We need to complete this work in the coming months.
 - We need to adopt rules for the Clean Development Mechanism that encourage the widest possible participation by developing countries. CDM can play a vital role in fostering technology transfer and capacity building, as well as helping states adapt to the impacts of climate change, particularly those that are most vulnerable.
 - Finally, we need to begin a new dialogue between developed and developing countries, in order to find ways to make the climate change regime truly global. Climate change is a global problem. Without a global response, we will never be able to achieve the objective of the Convention.
 - We recognize, of course, the principle of common but differentiated responsibilities. Countries have differing responsibilities and capabilities, and cannot all be expected to contribute to the same degree, or in the same time frame. But they have a common responsibility to combat climate change; and this fact needs to be recognized more fully in the Kyoto Protocol.

Conclusion

- Clearly I have set forth a very demanding set of objectives for COP-6. But we have a saying that, where there's a will, there's a way. Given our shared political will to make the Kyoto Protocol a success, I believe we should be able to find a way to complete the work necessary to achieve this goal.



Julie M. Anderson
03/24/99 03:01:47 PM

Record Type: Record

To: Joseph E. Aldy/CEA/EOP

cc:

Subject: qs



jyquest.doc

if you can't print

Questions for Janet Yellen, CEA

Economic Model Questions

Q. **What is the "SGM" model** and why did the Administration choose it?

Market-Based Mechanisms in the Kyoto Protocol

Q. **Dr. Yellen, I thought I heard you say that your analysis does not account for technological improvements in energy efficiency. Is that correct?**

Q. **Dr. Yellen, your analysis relies heavily on international trading to lower costs for the U.S. Could you please explain why international trading is so beneficial?**

Q. **Dr. Yellen, I understand that many other countries only wanted to include 3 greenhouse gases in the Protocol, what is the economic benefit of including 6 kinds of gases?**

Q. **Dr. Yellen, I also understand that many countries opposed the inclusion of sinks – such as forests which absorb carbon – in the Protocol, why does the inclusion of sinks help lower the costs of meeting Kyoto targets?**

Cost of Inaction Question

Q. Dr. Yellen, we are going to hear a lot today about the costs of taking action to address climate change. What about the costs of NOT taking action? Aren't there costs associated with impacts on public health? Costs associated with damage to our coastlines? Costs associated with extreme weather events, likes floods and hurricanes?

Q. Does the Administration analysis estimate the economic or environmental benefits of addressing climate change?

Coal Question

Q. Dr. Yellen, I've been hearing that implementing the Kyoto Protocol will decimate the U.S. coal industry. Do you agree with that forecast?

Jobs Question

Q. We are hearing that the Kyoto Protocol could cost the U.S. million of jobs, but your testimony states that the Protocol will not affect overall employment. Why is the range of estimates so large?

In your testimony Dr. Yellen, you note that no model is set up to handle all of the parameters of the Kyoto Protocol. ~~Why is it so difficult to assess this policy with an economic model?~~

Dr. Yellen, we have testifying here today several other economists who will describe the results from their economic models. In your analysis you used the SGM model to describe the effects of the Kyoto Protocol. Why did you select this model?

Dr. Yellen, in your written testimony you provide some preliminary estimates of the costs of achieving our target under the Kyoto Protocol. However, you state that it is virtually impossible to quantify the climate benefits of the Protocol. Why is it nearly impossible to do so?

Last year, Dr. Robert Stavins, an economist at Harvard, described the Kyoto Protocol as flawed but fixable. Dr. Yellen, from an economic perspective, what do we need to do to fix the protocol and what would be the likely economic effects of achieving these fixes?

Dr. Yellen, we have heard numerous times, and again here today, that international trading in emissions rights ~~lowers the costs~~ for the U.S. ~~Could you please explain why international trading is so beneficial?~~

Dr. Yellen, many countries pushed for an earlier commitment period than the one the Administration advocated. In the end, the Administration position of a commitment period starting in 2008 was included in the Protocol. What is the economic rationale for pushing for a later commitment period?

Dr. Yellen, some countries wanted a single year target, while the Administration advocated for a five-year commitment period. What are the economic benefits of a five-year average relative to a one-year target?

Dr. Yellen, many countries wanted the Protocol to address only the three major greenhouse gases, carbon dioxide, methane, and nitrous oxide. The Administration advocated, and won, inclusion of all 6 categories of greenhouse gases. What are the economic benefits of including 6 kinds of gases, instead of 3?

In addition to the emissions of greenhouse gases from industrial activities, the climate can be affected by activities that take up, or sequester greenhouse gases. These so-called "carbon sinks" remove some of our emissions of carbon dioxide and can mitigate the effects on the climate. Some countries opposed the inclusion of sinks in the Protocol, but the Administration fought for

the right to include the effects of some carbon sinks on achieving our emissions target under the Protocol. Dr. Yellen, why does the inclusion of carbon sinks help lower our costs of complying with the Kyoto Protocol?

Dr. Yellen, the Administration has proposed a domestic permit trading system to reduce emissions of greenhouse gases based on the country's experience with the acid rain trading program. Could you explain why ~~a system of tradeable greenhouse gas permits~~ is superior to other approaches, such as CAFE or appliance energy efficiency standards?

Dr. Yellen, you discuss in your testimony the cost-savings possible with effective international trading. Since the rules of international trading have not been agreed to, could you describe what you mean by an effective international emissions market?

Dr. Yellen, you state in your testimony that the Kyoto Protocol will not affect aggregate employment. However, we have heard from other economists that this agreement could cost the U.S. millions of jobs. Why is the range of estimates so large?

The Kyoto Protocol does not require countries to meet binding targets until 2008. However, there are certain aspects of the Protocol, such as the Clean Development Mechanism, that allow for emissions reductions to occur as early as the year 2000 that could be used over the 2008-2012 period. Further, the Administration is pushing for funding for tax incentives and R&D to spur the adoption of energy efficient technology now. Dr. Yellen, why is it important to do these things now?

Dr. Yellen, you state that the need to bring in developing countries into the Protocol is not based on competitiveness concerns. Could you explain why your analysis indicates that developing countries operating without binding commitments will not adversely affect U.S. competitiveness? Could you then further discuss the reasons why these countries should participate?

Dr. Yellen, you have testified that the costs of meeting our Kyoto target could be modest, while others who will be testifying here today will claim that meeting the Kyoto target will bring substantial costs. Why do your model results differ so much from these other models?

Q: When will the Administration's electricity restructuring bill be presented to Congress?

A: Secretary Richardson has announced that he expects to introduce the Administration's Comprehensive Electricity Competition Plan when Congress reconvenes after its upcoming recess.

Q: How will electricity restructuring affect greenhouse gas emissions?

A: Under the Administration's Comprehensive Electricity Competition Act proposal of last year, the estimated reduction in greenhouse gas emissions were between 25 and 40 million metric tons of carbon. We expect this year's Administration proposal to result in equal or greater reduction in greenhouse gas emissions.

Q: How will increases in the renewable portfolio standard affect carbon emissions? How will increases in the renewable portfolio standard affect costs to consumers?

A: Administration policy on the renewable portfolio standard provision has not been finalized (check tomorrow). Electricity produced from renewable energy sources rather than from burning fossil-fuels lowers the contribution of greenhouse gas emissions from the electricity sector. In last year's Administration proposal and again in this year's proposal, utilities can purchase credits from the Department of Energy for 1.5 cent/kwh. This provision limits the cost increase to consumers and protects the savings from electricity restructuring.

Q: What will be the overall cost to consumers of electricity restructuring?

A: The electricity restructuring proposal provides potential cost-savings in four areas: dispatch efficiency, improved capital utilization, savings in capital additions and cost reductions in fuel and non-fuel operations and maintenance. These four categories of savings, when translated to consumers are likely to reach or exceed \$20 billion annually.

Q: Will electricity restructuring hurt rural consumers?

A: Howard's answer: NO (actual answer is progress)

Q&A QUESTIONS REGARDING TRADING

International trading

It sounds like the conclusion of low costs depends on the idea that we will be buying emission permits from other countries.

What percentage of emission reductions are achieved in this way, versus domestically?

Do you honestly believe that international trading of this sort is feasible?¹

What would be the costs if we to have to meet these targets without international trading?

Transfers

What would be the monetary value of these transfers?

Do you expect the American taxpayer to pay other countries for the right to drive their cars and run their factories?

If it doesn't go directly through the budget, aren't you having the same effect by imposing onerous requirements on private citizens, and then "allowing" them to pay foreigners?

Russia and paper tons

Is it true that you mainly expect the purchases to come from Russia (and the Ukraine)? What percentage? Isn't this a disguised form of foreign aid?

Is it true that we wouldn't even be paying them to reduce their emissions, but instead be paying them for reductions that they have already undergone (so-called "paper tons")?

What makes you think a country that can't even run a functioning legal system or maintain a decent economy is a reliable partner in such a deal? What's to stop them from just taking the money and doing nothing?

Domestic permit trading

How exactly is this permit trading system (2008-2012) supposed to work?

The idea is to drive up the price of energy, right?

Isn't it a disguised tax? A mandate or "taking", then?

How would you rate the relative importance of the permit trading scheme and CC Technology Initiative in accomplishing the emission reductions called for under the treaty?

¹ "However, the proposed schemes for both international permit trading and joint implementation require enforcement and monitoring mechanisms that may be difficult to establish in the near term." ... "your economic advisers are concerned that substantial barriers would arise in implementing any workable analogue of such an idealized system--at least in the near term. Consequently, they would stress that Annex I international permit trading and joint implementation between the U.S. and nonAnnex I countries can realistically serve only a limited role in reducing the costs associated with meeting a "1990 by 2010" target. "..." the actual benefits of such a system are apt to fall short of this utopian portrayal." 9/20/97.

Oil price shock

The only historic experience with restraining emissions (let alone reducing them) was the 1970s, correct? How did ~~the reduction in emissions then compare with that required under the Treaty?~~² Didn't this take a much bigger increase in oil prices than you are predicting now? Didn't it cause the largest two post-war recessions, with huge increases in unemployment? Why should things be different this time?

What about the study from EPI that predicts large job losses?

² *"If attained through domestic emissions reductions alone this target entails a reduction in CO₂ emissions of about 28% relative to projected 2010 emissions in the absence of policy intervention--a change in energy use in excess of that achieved during the decade of the oil shocks."...*"Economic analysis suggests that reaching 1990 emissions by 2010 would result in a stagflationary macroeconomic shock on the economy approximately equal in magnitude to the effects of the combined oil shocks of the 1970's. Both unemployment and inflation would undoubtedly rise for a time"

Q: In your 1/23/98 memo on the costs and benefits of a program to address global climate change you note that "optimistic assumptions" about international trading are necessary to "bring costs down a lot." Could you please explain what these optimistic assumptions are, and why you consider them to be optimistic?

A: The optimistic assumptions refer to the assessment of Kyoto with key developing countries adopting growth emissions targets and participating in international trading. We consider these assumptions optimistic because, to date, these countries have not taken on targets.

Q: You note that even with optimistic assumptions about trading, costs are still greater than benefits. Why should the President's economic adviser support a policy where costs outweigh benefits?

A: It is important to recognize that the non-climate benefits do not outweigh the costs. We should view what we have done in the Kyoto Protocol as an insurance policy against the risks of climate change. So long as we implement the Protocol efficiently and globally, the costs will be modest, and the premium for this insurance will be reasonable.

Q: It appears that you have used electricity restructuring to mask the costs of climate change. Wouldn't you consider it good public policy to pass a winner of a policy, like electricity restructuring, and reject a loser of a policy like climate change?

A: While our efforts on climate change are still a work in progress, I do not consider the Administration's position on climate change a "loser". It is important to address both the issue of electricity deregulation and the issue of climate change. It is also important to recognize how the average household will be ten years out because of the kinds of policies we are considering today.

Q: In your analysis, you have cited that electricity restructuring will offset the costs of climate change. However, we have heard recently from Carol Browner that consumers shouldn't worry about the higher electricity bills associated with the NOx trading program because of the Administration's electricity restructuring proposal. How can the Administration offset the costs of both these policies with the same proposal? Will the Administration use electricity restructuring as rhetoric to mask over the costs of all future burdensome environmental regulations?

A: HELP.

Q: Why is it difficult to quantify or monetize the benefits of reducing the risks of climate change? You have cited several economists who managed to do it.

A: The economists that we have cited have assumed in their analyses long-term emissions paths for the planet. However, since the Kyoto Protocol only affects one 5-year period, and, as a work in progress, only Annex I countries, it is impossible to trace out an emissions path beyond Kyoto. Further, there are substantial difficulties dealing with the uncertainties surrounding the appropriate discount rate, danger of catastrophic events, and appropriate risk aversion.

Q: According to your own memo, you are using the lowest cost model in the modeling community. Isn't that true?

A: That statement refers to how SGM ranked in the EMF-14 exercise which assessed the present discounted value of foregone consumption resulting from several long-term global emissions paths (WRE, WGI). More relevant to our present purposes, the most recent EMF exercise suggests that SGM falls roughly in the middle of the field of models used to evaluate Kyoto.

Q: Are China, India, Korea, Mexico key developing countries?

A: For purposes of the illustrative analysis, we assumed that these countries were key. This does not reflect any official Administration position on these countries. Frankly, these 4 countries were selected as a matter of convenience -- in the SGM model, they are distinct modeling regions, and so it is easy to discern their effects in participating in trading. It would be virtually impossible to assess another developing country, like Brazil or Argentina, because they are grouped with all other developing countries into the "rest of the world" region.

Q: Are developing country targets set at 2010 BAU emissions level meaningful participation?

A: This emissions level was used simply for illustrative reasons. The Administration does not have a position what the appropriate target should be for a developing country that elects to adopt a target. A target should appropriately reflect that country's own circumstances. In most of the EMF exercises, it is assumed that developing countries take on targets set at BAU in 2010.

Qs and As for October Hearing, Draft 1, Close Hold, 10/1/98

Q: Why is it we don't understand sinks enough to include them in an economic analysis, but we were able to agree to several provisions about them in Kyoto?

A: We recognize that making the Kyoto Protocol as comprehensive as possible in terms of emissions and sinks was critical to lowering the costs of compliance ("what" flexibility). We considered it important to lock in opportunities for sinks to help reduce net emissions. While we did not include sinks in the illustrative analysis, we did incorporate them in our assessment that the costs would be modest.

Q: In your 1/23/98 memo, you described the 10/97 Administration position as costing \$148/ton -- is this modest?

A: First, I would like to explain that the permit price you have quoted is for the 10/97 position assuming no where flexibility. The cost is surely modest when one accounts for cost-saving opportunities in other countries.

Q: Why don't any of the cost estimates in these memos match the numbers in your testimony?

A: The model outputs are in 1992 dollars. For my testimony and the Administration Economic Analysis, we changed the outputs to 1997 dollars.

Q: Trading with "key LDCs" has the same cost as full global trading. Are all LDCs key?

A: All LDCs are not key. This result reflects the fact that one only needs a couple of large developing countries (e.g., China, India, and Mexico) to significantly reduce our costs and to capture most of the cost-savings available in non-Annex I countries.

Q: If sinks can lower costs by a factor of 4 (as in the case of Annex I trading going from no sinks to full sinks), then why don't we use them?

A: The sink numbers used in these analyses were very rough and do not necessarily correspond to the definition of sinks in the Kyoto Protocol. The Administration will be working in the international community to develop rules and interpretations regarding sinks. (Defer to State Dept.)

Q: Why didn't you use the technology optimism case in your testimony and your report?

A: We used a conservative technology assumption (SGM default, calibrated to EIA's Annual Energy Outlook) for the same reason we use conservative economic assumptions in our budget forecasts. In the end, we found it more reasonable to provide an illustrative analysis with a conservative assumption about technology.

Q: Why are the air quality benefits in these documents smaller than what is the Administration's Economic Analysis?

A: These documents reflect some of the first work we did on ancillary benefits. Working with EPA, subsequent analyses using methodologies from the NAAQS Regulatory Impact Analysis from last year yielded a larger range of results. We still claim, conservatively, that these benefits would offset the costs of a policy with permit prices of \$14/ton to \$23/ton by one-quarter.

Q: You have apparently done some analysis on the ancillary benefits associated with traffic congestion and accidents. Why is there no discussion of these in the Administration Economic Analysis?

A: HELP (Todd).

Q: Why would congestion fall under your climate policy? Why would traffic accidents fall under your policy?

A: As our analysis indicates, gasoline prices would climb by roughly 5 cents per gallon. We estimated that this would reduce driving slightly, thereby decreasing the number of cars on the road that lead to congestion, and providing fewer opportunities for accidents.

Q: According to your 1/13/98 memo, the U.S. has to undertake more reductions than all other Annex I countries combined. Does this seem fair to you? It appears like all other countries got a better deal than us.

A: In a world with international trading, all countries participating in a trading system would bear the same marginal cost. Thus, all countries would experience the same effect of the Kyoto Protocol on their energy prices. The number of emissions a country would have to reduce relative to business as usual is not relevant in this case. Further, an assessment of "fairness" should also incorporate how expensive it is to make one's reductions, and many countries face higher abatement costs than we do.

Q: How is this Kyoto Protocol going to help the environment if you plan on buying more than 425 MMTCE of hot air every year from Russia and eastern Europe?

A: The Kyoto Protocol established a target that Annex I countries reduce their emissions to 1990 - 5.2%. This is the goal of Kyoto. To make this goal accessible and cost-effective, Kyoto included numerous important flexibility mechanisms. While making use of these mechanisms may transfer some of this so-called hot air to the U.S., Japan, the EU and others, the goal of Kyoto will still be attained.

Q: Isn't it true that under Annex I trading, according to your analysis, we would be sending \$20 billion to Russia and Eastern Europe?

A: Our analysis is predicated on the assumption that the private sector will seek out and find the least-cost abatement opportunities in all participating countries. Our analysis may yield a result similar to this, however, it is not our policy to secure only Annex I trading. Note that we have the CDM, as well as sinks, and our domestic programs (electricity restructuring, CCTI, industry consultations) that will lower the permit price and result in lower international transfers from our private sector.

Q: Could you explain how some scenarios have permit prices of \$0?

A: With some of the larger sinks assumptions we used, the supply of emissions permits at zero cost would exceed the demand established by the Kyoto targets. Again, these sink assumptions are not necessarily consistent with the sinks provision in the protocol.

Qs and As for October Hearing, Draft 1, Close Hold, 10/1/98

Q: Did you incorporate banking in your analyses? Why not?

A: We did not include banking. To include banking would require making assumptions about targets in the second and subsequent commitment periods. The Administration does not have a position on these targets, and we did not consider it appropriate to make arbitrary assumptions about these targets.

Q: In your 1/13/98 memo you estimated 13-33 MMTCE of reductions from electricity restructuring, but now the Administration claims to get 25-40 MMTCE. Why the change?

A: The early estimate reflects an assessment of the electricity restructuring proposal while it was still undergoing internal deliberations. The final estimate for the proposal is 25-40 MMTCE. For an explanation of the difference, I recommend that you contact DOE.

Q: Isn't it true in your analysis that if we don't get trading, gas will increase 41 cents/gallon?

A: We got trading. The costs of hypothetical policies that do not reflect what we secured in Kyoto, that do not reflect the Administration's position on developing countries, and do not include our CCTI, electricity restructuring, industry consultations, etc. can easily be high. That's why they are not the Administration policy.

Q: Isn't it true that if developing countries do not participate, the costs will more than double?

A: Our analysis does indicate that there are a lot of low-cost opportunities in developing countries. That is why we have been discussing the opportunities for these countries to attract clean energy investment through international trading and the CDM. We think that with an appropriately designed target for developing countries, our costs will be lower, they will gain from trade, and global greenhouse gas emissions will be lower.

Economic Analysis

Q: What portion of reductions does your analysis anticipate will be made in the U.S.?

A: The President is committed to significant emissions reductions here at home. This report does not specify what percentage of our reductions would be made at home. However, we think that percentage could be quite substantial. The illustrative model we used -- on the assumption of international trading with industrialized and key developing countries -- assumes 25% domestic action, but that is *not* an accurate representation of what we think will be done domestically because it explicitly excludes domestic policies that we think will have a large impact on the amount of reductions accomplished at home. Those policies include:

- *Electricity restructuring.* We conservatively estimate 25-40 million tons of reductions, or 4-7% domestic;
- *Sink mitigation activities.* Large potential here. We cite two studies that claim very large possibilities. With good interpretive provisions negotiated and reasonable policies, could have sizable reductions -- perhaps in 5-10% range or higher. **[Awaiting EPA backup]**
- *Technology.* Many experts believe that the rate of technology improvement could be enhanced through policies. The President has offered a \$6.3 billion R&D and tax initiative to spur technology, and that will presumably be other policies offered in the 10-year period between now and 2008. We have assumed a rate of technology of improvement of .96/year. Each additional .1 would add about 2% to our domestic reductions.
- *Industry consultations, federal energy.* Other efforts, like voluntary agreements with industry sectors and federal energy reform could further increase amount of domestic reductions.

Let me say finally that we need to view these estimates of reductions at home and abroad with a good deal of humility. We can no more expect precision on these estimates than we could in estimating what the budget deficit will be in 2008; and since we all know that our year to year budget projections are commonly way off, you can get some idea of the range of uncertainty here. Clearly, trading may be less robust than the SGM model assumes, causing the domestic percentage to increase substantially, while low-cost domestic opportunities may be very prevalent.

In short, Further, the whole business of predicting the domestic/international split is highly imprecise at best.

Q: If your model does not account for key factors like domestic initiatives, carbon sinks, or electricity restructuring, why did you use that model?

A: No one model can handle all characteristics of the Kyoto Protocol and the President's policies to reduce greenhouse gas emissions. Indeed, as we have said previously, no one model is capable of providing definitive answers on climate change. However, models can aid our understanding of some of the key policy parameters. As we have seen, both with SGM, and through our review of the literature, including modeling exercises through the Energy Modeling Forum, flexible, market-based mechanisms for reducing emissions are critical to lowering the cost of meeting our target. Because of this insight, we employed a model to illustrate the cost-savings opportunities to trade across space and to trade across types of greenhouse gases. However, while SGM provides a solid understanding of the benefits of trading and the potential permit price under an international trading system, it does not assess other kinds of policies, like our domestic initiatives. Indeed, none of the large, international models can assess our domestic initiatives. Given the international nature of the Kyoto Protocol, we decided it would be most valuable to employ an international model to assess the effects of trading. In this analysis, we attempted to be conservative in our assumptions, and while domestic initiatives will be quite important in meeting our target, their effects are still imprecise enough that we did not want to include them in the modeling.

Q: What about your \$14/ton estimate? Doesn't that assume even more trading from abroad?

A: The answer is the same as for the \$23/estimate, except that at \$14/ton, the model would start off assuming more trading. However, it is our policy to work out acceptable trading rules with the European Union so that they will join us in a trading system -- the assumption underlying the \$23/ton case.

Q: Why didn't you devise some way to factor those elements into your analysis, rather than putting them aside?

The SGM model we used cannot assess the affect of domestic actions -- e.g., whether with respect to technology, sinks, voluntary actions -- directly [**What does this mean?**]. Moreover, we try to be conservative in our approach and while we think the domestic policies can be quite important, their effects are still imprecise enough that we didn't think it appropriate to include them in our model.

Q: Isn't the real problem here that you haven't proposed domestic policies that are likely to have any real effect? Like increased CAFE standards, or a cap and trade on CO2 in the electricity restructuring bill? If you were proposing serious domestic

policies instead of a lot of toothless, voluntary initiatives, you could probably estimate the domestic impact better. How can you on the one hand keep saying this is the great environmental challenge of the 21st century, and on the other propose such weak measures to meet it? When are you going to put your money where your mouth is?

A: The President has proposed a good initial set of policies to start us on the path of reducing emissions, while recognizing that we do not yet have a ratified treaty. It would be premature to propose a set of mandatory measures explicitly tailored to meet our Kyoto target before the treaty is ratified. But our \$6.3 billion R&D/tax incentive package is an excellent first step, which the Congress should be endorsing instead of trying to gut. Our proposal on electricity restructuring is a serious one that can make a real difference. We think there is important potential in our industry consultation program and that potential will grow when the elements of an early credit system are fleshed out more, and we also think we can help push the ball forward through the example and procurement power of the federal government. Finally, we think that there is great potential for reducing carbon through forestry and soil activities, once some further diplomatic work is accomplished regarding the "sink" provisions of the treaty. So we reject the notion that we aren't doing enough yet. We think the President has struck just about the right balance.

Q: **Is this CEA's analysis or the Administration's analysis? If it's the Administration's analysis, why does it not reflect any of the bottom-up perspective that DOE has used in the past?**

A: This is an Administration analysis in which CEA had the lead.

Q: **Why is there only one scenario? Didn't you think it appropriate at least to represent other views?**

The Administration's analysis presents the economic implications of a scenario that best reflects the U.S. government's position on international trading and global participation.

Q: **Why are you so optimistic about international trading but conservative about technology?**

A: Our conservative approach on technology is intended to avoid rosy scenarios, the same way we try to do that in budgeting. I think our trading assumption is appropriate because it is consistent with both the provisions of the Kyoto Protocol itself and the United States' firm position on how trading rules should be worked out.

Q: **Isn't your program based on buying up the so-called "hot air" tons from Russia -- which will do absolutely nothing for the environment? Unless you commit to real,**

serious domestic action, with credible limits on the amount of permits you buy from abroad, won't this whole effort be a sham?

A: The "hot air" tons from Russia are no less legitimate than similar tons that Germany will be using from the former East Germany. This is a treaty in the real world and targets were negotiated with former East Bloc countries with full knowledge of what their anticipated emissions would be. We think it makes a lot more sense to get on with this process and work with the Russians and others to make sure they have adequate monitoring and verification processes and, hopefully, that funds they earn through the sale of permits will be at least partially plowed into clean and green activities. The alternative is to try to undo the Kyoto Protocol and start renegotiating it -- and we think that is a road to disaster.

Q: How much money would be sent abroad? Isn't this a tax on American business and government transfers to Russia?

A: There will be no taxes on Americans or government transfers to Russia. U.S. firms -- not the U.S. government --- may choose to purchase international emissions permits. That will be up to them and they will undoubtedly do so only if they think it is in their economic interest to do so. We think our companies should have maximum flexibility to meet their emissions obligations in ways that will be cost-effective. U.S. firms interested in international investment and emissions credits will have an incentive to ensure that other countries meet the international standards for adequately monitoring and reporting their emissions of greenhouse gases. Russia will have a significant incentive to use the revenues to invest in modern, climate-friendly plants and equipments so that as its economy recovers, it continues to produce emissions reductions for sale on international markets.

Q: Why don't you present a view that does not include the optimistic assumption that China, India, and other developing countries assume emissions targets?

The scenario we analyze is consistent with our policy. The report illustrates, by the way, how developing countries can maintain sustainable growth while participating in an international system of emissions reductions and trading. By participating in international trading, developing countries could attract investment for cleaner energy and technologies while generating cost-effective abatement opportunities for firms in industrialized countries.

Q: You have essentially assumed an international trading system that operates as seamlessly as the New York Stock Exchange. Have you found a single outside validator to support an assumption that is this extraordinarily optimistic?

A: Because we are still engaged internationally on trading rules, we have the opportunity to develop a system that would promote active private sector participation with minimal

transaction costs. Given the interest in climate change by such major actors like the World Bank, the Chicago Board of Trade, and the International Petroleum Exchange in London, and the efforts we have undertaken to learn from traders in other markets, we believe the potential exists to transform the concept of international trading into a practical, workable system. **[WE HAVE TO HAVE SOMEONE TO POINT TO; HOW ABOUT SANDOR]**

Q: Has this analysis been peer-reviewed? Why not?

A: It has not been peer-reviewed. CEA had the lead in preparing the document and CEA, as a matter of policy, does not submit its reports for peer review.

Q: How did you model “meaningful participation by key developing countries”?

A: As the Administration has noted on numerous occasions, meaningful participation varies according to the circumstances of each developing country. (Insert standard response)

In this analysis, the \$14 to \$23/ton scenarios reflect an assumption that some developing countries take on emissions targets and participate in trading. Emissions targets in the first commitment period would surely constitute meaningful participation.

Q: Your analysis includes “key developing countries” with emissions targets. Are China, India, Mexico, and Korea the only key developing countries?

A: These are key countries modeled in the Second Generation Model. While each would certainly qualify as a “key developing country” for the Administration, there are many other countries that would constitute “key developing countries” as well.

Q: Your analysis assumes that “key developing countries” take on targets at their 2010 BAU emissions level -- this implies that they do not have to undertake any emissions reductions to comply with their targets. Is this consistent with Byrd-Hagel? Is this “meaningful participation”?

A: As we have said previously, there is no one-size-fits-all for meaningful participation. We have used targets set at 2010 BAU simply for illustrative purposes. It should not be construed as a statement on either Byrd-Hagel or meaningful participation, but simply as an illustration.

Q: How much will it cost if you don’t get “key developing countries” to take on targets?

A: We have made it clear that we're not submitting this treaty to the Senate without meaningful participation by key developing countries. We think that emission targets that would permit developing countries to engage in trading would be very much in their interest and would certainly satisfy the meaningful participation standard.

Q: **How much will it cost if there are restrictions on international trading?**

A: It is contrary to U.S. policy to accept restrictions on trading. We do not discuss scenarios that are contrary to our policy. The U.S. position is to secure effective trading rules to promote low-cost emissions reductions. We have stated repeatedly our opposition to trading restrictions as both inefficient and infeasible. Since a ton of CO₂ emitted in New York has the same environmental effect as a ton emitted in Poland, we see no environmental justification for placing restrictions on trading.

Q: **Costs in other studies are more than 10 times yours. Why should we believe your estimates?**

Those studies reflect neither the flexibility measures we secured in the Kyoto Protocol nor Administration's policies for future action. These studies, some which even claim to be analyses of Kyoto, do not include many of the important flexibility mechanisms in the Kyoto Protocol, such as international emissions trading, the Clean Development Mechanism, or the potential to trade across greenhouse gases. Further, these analyses do not account for the Administration's position on developing country participation. As I have said before, we can do it dumb, or we can do it smart. Doing it dumb means that we would ignore many of the cost-effective opportunities to reduce emissions.

Q: You have provided direct costs. The economic literature indicates that total costs of a policy like this should be 2 - 4 times the direct costs. What are the total costs of your policy?

A: Our approach follows the practice of the researchers who have developed the SGM model and is consistent with other uses of this model. This same approach is also used by researchers at the Massachusetts Institute of Technology. It reports costs as the sum of 1) the cost of emissions reductions achieved in the U.S., calculated to reflect only the incremental cost of each reduction, i.e., the minimum compensation that a profit-oriented firm would need as compensation for such reductions, and 2) the total value of payments to foreigners for emission permits acquired through international trading.

Although we have followed a practice accepted by many modelers the measurement of total costs in the computable general equilibrium models used to assess the economic impacts of mitigating climate change is an area of ongoing study. For example, researchers within the Energy Modeling Forum recognize that modelers need a better understanding of why the costs are so different across models and some way to decompose the many components contributing to the overall cost of mitigation. Differences in cost have not yet been decomposed into distinct components in a manner that lets independent researchers evaluate the validity of such claims.

Q: What are the benefits of Kyoto?

A: Fully implementing the Kyoto Protocol would generate several kinds of benefits. First, it will be an important first step in seriously addressing the risks of climate change. Kyoto alone will not completely mitigate these risks, however, as the first step, it is essential to take the second, third, and further steps. As the report indicates, inaction on this issue could result in substantial economic costs in the next century. Second, abating greenhouse gas emissions would generate significant ancillary benefits, such as improved air quality and decreased reliance on imported oil.

Q: Would a less stringent alternative capture most of the benefits of this approach? Why didn't you assess any such alternatives?

A: Some economic research does suggest that relative to the targets in the Kyoto Protocol, a more backloaded approach to emissions reductions could reduce the costs involved, even while resulting in the same ultimate concentration of carbon in the atmosphere. But the emissions paths called for under such a plan rely on very steep -- and perhaps implausible -- declines in the out-years to ensure that the same concentration goal is met. [If we had proposed such a path, we would undoubtedly have been criticized for proposing a plan that was too backloaded.]

The targets in the Kyoto Protocol strike the proper balance between those who wish to do more, at the possible risk of imposing significant costs on the economy, and those who wish to do less, at the possible risk of imposing significant costs on the environment.

Q: In your analysis, you modeled a tradable permit scheme. Isn't such a scheme modeled the same way as a carbon tax? Doesn't this mean that a tradable permit scheme is just a euphemism for higher energy taxes?

A: In large international models like SGM, the model assesses the effects of tradable permits on emissions in a similar fashion as they do carbon taxes. However, there are several critical differences between a permit system and a tax. For example, a permit system provides insurance that a given quantitative target will be met, whereas a tax does not. Further, a tradable permit system allows for private sector participation in international trading, while a system of energy taxes would not. Finally, it should be noted that some increase in the relative price of energy will ultimately be necessary to address the critical issue of climate change. But it would be irresponsible not to explore all possible alternatives before resorting to a modest relative price change. The President has therefore proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by the permit trading system a decade from now.

Q: In the model, aren't permits auctioned? Does the Administration intend to auction permits?

A: In SGM, greenhouse gas permits are modeled as auctioned. However, it should be noted that the Administration has not decided to auction the permits. Further, just for the record, there are still several critical differences between such an auctioned permit system and a tax. For example, the permit system provides insurance that a given quantitative target will be met, whereas a tax does not. And any revenue from the auctions could be used to *reduce* other taxes -- so that the entire effort would be revenue-neutral.

Q: The Protocol includes a provision on banking. Did you assess the effect of banking on costs in the first commitment period? Why not?

A: We did not assess the effects of banking on permit prices and costs because the Kyoto Protocol stipulates emissions targets for only the first target period. To analyze banking, we need to know the emissions targets for the second and subsequent periods. Without this information, it is impossible to assess the incentive for countries and private firms to bank emissions for use in later periods.

Q: Why can't you estimate sinks? You agreed to something in Kyoto, and you don't understand its implications 6 months later?

- A:** There are ongoing international efforts through the UNFCCC and the IPCC to develop rules and methodologies for assessing sinks. Given that there is not an internationally agreed interpretation of Article 3.3, it would be premature to present an estimate of sinks for the United States. Moreover, we are still in the process of collecting data from other countries to better understand the extent of their sink potential.
- Q:** **Battelle has recently released a draft paper of its assessment of Kyoto. It indicates that the permit price with full global trading would be \$25/ton. Why is their estimate higher than yours with the same model?**
- A:** The permit price in the Battelle paper is close to the range presented in the Administration report. The Administration's range is lower for three reasons. First, we incorporated a cost curve for non-carbon dioxide greenhouse gases for the United States, which allows for more low-cost abatement opportunities. Second, we incorporated a 6 gas baseline for other countries as well. Third, our lower bound reflects a scenario with umbrella trading, which the Battelle paper did not assess. This umbrella trading with developing countries, which assumes that the E.U. decides not to participate in international trading, has lower costs because of fewer buyers in the international market.
- Q:** **You used only 1 model. With all the same assumptions, what would the likely permit prices be using other models?**
- A:** This is somewhat of an unknown since the Administration modified the SGM model with the non-carbon dioxide cost curve and developed 6 gas baselines for all countries. However, based on results presented at previous Energy Modeling Forum (EMF) workshops, we know that SGM generates neither the highest nor the lowest permit prices among its class of models (computable general equilibrium, or CGE). Moreover, recent studies using bottom-up models have found much lower costs for reducing emissions than SGM or other top-down models.
- Q:** **Last summer, you said that relying on 3 models would be futile. Yet, now you deliver an economic analysis relying on just 1 of the 3. What has happened since then that allows you to more comfortably rely on SGM?**
- A:** We are not relying on SGM. The model results we present from SGM are merely an illustration of our conclusion that costs could be modest. We assessed the economic literature on climate change mitigation, including the last three EMF exercises on climate change, in reaching our conclusion.
- Q:** **The report indicates that electricity restructuring will lower carbon emissions by up to 40 MMTCE. How can making electricity cheaper result in lower emissions? Won't people consume more electricity if the price falls?**

A: Although competition will lower prices, which will tend to increase consumption, it will also provide a direct profit incentive for generators to produce more electricity with less fuel and improve energy efficiency as competitive sellers seek to maximize the value of their product offerings to buyers by bundling electricity with energy efficiency and management services. Specific provisions of the Administration's proposal that will yield additional emission reductions include a renewable portfolio standard, a public benefits fund that will support renewable energy and energy efficiency investments, "green" labeling to help consumers who value clean energy choose it, and a net metering provision encouraging the installation of small renewable systems.

Q: **The report indicates a range of ancillary benefits. Why the large range?**

A: The range reflects the 2 methodologies used in the NAAQS RIA (National Ambient Air Quality Standards Regulatory Impact Analysis) last summer. There is still uncertainty regarding several key variables in monetizing public health benefits associated with reducing particulate matter emissions. While the academic literature continues to debate these points, we have taken the conservative approach of providing a broad range. Note that the claim that ancillary benefits could offset 1/4 the compliance costs reflects the lower end of the range in the report.

Q: **Isn't the upper bound of the ancillary benefits estimate derived from EPA's 812 report methodology? Isn't it true that the Administration's economic agencies do not accept that methodology as legitimate? Why then is it in the report?**

A: The ancillary benefits range reflects the 2 methodologies used in the NAAQS RIA (National Ambient Air Quality Standards Regulatory Impact Analysis) last summer. This RIA enjoyed interagency agreement, so it is reasonable to use it in an Administration report.

Q: **The testimony presented on March 4 before House Commerce and at several hearings since indicated that, in addition to improved air quality, the ancillary benefits include reduced congestion and traffic fatalities. However, there is no mention of these benefits in the report. Why not? Further, why would congestion and traffic fatalities decrease with a tradable permit system?**

A: The magnitude, and perhaps the direction, of these benefits are very sensitive to the point in the energy system that the domestic cap and trade program is implemented. Since the Administration has not made developed the cap and trade policy yet, it would be premature to present estimates that would prejudice the policy. The magnitude of the ancillary air quality benefits is such that the conservative conclusion that ancillary benefits are equal to 1/4 of the resource costs of compliance still holds.

Q: Isn't it true that the permit price without trading would be \$193/ton? Wouldn't this be about \$0.50 per gallon in higher gasoline taxes?

A: The permit price and gasoline price could be that high with that assumption, but this permit price reflects a hypothetical scenario which is neither Administration policy nor is it consistent with what was achieved in Kyoto. Only if part or all of Articles 3.1, 3.3, 3.4, 6, 12, and 17 were removed from the Kyoto Protocol would this even be conceivable.

Questions and Answers Re Climate Change Testimony

[Need info on how large are cuts from projected 2010 emissions.]

Documents - Will have to get back to you on that.

Positions Then and Now: Won't comment on interagency discussions/positions. We have a treaty now and I have come to discuss it. A number of things have changed since our discussions--sinks, six gases, climate policy, extent of trading, CDM.

Don't comment on hypotheticals--focus on analyzing our policy positions--not every possible hypothetical.

Additional analysis - The testimony that I am presenting today is the Administration's economic analysis of the Kyoto agreement. As discussions of particular features of the agreement proceed and domestic implementation I expect that there will be ongoing analysis and discussion.

Examples: trading arrangements, developing countries.

Take under advisement - small agency.

ACCOMPLISHMENTS IN KYOTO/THE AGREEMENT

Didn't you just cave in Kyoto?

Kyoto was a great success. The U.S. got:

- 3% emissions reductions below POTUS proposal *—close to US target—much better than some other countries would*
- six gases
- sinks
- Clean Development Mechanism, with certified reductions starting in 2000 counting toward compliance in the first budget period. This gives a benefit to early action.
- JI within Annex B
- multi year objective--our desired *budget* period
- International Emissions Trading among Annex B
- full flexibility on domestic policies and measures

But we still have work to do:

- need to define rules and procedures for market-based international emissions trading and JI.
- a framework to insure meaningful participation from key developing countries. The CDM is a down payment on participation but more needs to be done.

You said that the Kyoto treaty involves a 3% cutback in GHG emissions for the U.S. while the treaty says that the U.S. has agreed to a 7% cutback. Which is it?

- If we compare what we agreed to in Kyoto with the President's original proposal, we have agreed to no more than a 3% cutback over and above what POTUS proposed. POTUS proposed that the United States lower its net emissions of greenhouse gases--defined as gross emissions less removals due to sequestration in forests--to 1990 levels. The Protocol language, in contrast, says that the United States commits to lower its net emissions to 93% of our baseline gross emissions of GHGs based on combined 1990 and 1995 data. That's where the 7% cut comes in.
- Changing the baseline for the three long lived gases from 1990 to 1995 ^{trays from the POTUS goal of 1990 levels into a goal equivalent to 1% below 1990 levels} accounts for about 1% of the 7% reduction. Use of these three gases has grown since 1990, so that permitting a 1995 baseline allows for a higher overall baseline than the Administration assumed last October when POTUS announced his goal of reaching 1990 levels by 2008-2012. Making reductions to meet a higher baseline is easier than a lower baseline. This shift alone would have transformed the President's goal of 1990 levels into a goal equivalent to 1% below 1990 levels.
- Altering the accounting method for carbon-absorbing activities such as planting trees transforms the President's goal of 1990 levels into a goal equivalent to at least 3% below 1990 levels. The President's original goal assumed that carbon absorbing activities would be counted both in the 1990 base year and in the 2008-2012 budget period. However, the method agreed in Kyoto does not count sinks in the baseline (yielding a higher baseline); however certain sinks will count against emission reduction commitments in the budget period. This decision makes the U.S. target less stringent.

How large is the U.S. cut relative to projected total BAU emissions in 2008-2012?

The EIA's forecast of BAU CO₂ emissions in 2010 is 34% above 1990 levels.

BAU in 2010 for all six gases, excluding sinks, is about 40% above specified target.

For all six gases, the cuts are ~600 MTC rel to 2010 BAU

ECONOMICS/COST TO U.S.

Factors Affecting Our Evaluation of the Economic Impact:

- "What" flexibility (sinks and six gases)
- "When" flexibility (our budget period, average over 5 years; banking till future periods; certified emissions reductions under the CDM beginning in 2000 count toward the 2008-2012 target) — can begin now to prepare

2500 accounts

Sinks, technology
Vol. Ind. Fund.

50% cut

3

80-15%

20-25%
above 10

- "Where" flexibility (Annex I trading, possible umbrella, JI in Annex I, Clean Development Mechanism, meaningful LDC participation) ~ \$ 5% of 10%
- Efficient Domestic Implementation through permit trading
- Electricity Restructuring
- Possibility of "no-regrets" actions--those that improve economic efficiency while reducing greenhouse gas emissions. These are no-regret because they provide economic benefits without taking into account the benefit of GHG reduction. Examples include improved insulation, refrigeration, lighting control, use of public transportation and telecommuting etc.)
- Voluntary Industry Initiatives
- Technology/\$6.3 billion over 5 years for R&D(\$2.7 billion) and Tax Cuts(\$3.6 billion)/Federal Energy Efficiency program
- Non-climate benefits (air pollution, traffic congestion, highway accidents)

Reaction to Studies with High Costs

Why are you telling me that the impact on the U.S. is so small whereas the EPI and others find a huge impact?

- It is easy to see how a study can come up with a high cost figure. In the absence of the agreement, total BAU emissions of the six gases are anticipated to be about 40% above the U.S. commitment level in the Kyoto Protocol. Thus, the commitment is very large viewed in those terms. Given current technologies, the fact that our capital stock turns over pretty slowly, pessimism about the possibilities for speeding technology or diffusion of existing technology, ignoring the treatment of sinks, emissions trading and CDM--so that we have to do it all here at home with existing technologies and most of the burden falling on CO2--big price increases are needed to cut energy use and they can have significant macroeconomic impacts.

- ① But, that is ignoring a lot of things that my testimony show to be important. Sinks alone could matter a lot. Annex I trading, or trading under the bubble, reduces price impacts dramatically and cost impact by 50%-75%. The CDM results in further savings and emissions targets by developing countries makes even more difference. These aren't minor offsets--these lower the cost by a huge factor. [Recall, in the IAT report, the DRI estimate of \$100 to attain 1990 by 2010 without trading turned into \$9 under the trading conditions I just listed.] Also, electricity restructuring will make a difference. And we know that there are "no regrets" policies that can save energy and save money if we make people aware of them. CCI, upside on technology
- EPI, WEFA and other studies ignore many things we think are critical to mitigating the impact--particularly international trading and the CDM, but also six gases, sinks, electricity restructuring, the Climate Change Technology Initiative and industry

Dumb/Smart

the flexibility mechanisms

These analyses are not as good as the Kyoto study. They often use models that don't capture the feedbacks.

partnerships. Ignoring upside potential on the technology side.

- There are process safeguards in place and periodic reviews. No country would sign this agreement in order to shoot itself in the foot economically and it's hard to believe that a future President or Congress would consider that reasonable. We think it can be done based on our analysis and judgement. We need to act--it is too risky not to act given the scientific findings. There are risks from waiting.

Do your simulations assume cutbacks by the developing countries? Shouldn't they have to cut back like we do?

- *Global problems require global solutions*
Since the economies of developing countries are likely to grow faster than developed countries in coming decades, these countries will contribute an increasing proportion of GHG emissions. An agreement among only Annex I countries to limit emissions will not ultimately succeed; therefore, in stabilizing global emissions. Eventually non Annex I countries must cut back too.
- *our analysis*
Nevertheless, we have assumed that developing countries included in the agreement would not be expected to cut back emissions at this time. Our simulations provide them with permits equal to their likely baseline emissions. *Even so, they will choose to cutback because it is in their interest to do so.* They have the opportunity of earning income whenever they can cut emissions at less than the going permit price--and there are lots of opportunities for them because they are so energy inefficient. Their inclusion in a trading regime, even if they are not required to do anything, is a win-win situation. It's a win for us because we can abate CO2 at low cost and put them on a much better energy path than the one we traveled along when we industrialized. It's a win for American businesses because they have a chance to develop industries that will cut emissions around the world. It's a win for them because they earn income *avoid our mistakes* and help improve the global environment as well as their own. The important thing about emissions trading and JI is that these schemes create the right incentives to economize on greenhouse gas emissions everywhere they are in place--even in countries that are not required to cut their own emissions. That's critical in fostering energy efficient investments and in avoiding concerns about competitiveness. Even if a LDC isn't expected to cut back its own emissions, it will have the incentive to avoid attracting industries that produce GHGs, because higher emissions of GHGs by industries that are energy intensive will use up that country's emissions rights and result in revenue losses to a country or its firms that could otherwise have sold unused permits.
- The ability to trade permits would be a big incentive to *eliminate subsidies for energy and gas*. In developing countries, it is estimated that electricity prices were, on average, 30% below long-run marginal cost. Reforms in Russia, central Europe and China have

contributed to closing that gap. But there are still probably hundreds of millions of tons of CO2 that could be reduced by elimination of coal subsidies and price supports. Article 2 also recognizes the importance in all countries of removing taxes and subsidies.

As we go forward, we will have to decide what is meant by meaningful participation, but identical targets for developing countries and developed ones would not seem fair given our higher income, and much higher per capita production of greenhouse gases.

COMPETITIVENESS

If developing countries don't cut emissions won't that damage U.S. competitiveness and cause energy intensive industries to flee?

- What is important to competitiveness is *per capita* not *per country*.

• The inclusion of key developing countries in a trading scheme, even if they are not required to cut back their own emissions, mitigates the concern about competitiveness. This is true because for any country in that scheme, it is costly to emit carbon--costly for the LDCs in the sense that they are foregoing the chance to earn extra income by conserving carbon emissions. Any member of the trading scheme will want to insure that industries operating in their borders use energy efficiently, because if they use it inefficiently, they impose a revenue loss either on themselves or on the government, that could gain from selling permits. *The inclusion in the trading system creates incentives*
- ① • We do not, in an event, expect a substantial impact on energy prices. Remember that, on average, energy accounts for only 2.2% of total costs to U.S. industry.
- ② • With respect to our developed country competitors, they will be making the same cuts we are.
- ③ • We shouldn't exaggerate the impact of energy prices on location decisions. Today, energy prices already differ significantly around the world. For example, in 1996, premium gas cost \$1.28 in the U.S., \$0.08 in Venezuela, \$3.71 in Switzerland and \$4.41 in France. *Energy prices differ significantly*. Yet U.S. industry is not moving en masse to Venezuela nor is European industry fleeing to the U.S. Similarly, with respect to wages; a good share of our imports come from countries with higher wages than ours and over half of our foreign direct investment is in countries with comparable or higher wages. The impact of variable cost factors on location decisions is easily exaggerated.
- ④ • We have a sector that is already highly competitive and will become more so as a consequence of this agreement--the energy efficiency/alternative energy sector. As countries expand their own domestic climate change action plans, significant export opportunities will open up for U.S. manufacturers in these fields.

You agree that energy prices will rise. Isn't that just a tax?

For the typical household I said that energy prices, taking electricity reductions into account will not rise. Even with that the current is on the same scale as your variation in price.

The President has not proposed a tax increase. Quite the contrary, he has proposed tax cuts to stimulate energy efficiency and to jumpstart technologies that can provide lead to big cutbacks in energy use. This plan relies on win-win strategies and carrots, not sticks. He has also proposed voluntary emissions reductions, spending on R&D, working with industry. And he will propose energy restructuring that will lower energy prices for all households. There will be periodic reviews to see how effective these initiatives are. Only in 2008, has the President proposed an emissions trading system that would determine a market-determined price, not a tax, on carbon emissions.

- We expect gas prices, under the conditions I have specified to rise less than \$.05. You have to put this in perspective. An increase of this amount is less than the normal year to year or seasonal variation in gas prices. On average, gas prices have changed since 1983 by about 8 cents per year in absolute terms--equivalent to a \$31/ton price of carbon.

COAL

What will happen to the coal industry in the United States under your scenario?

- Remember we don't have a binding agreement at this point and won't until the Senate ratifies a treaty. A permit system would not be put into place for a decade under POTUS proposal, so we are talking about impacts a decade away.
- Coal has the highest carbon content per unit of energy among fossil fuels and is a major source of greenhouse gas emissions, and any strategy to reduce greenhouse gas emissions is very likely to impact the coal industry. It is the industry in the United States that is most likely to see an impact from the policy. Indeed, coal prices will be most sensitive to pricing of carbon emissions permits once such a system is in place.
- The coal industry begins from a situation in which, due to rapid productivity growth, employment has been declining notwithstanding output growth. Even without a GHG emissions plan, national coal employment was projected to fall substantially.
- Even so, we should not exaggerate the impact of this policy on coal. For example, using the SGM model to gauge possible impacts of a carbon permit price in the \$14-\$23 range suggests a possible reduction in coal use of 7% to 13% below BAU in 2010. The price of coal would rise by \$7 - \$13 per ton. However, coal use ^{might still} would be expected to grow by ~~about the larger amount~~ between now and 2010. So the impact could be to reduce, even substantially, growth in coal output, but not to lower coal use absolutely in the United States. Recall, that the U.S. will be expected to attain a fraction of its commitment through international emissions reductions.

*Sign
Sinks
Covers*

- The President is fully committed to helping workers adversely affected by climate change policies.
- *Having said that*
It would be wrong to write coal out of our energy future because there is the possibility of increasing the energy efficiency of coal and also, ultimately, of developing techniques to sequester the CO₂ emissions from coal. The President's climate change initiative seeks to develop ~~lower-carbon~~ coal combustion technology that offers the possibility of much lower carbon emissions than existing technologies and sequestration techniques. The DOE Office of Fossil Energy's program, Vision 21, has the goal of developing a power system that is highly efficient, produces no appreciable air pollutants and has no net carbon dioxide emissions (due to sequestration). (Technologies for CO₂ capture and sequestration are being deployed today. In Norway, for example, Statoil is using state of the art technology to sequester CO₂ from production of natural gas in saline aquifers under the North Sea. These and more economical methods could be applied to coal systems. In addition, the goal is a system that produces power at a cost that is competitive with natural gas. The PCAST report indicates that this is very ambitious but has some chance of being realized and is an appropriate target for DOE.
- Even in the absence of any policy it is projected that natural gas will account for a growing proportion of electricity generation. In 1990, coal accounted for 53% of total generation. By 2020, the share of coal is projected to decline to about 44%. This is due to the use of highly efficient and low-cost natural gas combined cycle power plants, which makes natural gas the choice fuel for electricity generation. Substitution away from coal in electricity generation toward natural gas and renewables is an important source of conservation in the U.S., along with increased energy efficiency.

NUCLEAR

Could nuclear have a role? *226 of 45000*

Yes. With respect to nuclear power plant life extension, DOE will initiate an R&D effort addressing the critical technology needs to allow currently operating nuclear power plants to safely extend their operating lifetimes by 10 to 20 years.

In its November 1997 report, the PCAST Panel on Federal Energy R&D determined that establishing nuclear energy as a viable and expandable option was important and that a properly focused R&D effort to address the problems of nuclear waste, proliferation, safety and economics was appropriate.

AUTOMOBILES

What about automobiles?

- There is no question that the automobile industry has the potential to find the innovative solutions necessary to address global warming concerns. This has already been clearly recognized by the industry. John Smith has stated flatly that "no car company will be able to thrive in the 21st century if it relies solely on internal combustion engines." Harry Pearce, GM's Vice Chairman noted recently that "effort to reduce emissions levels is more likely to succeed when driven by innovation, not regulation, but that the government can and should play a significant role in enabling the framework for the market to succeed.
- Pearce said: "Government can serve as a catalyst providing leadership and incentives, educating the public, creating rational tax and regulatory policies and supporting long-term research efforts." That is what the PNGV, the fuel-efficient car tax ~~program~~ ^{credit} and the DOE research and development initiatives are designed to do.
- We have been very heartened by the recent announcements of all of the major auto producers that they are nearing production of ^{high performance, compact} marketable cars that rely less on gas burning engines and more on more fuel efficient alternative power sources like fuel cells.

*we think GM - 80 mpg hybrid vehicle commercially available in 8 to 10 yrs
Ford - lightweight, highly fuel eff sedan - would be the sell
DOE's future - fuel cell, many on gas double fuel economy*

Well what would the cost to households and the impact of permit prices be in the United States if none of this trading works out at all?

Our policy is to make it work - we think it is important. So this is a hypothetical question

- It depends on a wide variety of things--how successful our climate change initiative is; the pace of technological change, electricity restructuring, the role of sinks, six gases and so forth. It's very hard to say.
- Big numbers can come about under sufficiently strict assumptions, but none of those numbers relate to our policy. Those numbers aren't our policy.
- In a recent paper, the SGM modelers report that in four scenarios they consider, including one that involves a 10% cut off 1990 levels, the economic cost to the U.S. remains below 1% of GDP through at least the year 2020 even in scenarios where the United States meets its mitigation targets without international trading of carbon permits. However, the price of carbon permits would rise, in most models, substantially more than I've estimated. For example, the Five Labs study, which is at the optimistic end of models, envisions a \$50/ton carbon price to reduce emissions to 1990 by 2010. [In the SGM simulations, the Kyoto protocol results in a domestic emissions price of \$171.]

How have you measured cost? What is that?

Cost refers to the direct additional resource cost required to reduce emissions. It is the approximate sum of the marginal cost of abatement over all abatement units. The first units of emissions reductions are quite inexpensive; successive units become more and more expensive. These costs include transfers abroad. These do not include any costs of establishing a domestic or international permit trading system or any transactions costs associated with permit trading among firms or regions. The cost is estimated as $1/2 \times \text{permit price} \times \text{required abatement}$ ($600 = 2040 \text{ BAU emissions} - 1440 \text{ mmtc}$)

Aren't the costs you estimate very sensitive to assumed growth rates in the U.S., the world and other features of the Baseline?

Yes, the cost estimates do depend on assumed growth rates worldwide and other features of the baseline. In particular, faster population growth or economic growth could raise the cost.

The assumptions for the U.S. come from the Annual Energy Outlook (97/98?). It is assumed that the U.S. grows at an x% real rate and population grows at 0.85% per year. On average, energy consumption is projected to rise at 1.1% per annum. In the SGM baseline, E/GDP falls at 1.0% per year.

Assumptions for other regions come from the World Energy Outlook 1996. For Eastern Europe and the FSU regions, projected energy consumption was adjusted downward. Population projections were based on World Population Projections 1994-95 of the World Bank. U.S. population and crude oil prices were taken from AEO97.

How much emissions reductions occur in the U.S.?

- It is hard to offer a definitive answer to that question. There is **no cap** on how much we can do at home. **It depends, in particular, on some of the things that are hardest to quantify**, such as the impact of our climate change initiatives. The President has indicated that we are fully committed to tackling the issue of climate change here in the United States in a serious way and the government will lead the way by improving our own energy use. The challenge facing the Administration and the environmental community is to translate this commitment into meaningful action here at home. This means increased attention to energy conservation here and improved diffusion of all of the energy conserving opportunities that already exist that we know can reduce emissions and save money at the same time. We are committed to promoting these win-win ideas and that's what the climate change initiative is about. Industry has told us that they see large opportunities to conserve GHGs and we propose to work with them to effect these changes. The Federal government has opportunities to improve its own performance. The more effective these initiatives are, the more mitigation we will end up doing in the United States. On top of that, we have the chance to meet part of our obligation by **planting trees**--which would entail more domestic action. We also expect **electricity restructuring** to make a contribution to reducing emissions.

*limit
but don't want to go
to the
point
where
it's
already
done*

- I have pointed to the importance of international arrangements, however, and I expect them to be used in meeting our obligation. It is a fact that there exist demonstrable opportunities for efficiency improvements at low cost in so many countries around the world that gives me the confidence to predict that the costs of the agreement will be modest if we obtain strong trading agreements. That does not mean that we will not do our part here at home.

But in the SGM model simulations you reported, how much is done abroad?

In the simulations, ^{half or more} 75-80% of the abatement is done abroad, but for the reasons I have given you--sinks, climate change initiatives, electricity restructuring, improved diffusion of existing initiatives--I do not think these simulations provide a good estimate of the U.S. share. I have always said that any single model and even many models ~~alone~~ ^{do not} provide a sound basis for judgement. These models should inform our thinking, and they have, but they are not a substitute for good judgement.

JOB LOSS

How can you argue that there will be no job loss?

- ^{with the} In the United States, we rely on market mechanisms ^{no one should doubt that it is possible for market mechanisms combined with sound monetary and fiscal policy to create jobs for all who want to work.} and sound monetary and fiscal policy to keep unemployment low and jobs abundant, as they are right now. Opportunities to do business shift all of the time across firms and across sectors for many reasons, whether its mergers and consolidation in banking, health care or telecom, the invention of new technologies that creates demand for new products and reduces demand for existing products or market opening agreements that create opportunities in export industries while shifting them away from import-competing industries. In fact, research shows that in a typical year, about 10% of all jobs in the U.S. economy are destroyed, but ^{in the long run} a slightly larger proportion are created. It would be wrong to think, for example, that shifts like these affect the total number of jobs available in the U.S. economy overall, rather than just the sectoral and regional allocation of jobs. ^{Direct guarantee that no jobs will be lost - about 10% of all jobs are created and even in good yrs - but we cannot be sure}
- ^{if we are successful in promoting energy efficient technologies that will cause job shifts as well} Adjustment is a fact of life that American workers have to adapt to and the role of ^{as energy prices rise} government is to give workers the tools to make those shifts and to insure that help is there when adjustments are difficult. ^{within 40 to 60 years}
- ^{Under conditions I specified} We predict a very small impact on energy prices in the U.S., so I see no reason to assume that significant structural adjustments will be needed to accommodate the Kyoto protocol emissions cuts. I would expect price changes that are so modest in size and so fully anticipated a decade in advance to have no significant impact on inflation or unemployment. The industry that is likely to be most severely affected by the agreement is the coal industry, because domestic emissions reductions are likely to

Any adjustments would be anticipated far in advance - a decade -

W. R. R. ...

disproportionately affect coal.

- Job loss estimates usually come from short term macro models like the DRI model that are not appropriate for predictions of long term changes. In the EPI study, the model was run with assumptions giving a worst case result--a \$200 permit price, increased emissions baseline and no trading. Trade effects were important, which probably reflects weak modeling. *single shock - large & unanticipated*
- In the case of the oil shocks, the impacts were large, unanticipated and involved large transfers to the OPEC countries. These supply shocks caused inflation to surge and the Fed tightened monetary policy, raising interest rates. This is not what we will get with Kyoto. *huge real wages to fall*

What about revenue recycling?

The SGM runs we have reported assume that any revenue that could be obtained from auctioning permits are redistributed back to the economy through a lump-sum transfer. There are potential efficiency gains that would lower costs if the permits are auctioned and any revenues use for cutting taxes that impede work and saving. On the other hand, the permits can be allocated in ways that generate no revenue whatever. This is what was done in the SO₂ case.

Why are you so optimistic about international trading but conservative about technology?

Our conservative approach is to avoid rosy scenarios as in budgeting. I am optimistic about trading because it is in our control to get it and make it work. We know that there are big differences in mitigation costs across countries that can lower overall costs and we will work to insure effective trading arrangements. Technology is out of our control. We can work to promote it, but there is an element of unpredictability.

WAITING

You emphasized all of the uncertainties in estimating the costs of Kyoto. In light of those uncertainties, doesn't it make sense to wait to tackle climate change?

- The science is clear and compelling and the danger is real. To wait to address it at all would be foolhardy. The most important reason we have to begin is that the costs of inaction are very real and we cannot ignore the environmental consequences of a failure to begin what will be a long journey. America has to show leadership in tackling this task.
- There are real uncertainties about the costs; but we feel, based on a wide range of economic analysis, that they are likely to be modest if we are successful in obtaining a strong treaty, everything considered.

- And we have purposely constructed a process that builds in the uncertainty with period reviews. In the face of uncertainty, it is important to take a step and reevaluate things. With each step we learn more and improve our options. And we can constantly reassess and allow policy to evolve. We do not plan to implement an emissions trading mechanism for a decade and we will learn a great deal between now and then. **We begin with options that are clear wins for the economy**--that provide incentives for early action and opportunities for firms and industries to put in place voluntary plans to reduce emissions that reflect their own knowledge of how they can best proceed. We will work with industry to do our part to eliminate regulations that impede energy efficiency if we can do so without endangering the ultimate goals of those regulations. We will pursue a Federal government program to increase efficiency in our own operations. **These are all win-win options**. Our industries are excited about the possibility of working around the world to lower emissions in countries that are poised for rapid growth and have a real chance to avoid locking themselves into an energy intensive, CO2 intensive path of development. There are real opportunities here for American business that can jumpstart whole new industries and create good, high paying jobs in a dynamic sector.
- Worldwide, countries that adhere to this treaty anticipate that the costs will be modest--otherwise none of them would be willing to sign it. My guess is that no future President of the United States would undertake actions that would bankrupt this country economically in order to meet these obligations. *can stop GDC '15 from really mitching*
- If we don't begin now, we won't get the **technological payoffs** we need to get the cost down later. *all done* With respect to technology policy--there are very long lead times. If we want to make good on stabilizing concentrations--not just emissions--we have a great deal of work to do--emissions will have to fall well below current levels--toward close to zero. Even stabilizing world emissions at 1990 levels requires great changes in the way we use energy. If, as anticipated, the world's population doubles, stabilizing emissions at 1990 levels requires that average global per capita emissions must fall from approximately 1 ton per yr to 0.5 ton per year. Right now, the U.S. per capita emissions are approximately 5 tons/yr. To do this requires enormous changes in technology. It would be foolish not to begin. Right now, we have a window of opportunity--some breathing space to provide an orderly transition from existing carbon intensive energy technologies to non carbon energy technologies. Depending on the suite of technologies available at the end of the first quarter of the next century, the cost of stabilizing the atmosphere can vary by trillions of dollars. We can waste no time in developing those technologies--it can matter enormously to the cost of the whole project. While technology holds the promise of low cost atmospheric stabilization, recent energy R&D investment levels in the U.S. have been declining. Both public and private sector R&D are declining both as a fraction of GNP and absolutely.
- Another reason relates to irreversible investments*. We just can't afford to make

investments now that lock in carbon inefficiency for decades to come--either here or particularly in the developing world. We need to put in place the right signals now to take emissions into account in long-lived investments.

- If we wait, we will be faced with doing more in a shorter period of time. Adjustment costs are always lower when policies are phased in gradually--avoiding severe sectoral and regional jolts.
- *Another reason is that until we show a credible commitment, the developing countries won't be willing to participate.*

THE BENEFITS

Why didn't you quantify the benefits and do a full cost-benefit analysis?

- Quantification of impacts of climate change is difficult and uncertain. Our knowledge is incomplete.
- Given the long time frame, discount rate is critical and this is deeply ethical question.
- Uncertainty and risk are central--possibility of catastrophe. ~ insurance - risk preferences
- The Kyoto agreement will not, by itself succeed in stabilizing concentrations of GHGs. It will delay but not arrest the increase in concentrations. In this sense, it is phase 1 in the overall process of dealing with climate change. It is difficult to measure the benefits without knowing what will happen after 2012. Stabilizing concentrations requires an eventual stabilization of emissions world wide at a level much below current levels and that cannot be achieved without the involvement of developing countries. *To compute benefit must know what happens after the 1st pct.*

COOPER

In a recent paper in *Foreign Affairs*, Richard Cooper, a predecessor of Stu Eizenstat, said that Kyoto is fundamentally flawed because of its reliance on quantitative targets--that the framework will be unacceptable to developing countries and that we should have common actions. Do you agree?

- The problem of dealing with an externality of the size and scope of climate change has spawned a very interesting academic literature about alternative procedures. Everyone agrees that it is hard to find a way forward, and a number of researchers think that common actions is an approach with promise. *Global problem Division of labor*
- The U.S. position has been that we do not want to have our tax policy set by an international body--we want the domestic freedom to set our own policies. I don't think

such an approach would be politically appealing in the United States. That's why freedom to implement policy as each country wishes has been fundamental to the U.S. position.

- Cooper recognizes, as we do, that it can greatly reduce costs to have international emissions trading. We recognize that such trading results in international transfers, but we think it is quite acceptable to give American businesses the opportunity to go anywhere in the world they want to reduce emissions. We think it should be attractive to developing countries to cap their emissions a bit below BAU levels in order to sell permits and gain from reducing emissions. I don't see this as unacceptable. We all recognize that, given their income level, their low per capita emissions now, and their history of low emissions, it would not be fair to expect effort from the developing countries on the same scale as on the part of the developed countries.
- Cooper estimates that the typical American family of four could be expected to pay \$2200 a year to sustain its current level of emissions and total transfers would amount to \$130 billion per year. This assumes a very high permit price and we don't agree it will be anywhere near that high. Under our assumptions about permits, we could not envision transfers of much about \$10 billion (\$100 per household per year) even if we did not domestic emissions cuts.

NORDHAUS

According to Nordhaus, the economic optimum has a net benefit over no controls for the global economy (in terms of the PDV of consumption) of \$270 billion in \$1990. However, stabilizing emissions at 1990 levels imposes major net economic costs--a net PDV loss of \$7 trillion. Attempting to stabilize climate would have a net PDV cost of around \$41 trillion. It would take a major misestimate of either costs of emissions reductions or climate damages to make the stabilization options economically advantageous. Do you agree?

- Like almost all things in economics, the answers one gets depend critically on what one assumes. Nordhaus assumes that future technologies will improve at about the same rate as in the past. He does not vary the trend rate of improvement in technology with the price of carbon permits. However, costs will be lower than he estimates if price effects stimulates new technology.
- These models may not give adequate consideration to the scale of potential damages, even in the absence of catastrophe. They may not account adequately for the costs of a less stable climatic and ecological systems in the face of GHG accumulations. In a survey of experts, Nordhaus found that the median cost prediction for a 3 degree C rise in temperature was 1.9% of output annually--40% higher than his own.
- These calculations depend critically on the discount rate. In the Nordhaus policy, carbon

concentrations grow without bound. We compensate our children for an ever deteriorating environment by investing more and leaving them more income to deal with it or to offset the costs on living standards. Many consider this ethically unacceptable. With a 1% discount rate, rather than Nordhaus' 3% rate, the optimal carbon tax rises from \$5.3 in 1995 to \$23.6.

- They ignore the risk of catastrophic damages and the insurance value of a climate change policy. The optimal decision depends on how uncertainty is handled.
- The lack of early action could signal a lack of political will and retard induced technical progress needed to make mitigation affordable.
- Kyoto should be viewed as a beginning--a first step. It is not a complete plan and there will be ample opportunity to both evaluate how we are doing and debate next steps after this. In the Nordhaus analysis, the mean, as opposed to the median, optimal carbon tax is on the order of \$18/ton in 2005. This is in the range of the estimates consistent with the SGM model.
- Kyoto is not stabilizing emissions at 1990 levels worldwide--growth in emissions will be cut, but will not fall absolutely. The permit price that we anticipate for the U.S. is not very much higher than what Nordhaus would consider optimal.

CEA POSITIONS/ANALYSIS

When you last appeared before this committee you said that modelling is futile and now you are telling us about one model. How can that be?

What I actually said was:

*Not trying to produce definitive answers
Not trying to answer technical questions
Taken account of criticisms of previous
worked with other models - revealed limitations*

- "Both the lessons and the shortcomings [of the IAT project] point to one clear conclusion, which is that the effort to develop a model or a set of models that are going to give us definitive answers as to economic impacts of any given climate change policy is futile. Rather we are left with a set of parameters and relationships that influence estimates of the impacts."
- "We don't believe there can be a single model. I think we are at the end of the road on that exercise."
- "I think if I leave you with any message today at all, it should be that we should not place our reliance on any particular model or even a large range of models and that attempting to find precision with respect to estimates of GDP changes or job changes or price

changes is a futile exercise? We are not going to continue in any search for perfection here, but there are a lot of models. ...Each has its strength, each model has weaknesses....So I don't think we should be looking for truth here in the form of a single set of numbers. As we go forward, though, I think the models, the economic analysis, offer us some insights."

- "I think that the committee should expect analysis in support of a policy that we propose. It is our obligation to explain why we think it will be appropriate for dealing with this problem and good for the American economy, but if by forecast what you are saying is what is the impact on the number of jobs in the steel industry in 2020, I think that is something that we shouldn't try to produce. I think that is a hopeless, futile exercise. The kinds of uncertainties that we are dealing with here, I think, preclude being meaningful with attempting to come up with that kind of detailed number."
- "I think we have concluded that when we ultimately develop and propose a policy, we will not rely on this tool kit (solely.) We will bring to bear many pieces of economic analysis done by economists in the government and outside the government and what we are giving you is the staff work as of the end of May, according to your request."

What did CEA do to get the results you reported from the SGM model?

- We first constructed region and country specific cost curves for carbon dioxide abatement from various SGM model runs. We added an EPA-developed analysis for non-CO2 GHGs for the United States and integrated these two sets of data to get marginal cost of emissions reduction for all 6 gases.
- We constructed baselines for all 6 gases for all Annex I countries to estimate the magnitude of necessary cuts required of Annex I countries under the Protocol.
- We identified market clearing prices for various trading blocs using the cost curves.
- We converted permit prices to estimated energy price effects and household impacts using data from Treasury.

What other work did CEA do with respect to Kyoto and when did CEA do it?

CEA has been actively involved both before and after Kyoto in economic analysis. CEA staffers participated in the IAT working group meetings. CEA has reviewed the full literature available on the subject of global climate change. We participated in interagency discussions through the NEC on all aspects of the treaty including domestic implementation, JI, technology initiatives, tax initiatives, developing country

participation, targets and timetables. We have had a wide range of contacts with professional economists around the country who are working on these topics and have benefitted from analysis provided to us from a number of sources including the SGM modellers, the G3 modellers, the MERGE modellers, the EMF at Stanford. During Kyoto, CEA staff were in communication with the negotiating team to offer very rough analysis of the likely impact on costs and permit prices of alternative proposals under consideration. This includes the impact of sinks, the inclusion of six gases, the umbrella and other trading arrangements and the impact of alternative targets on U.S. permit prices. We have also been involved in interagency discussions of electricity restructuring.

Wouldn't it have been a lot less costly to stretch out the timetable for reductions? Didn't CEA propose to go to 1990 by 2040?

- The Administration had a thoroughgoing assessment and debate about targets and timetables and it would not be appropriate for me to comment on the positions that we took or that others took in internal discussions.
- With respect to the issue of timetables, there are arguments for and against going slower: the *arguments for going slower* include the argument of waiting for superior technology to lower abatement costs and avoiding premature shutdown of coal fired power plants--avoiding premature depreciation. But there are also *good reasons to move more rapidly*. With effective international trading, many of the arguments for going slow lose force, since the reductions that are likely to be undertaken early on are cheap ones--the low hanging fruit-- and are not likely to entail either premature power plant shutdowns or premature use of technology. Moreover, there is scope for no regrets policy. In addition, credibility requires meaningful immediate action and not just the promise of future action. For investors to take proper action today in long lived investments proper expectations are needed. Moreover, diplomatic issues are also important: we wanted to obtain an international agreement to bring everyone on board. A slower timetable would not have commanded international agreement. A slower timetable would also increase the carbon concentration, all else equal. Early reductions reduce the risk of catastrophe.

By how much will the agreement reduce temperatures?

With or without the agreement, temperatures will rise as a consequence of the increase in CO2 concentration. The agreement will mitigate that increase a bit, and delay the time of doubling of concentrations, but how much depends on what the developing countries agree to and what targets and timetables we agree to after the first budget period. (An aggressive Annex I emissions path that stabilizes emissions at 1990 levels by 2010 and maintains emissions at the 1990 level thereafter would mitigate temperature increase by roughly 0.1 degree by 2050 and 0.2 degrees by 2100.)

How does your work differ from the IAT analysis? You seem to have relied on just one model whereas they relied on three?

- In forming our judgement about economic impact of the Kyoto accord we have relied on a broad range of tools including many energy sector models and reviews of the literature.
- We have also tried to take into account some features of the agreement and the President's climate change initiative that were ~~not~~ ^{included} in the IAT report, including sinks, 6 gases, electricity restructuring, and so forth.
- However, our results are broadly consistent with the results of the IAT report, which indicated that with international emissions trading, and joint implementation, the economic costs and impact on energy prices would be extremely modest. We also performed many simulations with the SGM model, which was included in the IAT report.
- In response to critiques of that study, our simulations typically involved less optimistic technological assumptions. We also attempted to perform analysis that was responsive to critiques of the IAT reviewers. In particular, we have consulted with the Stanford Energy Model Forum to encourage broad scrutiny of the Kyoto agreement and to gain insights from a wider array of energy models.

For example, work by the OECD concluded that requiring proportional cuts by all parties rather than efficient cutbacks through equalization of marginal abatement costs across countries could approximately double the aggregate costs.

PAPER TONS/INTERNATIONAL TRANSFERS

How can you justify giving Russia over 200 (214?)million metric tons of permits in excess of its emissions. It will not need such emissions until 2020.

The concept behind the international trading scheme adopted at Kyoto is that all countries with targets may trade to effect compliance. Countries can sell emissions permits if they hold their actual emissions below their allocations. Some countries will enjoy excess emissions credits because they are more efficient at domestic reductions, or because they have grown slowly or undergone a major economic transition. Allowing these countries to sell credits lowers the domestic costs of greenhouse gas reductions in the U.S. and provides those countries with the resources to invest in the most climate friendly technologies as their economies recover. Russia could easily need these permits if her growth resumes and Russia can also bank the permits for future periods when she is very likely to require them.

Aren't we transferring huge resources to Russia?

There will be no taxes on Americans or government transfers to Russia. However U.S. firms--not the U.S. government--may choose to purchase international emissions credits if they so desire to meet their emissions obligations--from Russia or other countries or through the CDM. As with any market transaction, purchases of these credits will have to comply with all U.S. legal and regulatory requirements. U.S. firms interested in international investment and emissions credits will have an incentive to ensure that other countries meet the international standards for adequately monitoring and reporting their emissions of GHGs. Russia will have a significant incentive to use the revenues to invest in modern, climate-friendly plants and equipments so that as its economy recovers, it continues to produce emissions credits for sale on international markets.

How sensitive is the price to the U.S. to the Russian paper ton gift?

By how much will the total Kyoto agreement cut emissions relative to BAU given the 214 mmtc gift to Russia?

The Kyoto agreement amounts to a 5% cut for A1 relative to 1990 levels and an 18% cut for A1 relative to BAU in 2010.

DEVELOPING COUNTRIES

What are the possible benefits of the CDM?

- Lower costs of reducing emissions: A strong incentive for companies and countries to search the globe for the lowest cost ways of reducing GHG emissions.
- Expanded exports of U.S. technology: enormous potential for JI projects around the world creates major opportunities for the increased sale of U.S. energy efficiency and alternative energy technologies.
- Technology transfer: Increased reliance on more energy efficient technologies and less carbon-intensive energy alternatives will help developing countries meet their growing energy needs with more environmentally sustainable solutions.

How much potential is there for reductions through the CDM?

- Energy Efficiency is low in many parts of the world, so the potential gains are large.
 - A World Bank study suggested that emissions reductions in China before 2020 could save roughly as much in carbon emission as the U.S. would have to reduce to achieve 1990 levels by 2010 through negative cost energy efficiency improvements. Anecdotal evidence describes the untapped potential for

efficiency gains in developing and transitional economies and highlights the success of JI pilot projects. Chinese coal fired boilers are only 2/3 as efficient as US boilers. Retro fitting Chinese plants with US boilers saves more money than it costs. Retrofitting Khrushchev era Russian apartments saves 30% of heat use and saves more money than it costs. Many other negative cost efficiency improvements have been identified for Russian industry, including the use of quality insulation around steam piping, improved energy control systems and more efficient motors.

- **New Capacity.** Due to their high growth rates, developing countries have an advantage over the OECD in their ability to meet targets by installing new, carbon efficient plants rather than by expensive retrofitting of existing plants. In the OECD, we face the prospect of replacing functional coal plants with new natural gas plants. Large changes in coal prices are needed to make that sensible. Developing countries will instead balance the costs of installing new natural gas plants against the costs of new coal. Little coal price adjustment is needed to make natural gas the economic choice.
- **Energy subsidies.** The World Bank estimates that developing countries could reduce carbon emissions by 7-9% by eliminating energy subsidies.

How have JI Pilot Projects Worked?

Since its foundation in 1993, the US Initiative on JI (formed under the existing climate change convention) has accepted 28 project proposals in 12 countries to help US firms tap potential outside the OECD for low cost carbon reduction. The projects span a range of technologies, including solar, geothermal and wind; fuel switching; biomass; reforestation. Some companies and organizations participating include Commonwealth Edison, AEP, PacificCorp, Wisconsin Electric Power and many others. The projects included one in the Czech Republic that converted a district heating plant from coal to natural gas and built a cogeneration plant to provide steam and electricity. There was one in Costa Rica that replaced fossil fuel burning power sources with a 20 MW wind farm; and a project in Russia planted 506 hectares of trees. There is a large forest management project in progress in Bolivia that combines forest regeneration and protection with the promotion of sustainable forest product enterprises. A project in Russia improves heat efficiency in Zelenograd simply by installing new heat exchangers, pumps and control equipment.

On October 22, a JI project was announced in which 2 U.S. companies (Solar Electric Power and Light of Washington, D.C. and Trexler and Associates, Inc. Of Oak Grove, Illinois) would work with Renewable Energy Services Company of Asia, Ltd. To market and install 812,000 solar home systems in Sri Lanka. These systems would replace the use of kerosene lamps for lighting and the use of diesel-electric charging of lead-acid batteries for powering small home appliances. The result would be a 1.5 million metric

ton reduction in GHG emissions and cleaner energy for tens of thousands of people.

It can, in addition to reducing carbon emissions, open up overseas markets, widen dissemination of advanced technologies and create local health and environmental benefits.

You say you need meaningful participation. What does that include?

- Climate change is a global problem requiring a global solution. By 2030 or sooner, emissions from developing countries will surpass those from industrialized countries. Thus, developing countries must take measures to limit greenhouse gas emissions.
- We will work bilaterally, regionally and multilaterally in the coming months and years to promote active efforts by developing countries to limit emissions. We will concentrate on key countries and approaches that are consistent with economic growth in these countries. We will not submit the Protocol to the Senate for advice and consent to ratification until we believe we have achieved meaningful participation.
- Countries are at very different stages of industrialization and have very different contributions to global emissions. Accordingly, there is no one size fits all approach. Countries with high GDP, or those that emit proportionally larger share of global emissions should be expected to do more than those that are poor or whose emissions are negligible.
- Under the Protocol developing countries can assume binding commitments voluntarily through amendment to the annex of the Protocol that lists countries with targets. (i.e. they can join Annex B.) They could then obtain access to the benefits of international emissions trading. Despite our efforts and the support of some developing countries, the Kyoto Protocol does not include a separate article for developing nations to assume voluntarily targets.

How does the Clean Development Mechanism work? Is it meaningful participation?

The Protocol makes a down payment on meaningful participation. First, they developing countries agreed to the creation of a CDM through which industrialized and developing countries can establish partnerships to cut emissions to the benefit of both parties. Specific projects, like the construction of a high-tech, low-emitting power plant--can include direct participation from the private sector. Industrialized countries and firms in them can use certified emissions reductions earned from such projects to contribute to their compliance while the developing countries get the technology they need for cleaner, more sustainable development. Private sector firms will be able to earn emissions credit either directly, as a consequence of their active collaboration and investment in CDM

projects, or indirectly, by purchasing the emissions reductions to offset greenhouse gas reduction at home. The activities will be designed to achieve real, measurable and long-term benefits related to the mitigation of climate change and they will achieve reductions that are additional to any that would occur in the absence of these activities. We will design mechanisms to ensure transparency, efficiency and accountability under the CDM through procedures for independent auditing and verification of project activities. Certified emission reductions obtained from 2000 to 2008 can be used to meet commitments in the first budget period. No government financing is anticipated. As developing countries understand that they can protect the environment without compromising their economies they may be encouraged to assume emission reduction commitments. Assumption of Annex B provides even larger benefits.

At present, it is undefined how much of a country's commitment can be met through the CDM. Our goal is to seek maximum flexibility.

Some of the proceeds will be shared with the most vulnerable nations to climate change. It is intended to benefit small island states with low lying coastal areas--not OPEC countries.

The Clean Development Mechanism will utilize existing institutions and be funded from a small share of the proceeds from each project certified to reduce greenhouse gas emissions. It is an arm of the Parties to the Protocol and not the World Bank. The developing countries also agreed to advance implementation of their existing commitments under the 1992 FCCC. This involves implementing national programs that consider actions in the energy, transportation, industrial and other sectors to mitigate climate change.

What assurance do we have that JI projects under the CDM will actually reduce emissions?

First, at U.S. insistence, states not in compliance with their measurement and reporting requirements (a national reporting and measurement scheme for GHG emissions) cannot receive credit. Second, we will have to set up a mechanism to insure additionality. THE CDM will serve as a clearinghouse for eligible projects. There will be a small executive board and "operational entities to be designated" to certify emission reductions from specific projects.

Now that the developed countries have agreed to reduce emissions, what incentives do the developing countries have to participate?

It is in there long run best interest to do so. There is no solution without them and they

are most affected by climate change. If they take on quantitative emissions limitations, they can participate in international trading.

INTERNATIONAL EMISSIONS TRADING

How can we be sure countries that trade emissions permits are actually honoring their emissions obligations?

- We need to establish the rules for the creation of verification and monitoring of emissions trading, JI and the CDM. These will be developed at COP-4 this November and the U.S. will work to ensure an acceptable approach. The U.S. will ensure that compliance with Protocol obligations is a condition for engaging in trading and other mechanisms under the Protocol.
- The Administration will build upon its experience with the SO₂ emissions trading program in developing verifiable domestic and international trading regimes. This November, in Buenos Aires, the Parties to the FCCC will continue their work on emissions trading to define the "relevant principles, modalities, rules and guidelines" for verification and monitoring of emissions trading. Leading up to BA we will work hard diplomatically to build support for an appropriate emissions trading verification framework.

How will emissions trading work if only the United States has a domestic program of tradeable permits?

It is premature now to speculate on how foreign governments will design their emissions reduction programs. From our perspective, the private sector will play a critical role in trading; we envision U.S. firms actively participating in our domestic program as buyers, sellers, and intermediaries of emissions trading permits. Our goal will be to structure a similar role for the private sector in the international trading regime. One could envision a U.S. company, for instance, purchasing emissions permits from foreign counterparts, or eventually from private brokers (in the case of a private sector managed program) or dealing directly with a state-run emissions trading office in a foreign country that chooses to maintain more direct government involvement. Of course, if necessary, the USG will be prepared to facilitate trades where foreign governments institute public sector managed programs, but we do not envision the USG funding trades directly.

Aren't the monitoring difficulties so severe that trading isn't workable?

It has worked in the United States and in a few other countries that have tried emissions trading and it can work internationally as well. But we do have a challenge in setting up rules that deal with monitoring and verification. We need to keep the transactions costs

low and assure private parties that the asset represented by a permit has value. The rules and procedures for emissions trading are to be defined at the Fourth Conference of the Parties (COP-4) in Buenos Aires this coming November. Until then, we will work hard to build a consensus on the structure of an emissions trading regime which provides the greatest flexibility for our private sector and domestic implementation.

BENEFITS OF AVERTING CLIMATE CHANGE

Impact on Temperature

You have argued that there are benefits from dealing with climate change, but how much does the Kyoto agreement impact worldwide temperatures?

The Kyoto agreement must be viewed as the first step in a long process to cut emissions. The cutbacks agreed to there are not sufficient to maintain global concentrations at current levels. To maintain global concentrations at current levels, global reduction of approximately 60-70% of CO2 emissions are needed. Even to stop CO2 levels from more than doubling, larger cutbacks are needed. Developing country participation will be crucial to that because by 2030 it is predicted that their emissions will eclipse those of the industrialized nations.

SINKS

What role could sinks play?

By including sinks, the Protocol gives proper incentives to avoid deforestation. Annex B Parties would have to reduce other emissions to a greater extent in the budget period to meet their targets to the extent that deforestation occurs--there is a penalty for that.

The Protocol creates incentives through the CDM in developing countries for afforestation and reforestation projects, as well as investments in clean technology. These efforts can partially fulfill the emission reduction commitments of industrialized countries. Annex B countries will see advantages to working with developing countries in these and other areas as a means of achieving cost-effective reductions. Through such projects, developing countries can obtain the financial resources, technology and know-how to promote their own sustainable development.

CLIMATE CHANGE INITIATIVES

Aren't we doing too little over the next decade to prepare for the emissions reductions required in 2008-2012? Isn't it pretty late to introduce emissions trading only in 2008?

It is certainly important that we not wait until 2008 to begin preparing. But we intend to do much over the next decade; and the signing of a treaty and knowledge that a permit system will be set up will provide signals now for taking appropriate action. Early action credit will reward those who take action before it is required. And we are trying to build on the voluntary efforts that industries told us they could achieve. The tax cuts we have proposed for fuel efficient vehicles and equipment have the potential to kickstart new markets. Breakthroughs like the fuel cell technology for tomorrow's cars can lower emissions while also cutting the cost of driving. The Administration believes that there are many energy efficient products and techniques currently available that should be expanded and that doing so would be a win-win. In addition, the knowledge that we have made a binding commitment, that trading will go into effect, and that the commitment is serious, with early action credit, will bring expectations into play now--it provides a credible signal that will generate actions now.

How is the President's plan any different from the unsuccessful Climate Change Action Plan?

- It includes substantially more new technology spending and has the chance to kickstart markets for fuel efficient cars and equipment.
- A plan with binding targets creates expectations which can lead firms and households to begin to adjust their behavior sooner.
- The plan includes early credit to provide appropriate rewards for those who take prompt early action.
- It includes electricity restructuring.

Voluntary Industry Initiatives

What voluntary initiatives does the Administration plan? What are the odds that they will cut emissions noticeably?

- We already have a successful "industries of the Future" initiative run by DOE, which is a strategy creating partnerships between industry, government and supporting laboratories and institutions to accelerate technology, research, development and deployment. The Industries of the Future strategy is being implemented in seven energy and waste intensive industries, using more than 80 percent of the energy consumed in U.S.

manufacturing (aluminum, chemicals, forest products, glass, metalcasting, petroleum, steel. There is a new team re agriculture) Two key elements of the strategy include an industry driven document outlining the industry's vision for the future and a technology roadmap to outline the technology needed to reach their goals. Through this process, government funded research is brought to a sharp focus to benefit U.S. industry. Agreements establish voluntary cooperative arrangements for joint R&D with the government and the creation of R&D partnerships, consortia or joint venture with customers, suppliers, academia and government labs.

- The Administration consulted extensively with industries in formulating the climate change policy. The cement industry told us that they saw the opportunity to reduce the volume of CO₂ emissions by 5 to 15 million tons per year relatively quickly (months, not years) and relatively painlessly. The industry proposes to reduce the amount of clinker (formed from limestone and other oxides of silica and alumina)--the energy intensive part of the cement manufacture process--with flyash (a waste product from coal fired utilities), granulated blast furnace slag (a waste product from the production of iron) or limestone interground with clinker and gypsum in the finish grinding process. The flyash and slag could replace portland cement or interground with clinker by the manufacturer to produce a composite cement. A five percent replacement of portland cement clinker with flyash, slag, limestone etc. yields about a five million ton reduction in CO₂ emissions from the manufacture of clinker. The industry claims that this not only has no detrimental effect but even improves some cement performance characteristics. Many countries all up to 5% limestone in portland cements and some countries up to 35%. In the U.S. the Standard Specification for Portland Cement, ASTM C 150 does not allow any ingredients in cements except clinker, calcium sulfate and very small amounts of processing additions.

• **Tax Policies** *PAT H - Partnership for Advanced Technology in the Highway - launched in 1998 - a sample of portland - voluntary partnership in households - 50/15. Improving energy performance in homes - 24 MMTCE in 2010 savings + \$11 billion in home energy bills*

- **Fuel Efficient Car Tax Credit**
 - Complements the PNGV program to develop a family car capable of getting three times the fuel economy of today's comparable car by 2003-4. This provides strong incentives to purchase these cars: \$3000 in 2000 for a vehicle getting 2 x the base fuel economy for its size class. The credit would phase out by 2006. And a \$4000 credit for vehicles getting three times the base fuel economy for its class--after 2002 and until 2007.
 - Purpose is to provide an incentive for the auto industry and the American consumer to produce and purchase cars of the future.

Federal Government Energy Initiative

How much scope is there for improved efficiency in the Federal government?

Electricity Restructuring

Won't electricity restructuring lower electricity prices and raise emissions?

- Electricity restructuring will lower prices and that does tend to raise CO₂ emissions. But other effects are also at work.
- There will be an improvement in energy efficiency which will lower emissions. Retail competition will provide a financial incentive for generating plant owners to improve their energy efficiency (heat rate=fuel per kwh), reducing the amount of fuel burned to generate each kwh of electricity. In addition, competing retailers will likely increase value of their product to buyers by creating packages of electricity and efficiency services (ESCOs=energy service companies) that take advantage of cost effective efficiency opportunities (i.e. efficient lighting and heating in exchange for a share of the savings)(such as those in the 5 Lab study) or by selling green power derived from renewables. Some of the increased demand for electricity will reduce end-use consumption of primary fuels, reducing emissions outside the electric sector.
- There will be some reductions due to a renewable portfolio standard to required that 5% of electricity sales be generated from non-hydroelectric renewable sources.
- A \$1.4 billion public benefits fund will finance energy-efficiency programs, consumer education, demonstration of emerging technologies such as renewables and low-income assistance.
- Green marketing provisions would provide information to consumers to allow them to purchase power from environmentally friendly generators..
- Outside experts predict that in the long run, a small emissions reduction (20-40 MMTC) is the best guess. Current emissions in the electric sector are expected to rise by 39% between 1990 and 2010. With the provisions above, DOE estimates that retail competition will reduce carbon emissions from the utility sector in 2010 EPA feels it would raise carbon emissions modestly. There is uncertainty and NEC and CEQ conclude that utility emissions would fall by roughly 1.5 to 3% relative to the BAU path in 2010 (10 to 20 million metric tons, relative to projected emissions of 663 million metric tons.)

What is the impact of electricity restructuring on electricity prices?

It would reduce electricity prices by 10 -15 percent or 0.5 to 1.1 cents per kw hour. A carbon tax of \$30 to \$70 has the same impact on electricity prices but raises other fuel prices too. It saves the average 4-person family about \$232-\$488 per year through direct and indirect effects--about \$100 through direct effects. This is the impact of a \$15 to \$35 carbon tax.

Five Labs Study--Potential for Negative Net Cost Emissions Cuts

- Documents in detail how four key sectors--building, transport, industry and electric utilities--could respond to directed programs and policies to expand adoption of energy efficiency and low carbon technologies, an increase in the relative price of carbon by \$25 or \$50 and an aggressive program of targeted R&D.
- Uses a technology-by-technology assessment and an engineering-economic modeling approach.
- Looks at such promising low-carbon technologies as advanced gas turbines, transportation biofuels and fuel cells in buildings.
- Conclusions:
 - Energy efficiency alone could reduce carbon emissions by 12⁶ MtC/year by 2010.
 - A \$25/ton carbon price and policies to promote energy efficient technology use could lower emissions by 230 MtC.
 - A \$50/ton carbon price and aggressive policies could cut 390 MtC by 2010.
 - In all cases the energy savings are roughly equal to or exceed the costs. (There is no analysis of specific policies to achieve the cases, the political feasibility of identified policies or a pathway to achieve the cases.
 - A next generation of energy efficient and low carbon technologies promises to enable the continuation of aggressive abatement over the next quarter century. A wide array of advanced technology options could be cost competitive by the year 2020 assuming a vigorous and sustained program of energy R&D beginning now and extending beyond 2010.
 - Many cost-effective energy-efficient technologies remain underutilized. A host of market barriers account for these lost opportunities. And declining energy R&D expenditures may cause promising technology options to be foregone.
 - The rationale for government support of energy efficiency R&D is strong. Much energy efficiency research is long term and high risk and the rewards are not adequately captured by private firms. There are substantial public benefits. The rate of return is quite high.

CEA critiques of the 5-Labs study:

- No description of the government programs necessary to stimulate the necessary technology adoption of 180 million metric tons. Based on CCAP, we estimate costs of the government programs as \$45 billion or \$1.1 billion annually into perpetuity. These are costs in addition to existing program costs to improve energy efficiency technology development and adoption.
- Analyses across sectors are not integrated. Penetration rate of energy efficient

technologies may be overestimated because separate analyses do not account for declines in fuel prices.

- Ignores costs of accelerating capital retirement, underestimating costs.
- Double counting in utilities sector.

Amory Lovins:

In addition to the 5-Labors study there is a National Academy of Science study and other work suggesting that protecting the climate can be not costly but profitable. There are lucrative business opportunities in making this happen.

Southwire, the top independent U.S. maker of rod, wire and cable cut its electricity use per pound of product by 40%, gas by 60% during 1981-1987 and kept on saving even more money and energy, within two year paybacks. Dow Chemical, DuPont, Roche, Kraft and others have also reported saving money and energy. Lovins says "it's far cheaper to save fuel than to burn it."

Some cost effective technologies which are currently available include:

- Better insulation of building shells
- Better control systems for regulating the use of energy consuming equipment (time and temperature controls by zone, energy-use optimizers, energy management systems)
- High efficiency heat pumps
- Heat pump water heaters
- Decreased hot water requirements through better designed clothes washers and dishwashers
- High efficiency lighting - fluorescent fixtures, electronic ballasts, control systems
- Cogeneration
- Energy efficient windows
- Whole house design that allows for substantial equipment downsizing.

Payoffs from Technology Initiative

Diffusion:

- It is widely acknowledged (Stavins and Jaffe) that energy use could be significantly reduced through broader adoption of existing technologies, and it is almost as widely accepted that much unadopted technology is cost-effective at current prices.
- Examples of proven technologies that engineering calculations show are cost effective at current prices but not widely used include compact fluorescent light bulbs, improved insulation materials and energy efficient appliances.

- Non-use may reflect a market failure. Possible sources of market failure include:
 - lack of information (of the innovation's existence and knowledge of its profitability); if others' use of a technology is an important source of information, adoption creates positive externalities because it generates information that is valuable to others.
 - Principal-agent problems: Energy efficiency decisions may be made by parties other than those who pay the bills. New home builders may not be able to credibly represent its energy conserving features to potential buyers (asymmetric information.) Landlords/tenants: landlord makes investment/tenant pays bill or vice versa.
 - Electricity and natural gas prices may be artificially low--not priced on the basis of marginal cost.

What are some of the Benefits of Averting Climate Change:

Temperature is not the most important channel for economic impact given technologies to control temperature. But things that result from temperature changes--precipitation, water levels, extremes of droughts or freezes and thresholds like the freezing point or the level of dikes and levees will drive impacts. Those sectors of the economy that depend heavily on unmanaged ecosystems--that is, are heavily dependent on naturally occurring rainfall, runoff or temperatures--will be most sensitive to climate change. This includes agriculture, forestry, outdoor recreation and coastal activities.

Rise in Sea Levels — due to thermal expansion of water + melting of glaciers
not present could be through leeward etc. — loss of coastline

Heating and Air Conditioning: Cline \$13 billion.

Severe Weather Events — AC treatment
permanent human damage

Fresh Water: Cline, \$8 billion — will stress water supply — less snow — higher runoff in winter
less in spring & summer

Agricultural Impact: Cline, \$22 billion — due to heat stress + ↓ soil moisture, — complex — good
continued intensification for some areas but in others
but long-term expansion in north lower yields in US

Health Impact

Impact on ecosystems and biodiversity — Species loss — e-commerce — use copiers, etc. fine

Possibility of Catastrophes

Urban infrastructure — ↑ salinity of water — trees (buck
higher water demand treat. cancer

Arguments over the discount rate

Uncertainty/Insurance

Estimates of economic impact of a doubling of CO₂ concentration: Cline (2.5 degree C = 4.5 deg. F): annual damages of more than \$70 billion per year (1.1% of GDP); Nordhaus (3 deg C = 5.4 deg F) (1%) Fankhauser (3 deg C) (1.3%). Nordhaus has a much higher estimated impact on coastal areas than Cline and a much lower impact on agriculture. An intensive survey of experts on the economic impact of climate change by Nordhaus found that for a 3 deg C warming in 2090, the median response was an economic loss of 1.8% of world output but with great uncertainty.

According to OECD survey, a doubling of concentrations would produce worldwide costs on the order of 1.5 to 2% of world GDP. Projections with a longer term emphasis point to GDP losses of 6% of world GDP or more for a 10 degree C warming by 2275.

These damage estimates do not correspond to the benefits of reductions in emissions of the sort agreed to in Kyoto. If Annex I countries stabilize their emissions, the projected growth of world emissions would fall only by a $\frac{1}{2}$ to 1% annually, and as a result, the point at which concentrations would reach twice pre industrial levels would be delayed by no more than a decade. The costs of emissions controls described above should be compared with the benefits of delaying, rather than arresting the increase in GHG concentrations. A doubling of CO₂ concentration is impossible to avoid.

Electricity Restructuring Facts

- Under electricity restructuring, competition would replace regulation as the primary mechanism to set electricity generation prices. Consumers would be allowed to choose their own electricity supplier--much as they have been able to choose their own long-distance telephone service provider for over a decade.
- Restructuring has proceeded at a wholesale level under FERC Order 888, which requires investor-owned and some publicly owned utilities to open up transmission lines to qualified sellers. A dozen states, including California and Massachusetts, have taken steps to require their utilities to open up to retail competition as well.
- The economic benefits of restructuring are quite large. Electricity sales amount to over \$200 billion per year and DOE estimates that retail competition could save American consumers roughly \$20 billion per year in lower electricity costs. (Some of these savings will accrue even without Federal legislation, as some states move to retail competition themselves.
- The Administration proposal would endorse customer choice through a flexible mandate that would require each utility to permit all of its retail consumers to purchase power from other suppliers by January 2003. But it would permit states or non-regulated utilities to opt out of the competition mandate if they find, on the basis of a public proceeding, that consumers in the state would be better served by an alternative policy--including a state-crafted retail competition plan or the current regulated monopoly system.

EPI Study

- Uses DRI model
- 1990 to 2010 would reduce U.S. GDP by 1.8 to 2% in the short run.
- Increase in real energy prices would cause consumption to fall even more.
- Adverse impact on the distribution of income--could cut wage growth in half over the next two decades.
- In the short run 1.5 to 2.6 million jobs fewer could be created.
- Substantial employment shifts between industries and regions over time. Elimination of 400,000 to 500,000 high paying job opportunities in mining transport and public utilities.
- Negative impact on the trade deficit as higher energy prices increase the competitiveness of exporters based in low wage developing countries. Imports become more attractive and exports less competitive due to higher energy prices.
- Predicts shifts in investment to developing countries.
- Border taxes should be considered
- Recommends adjustment assistance involving meaningful retraining and income support. Special programs for hard hit sectors.

IMPACT OF A \$100 CARBON EMISSIONS PRICE

Gasoline: + 0.27 per gallon (Now about \$1.14 for unleaded)

Coal: + \$63 per ton

Petroleum: + \$12 per bbl (now about \$17/bbl)

Natural gas: + \$1.45 per 1000 cf (currently \$2.04 at wellhead)

Electricity from coal-fired plants: + .10/kwh (currently \$0.03 per kwh)

Electricity from natural gas combined cycle: +\$.0035/kwh (currently k\$0.04/kwh)

Average price increase for residential electricity: \$.03 per kwh

Energy costs of the typical household: +20.2%

Dollars spent by the typical household, taking into account an elasticity effect,: +\$514

Q and A's on sinks and forestry industry

The climate policy concerns of the forest products industry derive from several special features of the industry:

- The industry has an obvious role in carbon sequestration.
- Their plants experience especially slow capital stock turnover.
- The industry is very energy intensive.
- Some subsectors use biomass energy extensively (up to 43% of total energy)
- The industry is already facing significant burdens of new environmental regulation, e.g. the Cluster Rule, NAAQS standards, MACT standards for Wood Manufacturing Facilities, etc. for a total of \$5.8-\$9.8 billion in capital costs in 1998-2008, according to industry documents.
- Parts of the industry are at best only marginally competitive with developing countries.

Won't the U.S. emissions commitment damage the competitiveness of our timber and wood products industries vis a vis those in developing countries?

[Refer to general answer on competitiveness and what we say to energy-intensive sectors.]

Much of the energy used in the forest products industry is biomass, such as wood wastes and pulp liquors. Will the burning of biomass be treated like other carbon emissions under the treaty?

Biomass is one of a number of sink-related activities that must be addressed as we prepare an accounting system under the treaty. The U.S. and our treaty partners will have to develop a system that sets out how to account for the carbon stored in growing biofuel and the carbon emitted when it is burned. No decisions have been made as to the exact methodology that will be used for biomass.

How is the Administration going to interpret afforestation, reforestation, and deforestation? Since parties aren't explicitly penalized for harvesting and they are credited for replanted forests, doesn't the treaty language create a perverse incentive to cut down forests?

Our position has been that carbon effects from land use changes and forestry activity should be counted in the emissions calculations. The treaty reflects this position, which makes scientific and economic sense. Only by including both emissions and sequestration in the accounting system will parties face the proper incentives to sequester greenhouse gases through their land use activities. In fact, forestry initiatives may provide some of the most cost-effective opportunities to meet our emissions targets, and we have and will continue to encourage land stewardship that is environmentally sound.

That said, there are many technical details of a carbon accounting system to work out, and we have technical experts working hard to develop a scientifically, environmentally, and economically responsible approach. If a careful analysis indicates that the activities included in

Forestry projects are included - forest isn't.

the list under Article 3.3 are not sufficient to properly account for significant carbon influences, under Article 3.4 the parties may add other human-induced land use changes and forestry activities to the list. We will be coordinating a carbon accounting system with other parties so as to ensure two things: (1) that emissions targets are met equitably and (2) that the international permit trading system and Clean Development Mechanism will promote cost effective and environmentally beneficial land use activities.

Dr. Yellen, my state is blessed with abundant forests, and timber sales are an important part of our economy. You've mentioned that the Administration fought for and won inclusion of forestry activities in the calculation of net emissions in the treaty. What does the Kyoto Protocol mean for the forest products industry?

Forests play an important role in sequestering carbon from the atmosphere. We expect that some of the most cost effective means of reducing net emissions and meeting our treaty targets may come from additional sequestration in land use changes and forestry. While our economic analysis has not singled out individual sectors of the economy, it is safe to say that afforestation and reforestation can ease the U.S. commitment, and the Administration looks forward to working with the forest products industry to identify cost effective strategies to encourage those activities.

I understand that according to the Administration's math, 3% equals 7%. How is this possible?

In negotiations under the Kyoto Protocol, the US agreed to a commitment of a 7% reduction below base period emissions. The U.S. accepted changes in calculation of the obligation for synthetic gases, forests and land use change that allowed the US to deepen its numerical target for the same level of effort. Moving to a 1995 base year for synthetic gases (alternatives to ozone depleting gases and other synthetic chemicals e.g. HFC, PFC, and SF6) reduced the US commitment by 1%. Removing a penalty in the accounting system for forests and land use change reduced the US commitment by 3%. In addition, the US agreed to 3% additional reductions over our initial position of stabilizing emissions at 1990 levels.

Will farmers/utilities/companies be able to receive credit for improving agriculture soil carbon, forest conservation, or forest management?

The language of the Protocol limits carbon sequestration activities to afforestation and reforestation, but provides for this list of activities to be amended at the next negotiating session. The inclusion of afforestation and reforestation will allow the US to take advantage of low cost carbon sequestration projects that result in verifiable changes in stocks. The US recognizes that the list of activities to receive credit is limited, and will work with key environmental and business constituencies to develop a strategy to ensure that verifiable and cost-effective carbon sequestration projects and actions receive credit under the Kyoto Protocol. We will continue to work on these elements as we move forward with developing and implementing other key provisions of the agreement, including the rules for international trading and the Clean Development Mechanism.

Preliminary draft: February 6, 1998

Land Use Change and Forests -- Sinks

Under Article 3.3 of the Kyoto agreement, sinks are greenhouse gases removed from the atmosphere that

“[result] from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation, and deforestation since 1990, measured as verifiable changes in stocks in each commitment period.”

The treatment of forests and land use change in the Kyoto Protocol achieved two goals of the United States. The framework contained in the Kyoto Protocol:

- will not penalize the US for carbon sequestration that occurred in the base period
- will allow the US to receive credit for tree planting activities that sequester carbon.

Each year, the U.S. sequesters more carbon in our forests than we emit from those same land use activities. However, the U.S. sequestered about 55 MMTCE *more* in 1990 than we are projected to sequester in 2010. The Kyoto language will recognize our positive land use-related sequestration, and not penalize us for the fact that it won't be as large as it was in 1990.

The U.S. will be allowed to credit afforestation and reforestation activities. We will also be responsible for future deforestation. The inclusion of afforestation and reforestation will allow the US to take advantage of low cost carbon sequestration projects, domestically, in other Annex I countries, and through the Clean Development Mechanism.

We will have the opportunity to amend the list of activities and apply these amendments to our commitments in the first budget period. The US will work with key environmental and business constituencies to develop a strategy to ensure that all verifiable and cost-effective carbon sequestration projects and actions receive credit under the Kyoto Protocol. We will continue to work on these elements as we move forward with developing and implementing other key provisions of the agreement, including the rules for international trading and the Clean Development Mechanism.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q1. Recent research by the respected economics firm WEFA indicates that implementing the Kyoto Protocol would result in higher U.S. energy costs, reduce U.S. living standards, and give developing countries -- such as Mexico, China, India, Korea, Brazil, and others -- a competitive advantage over the U.S. Why shouldn't we believe these results from the WEFA economic analysis?

A1. The WEFA analysis does not incorporate many of the Kyoto agreement's flexibility mechanisms. For example, the WEFA analysis excludes cost-effective opportunities to reduce emissions through international trading, the Clean Development Mechanism, and non-carbon dioxide greenhouse gas reductions. Further, the analysis does not account for the Administration's position on developing country participation. These flexibility measures were included in the Administration's analysis. As I have said before, we can do it dumb, or we can do it smart. Doing it dumb means that we would ignore many of these cost-effective opportunities to reduce emissions. Doing it smart implies that we would take advantage of cost-effective options, and that is why the Administration was a strong advocate in Kyoto for flexibility measures, and we will continue to serve as an advocate in subsequent negotiations.

I should add that no one model result should serve as the "right" answer on the costs of complying with our commitment under the Kyoto Protocol. The Administration analysis serves as a powerful illustration of the virtues of flexibility measures. The cost-effectiveness of increasing flexibility in achieving environmental goals is robust across models. Indeed, the high costs associated the WEFA analysis -- in contrast with the Administration analysis, modeling results from Energy Modeling Forum exercises, the IPCC Working Group III 1995 assessment, OECD climate modeling results, and the Interagency Analytic Team report -- illustrate the importance of flexible, cost-effective implementation that is the cornerstone of the Administration's policy.

Q2. The Administration claims that the Kyoto Protocol will cost the U.S. \$7 - \$12 billion per year by 2010, while the WEFA economic analysis indicates that economic losses will be \$300 billion per year. Why is the WEFA estimate 30 times greater than the Administration estimate?

A2. The WEFA analysis found very high costs because it does not account for the many flexibility measures in the Kyoto Protocol (see A1).

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q10. WEFA claims that U.S. exports would be relatively more expensive on the world market resulting in significantly lower real net exports. What is the Administration estimate of the change in net exports?

A10. The WEFA analysis found a reduction in net exports because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). The Administration has not calculated a number representing the effects on net exports. By achieving broader participation in climate policy through the Administration's position on developing countries and securing effective international trading, the effects on trade should be modest. In fact, it is quite possible that the effect on net exports of goods and services would be positive.

Q11. WEFA indicates that chemicals, paper, textile and apparel, computer and electronic industries would all be significantly hurt by the implementation of the Kyoto Protocol. What are the Administration estimates on the effects of climate policy on these industries?

A11. The sector-specific impacts that the WEFA analysis found were heavily influenced by the fact that it does not account for the many flexibility measures in the Kyoto Protocol (see A1). The Administration has not calculated a number to represent the effects of climate policy on specific industries.

Q12. WEFA indicates that it did not assess international trading because it is only "conceptual" and that until the details -- such as principles, rules, verification, reporting, and accountability -- are addressed, it is not possible for trading to take place. Why then did the Administration include trading in its analysis?

A12. Article 17 of the Kyoto Protocol clearly states that Annex B countries have the right to trade emissions allowances. We assessed international trading because it is one of the key components of our flexible approach to implementing climate change policy. Conducting an economic analysis of trading before all the rules have been established is similar to assessing the economic effects of a bill or law before the regulations to implement the law have been drafted.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q13. WEFA claims that the benefits of international trading could be limited because trading would only occur among Annex I countries. Why does the Administration claim that trading among Annex I could cut costs by more than half?

A13. Expanding a market lowers costs for all the participants in the market. Many of the Eastern European and Former Soviet Union countries in Annex I have higher energy-to-GNP ratios than the United States. For example, Russia is about 5 times less efficient, and Poland about 4 times less efficient than the U.S. Since these countries are less energy efficient than the United States, firms in those countries should find it relatively less expensive than firms in the U.S. to reduce greenhouse gas emissions by improving energy efficiency. The estimate that trading could cut costs by half holds even in the case when trading occurs only among Annex I countries. In addition, developing countries can adopt targets, join Annex B of the Protocol, and participate in trading, which would further reduce the costs of achieving our emissions target.

Q14. WEFA claims that international trading would require audits of all participating U.S. businesses and the U.S. government. Who would conduct these audits? Would a U.N. bureaucracy be created to audit our country?

A14. The Kyoto Protocol does not require audits for trading, or anything of that nature.

Q15. The Administration claims that climate policy will only cost the economy 1/10 of 1% of GDP, while the respected American Council for Capital Formation (ACCF) has sponsored research that indicates that the less stringent goal of 1990 by 2010 could range between 1% and 4% of GDP, and permit prices could range between \$200 - \$260/ton. Why the large differences?

A15. These studies found very high costs and permit prices because they do not account for the many flexibility measures in the Kyoto Protocol (see A1).

Q16. ACCF claims that the energy price increases associated with implementing Kyoto will "force" consumers to "make major changes in their lifestyles, including lowering their thermostats in winter, driving less, and reducing their use of air conditioning in summer." Is this true? If not, why not?

A16. This is not true. By accounting for the flexibility measures in the Protocol, the energy price increases will be modest. We expect that consumers will make small changes in response to energy prices, but not major lifestyle changes.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q17. Research by ACCF indicates that implementing Kyoto would exacerbate income inequality in the U.S. In fact, the increase in income inequality would be twice that experienced between 1968-1978, and about 3/4 of the inequality increase occurring between 1979-1983. How can the Administration support an environmental policy that makes inequality much worse?

A17. The study you are referring to found significant effects on inequality because it does not account for all of the many flexibility measures in the Kyoto Protocol (see A1). Further, this finding about inequality is very sensitive to the model's "revenue recycling" mechanism. That is, in this study, it is assumed that carbon dioxide permits are auctioned, and the revenues from such an auction would be "recycled" or returned to consumers either through a reduction in personal income taxes or through a lump-sum redistribution. The reduction in income taxes results in inequality effects 5 times larger than the lump-sum redistribution. While this result is beneficial in informing us about the inequality effects of different revenue recycling approaches, it does not substantiate the claim that Kyoto would exacerbate inequality along the lines of what was experienced during the oil shocks.

Q18. ACCF reported a study that indicates that the "single most important factor contributing to the decline in carbon emissions" during 1974-1986 were reductions in per capita GDP. Will implementing the Kyoto Protocol require the U.S. to reduce its per capita GDP and force a decline in our standard of living?

A18. First, the U.S. did not experience a reduction in per capita GDP during these years; rather, the rate of growth slowed. Second, the oil shocks caused energy prices to shoot up causing stagflation and a decline in output in 1974 and 1980-82. The Administration intends to implement the Kyoto Protocol through a set of flexibility measures that will result in very modest effects on energy prices. By accounting for these measures, the effects on GDP would be negligible, so per capita GDP would not change substantially, and surely would not fall.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q19. The recent economic analysis by DRI indicates that Eastern Europe and the Former Soviet Union will average 160 million tons of carbon per year below their emissions targets during the commitment period. Some observers have referred to this as "hot air", because the Russians may be able to sell emissions allowances without making any actual reductions in their emissions. What did the Administration assume about the projected magnitude of "hot air" when it conducted its analysis? Do you assume that the Russians can sell their hot air?

A19. The Administration used the estimates of carbon emissions from the Second Generation Model for Eastern Europe and the Former Soviet Union. The Kyoto Protocol does not preclude any country from selling any part of its emissions allowance, and indeed, through the EU bubble, it sanctions implicit exchanges of what has been referred to as "hot air" by allowing some EU countries to take less stringent targets while Germany reduces below its 1990 - 8% level by taking advantage of the decline in output in the former East Germany. Even though Russian output is still sufficiently depressed that current emissions are below 1990 levels, eventually Russian output will surpass 1990 levels; at that point sales of emissions permits will correspond to genuine reductions in emissions, not to "hot air". The Administration analysis assumes that all countries trade emissions allowances to minimize the costs of achieving their targets.

Q20. The DRI testimony states that the Administration analysis indicates that the U.S. will be able to purchase permits in an international market that would not include the European Union. Is this true -- will the Europeans actually avoid trading? Does the Administration intend to develop trading rules that excludes the Europeans?

A20. The Administration analysis included a range of permit prices and costs to reflect uncertainty regarding the participation of all Annex B countries in international trading. It is not the Administration's position to exclude any Annex B country or firms from any Annex B country from participating in international trading. The Administration's position to secure rules ensuring cost-effective emissions reductions to achieve our emissions target. It is true, however, that of the many scenarios we have looked at, one involves a hypothetical case in which the Europeans refrain from trading.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/18/98

Q21. The DRI analysis claims that U.S. marginal abatement costs "are arguably significantly lower" than Europe's and Japan's. Does this mean the U.S. might not find it cost-effective to purchase emissions allowances abroad?

A21. We would not expect to be a net buyer of emissions allowances from Western Europe or Japan, but from other countries. Many of the Eastern European and Former Soviet Union countries in Annex I likely have lower marginal costs than the U.S. since they have higher energy-to-GNP ratios than the United States. For example, Russia is about 5 times less efficient, and Poland about 4 times less efficient than the U.S. Since these countries are less energy efficient than the United States, firms in those countries may find it relatively less expensive than firms in the U.S. to reduce greenhouse gas emissions by improving energy efficiency. In addition, developing countries can adopt targets, join Annex B of the Protocol, and participate in trading, which would further reduce the costs of achieving our emissions target.

Q22. The DRI testimony claims that the Administration analysis assumes that 85% of our required emissions reductions will be purchased from abroad. Does the Administration intend for the U.S. to buy that much from abroad? What would be the magnitude of wealth transfers to other countries if we buy that much? Do you agree with DRI's statement that "a large revenue stream would be diverted overseas?"

A22. The Administration does not intend for the firms to purchase any specific amount of emissions reductions abroad. Rather, the Administration intends to provide flexibility to the private sector so that emissions reductions can be achieved cost-effectively. If a private firm finds it cost-effective to achieve emissions reductions by purchasing emissions allowances from a firm in another country, we do not believe there should be restrictions on that behavior.

Q23. DRI states that tradable "permits are an implicit tax." Is the Administration's proposed domestic trading program a backdoor approach to tax American businesses? Is the international trading system a backdoor attempt at an international tax on our businesses?

A23. A tradable permit and a tax are not equivalent. A tradable permit system focuses on fixing quantities and leaves prices free to fluctuate, while a tax focuses on prices and allows quantities to adjust. An international trading system is not similar to an international tax on U.S. business because it reduces the price of emissions (and energy) to them, while a tax would increase it. A significant advantage of a tradable permit approach over the tax approach is that it allows for the opportunity to trade across countries and take advantage of low-cost reductions abroad, while a domestic tax approach does not provide this option.

Talking Points
on
Richard Cooper's *Foreign Affairs* Article on Kyoto

- Professor Cooper's key claim is that mutually agreed upon actions have better prospects for compliance and hence success than national targets. He writes

“Targets low enough to be effective in halting man-made climate change mean that these emission rights will be worth trillions of dollars, even if such rights were traded among countries. Stabilizing the amount of greenhouse gases in the atmosphere will eventually require reducing carbon emissions to levels that cannot be reached without the engagement of the developing countries, but the framework of the proposed treaty is unacceptable to them. There is unlikely to be any generally acceptable principle for allocating valuable emission rights between rich and poor countries. .”

- Prof. Cooper estimates the typical American family of four could be expected to pay \$2,200 a year to sustain its current level of emissions, and total U.S. transfers to the rest of the world could amount to \$130 billion per year.

Answer: His assumed value of carbon emission rights, \$100/ton, is substantially above estimates from a broad variety of models, including SGM, and those developed through the IAT process. Given assumptions that international permit markets exist among Annex I countries, and some key developing countries, permit prices would more likely be only a fifth Cooper's estimate. Regaining business as usual emissions from the Kyoto target, even under the unfavorable assumption of no domestic emission cuts, would imply purchasing roughly 500 MMTCE abroad, at a total value of about \$10 billion, less than one thirteenth Cooper's estimate. In this case payments of a typical family of four would be somewhat above \$100/year.

- Prof. Cooper claims that the framework of the treaty is unacceptable to developing countries.

Answer: Given international permit markets, the developing countries would be better off capping emissions at (a bit below) business as usual levels, and selling permits on the international market. Indeed, the gains from such a strategy could exceed \$1 billion per year for some developing countries. Given a choice between forgoing such gains, and realizing them by accepting a cap (a bit below) BAU, some market-oriented developing countries are likely to participate in international markets.

In your testimony Dr. Yellen, you note that no model is set up to handle all of the parameters of the Kyoto Protocol. Why is it so difficult to assess this policy with an economic model?

Different models have different strengths and weaknesses
 six gases, sinks usually excluded
 very complex
 some better at SR, some at long run
 different treatment of technology
 international trading or not
 international trade itself
 climate benefits/included or not and climate process
 expectations

Dr. Yellen, in your written testimony you provide some preliminary estimates of the costs of achieving our target under the Kyoto Protocol. However, you state that it is virtually impossible to quantify the climate benefits of the Protocol. Why is it nearly impossible to do so?

Catastrophe
 whole policy needed
 discount rate
 uncertainty

Last week, Dr. Robert Stavins, an economist at Harvard, gave a Congressional briefing on the Kyoto Protocol. He pronounced the Kyoto Protocol as flawed but fixable. Dr. Yellen, from an economic perspective, what do we need to do to fix the protocol and what would be the likely economic effects of achieving these fixes?

Need meaningful DC participation
 workable trading arrangements (includes monitoring, and verification for compliance)

Dr. Yellen, in your testimony, you note that emissions trading among the so-called "umbrella" countries could yield greater cost-savings to the United States than trading among all Annex I countries. Why would the costs be lower for the U.S. under this umbrella arrangement?

If EU doesn't participate in trading--given that it is likely a buyer of permit and a high cost of emissions abatement participant--price will be lower

Dr. Yellen, we have heard numerous times, and again here today, that international trading in emissions rights lowers the costs for the U.S. Could you please explain why international trading is so beneficial? Further, could you also give an example or two of what private firms in other countries might do to lower their emissions so they may sell inexpensive emissions rights to American companies?

In a market system, those who have no obligation to abate will see a benefit to doing it anyway and that will induce abatement that wasn't required. One creates an incentive for

firms always to be on the look out for doing things cheaply in order to trade. One is harnessing the power of the market. It is a win-win. For U.S. firms, they will not have to abate here if it is too costly--they can look for opportunities anywhere they want around the world. In the process they are likely to find themselves exporting energy efficiency technologies and opening up new markets in which they are highly competitive.

Examples: They could retrofit coal boilers in China, which are much less efficient than ours. This is an investment that pays right now; They could convert convert apartment houses in Russia or insulate pipes. In Costa Rica, a JI project replaced a fossil fuel plant with a wind farm.

Dr. Yellen, many countries pushed for an earlier commitment period than the one the Administration advocated. In the end, the Administration position of a commitment period starting in 2008 was included in the Protocol. What is the economic rationale for pushing for a later commitment period?

Always better to have more lead time to prepare--less need for sudden action--reduces costs.

We can get going sooner--make decisions now that prepare us e.g. gas instead of coal on new electric plants. We may also have better technology by then. Also, time to speed diffusion of existing energy efficient technologies.

Dr. Yellen, some countries wanted a single year target, while the Administration advocated for a five-year commitment period. What are the economic benefits of a five-year average relative to a one-year target?

Uncertainty about temperature in any given year due to cold winter or hot summer; business cycle; banking.

Dr. Yellen, many countries wanted the Protocol to address only the three major greenhouse gases, carbon dioxide, methane, and nitrous oxide. The Administration advocated, and won, inclusion of all 6 categories of greenhouse gases. What are the economic benefits of including 6 kinds of gases, instead of 3?

Always better to include more because it offers the best chances of lowering costs. For example, one molecule of SF₆ produces 23,900 times higher climactic impact than one molecule of CO₂. It may be a lot cheaper to focus on that than on CO₂. We think there are opportunities here to lower costs.

In addition to the emissions of greenhouse gases from industrial activities, the climate can be affected by activities that take up, or sequester greenhouse gases. These so-called "carbon sinks" remove some of our emissions of carbon dioxide and can mitigate the effects on the climate. Some countries opposed the inclusion of sinks in the Protocol, but the Administration fought for the right to include the effects of some carbon sinks on achieving our emissions target under the

Protocol. Dr. Yellen, why does the inclusion of carbon sinks help lower our costs of complying with the Kyoto Protocol?

Carbon sinks contribute to greenhouse gas emissions and they may constitute a cheap source of emissions reductions.

Dr. Yellen, the Administration has proposed a domestic permit trading system to reduce emissions of greenhouse gases based on the country's experience with the acid rain trading program. Could you explain why a system of tradeable greenhouse gas permits is superior to other approaches?

SO₂ system has worked very well--private trading is active and the prices are much lower than anticipated. It has fostered innovation and minimized the cost of getting the environmental job done. The system provides incentives to cutback for firms that stand to make money and to innovate

Dr. Yellen, you discuss in your testimony the cost-savings possible with effective international trading. Since the rules of international trading have not been agreed to, could you describe what you mean by an effective international emissions market?

Key features include broad scope, low transactions cost, effective monitoring and enforcement. The permits must be like an asset with some legal certainty in the future. The system should be of broad scope. And trades should reflect units of environmental damage.

Dr. Yellen, you state in your testimony that the Kyoto Protocol will not affect aggregate employment. However, we have heard from other economists that this agreement could cost the U.S. millions of jobs. Why is the range of estimates so large?

The Kyoto Protocol does not require countries to meet binding targets until 2008. However, there are certain aspects of the Protocol, such as the Clean Development Mechanism, that allow for emissions reductions to occur as early as the year 2000 that could be used over the 2008-2012 period. Further, the Administration is pushing for funding for tax incentives and R&D to spur the adoption of energy efficient technology now. Dr. Yellen, why is it important to do these things now?

Technology and diffusion have long lead times. We need to get started early. We have the possibility of jump starting markets. We have often found that with learning by doing and scale economies costs come down over time--e.g. computers or airplanes. Moreover, it takes time to build demand for new products because there is learning.. This is likely to be true with fuel efficient cars or other innovations. We want to start early because energy efficient technologies can lower the costs enormously.

Dr. Yellen, you state that the need to bring in developing countries into the Protocol is not based on competitiveness concerns. Could you explain why your analysis indicates that developing countries operating without binding commitments will not adversely affect U.S. competitiveness? Could you then further discuss the reasons why these countries should participate?

Energy costs are a small fraction (2.2%) of costs for industry.

Buildings and transportation are not in direct competition with foreign activities.

Many factors affect competitiveness. Witness the huge differentials in energy prices around the world--much higher in much of Europe and have been lower than the U.S. in many countries but we do not see industry moving en masse. A lot matters.

But we need developing countries because we can't solve the problem without them: global problems require global solutions.

Their inclusion with binding targets, even if they represent a modest cutback from BAU permit trading which is a clear win-win.

Fairness requires we all participate although not all equally.

Question: Dr. Yellen, what would be the effect of international trade in emissions permits on the U.S. current account deficit?

Answer:

Complex

- The model estimates of \$7 to \$12 billion per year that are consistent with our conclusion, include the payments to foreigners who could reduce emissions more cheaply than the opportunities available in the U.S. Thus given developing country participation and effective international trading and conditions described elsewhere, payments abroad would be less than these estimates. *Don't know how many permits traded in bop*
- *Oil prices could fall - Income would be by U.S. goods*
- Improvements in the current account could occur to the extent that a cap and trade approach reduces both U.S. imports and the world price of energy imported into the U.S.
- Individual sectors may be affected differently, but such a sector-by-sector analysis is not likely to be fruitful, given the small projected price increases. *origin macro factors*
- *Expected development of an environmental products exports*
- We do not know how international permit purchases would be treated in the international trade accounts.

Question: Dr. Yellen, could you explain where the 500 million tons of reductions of carbon equivalent will be obtained, i.e., what sectors and locations?

- Provide same answer as question on percent of emissions reductions achieved abroad.

**Talking Points on the
Economic Impact of the Kyoto Protocol
June 9, 1998**

1. *The model used to derive these numbers is flawed. It omits all the flexibility mechanisms included in the Kyoto Protocol and the Administration's policies.*

- **The WEFA analysis omits international emissions trading.** This study assumes that no countries undertake emissions trading, even though the right to trade is explicitly stated in the Kyoto agreement. International trading among industrialized countries could reduce costs of emissions by half.
- **The WEFA study does not include developing country participation in emissions reduction.** This study assumes developing countries do nothing to reduce greenhouse gas emissions. However, the Kyoto Protocol establishes the Clean Development Mechanism, and even if developing nations only participate in this mechanism the costs to the United States could be 20 to 25% lower. If key developing countries participate more fully, for example by taking on emissions targets and undertake emissions trading, the costs to the United States could be reduced even more.
- **The WEFA study does not account for six categories of greenhouse gases.** This study assumes that emissions reductions would occur only through carbon dioxide reductions, even though all six major greenhouse gases are covered by the Protocol. Since the Kyoto agreement requires countries to reduce emissions to specific targets, on average across all kinds of greenhouse gases, the flexibility is available to reduce emissions of some gases more than others if it is cost-effective. Allowing for trading across gases could lower costs by about 10%.
- **The WEFA analysis omits carbon sinks.** This study assumes that no carbon sink opportunities for absorbing greenhouse gas emissions are available, even though the Kyoto agreement explicitly includes forestry activities. Low-cost carbon sink options provide another opportunity to achieve emissions targets at a modest cost.

By ignoring these flexibility mechanisms, this analysis fails to assess accurately the Kyoto Protocol as well as the Administration's efforts to reduce greenhouse gas emissions. The Administration has always said that reducing emissions can be done smart or dumb. By failing to account for these flexibility mechanisms, the WEFA analysis illustrates the costs of doing it dumb. The Administration believes that by including market mechanisms it can be done smart.

The costs of meeting the challenge of climate change will be modest. The Administration is working to ensure that greenhouse gas emissions that contribute to global warming are reduced in common sense, cost-effective ways. The Administration believes that with effective market mechanisms -- international emissions permit trading, the Clean Development Mechanism joint implementation, timing flexibility during the commitment period, opportunities to trade across greenhouse gases, and carbon sinks -- as well as with meaningful developing country participation and flexible timetables, the economic cost to the United States of meeting the Kyoto targets will be modest.

2. ***The potential costs of waiting too long to address the threat of climate change exceed the costs of acting now.*** The threats climate change presents are widespread and range from potential increases in asthma and infectious diseases to increasingly frequent and severe storms. Despite the challenge of putting a price tag on the risks of inaction, economists have nonetheless developed troubling cost estimates of the risks of global climate change -- ranging in the tens of billions of dollars per year for the United States.

- ***Human health.*** Warmer temperatures are projected to increase fatalities attributable to heat waves in the U.S. of the kind that killed 400 in Chicago in 1995. The incidence of asthma and other respiratory illnesses, particularly among children and the elderly, is expected to increase from the additional smog caused by warmer temperatures. In a warmer, wetter world, the geographic ranges for infectious diseases could significantly expand. The incidence of malaria, for example, could increase by 50 million or more cases a year by 2100.
- ***Extreme weather.*** Warmer, wetter weather is projected to increase the frequency and intensity of extreme events such as floods and drought. The 1993 Mississippi River flood alone caused damages of \$10-20 billion, while the Pacific Northwest floods in 1996-97, and the 1997 Ohio River and Red River floods resulted in substantial costs to business and homeowners. Global warming may also mean increased drought in the U.S., particularly in the Great Plains and other arid areas.
- ***Sea level rise.*** Scientists project that sea level will rise by an additional 6-38 inches by 2100. A 20 inch-rise could inundate 7,000 square miles of the U.S. coastline, with Florida and the Gulf Coast at greatest risk. Changes in rain and snowfall could affect water supplies and water quality, posing threats to irrigation, fisheries, and drinking supplies
- ***Agricultural impacts.*** Changes in growing seasons, water availability, soil moisture and precipitation could cause significant regional shifts in food productivity, with decreases in food production.

3. ***The President's plan protects the environment and grows the economy.*** In October 1997, President Clinton put forward a responsible, balanced approach to begin meeting the challenge of global warming, while protecting our economy and maintaining our international competitiveness. This plan emphasizes win-win initiatives designed to cut emissions by increasing energy efficiency; developing new, cleaner energy technologies; working with industry and others to promote sensible solutions; and relying on market-based mechanisms to ensure cost-effective reductions.

- The plan includes a \$6.3 billion package of tax incentives and R&D aimed at cutting greenhouse gas emissions and building partnerships with industry to remove barriers to the development and widespread use of energy efficient technologies and practices.

4. ***Enabling environmental protection and economic growth to go hand-in-hand.*** For the past 25 years, efforts to protect the environment, whether by cleaning our air and water, eliminating acid rain or closing the ozone hole, have been repeatedly assailed as a threat to our economy. Yet today we have the cleanest environment in a generation and the strongest economy in a generation. President Clinton's balanced approach to the challenge of climate change will allow us to grow the economy and protect the environment at the same time.

Eizenstat HIRC Qs&As

Climate Change: "Backdoor Implementation"

Question: Is it true that the Administration is moving ahead to implement the Kyoto Protocol before sending that agreement to the Senate for its advice and consent? How do you explain the President's Climate Change Technology Initiative in that regard? How does this square with your statement to the Senate Foreign Relations Committee that you would not implement the Kyoto Protocol before seeking Senate advice and consent?

Answer: Before obtaining advice and consent, the Administration will not implement the Kyoto Protocol in any way that goes beyond existing U.S. obligations under the Framework Convention on Climate Change, to which the United States is a Party.

For example, Article 4.2(a) and (b) of the Convention include a binding obligation to adopt policies and take measures to mitigate climate change, as well as a non-binding "aim" to return our greenhouse gas emissions to 1990 levels by the year 2000. To implement these commitments, the President launched the Climate Change Action Plan in 1993 which contained nearly 50 programs designed to address the threat of climate change.

The President announced in October of last year, well before Kyoto, that the Administration would move forward to promote the development and diffusion of climate-friendly technologies. The Climate Change Technology Initiative was an outgrowth of that commitment. By promoting technology development and diffusion now, we will be increasing our competitiveness and we will be making a down payment that can help us avoid potentially costly actions in the future.

These efforts are fully consistent with existing U.S. commitments under the U.N. Framework Convention on Climate Change.

Eizenstat HIRC Qs&As

Climate Change: Ashcroft (Knollenberg/Klink) Bill

Question: Senator Ashcroft recently introduced a bill – S. 2019, the “Economic Growth and Sovereignty Protection Act” – that would prohibit the use of Federal funds to implement the Kyoto Protocol unless or until the Senate has given its advice and consent and to clarify the authority of Federal agencies with respect to the regulation of the emissions of carbon dioxide. A companion bill has been introduced in this chamber by Congressmen Knollenberg and Klink. Given the message that Congress has sent loud and clear to the Administration, why did the President propose the \$6.3 billion Climate Change Technology Initiative? When will the Administration begin paying attention to the very strongly held views of Congress on the Kyoto Protocol?

Answer: The President first proposed the Climate Change Technology Initiative last October, well before adoption of the Kyoto Protocol. He expanded on that proposal in his State of the Union message this year, in light of the outcome in Kyoto. But let me emphasize -- the Climate Change Technology Initiative is fully consistent with existing U.S. commitments under the U.N. Framework Convention on Climate Change. It represents a thoughtful, prudent approach that, if implemented, will be good for American business and good for the environment. For this reason, it is very likely that the President would have proposed such an initiative, regardless of the outcome in Kyoto – upon which it is in no way dependent.

Let me say, however, that the bill introduced by Senator Ashcroft contains a sweeping ban – it prohibit any Federal agency from promulgating regulations to limit the emissions of carbon dioxide, unless a law is enacted specifically granting such authority. What we do not understand is this: Which existing laws is the Ashcroft bill is seeking to override?

Eizenstat HIRC Qs&As

Climate Change: State Department Climate Change Coordinator

Question: Mr. Eizenstat, you referred in your testimony to Secretary of State Albright's Earth Day speech – I thought her speech was pretty good, strong on getting developing countries involved. But tell me, who will she name to serve as the State Department's Climate Change Coordinator and when will she name someone? Will it be you? Will it be the new designee as Under Secretary for Global Affairs – Frank Loy? And what exactly will the Coordinator be responsible for doing – developing countries only, or other things too?

Answer: Secretary Albright said that we are mounting a full court diplomatic press to achieve meaningful participation from key developing countries, and I indicated in my written testimony a number of the specific efforts we are making in that regard. The Secretary herself is also fully engaged on this issue – for example, it was an issue she raised on her recent trip to China. But no decision has yet been made concerning who will serve as the Department's Climate Change Coordinator or what the specific portfolio will be.

Eizenstat HIRC Qs&As

Climate Change: Hagel/Byrd Resolution

Question: Mr. Eizenstat, I notice in your testimony that you mention the article in the Washington Post last week by Senators Hagel and Byrd. What you don't mention is the final paragraph of that article, which reads as follows (and I quote):

"The agreement reached in Kyoto does not meet either of the criteria laid out in the Byrd-Hagel resolution. Further negotiations and work clearly will be needed this year and probably beyond before these tests can be met. These tests must be met. The U.N. Global Climate Treaty should not be signed by the president until it meets both of these clear objectives."

What do you suppose Senators Byrd and Hagel meant when they said that the Kyoto Protocol does not meet either of the criteria contained in their resolution -- a resolution which was endorsed by 95 percent of the United States Senate, I might add?

Answer: I have not yet had an opportunity to meet with Senator Byrd or Senator Hagel since reading their article last week in the Washington Post. However, I see nothing inconsistent with what they said or with our current approach -- we agree that we did not achieve the meaningful participation of key developing countries in Kyoto and that we have further work to do on this. We also agree that the Parties to the Framework Convention have yet to develop rules and guidelines for the flexibility mechanisms contained in the Protocol (emissions trading, joint implementation and the Clean Development Mechanism) -- we will begin work on this two weeks from now in Bonn. In other words, I think that Senator Byrd and Senator Hagel meant that there is more work to be done before we move to ratify the Kyoto Protocol, and we agree.

Eizenstat HIRC Qs&As

Climate Change: Signing

Question: Senators Byrd and Hagel both said that the President should not sign the Kyoto Protocol until it meets both of the clear objectives set forth by the United States Senate in its resolution last July. But you have said that the United States will sign within the one year period that the Protocol is open for signature. Do you expect to meet the objectives set forth by the Senate by March 15, 1999? If not, will you ignore the clear advice of the Senate and sign the Protocol anyway?

Answer: We are working hard to develop rules and guidelines concerning the flexibility mechanisms (emissions trading, joint implementation and Clean Development Mechanism) contained in the Kyoto Protocol as well as to move forward with preparatory work in other areas (e.g., compliance mechanisms). We are also working very hard to achieve more meaningful participation of key developing countries. I am optimistic that we will make considerable progress on both counts this year. At the same time, I doubt that all will be done by March 15, 1999. As we have said, we intend to sign the Protocol within the one year period that it will remain open for signature at a time when it is tactically advantageous for us to do so. However, we are in no way ignoring the view of the United States Senate -- the President has made quite clear that we will not send the Protocol to the Senate for advice and consent until we have achieved meaningful participation of key developing countries.

Questions and Answers for HIRC Testimony

(from Gilman's Staff)

1. (and 2) Why are there so many differences in Administration cost estimates? Why are those in CEA Advisor Janet Yellen's recent testimony so low? Will the Kyoto Protocol cost \$600 billion – the Vietnam war only cost \$481 billion – can the American people support this?

(Yellen to lead.)

CEA's recent analysis incorporates the flexibility mechanisms (primarily emissions trading) that were not included in pre-Kyoto calculations. Thus, the costs are significantly lowered. Some of the studies you have referred to (like the Argonne Laboratory workshop) did not calculate a price, but estimated a pre-set cost level and discussed impacts to the economy. Obviously, these are not comparable, nor do many of these studies account for technological change and a range of other factors.

**3. China is the second largest emitter of greenhouse gases and is saying
No to Kyoto
No to voluntary implementation of stabilization targets
No further commitments to limit greenhouse gas production
What good is a treaty China won't sign?**

China is a Party to the Framework Convention on Climate Change and has obligations to inventory its emissions of greenhouse gases and take

steps to address climate change. China has a number of policies to restructure its energy system and promote energy efficiency and control air pollution – many of which work to slow the rate of increase in China's greenhouse gas emissions. We are already working toward greater cooperation with China – in fact Secretary Albright recently visited China, where she raised the climate issue. We believe there is a prospect of further cooperation with China on climate change and eventually on Kyoto.

4. Can't climate change be explained by variations in the amount of solar radiation that reaches the Earth?

Recently, the question of whether solar cycles explain the temperature patterns seen over the last 100 years has been resurrected. This is not a new issue but one that has been debunked many times before and is explicitly refuted in the 1995 IPCC Report.

Clearly variations in solar radiation can affect the climate, but the effect on the climate of changes in the sun is small compared to the effect of greenhouse gases. So, if you argue that the Earth's temperature responds to these very small changes from the sun – and it

clearly does – it will certainly respond to increases in greenhouse gas emissions.

4(bis). What about Ben Santer? Doesn't he say that the evidence could go either way?

Ben Santer was one of the authors of the IPCC conclusions in 1995. I believe he concurs with the overall assessment that “the balance of evidence suggests that there is a discernible human influence on the climate system.”

5. Russia will have 800 million metric tons to trade and the White House recently testified that these will be worth \$23 a ton. This \$18 billion, if used to purchase Russian tons, would provide a huge windfall to Russia without linkage to other foreign policy considerations (e.g. human rights, nonproliferation, anti-narcotics and anti-terrorism agendas). Isn't this a huge, hidden indirect tax to provide large amounts of unconditioned foreign aid to Russia?

Absolutely not. The decision to buy Russian tons will be a private firm decision, in our view, and the choice would be to buy a Russian ton, a U.S. ton, some other ton from a country with a target, or to invest for offsets – the choice will be shaped by short and long-run cost benefits. Although Russia will be one seller of tons, we anticipate there will be other sellers and various prospective buyers.

6. Rogue nations like Libya, Iraq, North Korea and Iran , it seems, can benefit under the proposed U.N.-managed trading scheme? Yet, no provision in the Kyoto Protocol prohibits their participation, why?

There was no need to do so. Only countries that assumed binding targets can trade emissions under the provisions of the Protocol. Were a situation to arise where Libya, for example, might benefit through investments or some other mechanism - and Security Council sanctions were still in force - this would be dealt with by the UN Sanctions Committee. Also US law will continue to apply to US firms and they would not be able to undertake activities with these nations.

7. Will implementation of this Protocol entail the creation of another UN bureaucracy?

No. The Protocol is designed to rely on existing institutions and use market forces to promote efficient decisions as much as possible. A US company investing abroad to secure offsets against its emissions will not be subject to the whim of a UN bureaucracy. Rather, our vision is to have multiple private and/or public sector entities that could certify the offsets earned by a particular "clean" investment. The clearinghouse mechanism envisioned in the Clean Development

Mechanism is a place where firms can find opportunities to invest and developing countries can find willing investors.

8. Will implementing the Protocol threaten US Defense readiness?

No. The Protocol exempts, specifically, aviation and marine bunker fuel from being counted in a national emissions targets. Moreover, the President has made clear that he will hold DOD harmless from any national emission limitations.

9. The U.S. has signed the Protocol and failed to submit it for ratification as the Constitution requires. Why?

The U.S. has yet to sign the Protocol although we have made clear our intent to do so within the year it is open for signature at the most opportune moment diplomatically. We have also made clear that we view the Protocol as a work in progress and will submit it for ratification when we have secured the “meaningful participation of developing countries in the global effort to mitigate the effects of climate change.”

10. Does the Administration oppose introduced legislation to block funding for the implementation of the Protocol before it is ratified?

Yes. Such legislation suggests we would stop environmental and energy efficiency goals we have been pursuing for many decades. These proposals are good for the economy, good for the environment, and good for Americans. It does not make sense to stop funding for such positive activities.

Top ten U.S. Giveaways.

1. The U.S. failed to secure binding commitments from developing countries at Kyoto and provisions for voluntary commitments were also eliminated.

This is a misperception. We have said that Kyoto is a work in progress, because we believe developing countries must do more. But all countries, including developing countries were called on, by the Protocol in Article 10, to strengthen their efforts under the Convention. This is a long-term global problem. All countries must contribute to the solution and work on this problem will continue for many decades. We are committed to securing meaningful participation from key developing countries on this problem.

2. U.S. position called for developing countries to take on binding commitments no later than 2008, and New Zealand's effort to secure a voluntary "opt-in" procedure for developing countries failed.

These proposals were resisted at Kyoto, in part because the Conference of Parties in 1995 in Berlin that established the terms of reference said developed countries would go first. Moreover, the European Union refused to push the developing countries at that stage. We made clear, however, that we cannot submit the Protocol for ratification until we

have “meaningful participation by developing countries”. This signaled to all Parties that we believed more work remained.

3. The original U.S. proposal called for stabilizing emissions in 2010, yet you agreed in Kyoto to a 7% reduction below 1990. How could you have taken that step in the absence of an economic analysis showing how this would effect unemployment and the U.S. economy.

Our original target proposal calculated that the baseline for all six greenhouse gases would be 1990 and that sink activity in the base period would be subtracted from the changes in sink activity during the compliance period. Instead, the base period for the three synthetic gases was set at 1995 and sinks were not included in the baseline, so that only “net changes in sinks” from afforestation, deforestation, and reforestation can be factored in the target. This meant that the move to -7% represented, at most, a 3% greater effort – relatively small in the context of the existing commitment to stabilization.

4. The U.S. opposed mandatory policies and measures, yet permitted a list of suggested policies and measures to be included in the Protocol – a clear first step toward UN management of the U.S. economy!

Ridiculous. The possible voluntary list of policies and measures is just that – suggested actions. There is no requirement, no bureaucracy and no review of these actions. It’s inconceivable to think that would be the

case. Our objective – to ensure the use of flexibility mechanisms that would provide the opportunity for the greatest choice in making least cost reductions is the operative provision in the Protocol – and because of this opportunity the prescribed policies advocated by the EU will never be mandatory.

- 5. The U.S. accepted the EU “bubble” after strident opposition to it in the pre-Kyoto period. Why?**

In every negotiation there is give-and-take. The quid pro quo for our flexibility mechanisms, multi-year compliance period, differentiated targets, our six gas package, and the inclusion of sink activity in the target was the “EU bubble”. Given that we prevented aspiring EU members from joining until after the first budget period, we have limited the advantages to the EU from this mechanism.

- 6. U.S. proposed giving U.S. companies the opportunity to invest in other countries to earn emission credits. This freedom was severely restricted by the Clean Development Mechanism which promises to be another UN bureaucracy that will subject U.S. companies to command-and-control.**

Wrong. The opportunity to invest in projects on a firm-to-firm basis is completely unrestricted among the 39 Parties in Annex I. Moreover,

the Clean Development Mechanism is designed to be an information clearinghouse (not a UN oversight agency) that will identify project opportunities in developing countries for investors .

- 7. DOD called for a complete military exemption in the Protocol before Kyoto, but the U.S. failed to secure this in the negotiation. The consequences will be a serious decline in military readiness.**

On the contrary, DOD told us they needed a bunker fuel exemption in the Protocol and recognition in some form that emissions in international peacekeeping operations would not be counted against targets. This was accomplished. Moreover, the President has made clear that he would hold DOD harmless in the case of any domestic emission limitations. DOD accounts for less than 1% of our domestic emissions and its emissions are already at less than its 1990 levels.

- 8. U.S. called on developing countries to report on their emissions and mitigate emissions growth. In fact, under the Protocol, developed countries, including the U.S., must pay the full cost of developing country mitigation efforts.**

This is a misreading of the Protocol, which closely follows the existing Framework Convention --- which was negotiated in the Bush Administration and received the overwhelming endorsement of the

United States Senate. Under the Convention, developed country Parties collectively agreed to support the efforts of developing countries to address climate change. They fulfill this obligation in part through their contributions to the Global Environment Facility. At present, 164 countries participate in the GEF.

[FYI: About 20 developed countries contribute to the GEF.]

9. In order to give industry, agriculture and labor clear guidance on what the U.S. commitments will be the U.S. called for clear commitments and procedures to be negotiated in Kyoto. We did not want to be subject to future conferences with new and unclear commitments. Yet, the U.S. agreed to language that allows a vote of three-quarters of all Parties to the Protocol to impose new, binding commitments on developed countries, like the U.S. Why?

This is another misperception. Any amendment to Annex B, which contains the percentage limitation and reduction commitments of industrialized country Parties, requires the written consent of the Party concerned, pursuant to Article 21, paragraph 7 of the Protocol.

10. The U.S. originally called for a large number of countries with high carbon emissions to ratify the treaty before it came into force, but now it will come into force with fewer countries ratifying.

This is inaccurate. The Protocol comes into force when not less than 55 Parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55% of the total carbon dioxide emissions for 1990 of the Parties included in Annex I, have ratified.

This is a pretty stiff test. The EU alone, for example, cannot ratify and bring the Protocol into force; nor can developing countries as a group bring the Protocol into force.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q1. Recent research by the respected economics firm WEFA indicates that implementing the Kyoto Protocol would result in higher U.S. energy costs, reduce U.S. living standards, and give developing countries -- such as Mexico, China, India, Korea, Brazil, and others -- a competitive advantage over the U.S. Why shouldn't we believe these results from the WEFA economic analysis?

A1. The WEFA analysis does not incorporate many of the Kyoto agreement's flexibility mechanisms. For example, the WEFA analysis excludes cost-effective opportunities to reduce emissions through international trading, the Clean Development Mechanism, and non-carbon dioxide greenhouse gas reductions. Further, the analysis does not account for the Administration's position on developing country participation. These flexibility measures were included in the Administration's analysis. As I have said before, we can do it dumb, or we can do it smart. Doing it dumb means that we would ignore many of these cost-effective opportunities to reduce emissions. Doing it smart implies that we would take advantage of cost-effective options, and that is why the Administration was a strong advocate in Kyoto for flexibility measures, and we will continue to serve as an advocate in subsequent negotiations.

I should add that no one model result should serve as the "right" answer on the costs of complying with our commitment under the Kyoto Protocol. The Administration analysis serves as a powerful illustration of the virtues of flexibility measures. The cost-effectiveness of increasing flexibility in achieving environmental goals is robust across models. Indeed, the high costs associated the WEFA analysis -- in contrast with the Administration analysis, modeling results from Energy Modeling Forum exercises, the IPCC Working Group III 1995 assessment, OECD climate modeling results, and the Interagency Analytic Team report -- illustrate the importance of flexible, cost-effective implementation that is the cornerstone of the Administration's policy.

Q2. The Administration claims that the Kyoto Protocol will cost the U.S. \$7 - \$12 billion per year by 2010, while the WEFA economic analysis indicates that economic losses will be \$300 billion per year. Why is the WEFA estimate 30 times greater than the Administration estimate?

A2. The WEFA analysis found very high costs because it does not account for the many flexibility measures in the Kyoto Protocol (see A1).

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q3. WEFA estimates more than 2.4 million job losses because of the Kyoto Protocol. The Administration claims very modest job losses, but neither you nor Dr. Ed Montgomery of the Department of Labor has presented an estimate. Do you consider 2.4 million "very modest"? What is the Administration's estimate? Why does your estimate differ so much from the WEFA estimate?

A3. 2.4 million jobs is not a modest decline. However, the WEFA analysis assumes that we achieve our emissions target without the benefit of many flexibility mechanisms that are a part of the Kyoto Protocol (see A1). Accounting for these flexibility mechanisms significantly decreases the costs of achieving our target, and the effect on employment -- just like the effect on energy prices -- would be quite modest. Although there may be job gains in some sectors and job losses in others, we do not anticipate any significant aggregate employment effect if we achieve the conditions we have discussed. The effects on energy prices do not occur over night -- they occur only 10 to 14 years in the future. Not only are these effects small relative to historical variations in energy prices, they would occur sufficiently far in the future to enable monetary policy to keep the economy operating at its potential. In energy-intensive sectors some employment reduction could occur, although given the very small predicted change in energy prices, impacts in most such sectors are apt to be minimal. Furthermore, a large number of jobs will be created in other sectors -- many of them high-tech jobs paying high wages.

Q4. WEFA estimates \$265/ton permit prices by 2010, more than 10 times greater than the Administration estimates of \$14 - \$23/ton. Why the difference?

A4. The WEFA analysis found very high permit prices because it does not account for the many flexibility measures in the Kyoto Protocol (see A1).

Q5. WEFA estimates that permit prices will increase to \$360/ton by 2020. What is the Administration estimate of permit prices for 2020?

A5. The Administration has not estimated permit prices beyond 2012 because of the uncertainty regarding emissions targets for commitment periods after the first period.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q6. WEFA's analysis indicates that Kyoto would create a prolonged series of mini-shocks to the U.S. economy, similar to the oil shocks of the 1970s and early 1980s. Do you agree with this assessment? If not why not?

A6. First, the WEFA analysis found very high energy prices because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). Further, it should be recalled that the oil shocks of the 1970s were surprises -- businesses did not have an opportunity to plan for the sharp increases in energy prices. However, the Kyoto Protocol provides businesses with a decade-long window to plan before the first commitment period.

Q7. If in subsequent negotiations, the rules for international trading and CDM are cumbersome, and developing countries do not take on targets, would your economic assessment of climate policy change? Would it be more similar to WEFA's analysis?

A7. The Administration's position is to secure rules for effective international trading and for an effective Clean Development Mechanism. Further, it is the Administration's position to secure meaningful participation by key developing countries. I will not speculate on hypotheticals that do not conform to Administration policy.

Q8. WEFA estimates average GDP losses of about \$2700 per household by 2010, much greater than the Administration's estimates. Why the large discrepancy?

A8. The WEFA analysis found very high costs because it does not account for the many flexibility measures in the Kyoto Protocol (see A1).

Q9. WEFA estimates that food would be 9% more expensive, medical care costs 11% higher, and housing costs 21% higher under the Kyoto Protocol. What are the Administration estimates for these goods and services?

A9. The WEFA analysis found very high costs because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). The Administration has not conducted an analysis on the effects of specific sectors of the economy because of the substantial uncertainties forecasting that far into the future.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q10. WEFA claims that U.S. exports would be relatively more expensive on the world market resulting in significantly lower real net exports. What is the Administration estimate of the change in net exports?

A10. The WEFA analysis found a reduction in net exports because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). The Administration has not calculated a number representing the effects on net exports. By achieving broader participation in climate policy through the Administration's position on developing countries and securing effective international trading, the effects on trade should be very modest.

Q11. WEFA indicates that chemicals, paper, textile and apparel, computer and electronic industries would all be significantly hurt by the implementation of the Kyoto Protocol. What are the Administration estimates on the effects of climate policy on these industries?

A11. The WEFA analysis found sector-specific impacts because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). The Administration has not calculated a number to represent the effects of climate policy on specific industries. It is difficult to forecast the economic activity in specific sectors a year, or even a quarter or two, in advance. The task is virtually impossible to predict sector-specific economic effects more than a decade into the future.

Q12. WEFA indicates that it did not assess international trading because it is only "conceptual" and that until the details -- such as principles, rules, verification, reporting, and accountability -- are addressed, it is not possible for trading to take place. Why then did the Administration include trading in its analysis?

A12. Article 17 of the Kyoto Protocol clearly states that Annex B countries have the right to trade emissions allowances. We assessed international trading because it is one of the key components of our flexible approach to implementing climate change policy. Conducting an economic analysis of trading before all the rules have been established is the same as assessing the economic effects of a bill or law before the regulations to implement the law have been drafted.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q13. WEFA claims that the benefits of international trading could be limited because trading would only occur among Annex I countries. Why does the Administration claim that trading among Annex I could cut costs by more than half?

A13. Expanding a market lowers costs for all the participants in the market. Many of the Eastern European and Former Soviet Union countries in Annex I have higher energy-to-GNP ratios than the United States. For example, Russia is about 5 times less efficient, and Poland about 4 times less efficient than the U.S. Since these countries are less energy efficient than the United States, firms in those countries may find it relatively less expensive than firms in the U.S. to reduce greenhouse gas emissions by improving energy efficiency. In addition, developing countries can adopt targets, join Annex B of the Protocol, and participate in trading, which would further reduce the costs of achieving our emissions target.

Q14. WEFA claims that international trading would require audits of all participating U.S. businesses and the U.S. government. Who would conduct these audits? Would a U.N. bureaucracy be created to audit our country?

A14. The Kyoto Protocol does not require audits for trading, or anything of that nature.

Q15. The Administration claims that climate policy will only cost the economy 1/10 of 1% of GDP, while the respected American Council for Capital Formation (ACCF) has sponsored research that indicates that the less stringent goal of 1990 by 2010 could range between 1% and 4% of GDP, and permit prices could range between \$200 - \$260/ton. Why the large differences?

A15. These studies found very high costs and permit prices because they do not account for the many flexibility measures in the Kyoto Protocol (see A1).

Q16. ACCF claims that the energy price increases associated with implementing Kyoto will "force" consumers to "make major changes in their lifestyles, including lowering their thermostats in winter, driving less, and reducing their use of air conditioning in summer." Is this true? If not, why not?

A16. This is not true. By accounting for the flexibility measures in the Protocol, the energy price increases will be modest. We expect that consumers will make small changes in response to energy prices, but not major lifestyle changes.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q17. Research by ACCF indicates that implementing Kyoto would exacerbate income inequality in the U.S. In fact, the increase in income inequality would be twice that experienced between 1968-1978, and about 3/4 of the inequality increase occurring between 1979-1983. How can the Administration support an environmental policy that makes inequality much worse?

A17. The study you are referring to found significant effects on inequality because it does not account for the many flexibility measures in the Kyoto Protocol (see A1). Further, this finding about inequality is very sensitive to the model's "revenue recycling" mechanism. That is, in this study, it is assumed that carbon dioxide permits are auctioned, and the revenues from such an auction would be "recycled" or returned to consumers either through a reduction in personal income taxes or through a lump-sum redistribution. The reduction in income taxes results in inequality effects 5 times larger than the lump-sum redistribution. While this result is beneficial in informing us about the inequality effects of different revenue recycling approaches, it does not substantiate the claim that Kyoto would exacerbate inequality along the lines of what was experienced during the oil shocks.

Q18. ACCF reported a study that indicates that the "single most important factor contributing to the decline in carbon emissions" during 1974-1986 were reductions in per capita GDP. Will implementing the Kyoto Protocol require the U.S. to reduce its per capita GDP and force a decline in our standard of living?

A18. First, the U.S. did not experience a reduction in per capita GDP during these years; the rate of growth slowed. Second, the oil shocks caused energy prices to shoot up causing stagflation and a fall in output. The Administration intends to implement the Kyoto Protocol through a set of flexibility measures that will result in very modest effects on energy prices. By accounting for these measures, the effects on GDP would be negligible, so per capita GDP would not significantly change, and surely would not fall.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q19. The recent economic analysis by DRI indicates that Eastern Europe and the Former Soviet Union will average 160 million tons of carbon per year below their emissions targets during the commitment period. Some observers have referred to this as "hot air", because the Russians may be able to sell emissions allowances without making any actual reductions in their emissions. What did the Administration assume about the projected magnitude of "hot air" when it conducted its analysis? Do you assume that the Russians can sell their hot air?

A19. The Administration used the estimates of carbon emissions from the Second Generation Model for Eastern Europe and the Former Soviet Union. The Kyoto Protocol does not preclude any country from selling any part of its emissions allowance, and indeed, through the EU bubble, it sanctions implicit exchanges of what has been referred to as hot air by allowing some EU countries to take less stringent targets while Germany reduces below its 1990 - 8% level by taking advantage of the fall in output in the former East Germany. The Administration analysis assumes that all countries trade emissions allowances to minimize the costs of achieving their targets.

Q20. The DRI testimony states that the Administration analysis indicates that the U.S. will be able to purchase permits in an international market that would not include the European Union. Is this true -- will the Europeans actually avoid trading? Does the Administration intend to develop trading rules that excludes the Europeans?

A20. The Administration analysis included a range of permit prices and costs to reflect uncertainty regarding the participation of all Annex B countries in international trading. It is not the Administration's position to exclude any Annex B country or firms from any Annex B country from participating in international trading. The Administration's position to secure rules ensuring cost-effective emissions reductions to achieve our emissions target.

Q21. The DRI analysis claims that U.S. marginal abatement costs "are arguably significantly lower" than Europe's and Japan's. Does this mean the U.S. might not find it cost-effective to purchase emissions allowances abroad?

A21. Many of the Eastern European and Former Soviet Union countries in Annex I likely have lower marginal costs than the U.S. since they have higher energy-to-GNP ratios than the United States. For example, Russia is about 5 times less efficient, and Poland about 4 times less efficient than the U.S. Since these countries are less energy efficient than the United States, firms in those countries may find it relatively less expensive than firms in the U.S. to reduce greenhouse gas emissions by improving energy efficiency. In addition, developing countries can adopt targets, join Annex B of the Protocol, and participate in trading, which would further reduce the costs of achieving our emissions target.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q22. The DRI testimony claims that the Administration analysis assumes that 85% of our required emissions reductions will be purchased from abroad. Does the Administration intend for the U.S. to buy that much from abroad? What would be the magnitude of wealth transfers to other countries if we buy that much? Do you agree with DRI's statement that "a large revenue stream would be diverted overseas?"

A22. The Administration does not intend for the firms to purchase any specific amount of emissions reductions abroad. Rather, the Administration intends to provide flexibility to the private sector so that emissions reductions can be achieved cost-effectively. If a private firm finds it cost-effective to achieve emissions reductions by purchasing emissions allowances from a firm in another country, we do not believe there should be restrictions on that behavior.

Q23. DRI states that tradable "permits are an implicit tax." Is the Administration's proposed domestic trading program a backdoor approach to tax American businesses? Is the international trading system a backdoor attempt at an international tax on our businesses?

A23. In general, a tradable permit and a tax are not equivalent. A tradable permit system focuses on fixing quantities and leaves prices free to fluctuate, while a tax focuses on prices and allows quantities to adjust. The significant advantage of a tradable permit approach over the tax approach is that it allows for the opportunity to trade across countries and take advantage of low-cost reductions abroad, while a tax approach does not provide this option.

Q24. DRI states that if permits are given, or "grandfathered" to businesses, consumer real incomes would fall while business profits would increase. Do you agree with this conclusion?

A24. It should be noted that the DRI analyses do not fully account for all of the flexibility mechanisms in the Kyoto Protocol. The Administration analysis indicates that the effects of climate policy would be modest. As an illustration, we calculated through a model that annual household energy expenditures would increase by between \$70 and \$110 by 2010. However, the Administration's electricity restructuring proposal would result in cost-savings roughly equal to this amount, so the total effect on consumer incomes would be very small.

Draft Q's and A's Based on Recent Congressional Testimonies, 5/11/98

Q25. DRI stated that “the role of developing countries in the Protocol is still undefined. The impact on states producing traded goods could potentially be severe if developing countries would be allowed to use low-cost, high-polluting technologies and sell their products at lower cost in the U.S.” Do you agree with this conclusion from DRI?

A25. By accounting for the flexibility mechanisms in the Kyoto Protocol and securing meaningful participation of developing countries, the costs of achieving our emissions target would be modest, and the effects on trade would be minor. The Administration has and continues to advocate for measures that will result in cost-effective emissions reductions and for global participation to address the risks of climate change. The Administration position ensures that trade will not be adversely affected by climate policy.

1. Dr. Yellen, several studies sponsored by industry have claimed that the Kyoto agreement will cause energy prices to shoot up dramatically and force millions of workers to lose their jobs. In your testimony, you have argued that the effects of climate change policy on energy prices and employment will be quite modest. How do you reconcile the Administration's numbers with these doomsday reports we are hearing from industry?

2. Dr. Yellen, you have stated in your testimony that addressing all greenhouse gases and carbon sinks provides opportunities to reduce total emissions at lower costs. Could you explain why including all greenhouse gases and sinks can lower costs?

3. Dr. Yellen, you mentioned the Clean Development Mechanism in your testimony. Could you explain how this mechanism might work, how it would affect the U.S. costs of complying with our emissions target, and incentives it might provide for exporting U.S. technology? Further, what are the benefits of allowing projects under the Clean Development Mechanism to start in 2000?

4. Dr. Yellen, you mentioned in your testimony that international emissions trading provides cost-savings to the U.S. Could you explain why trading would lower our costs?

5. Dr. Yellen, you discuss in your testimony how Annex I trading would lower the costs to the U.S. by about half, and how the so-called "umbrella" trading arrangement would result in even greater cost-savings. Could you explain why trading among a smaller set of countries would result in greater cost-savings?

6. Dr. Yellen, some opponents of the Kyoto agreement claim that emissions trading will not work. As you mentioned in your testimony, the U.S. has experience with emissions trading. Could you describe our experience with the sulfur dioxide trading program, and discuss the cost-savings associated with this effort to address acid rain?

7. Dr. Yellen, could you describe some of the additional non-climate benefits that we might expect from reducing our carbon emissions and explain why we gain these benefits?

8. Dr. Yellen, could you discuss the possible impact the Administration's climate change policy could have on our imports of oil?

Q&A ON ECONOMIC ANALYSIS

COSTS

~~Q:~~

WHY IS YOUR ESTIMATE OF THE COSTS INVOLVED SO MUCH LOWER THAN OTHER ESTIMATES? HOW IS YOUR ANALYSIS POSSIBLY CREDIBLE?

Q:

IF YOUR ANALYSIS IS CORRECT, HOW MUCH WILL AMERICAN CONSUMERS HAVE TO PAY IN 2010 TO MEET THE PRESIDENT'S GOALS? ISN'T THAT A SUBSTANTIAL HARDSHIP FOR THE AVERAGE AMERICAN FAMILY?

Q:

HOW MUCH WILL GAS PRICES INCREASE UNDER YOUR ANALYSIS?

Q:

HOW MUCH WILL ELECTRICITY PRICES INCREASE UNDER YOUR ANALYSIS?

Q:

WHAT IS THE DISTRIBUTIONAL EFFECT OF THE INCREASE IN ENERGY PRICES?

Q:

UNDER YOUR ANALYSIS, WHEN DO ENERGY PRICES START TO RISE ABOVE THEIR BASELINE LEVEL?

PEER REVIEW, PREVIOUS STATEMENTS, AND GENERAL

Q:

DO YOU HAVE ANY OUTSIDE EXPERTS WHO CONCUR WITH YOUR ANALYSIS? WAS IT PEER-REVIEWED?

Q:

DIDN'T JANET YELLEN CLAIM THAT USING THESE TYPES OF MODELS IS FUTILE?

Q:

DON'T INTERNAL ADMINISTRATION DOCUMENTS SHOW MUCH HIGHER COSTS?

Q:

HOW DO THESE RESULTS RELATE TO THE IAT REPORT? ARE THE MODELS OR ASSUMPTIONS SIMILAR?

Q:

WHY DID IT TAKE YOU SO LONG TO RELEASE THIS REPORT?

TAXES

Q:

DOESN'T YOUR ANALYSIS SHOW THAT THE PRESIDENT'S PLAN ENTAILS A TAX INCREASE OF [\$30] BILLION IN 2010?

Q:

HOW LARGE IS THE TAX INCREASE FOR THE AVERAGE FAMILY IMPLIED

BY YOUR MODEL?

Q: DOES YOUR ANALYSIS INCLUDE THE PRESIDENT'S PROPOSED TAX CUTS?

TECHNOLOGY

Q: WHAT DOES YOUR ANALYSIS ASSUME ABOUT TECHNOLOGY?

ELECTRICITY RESTRUCTURING

Q: DON'T SOME CREDIBLE SOURCES BELIEVE THAT ELECTRICITY RESTRUCTURING WILL RAISE CARBON EMISSIONS? DID YOU INCLUDE THAT IN YOUR ANALYSIS?

DEVELOPING COUNTRIES AND TRADING

~~X~~ WHY DO YOU ASSUME THAT DEVELOPING COUNTRIES WILL PARTICIPATE IN THE INTERNATIONAL EFFORT TO MITIGATE CLIMATE CHANGE, WHEN THEY HAVE NOT AGREED TO DO SO?

Q: WHY DO YOU ASSUME INTERNATIONAL TRADING, WHEN THE RULES FOR SUCH TRADING HAVE NOT YET BEEN CLARIFIED?

~~X~~ WHY DO YOU BELIEVE THAT INTERNATIONAL PERMIT TRADING WILL WORK SO WELL? AREN'T YOUR ASSUMPTIONS IMPLAUSIBLE?

~~X~~ HOW LARGE ARE THE TRANSFERS TO THE REST OF THE WORLD UNDER YOUR ANALYSIS? WON'T THAT EXPAND THE CURRENT ACCOUNT DEFICIT, WHICH IS ALREADY GROWING SUBSTANTIALY?

→ JA

from STAP

If VERSION SENT TO
OMB, 2/5/98

Q's & A's for Climate Change testimony 2/98

THE PROTOCOL

How can you say the Kyoto Protocol is a success if there is no mention of developing countries? The Protocol is severely flawed.

On the contrary, most of the elements of the President's package were put firmly in place at Kyoto. The Protocol includes the market-based mechanisms of international emissions trading (across all six greenhouse gases) and joint implementation among developed countries. Moreover it allows for full flexibility on the kinds of policies and measures a country may enact domestically to achieve compliance, and sets the targets on the basis of a multi-year objective, rather than a single fixed-year obligation. With regard to developing countries, it allows for investment in projects in developing countries to be used as offsets against obligations in developed countries (through the Clean Development Mechanism (CDM)). The Protocol also beefs up all Parties' national communications and gives advanced developing countries the option of adopting an emissions budget and trading under the Protocol – potentially providing more development resources than the project-based CDM. There is of course more work to do, particularly on gaining the meaningful participation of developing countries, and we plan to make bilateral and multilateral efforts to this end.

INSTITUTIONAL/PROCEDURAL/SIGNATURE/RATIFICATION ISSUES

Do you plan to sign the Kyoto Protocol and then ignore Senate advice and consent?

Absolutely not, and we are here today to begin this dialogue. As we have said, U.S. ratification will require the advice and consent of the Senate. The United States may choose to sign the Protocol during the year that it will be open for signature, but that would not bind the United States to the Protocol's requirements.

When do you expect the President to sign the Kyoto Protocol?

The Kyoto Protocol opens for signature in March 1998 and remains open until March 1999. We hope and expect to sign during that period.

When do you expect the President to submit the Protocol to the Senate for its advice and consent? Isn't the President disregarding the Senate's appropriate constitutional role of advice and consent?

As we have said, U.S. ratification will require the advice and consent of the Senate. The United States may choose to sign the Protocol during the year that it will be open for signature but that would not bind the United States to the Protocol's requirements.

If the Kyoto Protocol is such a positive achievement, why has the Administration said it will not submit it to the Senate for its advice and consent to ratification?

The Kyoto Protocol is an historic step forward in the effort to meet the challenge of global warming. We believe it reflects an environmentally strong and economically sound approach to this very difficult problem. But there are details of additional elements we need to work out in order to have a package ready for submission to the Senate. In particular, we have not yet established the mechanism and activities to ensure that the President's requirement for meaningful participation from key developing countries is fully met. Though the Protocol makes a down payment on such participation, more needs to be done in this area. Additional work also needs to be done in fleshing out the rules and procedures for market-based emissions trading. The Administration is working hard to fill in these pieces and looks forward to submitting the Kyoto Protocol to the Senate once these objectives have been achieved.

Why did you agree to a provision that will allow this Protocol to go into effect all over the world without U.S. ratification? Didn't you intentionally diminish the role of the Congress?

The U.S. entered these negotiations with the very clear position that we did not want to reserve the power to block this important international treaty simply by not ratifying it. It is not in American interests to prevent the international community from acting against the very serious threat of climate change.

Nevertheless, for the Kyoto Protocol to be effective in reducing global emissions, it must apply to the majority of the world's large emitters. Accordingly, to enter into force, the Protocol must be ratified by at least 55 countries including Annex I nations, accounting for at least 55 percent of the total 1990 carbon dioxide emissions of developed countries. We anticipate that to meet this threshold, either the Russian Federation or the United States will have to ratify, even if the European Union and other developed Parties ratify as well as most developing countries. Regardless of when we ratify, we will still participate as a Party under the UN Framework Convention on Climate Change and have significant influence over the related processes.

SCIENCE

How do we know there is any reason for taking action? Isn't this just too costly?

The science of global warming is compelling. A 1995 report, representing the work of more than 2,000 of the world's leading climate change scientists, concludes that "the balance of evidence suggests that there is a discernible human influence on global climate." While a clear empirical relationship between cause and effect is difficult to establish, 1997 is the warmest year on record for average global surface temperatures, and nine out of the last 11 years are among the warmest ever recorded. More record warm years are in the forecast. The Administration does not believe it is responsible to delay taking preventative action on the climate change issue; however, we recognize that any action must proceed sensibly in a way that is economically sound.

Background: The cost of inaction would be devastating in human and financial terms: a greater incidence of droughts and storms, relocating entire communities because of the inundation of our coastal areas, a higher incidence of tropical disease, and a threat to plant and animal species throughout the United States. Droughts and storms are indeed costly: the Southern Plains drought of 1996 was estimated to cost \$4 billion, and the Northwest floods of 1996-97 about \$3 billion. Although recent examples of severe droughts cannot be unequivocally attributed to global warming, they do indicate a pattern consistent with scientific understanding. Abroad, climate change could devastate the Middle East and Africa, exacerbating political tensions, and the world's poorest countries, already hurt by food production and distribution problems, are expected to suffer more in these areas because their countries will not be able to adapt to further challenges posed by climate change.

We are shown graphs and data depicting global warming, but we have heard reports that say NOAA satellite data refutes this warming; and in fact shows a cooling trend...How do you explain this contradiction?

There is no contradiction. Satellites measure temperature above ground (5,000-30,000 feet), taking into account aerosols and ozone loading (due to volcanic eruptions). Surface measurements are taken at ground and sea levels, where aerosols and ozone loading are not as effective as in the atmosphere. NOAA Satellite data consistently has shown over the past 17 years a global warming trend, when adjusted for the influence of aerosols and ozone loading due to volcanic eruptions such as Mt. Pinatubo. This pattern is consistent with the warming trend assessed from balloon temperature readings and surface temperatures readings.

Is it true that even if all the developed countries complied with their targets that their actions would be just a "drop in the bucket" in addressing climate change? Over what time scale is global action likely to be required?

The Kyoto Agreement is an historic step in the effort to address climate change. The binding targets agreed to by developed nations provide important real reductions and lay the groundwork for additional reductions in the future.

Clearly, however, Kyoto is only one step in a long process. To ultimately stabilize emissions at a safe level in the atmosphere, significant reductions – beyond those agreed in Kyoto – will be needed. Furthermore, developing countries – whose emissions are likely to eclipse those of industrialized nations by 2030 – must also begin to limit their emissions if we are to effectively address the problem. The Administration is firmly committed to working to secure meaningful participation from key developing countries and will not submit the Protocol to the Senate until such participation has been achieved.

Background: Even the most stringent proposal tabled for consideration by the Parties in Kyoto (that proposed) by the Alliance of Small Island States, requiring developed country Parties to reduce emissions by 20 percent below 1990 levels by 2005) would have had only a small impact

on the overall problem. It is anticipated that to maintain global concentrations at current levels, global reduction of approximately 60-70 percent of CO₂ emissions would be needed.

How can we trust the data emerging from the Intergovernmental Panel on Climate Change (IPCC)?

The Intergovernmental Panel on Climate Change (IPCC) is the most authoritative body on the science of climate change reflecting the views of the world's pre-eminent climate experts. The more than 2,000 scientists concluded in the IPCC's 1995 Second Assessment that there is a "discernible human influence on the climate system." For the first time, we have a clear scientific indication from experts around the world that human emissions of greenhouse gases are affecting the climate system, and we have ample indications about the potential impacts of climate change.

ENFORCEMENT & COMPLIANCE/U.N./SOVEREIGNTY

Given the rules of procedure of the Conference of the Parties, aren't we turning over decisions that will affect the prosperity of American citizens to the very developing countries that are exempt from any obligations under the agreement?

No, we are not. The emission reduction commitments in the Kyoto Protocol were adopted with the full participation and consent of the Parties to which they will apply. To take effect, each of these Parties must ratify the protocol. In the United States, ratification would occur only after the advice and consent of the Senate under our Constitution. Moreover, under the Kyoto Protocol, we will have full national flexibility in how we meet our emission reduction commitment because we succeeded in Kyoto in rejecting calls for mandatory standardized policies and measures, such as energy taxes. Any change in the emission reduction commitments made in Kyoto could only occur through an amendment to the protocol. Any party that objected to such an amendment would not be bound by it. Thus, decisions that could affect the prosperity of American citizens will continue to be taken nationally by the United States and not by others.

If we ratify the protocol, won't developing countries be able to dictate the U.S. target in the future—and penalize us, if we fail to comply?

No. Any subsequent targets would have to be agreed to by the Parties to whom they would apply.

Is the Kyoto Protocol a threat to U.S. sovereignty?

No, it is not. Under the Kyoto Protocol, individual nations decide for themselves how best to comply with greenhouse gas emissions targets they have agreed to. The Conference specifically rejected proposals which would have imposed mandatory, standardized policies and measures,

such as energy taxes. It does not threaten our sovereignty for us to agree to cooperate with other nations in combating climate change. We cannot solve a global problem alone. The Administration believes that the Kyoto Protocol is in the best interests of the United States and will provide important environmental protection while ensuring continued economic growth and competitiveness.

Isn't this just another way of establishing another UN mega-Secretariat? Do we need anymore big international bureaucracies subsidized by the U.S. taxpayer? Moreover, aren't these people going to become an enforcement operation – and if we don't comply – what will happen? International penalties for noncompliance?

The Protocol contains several provisions intended to promote compliance. It calls for each Party to establish a system for national reporting and measurement of greenhouse gas emissions. As a result of a U.S.-proposed provision, a Party not in compliance with its measurement and reporting requirements cannot receive credit for joint implementation projects. Thus, the primary responsibility for enforcement is at the national level, and the will to act is a domestic matter which cannot be imposed by any foreign authority. We will work with other Parties to ensure that future compliance systems, as yet undetermined, will be strong but not overly bureaucratic.

In the Protocol, the Parties sought to use existing institutions and to minimize the creation of new ones. For example, the subsidiary bodies and Secretariat under the Convention will continue their functions under the Protocol. Because the United States contributes approximately one fourth of the Secretariat's budget under the Framework Convention on Climate Change we have considerable influence within the Convention and vis-à-vis its Secretariat. In all of its actions under the Convention, the Secretariat looks to the Parties for guidance, and must answer to the Parties with respect to its activities. If the United States ratifies the Kyoto Protocol, we will have similar influence under that instrument. Furthermore, in the case of the Clean Development Mechanism, the Parties will oversee the mechanism with the help of a small executive board and "operational entities to be designated" will certify emission reductions from specific projects.

What verification procedures are there to ensure that other countries honor their obligations?

There are several examples of different types of verification procedures in the Protocol. In Article 8, expert review teams will assess Parties' implementation of their obligations. These teams, coordinated by the Convention Secretariat and nominated by Parties, would initiate a thorough and comprehensive technical assessment of all aspects of the implementation by Parties. These teams are taken from the model of the existing system of in-depth review teams that examine Parties' national communications. There is also provision for the creation of verification and monitoring systems for emissions trading (Article 16 bis), joint implementation (Article 6), and the Clean Development Mechanism (Article 12). These will be developed in the coming years, beginning at COP-4 this November, as stipulated in the Protocol. The U.S. will use every opportunity to influence their formulation to ensure their acceptability.

How will the Protocol be enforced? Either it will be an honor system, without any real enforcement, in which case the United States will get taken advantage of as we honor our obligations while others ignore their own; or there will be a real enforcement system, in which case international bureaucracies will be able to sit in judgment on whether we are meeting our obligations. Which will it be? And aren't both these alternatives unacceptable?

As with most compliance systems, whether they are legal or regulatory in nature, there is usually some middle ground. There is still a tremendous opportunity to craft the compliance system of the Protocol as effective procedures and a mechanism to determine and address non-compliance are to be decided at later meetings. For both environmental and competitiveness reasons, the United States will be working on proposals to strengthen the compliance and enforcement regime under the Protocol but no international bureaucracy will be able to "sit in judgment" on whether we are in compliance. The primary responsibility for enforcement is at the national level, and the will to act is a domestic matter which cannot be imposed by any foreign authority. We will work with other Parties to ensure that level of responsibility is preserved.

ROGUE NATIONS

Why doesn't the Protocol exclude rogue nations like Iran, Iraq or Libya? Do you think they should be able to benefit from this Protocol?

The Kyoto Protocol is a global effort to reduce the trend of dramatically increasing greenhouse gas emissions. All nations recognized by the United Nations are eligible to join in this effort. Because Iran, Iraq and Libya are oil-producing countries with significant contributions to global emissions, it is especially important to include them in efforts to reduce emissions. The alternative, excluding them from emissions reductions efforts, would allow these countries to be "free riders," that is, to enjoy the global environmental benefits without joining in the global effort. Any possible activities under the Clean Development Mechanism would be governed by existing sanctions or other trade restrictions.

TARGET/ECONOMIC ISSUES

While the President proposed in October that the U.S. reduce emissions to 1990 levels by 2008-2012, the U.S. agreed in Kyoto to a 7% reduction below 1990 levels in the same timeframe. Why did we accept a more stringent target?

The 7% target is close to the President's initial proposal. It represents at most a 3% real reduction below the target of returning to a composite of 1990/1995 baseline levels by 2008-2012.

The remaining 4 percentage points result from changes in the way certain gases and activities that absorb carbon are counted.

Why did the U.S. support binding emissions limitations? I understand that voluntary programs may be equally as successful.

Two factors prompted the U.S. to propose binding limits for greenhouse gas emissions. First, it became clear that only two industrialized nations would meet the voluntary aim, established in Rio, to reduce emissions to 1990 levels by 2000 (and neither of those for reasons related to climate change). Second, the IPCC's 1995 Second Assessment Report provided important new information on the science of climate change, further underscoring the need to take action.

While binding targets provide greater surety that obligations will be met, they by no means preclude voluntary action. Limited voluntary here in the U.S. have proven effective in cutting emissions, and the Administration has proposed significantly expanding such programs in an effort to meet the Kyoto target. As an example, the Administration will be working with industry over the next nine months to develop voluntary, sector-by-sector initiatives for reducing emissions.

What's all the fuss over "sinks"?

The treatment of sinks in the Protocol altered the accounting method for carbon-absorbing activities, such as planting trees, in the U.S. total: sinks account for about 3% of the 7% reduction. The President's original goal assumed that the 1990 baseline would be lowered by carbon-absorbing activities, but under the method agreed in Kyoto, such activities do not lower the 1990 baseline. Because the 1990 level baseline is thus higher under the Kyoto agreement, the U.S. target becomes somewhat less stringent. Specifically, had the U.S. maintained the same level of effort assumed by the President in October, and no other factors had changed, the shift in the accounting method for carbon-absorbing activities would, alone, have transformed the President's goal of 1990 levels into a goal equivalent to at least 3% below 1990 levels. (As noted above, certain carbon-absorbing activities will count against emission reduction commitments in the budget period.) Despite opposition from a number of countries, the United States insisted that they be included in the interest of encouraging activities like afforestation and reforestation. Accounting for the role of forests is critical to a comprehensive and environmentally responsible approach to climate change. It also provides the private sector with low-cost opportunities to reduce emissions.

What is the Administration proposing to do to ensure that the United States is not put at an economic disadvantage?

While the U.S. and other industrialized countries would incur some reduction costs that would only gradually be borne by the developing countries, (e.g. higher short-medium term energy costs in the industrialized countries), the weight of the evidence suggests that, in the aggregate, these costs would be insignificant to U.S. competitiveness or exports.

Where the question addresses competitiveness concerns of a few energy-intensive manufacturing industries, such as aluminum, paper, and chemicals, we should consider the following: In her testimony, Dr. Janet Yellen noted the contraction of some industries and the expansion of others that one could expect in any instance of significant structural change to the economy. Some facts, however, provide a perspective on the issue: 1) on average, energy accounts for only 2.2% of total costs to U.S. industry; 2) energy prices already differ significantly between the U.S. and countries such as Venezuela, and yet U.S. industry does not generally flee to other countries; and 3) 2/3 of all emissions are generated by the transportation and "buildings" sectors – not manufacturing. To those observations I would add one more: the U.S. energy efficiency and alternative energy sectors are among the most advanced and competitive in the world. As other countries expand their own domestic climate change action plans, significant export opportunities are sure to open up for U.S. manufacturers in these fields.

How will the Kyoto Protocol impact the U.S. economy?

The President has put forward a comprehensive program that, if fully implemented, can reduce U.S. greenhouse gas emissions to the targeted levels while maintaining economic growth and competitiveness. In Kyoto, the U.S. succeeded in rejecting unrealistic targets proposed by other countries. Furthermore, we won acceptance of key market-based mechanisms, such as emissions trading, which will substantially lower the costs of complying with emissions targets.

But aren't there studies suggesting that the Kyoto Protocol will cost millions of U.S. jobs and tank the economy?

We see these kinds of studies every time this nation takes action to protect our environment. Whether it's climate change, clean air, or clean water, there continue to be those who believe that environmental protection must come at the expense of economic growth. We must look at the record: Today, unemployment stands at less than 5%, inflation is low, investment is booming, real wages are rising, and the economy has generated more than 14 million new jobs since 1993. All this good news despite the doomsday predictions of self-interested economic studies that warned of the disastrous consequences of the Clean Air Act, Clean Water Act, and other efforts to protect the environment.

How do you respond to the serious concerns of U.S. business, agricultural groups and labor about the Protocol?

In the months leading up to Kyoto, the Administration conducted an extensive outreach effort to solicit the views of major interest groups, including the business, labor, agricultural, and environmental sectors. This effort included a White House Conference which brought together leading experts from around the country to explore different aspects of the climate issue. What we learned contributed heavily to the U.S. policy announced by the President in October.

In Kyoto, we succeeded in gaining agreement on the key elements of the U.S. position, including a realistic, achievable, and comprehensive emissions target and flexible implementation mechanisms like international emissions trading and joint implementation. Accordingly, a number of interest groups have been supportive of the agreement. That is not to say that all sides are happy. A wide range of issues have been raised, and we look forward to working with interested parties to address legitimate concerns.

Did the Vice President's visit – with his call for greater flexibility on the U.S. side – diminish your negotiating leverage and help lead to the cave-in of our position of 1990 levels by 2008-2012?

The Vice President's visit injected new life into the negotiations by urging all Parties to seek common ground. Earlier in the meeting, the U.S. signaled its openness to consider differentiated targets for developed countries. This move helped bring on board a number of critical countries and demonstrated that we were serious about obtaining a successful outcome in Kyoto. The Vice President's call for greater flexibility went further in building trust among our negotiating partners. We were able to convince them to lower their expectations of higher, unrealistic targets and include all six major greenhouse gases and carbon "sinks" – elements which they had previously opposed. In the end, the U.S. level of a 7% reduction in emissions actually represents most a 3% real reduction below the President's initial target for stabilization of emissions at 1990 levels by 2012 when the sinks and all six gases are factored in.

Does the Protocol create a perverse incentive for the destruction of rain forests around the world?

No. The Protocol actually creates incentives through the Clean Development Mechanism in developing countries. The CDM will encourage afforestation and reforestation projects, as well as investments in clean technology, and allow these efforts to partially fulfill the emission reduction commitments of industrialized countries. Thus, industrialized (Annex I) countries will see advantages to working with developing countries in these and other areas as a means of achieving cost-effective reductions. Through such projects, developing countries will be able to obtain the financial resources, technology and know-how to promote their own sustainable development. In terms of temperate rain forests in developed countries, the way in which sinks are counted in the budget period actually penalizes countries that engage in deforestation.

Comment: The deforestation or loss of carbon sinks equates to increased emissions. Annex B Parties would have to reduce other emissions to a greater extent in the budget period to meet their targets.

GENERAL IMPLEMENTATION

What enabling legislation might be necessary to implement any agreement that would mandate legally-binding emissions reductions on the United States?

Legislation to implement the agreement domestically will depend on the policies chosen to implement it domestically. For example, bringing a domestic carbon emissions trading program into effect – as the President has proposed to start in 2008 – would in all likelihood require legislation. For now, the President has chosen to emphasize those measures that are more voluntary and incentive-based in nature, such as the his five-year, \$6 billion initiative involving tax cuts and R&D aimed at cutting greenhouse gas emissions. The greater the success of these early efforts, the less we will need to rely on tougher measures to bring us into compliance with our emissions target down the road. The Administration will seek Congress's assistance in fully funding these initiatives and is still evaluating a wide range of options for other domestic implementation efforts, and therefore I cannot state with any specificity what implementing legislation might be required.

Will we wait until the Protocol is ratified to take domestic actions to reduce emissions?

No. President Clinton has laid out a comprehensive plan for cutting U.S. emissions of greenhouse gases that will enhance, not diminish, our economic growth and competitiveness. The President's plan includes \$6 billion in tax incentives and R&D spending on energy efficient and low carbon-emitting technologies, restructuring of the electricity industry that will both cut emissions and save taxpayer dollars, overhauling of Federal energy use and procurement practices, and industry-by-industry consultations to develop specific voluntary plans for reducing emissions. We look to the Congress for support in these endeavors.

Taking quick, decisive, and economically sensible action to cut emissions will also send a powerful signal to the rest of the world that the United States is prepared to lead in the effort to address global warming. In particular, this will help in our efforts to recruit developing countries to play a greater role.

Are you planning to implement the Protocol by Executive Order?

The Administration fully recognizes the important role of the Senate in providing advice and consent to ratification of the Kyoto Protocol, and we look forward to working with the Senate, and with this Committee in particular, toward this end. The President has stated that we will submit the Protocol for ratification once we have secured meaningful participation from key developing countries and further elaborated rules and procedures for international emissions trading.

As the President said in his State of the Union address, there are actions that we can begin taking at home today that will reduce emissions while saving money and making our economy more efficient. The Administration plans to pursue these initiatives – which began with our 1993 Climate Change Action Plan – with increased vigor in the weeks, months, and years ahead. We look forward to the support of the Congress as we move forward.

Isn't the domestic Climate Change Program just a way of implementing an international agreement without securing Congressional agreement to the policy first?

Absolutely not. The President's recent announcement of a new \$6 billion initiative to address climate change, which includes \$3.6 billion in tax credits and \$2.7 billion in new R & D spending, seeks to place the country on a path intended to reduce emissions before such reductions become binding (if the Protocol is ratified). It is necessary to start this process now, to avoid the much greater costs of starting later. The intent is to build upon the accomplishments of the U.S. Climate Change Action Plan launched in 1993 to meet the voluntary commitments under the UN Framework Convention on Climate Change. Although the Plan is not expected to achieve its stated objective of returning U.S. emissions to their 1990 levels by the year 2000, it has demonstrated that voluntary actions can be effective. As was the case in 1993 and after, the new initiative will require Congressional support to have the widest possible influence.

NATIONAL SECURITY

Is it true that the Kyoto Protocol's binding emissions limits could compromise our national security interests in some way by limiting our capability to participate in certain military activities?

No. In Kyoto, we got everything that the Department of Defense outlined as necessary to protect military operations and our national security. These objectives deal with the treatment of bunker fuels and with emissions related to multilateral operations pursuant to the UN Charter. Moreover, emissions of greenhouse gases by the U.S. military amount to less than one-half of one percent of total U.S. greenhouse gas emissions. Even if these were to increase modestly because of unilateral military actions, it is simply untrue that such an increase would make military actions politically or diplomatically more difficult. We have ample room within the emissions reductions commitments agreed to in Kyoto to accommodate U.S. military emissions, including any that might result from unilateral military actions.

Background: More specifically, the Protocol exempts from emission limits those emissions from "bunker" fuels (for international maritime or aviation use), emissions from multilateral operations pursuant to the United Nations Charter (i.e., not only multilateral operations expressly authorized by the UN Security Council (such as Desert Storm, Bosnia, Somalia) but also multilateral operations not expressly authorized that are nonetheless pursuant to the UN Charter, such as Grenada). Countries may also decide, among themselves, how to account for emissions relating to multilateral operations (for example, U.S. training in another NATO country). This provision avoids the need to use emissions trading to allocate such emissions.

Why don't you just exempt the military rather than use this complex formula for bunker fuels in the Protocol and the decision of the Parties to exempt certain well-defined military operations?

We have ample room within the emissions reductions commitments agreed in Kyoto to accommodate U.S. military emissions, including any that might result from unilateral military actions. Emissions of greenhouse gases by the U.S. military amount to less than one-half of one percent of total U.S. greenhouse gas emissions. To exempt the military would overlook opportunities for the Federal government to make its own operations more energy efficient, thereby saving taxpayers' dollars. DoD has already made significant strides in this area, reducing their logistical burden of procuring fuel.

EMISSIONS TRADING

Isn't it true that your own analysis showed that reducing greenhouse gas emissions would slow economic growth and raise gasoline prices at least \$0.26 per gallon?

The findings to which you refer are projections of the Interagency Analytical Team's draft analysis completed in June of 1997. Since this did not take into account the specifics of the Kyoto Protocol, or the elements of the President's domestic plan, the Administration is currently completing a new economic analysis. [Preliminary findings of the new interagency analytical effort]

How can the Administration set up a verifiable trading regime anyway?

The Administration will build upon its experience with the SO₂ emissions trading program in developing verifiable domestic and international trading regimes. This coming November in Buenos Aires, the Parties to the FCCC will continue their work on emissions trading to define the "relevant principles, modalities, rules and guidelines" for verification and monitoring of emissions trading.

Can you assure the Congress that every other party to the Protocol will have equivalent monitoring and verification procedures for emissions trading?

Parties participating in the international emissions trading regime will have to comply with the monitoring and verification procedures to be agreed in future meetings of the Parties. Compliance procedures and mechanisms also to be developed will help ensure that equivalent monitoring and verification procedures are maintained by all trading parties.

How can you be so sure trading will save us money?

A number of economic studies, as well as our own experience with domestic emissions trading to combat acid rain, indicate that international emissions trading has the potential to substantially lower the costs of complying with emissions targets.

It seems that the trading regime is constructed on the premise that we pay Russia for the reductions that occurred due to the collapse of their economy not because they have taken any action to reduce greenhouse gas emissions. Is this sensible?

The international emissions trading scheme agreed to at Kyoto will be open to all countries with targets. Countries whose actual emissions are below their allocated emissions can sell the difference to other countries seeking more economical emissions reductions. A country can enjoy excess emissions “credits” because it is more efficient at domestic reductions or, as in the case of Germany or several countries of the Former Soviet Union and Eastern Europe, due to a major economic transition. Allowing these countries to sell some of these credits can both help lower domestic costs of greenhouse gas reductions in the U.S., and provide those countries with the resources that will allow them to invest in the most climate-friendly technologies possible as their economies recover.

Aren't we giving Russia a potentially sizable transfer of resources with no guarantee that Russia will use it wisely? We will also have no leverage on Russian policies with these funds. Isn't this a giveaway of taxpayer money?

In funding additional energy research and creating incentives for increased use of renewable and alternative energy sources, the Administration's domestic implementation plan is aimed at creating the domestic capacity to reduce greenhouse gas emissions cost-effectively. However, U.S. firms – not the U.S. government – may also choose to purchase international emissions credits in order to meet their emissions obligations. As with any market transaction, purchases of these credits will have to comply with all U.S. legal and regulatory requirements. At the same time, Russia will have significant incentives to use the revenue generated to invest in the most modern, climate-friendly plants and equipment so that as its economy recovers, it continues to produce emissions credits that it can sell on international markets.

Comment: The Russian Federation will be on a more sustainable path in its use of energy. Initial projections by Department of Energy, Energy Information Administration, indicate that the countries of the former Soviet Union and Eastern Europe may have up to 800 million metric tons of emissions credits available for sale in 2010. End comment.

You claim that getting emissions trading was a great achievement and you base much of your economic case -- that this agreement won't be too costly -- on trading. But the protocol includes only the most general concept of trading, without the principles in your January 1997 proposal. Haven't we lost our leverage by signing onto a binding target and timetable without achieving the specifics on emissions trading?

Clearly additional work needs to be done in establishing appropriate rules and procedures for emissions trading. We will use every multilateral and bilateral opportunity until the November

Conference of the Parties in Buenos Aires, Argentina to develop a consensus on the structure of an emissions trading regime. However, let me be clear. The Protocol locks in the right to trade emissions, and this is not a right that will be surrendered at any future negotiation.

You don't know how trading will be monitored, verified or administered, do you?

The rules and procedures for the international emissions trading regime are to be defined at the Fourth Conference of the Parties (COP-4) in Buenos Aires, Argentina this coming November. Until COP-4, we will work hard to build a consensus on the structure of an emissions trading regime which provides the greatest flexibility for our private sector and domestic implementation.

Can you explain how the system will work if some countries have domestic trading, as is anticipated here, and others, such as the EU, do not? Will U.S. companies trade with foreign countries? Will our trades have to be made through the government?

At this time it is premature to speculate on how foreign governments will choose to design their own domestic emissions reduction programs. From our perspective, however, the private sector will play a critical role; we envision U.S. firms actively participating in our domestic program as buyers, sellers -- and intermediaries -- of emissions trading. We will seek to structure a similar role for the private sector in the international trading regime. One could envision a U.S. company, for instance, purchasing emissions permits from foreign counterparts, or eventually, from private brokers (in the case of a private sector managed program) or dealing directly with a state-run emissions trading office in a foreign country that chooses to maintain more direct government involvement. Of course if need-be, the USG will be prepared to facilitate trades where foreign governments institute public sector managed programs, but we do not envision the USG funding trades directly.

UMBRELLA

You've talked about setting up a potential trading block of countries outside the EU -- an umbrella to counter their bubble. How would the umbrella work? Would you intend to limit trading to countries within the umbrella? Is that legal? Do you think setting up such a block that excluded the EU makes good sense from a broader foreign policy perspective?

We have proposed a meeting of the prospective members of an "umbrella" group -- including representatives from Canada, Japan, Australia, New Zealand, and Russia, among others, -- to discuss the function(s) that the group may have. The umbrella group will serve as a forum to develop consensus among the member countries on important issues involving design of an emissions trading regime leading up to the Fourth Conference of the Parties in Buenos Aires, Argentina this coming November. We will be reviewing other roles of the umbrella group with our partners during this meeting. Whatever function the umbrella serves will be fully compatible with applicable trade agreements (WTO, MAI, etc.) and our broader foreign policy objectives.

THE BUBBLE

If the “bubble” arrangement gives the EU an advantage, as Under Secretary Eizenstat admitted to congressional observers, why did the U.S. agree to it?

Accepting the European Bubble arrangement was essential in reaching agreement with the EU on a number of elements of the Kyoto Protocol which were key to the US, including international emissions trading, joint implementation, and project-based reductions in developing countries under the "Clean Development Mechanism." While we ultimately accepted their proposal, we succeeded in scaling down the benefits of the bubble by excluding new members to the EU from bubble allocation arrangements during an ongoing commitment period and defining the responsibility of the EU and individual members in case of non-compliance.

Haven't we just given the Europeans free “hot air” under their bubble and saddled ourselves with paying for it?

Agreeing to the European Bubble arrangement was essential in reaching agreement with the EU on a number of elements of the Kyoto Protocol key to the U.S., including international emissions trading, joint implementation, and project-based reductions in developing countries under the “Clean Development Mechanism.” Depending upon how the EU decides to allocate EU-wide emissions to its members, several European countries could stand to benefit from reductions generated by the UK and Germany.

These reductions, however, came only at great effort by the UK and Germany, as the UK virtually shut down its coal industry and shifted to natural gas, and Germany's taxpayers funded industrial restructuring and expensive efficiency improvements in the former East Germany. In allowing their reduction to be used to subsidize emissions growth in Portugal, Spain, and Greece, it is the German and UK taxpayers who have “saddled” themselves with paying for it, as these tons will no longer be available for purchase by the U.S. or other potential buyers of emissions credits in an international emissions trading market. At the same time, those same countries will likely be accepting more stringent internal reduction targets which will also have their costs.

DEVELOPING COUNTRIES

What exactly does President Clinton mean by “meaningful participation from key developing countries”?

Climate change is a global problem that requires a global solution. Current projections show that developing country emissions will surpass those from industrialized countries by 2030 or sooner. The problem of climate change cannot be solved unless developing countries take measures themselves to limit greenhouse gas emissions.

The U.S. will be working bilaterally, regionally, and multilaterally in the coming months and years to promote more active efforts by developing countries to limit their emissions. We will concentrate on key countries and on approaches that are consistent with the economic growth and development of these countries and with other environmental objectives. We will not submit the Kyoto Protocol to the Senate for advice and consent to ratification until we feel we have achieved meaningful participation from key players in the developing world.

We must also recognize that the term “developing country” encompasses a wide range of nations which are at various stages of industrialization and contribute differently to global emissions. Accordingly, there is no one-size-fits-all approach to measuring developing country participation. Clearly, a country with high GNP or one that emits a proportionally large share of global emissions should be expected to do more than one that is poor or whose emissions are negligible.

Can developing countries assume binding targets under the Kyoto Protocol?

Yes, they can. Developing countries seeking access to the benefits of international emissions trading may voluntarily assume binding targets through amendment to the annex of the Protocol that lists countries with targets. They may choose to do so to gain access to the (financial) benefits of international emissions trading.

Despite our efforts and the support of some developing countries, the Kyoto Protocol does not include a separate article for developing nations to assume voluntarily targets.

Did developing countries agree to do *anything* in Kyoto?

Yes. The Kyoto Protocol makes a down payment on the meaningful participation of developing countries.

First, developing countries agreed to the creation of a clean development mechanism through which industrialized and developing countries can establish partnerships to cut emissions in the developing world, to the benefit of both parties. Specific projects – such as construction of a high-tech, low-emitting power plant – can include direct participation from the private sector. Industrialized countries (and firms within those countries) will be able to use certified emissions reductions earned from such projects to contribute to their compliance with greenhouse gas reduction targets while developing countries get the technology they need for cleaner, more sustainable development.

Second, developing countries also agreed to advance the implementation of their existing commitments under the 1992 Framework Convention on Climate Change. These commitments, which apply to all Parties, include, in particular, more specific reporting requirements on actions taken to reduce emissions and also call for the identification of specific sectors (including the

energy, transport, and industry sectors as well as agriculture, forestry, and waste management) in which actions should be considered in developing national programs to combat climate change.

Why did the U.S. agree to delete a key provision on developing countries from Protocol?

Although we would have preferred a free-standing provision permitting voluntary adoption of emissions targets by developing countries, we still succeeded in preserving this option in the emissions trading article. Developing countries may participate in emissions trading provided they take on a quantified emissions limitation or reduction commitment under Annex B.

Why did the U.S. agree to a Protocol which exempts developing nations?

The Protocol does not exempt developing nations from action. In fact, Article 10 of the Protocol includes obligations to advance the commitments of all parties, specifically including developing countries. All parties are obligated to implement national programs that consider actions in the energy, transportation, industrial, and other sectors to mitigate climate change. The Protocol also permits developing countries to participate in emissions trading, provided they adopt legally binding emissions targets under Annex B. We are planning further efforts to secure more meaningful participation by developing countries as we continue efforts to address global warming under the Framework Convention on Climate Change.

Isn't it true that the Protocol will permit developing countries to add new binding limitations on the U.S. by a simple 3/4 vote at future climate change meetings?

No. On the contrary, we would need to agree on new binding limitations that would apply to the U.S. and any such agreement would also require Senate advice and consent before the President were to ratify it.

Why do we need "mechanisms" to transfer resources from developed countries to developing countries? These countries are exempt from obligations under the protocol so why transfer resources to them?

These mechanisms are not simple resource transfers. They will accomplish the two important objectives of involving developing countries in reducing global greenhouse gas concentrations and allowing U.S. companies to achieve emissions reductions at lower cost:

First, by supporting Clean Development projects, they will produce real reductions in global greenhouse concentrations in developing countries.

Second, by participating in the CDM, U.S. companies will be able to partially offset their emissions reduction obligations.

The fatal error in this negotiation was the Berlin Mandate, which completely let the developing countries off the hook. Shouldn't we have just let this Kyoto process fail and started over on a sounder footing? As you have said, this is a problem that must be resolved over decades, so why get going on the wrong foot?

In fact, by agreeing in Kyoto, we satisfied the requirements of the Berlin Mandate and can now put it behind us.

Had the Kyoto Conference failed to produce a protocol, not only would international confidence in our ability to achieve an agreement have been eroded, we would still be left with an unfulfilled Berlin Mandate as an excuse for some in the developing world to refuse to take action.

What real incentive do developing countries now have to agree to tough limits of their own?

Developing countries have plenty of incentive to address global warming – most analyses indicate that it is developing countries that will suffer the most from climatic change and its associated effects.

Within the Protocol itself, the most economically attractive flexibility mechanisms – JI between Annex I countries and emissions trading – are only available to those Parties that have undertaken quantified emission limits.

What is the Administration's strategy doing to get developing countries to participate more fully in the Protocol?

Getting developing countries to participate more fully in the global response to climate change is our objective – this is important, because that participation can be accomplished in a variety of ways. First, developing countries can decide that it is in their own interest to take unilateral action to help avert the potential impacts of global warming. Many are already doing so, and we should not lose sight of the efforts they are already making. They have a strong interest here because most of their economies are highly vulnerable to the adverse consequences of global warming – their populations are located in coastal and low-lying areas that are susceptible to storm surges, erosion, and salt-water intrusion. Many are also heavily dependent on agriculture. Most also lack the resources to cope with extreme weather events, much less to implement the extensive infrastructure changes that could be needed to adjust to significant climate change impacts such as sea-level rise, increased drought or flood.

Second, we are working extensively with a broad range of developing countries on a bilateral basis to encourage their participation in the global response to climate change. Last year, the President announced a \$1 billion initiative over a five-year period largely involving the U.S. Agency for International Development but also the Department of Energy and the Environmental Protection Agency in cooperative bilateral efforts related to climate change. We are working also in the U.S. Climate Change Country Studies Program with over 55 developing countries and countries with economies in transition to help them inventory their greenhouse gas emissions, assess their vulnerability to climate change and consider the options available to them to respond. In addition, we have initiated many other programs, including the Inter-American Institute for Global Change Research, to support the efforts of developing countries to participate in scientific research related to global warming. We have a series of bilateral "common agendas" with some of the most important developing countries, including India and Brazil, under which we discuss climate change issues and promote cooperative actions. And, under the aegis of Vice President Gore, we are working cooperatively with China on a range of climate change issues.

Third, following the Kyoto meeting in December, we are engaged in a comprehensive review of our strategy with respect to securing the more meaningful participation of developing countries to determine how we can best make further progress. In particular, we are considering ways to encourage advanced developing countries voluntarily to take on quantified emissions limitation commitments, including how to approach such difficult issues as the bases for such commitments, how they would apply and the advantages that might accrue from signing on to them.

You went into the Kyoto conference with very low expectations regarding developing countries – just seeking a provision that would have allowed individual developing countries to opt into the Protocol voluntarily. Even *that* modest provision was denounced and defeated. In light of that reception by the Chinese, Indians, Brazilians, and others, isn't it self-delusion to think that you will draw the key developing countries into the Protocol even in the next few years?

Given the lack of incentive for developing countries to participate and the lack of leverage over them, won't it be years before we can expect enough key developing countries to participate?

Although there clearly was not as much movement in the positions of the developing country blocs as we would have liked, the fact that the Kyoto Protocol includes provisions that many developing countries opposed prior to the conference -- such as emissions trading and joint implementation -- shows that negotiating flexibility does exist.

Many developing country governments stated bluntly before Kyoto that they would not discuss limits on their emissions until the developed world undertook its own commitments. However, we now have an opportunity to lead the global response by our own example – what the U.S. does matters vitally in these discussions, both because we emit around one-fourth of the world's greenhouse gas emissions and because others look to us for innovation and creativity in confronting problems and resolving them.

If [it does take years to secure meaningful participation by key developing countries], won't it be years before the Protocol is ready to be submitted to the Senate, by your own standard?

Securing more meaningful participation from key developing countries is a top priority for us. Kyoto made a down payment on such participation, and we believe more progress is on the horizon. That said, the President has made clear that the Protocol is a work in progress and that without more developing country involvement, he will not submit it for ratification.

And if years do pass, won't it in effect become impossible to achieve the target you have accepted in the 2008-2012 period?

Clearly, the sooner the Protocol comes into force the better. That said, we did not accept our target premised on immediate ratification and entry into force. The Protocol is a very complicated document, and many details remain to be worked out – entirely separate from the developing country question.

The President's domestic plan for cutting emissions reflects this by offering a phased-in approach to taking action. In the first few years, the emphasis will be on efforts that reduce emissions through creating incentives for the purchase and use of energy efficient technologies. These measures make sense in their own right – by reducing pollution, lowering energy use, and saving money for consumers.

Before the beginning of the first budget period in 2008, there is a window of several years, and I am confident that within that time we can accomplish what we need to submit the Protocol for your consideration.

CLEAN DEVELOPMENT MECHANISM

This CDM is clearly a scheme to saddle us with another international institution. How will this be funded? How will it be set up? Is this yet another arm of the World Bank?

The Clean Development Mechanism provides a means through which industrialized and developing countries can establish partnerships to cut emissions in the developing world, to the benefit of both parties. It was designed to make effective use of existing institutions, not to create a new one. It will be funded from a small share of the proceeds from each project certified to reduce greenhouse gas emissions. It is an arm of the Parties to the Protocol not the World Bank.

Why do we need “mechanisms” to transfer resources from developed countries to developing countries? These countries are exempt from obligations under the protocol so why transfer resources to them?

Climate change is a global problem that requires a global solution, and the U.S. will be working bilaterally, regionally, and multilaterally in the coming months and years to promote more active efforts by developing countries to limit their emissions. One way is to create partnerships through which we can share our technology and cut emissions. As developing countries understand that they can protect the environment without compromising their economies, they may be more inclined to join us in taking on emission reduction commitments. Developing countries may participate in emissions trading if they adopt binding emissions targets under Annex B which could provide even greater benefits for their economies and for the global environment.

How will this advance “meaningful participation” with developing countries?

The CDM and the projects it will generate will advance the meaningful participation of developing countries by helping those countries to develop in a more sustainable manner. These projects may help them acquire and introduce new, less carbon-intensive technologies and show them that what is good for the environment can also be good for the economy.

How can we make this scheme work? What will it take?

With the cooperation of private industry in the U.S. and in developed countries around the world, the CDM can play an important role in advancing the mitigation efforts of developing countries. Ultimately, it will take the combined efforts of businesses in developed and developing countries, as well as the governments of both to adopt reasonable rules and efficient procedures to promote the greatest possible number of projects under the CDM.

As in the case of emissions trading, you are claiming the Clean Development Mechanism as a big success and as a key element in keeping costs down for American business, but, once again, the Protocol only includes the general concept, with no clear outline of how it would work. Haven’t we lost our leverage by signing onto a binding target and timetable without achieving the specifics on joint implementation?

No, we have not. The creation of the CDM represents a significant success of the Kyoto Protocol. While currently the Protocol contains only a framework for how the CDM would be set up, modalities and procedures designed to ensure transparency will be elaborated at the Fourth Conference of the Parties in November in Buenos Aires. The U.S. will work throughout the upcoming year to ensure that the components of the program in its final form are as flexible as possible.

Can you describe in detail how the CDM would work?

Yes. The CDM largely embodies our ideas on joint implementation. It will enable help developing countries participate meaningfully in the global response to climate change by encouraging projects in their countries that promote energy efficiency, the diffusion of lower-carbon emitting technologies and the use of renewable forms of energy. The CDM will do so by enabling the private sector in the developed world to share in the greenhouse gas emissions reductions achieved as a result of these projects, either directly as a consequence of their active collaboration and investment in these projects, or indirectly by purchasing the emissions reductions achieved on the open-market. The private sector will then be able to use these reductions to offset greenhouse gas reduction commitments at home.

Background: Parties to the Protocol will form an executive board to supervise the CDM. The will also designate multiple "operational entities" – existing institutions, such as stock exchanges, regional development banks or international agencies -- that will certify the emissions reductions resulting from each project activity on the basis of agreed criteria. Participation in the CDM will be voluntary, and each Party must approve the project activities within its territory. These project activities will be designed to achieve real, measurable and long-term benefits related to the mitigation of climate change, and they will achieve emissions reductions that are additional to any that would occur in the absence of these activities. At their next session in November this year, we expect that the Parties to the Convention will begin elaborating modalities and procedures to ensure transparency, efficiency and accountability under the CDM, in particular through procedures for independent auditing and verification of project activities

A share of the proceeds from these project activities will be used to cover administrative expenses of the CDM as well as to assist developing countries that are particularly vulnerable to the adverse effects of climate change to meet adaptation costs. Importantly, certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period (2008-2012) can be used to assist in achieving compliance in that first commitment period.

The Protocol indicates that the part of a nation's target that can be met through the CDM will be determined by a later [Meeting of the Parties]. So it is possible that the ability of our companies to use the CDM to meet our target will be very restricted, isn't it?

If it is very restricted, will we walk away from the deal? Wouldn't it be foolhardy to sign the Protocol before we know how restricted our ability to use the CDM is going to be?

At present, the extent to which a country's target that can be met through the CDM is undefined. Our goal is to seek maximum flexibility in this regard.

How will the CDM be financed?

The Clean Development Mechanism is fundamentally a vehicle to allow cost-effective emissions reductions by facilitating private sector investment in clean technologies. Thus, we anticipate that the vast majority of financing for the CDM will be from private sources. Most of this financing will be channeled directly into investments in developing countries. We anticipate that there may be minor administrative transaction costs associated with using the mechanism. While governments would also be free to purchase credits, there is no obligation for governments to contribute in any way.

How big a share of the proceeds will be devoted to assisting developing countries with adaptation to climate change – 5%? 20%? 50%? Do we really have any idea? Who decides?

The Parties will decide. We anticipate that the “proceeds” to be shared will be derived from the value of the emissions reductions achieved by a project, not the value of the underlying project. The Protocol leaves the distribution of the certified emissions reductions up to the entities involved. We anticipate that this figure will be in the 10% range in terms of the funds collected, depending on projections of the volume of traffic under the CDM. Most Parties in Kyoto indicated that they would be comfortable with this figure.

The OPEC countries actually had the nerve to press for a compensation fund so that we would have to pay them to make up for the reduced use of oil that is likely to result from an effort to cut greenhouse gases. We opposed that demand, but couldn't these proceeds end up being applied, at least in part, to pay off OPEC countries?

Article 12 of the Protocol that establishes the Clean Development Mechanism allows for proceeds to go to Parties that “are particularly vulnerable to the adverse effects of climate change” to meet “the costs of adaptation.” The reference to “adverse effects of climate change,” as opposed to, for example, “adverse effects of response measures to climate change,” makes clear that it is intended to benefit small island states and nations with low-lying coastal areas. This concept differs from the so-called “compensation” fund – whose objective included assistance to nations that would be adversely affected by actions taken by developed countries to mitigate climate change.

Since projects under the CDM will be done in developing countries that do not have emissions budgets, who will monitor and verify that the reductions from a given project are real? Who will decide that those reductions are more than would have occurred anyway, and how will they decide that?

The Parties to the Kyoto Protocol will establish operating entities who will certify emission reductions from projects. This certification will verify that the resulting emissions reductions are real and additional to those that would have occurred anyway. Though the rules have to be fleshed out, the operating entities and their procedures will be subject to the authority of the Conference of Parties.

If credits were given for reductions that would have occurred anyway, then the CDM could turn into another environmental sham, couldn't it? That is, industrialized countries could be allowed to satisfy their reduction requirements by getting credit for reductions that were going to have to occur anyway in developing countries; and since the developing countries have no budget, there could be no offsetting reduction of their budgets. Isn't that right?

No. The Kyoto Protocol, in defining the Clean Development Mechanism, clearly establishes that CDM projects be certified only if there are "reductions in emissions that are additional to any that would occur in the absence of the certified project activity." Projects will be independently audited to verify that the emissions reductions are indeed additional. Over the course of the next year or so, Parties to the Convention will design procedures to ensure transparency, efficiency and accountability in the CDM processes.

How will the CDM be administered? Are we going to create yet another international institution? Who will control it?

The Parties will oversee the Clean Development Mechanism with the help of a small executive board, and "operational entities to be designated" (not "created") will certify project emission reductions. At this time the details have not been elaborated by the Parties – they will revisit these issues at the Fourth Conference of the Parties in November 1998.

You say that this idea is in effect the same as our idea for joint implementation, but JI would have operated on a company to company basis without new international bureaucracies, while the CDM will require a new bureaucracy, right?

The concept of the CDM is effectively very similar to that of joint implementation, with the crediting of investments for reductions made in another country. We do not envision the CDM as needing an additional bureaucracy. We plan to consult with already-existing organizations who are likely to be asked to serve as "operational entities" in the CDM. Some general types of organizations possible for this role would be: regional development banks or stock exchanges.

JA



EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON, D.C. 20500

SENIOR ECONOMIST

March 3, 1998

MEMORANDUM FOR JANET YELLEN

FROM: KEITH FUGLIE *Keith Fuglie*
SUBJECT: Q&A's on Agriculture and Climate Change

In preparation for your testimony before the Senate agricultural committee, here are some Q&A's relating specifically to the implications of the Kyoto agreement for U.S. agriculture.

Q. Several farm groups have raised concerns about the Administration's climate change policy. A recent study sponsored by the American Farm Bureau Federation found that higher energy prices resulting from a Global Climate Treaty could raise U.S. farm production expenses by as much as \$20 billion, reducing net farm income by one-half. What is your assessment of the short-run impact of the Treaty on agricultural income?

A. Until specific elements of the Kyoto agreement are worked out, such as the terms under which international trading would take place and developing nations would participate, it is premature to develop economic forecasts for specific sectors. Nevertheless, as I stated in my testimony, we believe the economic costs of the climate change treaty will be modest given the provisions the President has insisted upon.

It is true that agriculture is a relatively energy-intensive sector, particularly in its use of inputs such as fertilizers that use relatively large amounts of fossil fuels in their manufacture. Thus, increases in energy prices could raise production costs in agriculture by a larger percentage than for the economy as a whole.

However, in assessing the impact of energy price changes on a particular sector, it is important to consider several factors. First, farmers will be able to pass on some of the increase in production costs to consumers in the form of higher commodity prices. While an individual farmer has little or no ability to influence commodity prices, when farmers as a whole reduce production in response to higher input costs, commodity prices are likely to increase. Moreover, farmers in other industrial nations will face similar circumstances.

Second, farmers can be expected to adjust their production methods to take advantage of lower-cost technologies. For example, farmers could increase their use of no-till cultivation methods to save energy costs, as they did following the oil price shocks of the 1970s. Recent advances in "precision-agriculture" (which combines detailed soil maps with a global positioning system to fine-tune fertilizer and chemical application rates) may also help farmers increase the efficiency of their fertilizer and chemical use, further lowering production costs.

These two factors, the pass-through of higher inputs costs to higher commodity prices, and input substitution possibilities to lower production costs, can significantly reduce potential adverse impacts of higher energy prices on farmers. A recent study funded by the EPA found, for example, that a modest increase in energy prices would have little or no effect on net farm income in the United States. (The study considered scenarios where the permit price of carbon emissions ranged from \$25-\$100/ton.) The study found that most of the effects would be passed on to the food industry or to final consumers, and not borne by farmers, although even the costs to consumers were likely to be relatively small. The study also concluded that higher energy prices may result in additional environmental benefits, such as reduced soil erosion as farmers adopt less-intensive tillage methods to save fuel costs.

Q. Some economic assessments of climate change, including a recent study by USDA's Economic Research Service, concluded that the potential adverse effects of climate change on U.S. agriculture are likely to be small, and even possibly positive. How will the proposed Climate Change Treaty benefit U.S. agriculture?

A. The consequences of climate change on agriculture or other human activity are difficult to predict with a great deal of confidence, but the risks from inaction are large. One well-respected study that I referred to in my testimony (Cline) estimated that a temperature increase of 4.5 degrees Fahrenheit could result in lost U.S. agricultural production of \$22 billion per year. Other studies have estimated higher or lower potential losses. Some studies have even suggested that by adapting to climate change, such as by switching to new crops or farming systems, farmers could offset many of the negative consequences of climate change on agriculture.

One of the major limitations of present models is how they account for adaptation to climate change. Models have often assumed, for example, that farmers can adapt instantaneously and costlessly to major changes in their farming systems. We know this is not the case, and, therefore, these models may seriously underestimate the long-run cost of climate change to agriculture. The economic models have also probably underestimated the risks posed by an increase in the frequency of extreme weather events, which is another predicted consequence of climate change.

What we are really proposing is an insurance policy: we know that climate change entails potentially large future costs, costs which we believe could be avoided by taking the kind of action agreed to in Kyoto. Furthermore, the capacity of our agricultural research system and of farmers to respond and adapt to the effects of global warming will depend on the rate at which climate change occurs. By slowing down, if not halting altogether, the climate change effects of greenhouse gas emissions, we can significantly reduce these future uncertainties.

cc: Rebecca Blank, Adele Morris, Joseph Aldy, Randy Lutter, Michele Jolin

DRAFT Q&A's from State

RL
JA
JF
MJ
JY
Ameorig**Q1: What are the provisions for sinks in the Kyoto Protocol?**

A1: The Protocol is explicit in Article 3.3 about the three kinds of sinks "activities" which are considered in accounting for the carbon sequestered due to human land-use changes and forestry activities: afforestation, reforestation, and deforestation. (Under a literal interpretation of the sinks article, consistent with US forestry terminology, *afforestation* is the planting or other human-induced forest establishment on lands not in forest, *reforestation* is the planting or other human-induced forest regeneration after harvest or other forest disturbance, and *deforestation* is the conversion of forest lands to other uses.)

Q1a: If we did/do understand the sink provisions of the Protocol, why is the Administration analyzing "alternative" interpretations of the text (on sinks)? [A draft document titled "Carbon Sinks: Analysis of the Kyoto Protocol," presents three alternative estimates for the carbon sequestered by US forests in a "business-as-usual" situation. These alternatives suggest different interpretations of afforestation, reforestation and deforestation; these interpretations have varying impacts on accounting rules for sinks under the Kyoto agreement, and thus could make achieving our target more onerous.]

A1a: The Protocol is, however, a work in progress -- additional "activities" under sinks will be considered at Buenos Aires, along with other provisions of the agreement, including guidelines and procedures for emissions trading. At the same time, we also realize that other Parties to the Protocol could seek different interpretations of the activity list (afforestation, reforestation and deforestation) that could affect the sinks baseline or create other opportunities to credit increases in sinks using targeted forestry policies. This being the case, in preparing for the upcoming Buenos Aires negotiations, it was prudent for us to consider -- at a working level -- how additional activities or alternative interpretations of accepted activities might affect the impact of sinks on total emissions. These alternate interpretations do not represent US policy.

Q2: Representatives of our forestry industry tell us that the calculations in your "Carbon Sinks: Analysis..." paper may not be entirely accurate in that (among other things) they do not include harvesting in one instance, or in another case do not account fully for the carbon which remains in final wood products (i.e., embedded carbon). How do you respond to industry's concerns?

A2: Last week I met with representatives of the US forestry/wood products industry. They suggested, and I agreed, that industry should be involved in this working level analysis. I have provided appropriate contacts to help them forward data and other input into the ongoing government effort to analyze the role of forests (and other sinks) under the Kyoto Protocol. Any analysis of forests should fully incorporate the views of industry as well as those of government and other outside experts. We will continue to

work with them in the run-up to Buenos Aires and beyond, as we stand ready to work with this committee.

Q3: You have already informed the Congress and SFRC in testimony and in your "State Department Fact Sheet" on the Kyoto Protocol on the US target that the 7% reduction target "represents at most a 3% real reduction below the President's initial proposal [for stabilization at 1990 levels]. What would be the impact of the various alternative calculations on the effort needed to meet the US target?

A3: The "Carbon Sinks: Analysis..." draft presents preliminary working level findings. This analysis, however, does not in any way change our understanding of our commitments under the Protocol or mandate additional sink activities we would propose for Buenos Aires. As I noted in previous testimony and as we report in our "State Department Fact Sheet" on Kyoto, US sinks account for about 3% of the 7% nominal reduction agreed to in Kyoto. I can assure you that the Administration has not advocated any interpretations that would increase the effort needed to meet our target. (Background: When we also consider changes in accounting rules for certain greenhouse gases, the Kyoto target represents at most a 3% real reduction, and perhaps less, below the President's initial proposal for stabilization of greenhouse gas emissions at 1990 levels by 2008-2012.)

KYOTO PROTOCOL

Questions and Answers

January 1998

While the President proposed in October that the U.S. reduce emissions to 1990 levels by 2008-2012, the U.S. agreed in Kyoto to a 7% reduction below 1990 levels in the same timeframe. Why did we accept a more stringent target?

- The 7% target is quite close to what the President initially proposed. It represents at most a 3% real reduction below the target of returning to 1990 levels by 2008-2012.
- The remaining 4 percentage points result from changes in the way certain gases and activities that absorb carbon are counted. These changes mean that the same reductions that would have been required to meet the target in the President's original proposal will now yield a target of around 4% below 1990 levels.

If the Kyoto Protocol is such a positive achievement, why has the Administration said it will not submit it to the Senate for its advice and consent to ratification?

- The Kyoto Protocol is an historic step forward in the effort to meet the challenge of global warming. We believe it reflects an environmentally strong and economically sound approach to this very difficult problem.
- But there are additional elements we need in order to have a package ready for submission to the Senate. In particular, the President's requirement for meaningful participation from key developing countries has not been met. The Protocol makes a down payment on such participation, but more needs to be done in this area.
- Additional work also needs to be done in fleshing out the rules and procedures for emissions trading and the so-called clean development mechanism as well as in building an effective compliance regime.
- The Clinton Administration is working hard to fill in these pieces and looks forward to submitting the Kyoto Protocol to the Senate once these objectives have been achieved.

What exactly does President Clinton mean by "meaningful participation from key developing countries"?

- Climate change is a global problem that requires a global solution. Current projections show that developing country emissions will surpass those from industrialized countries by 2030 or sooner. The problem of climate change cannot be solved if developing countries refuse to take measures themselves to limit greenhouse gas emissions.
- The U.S. will be working bilaterally, regionally, and multilaterally in the coming months

and years to promote more active efforts by developing countries to cut their emissions. We will concentrate on key countries and on approaches that are consistent with economic growth and development and with other environmental objectives. We will not submit the Kyoto Protocol to the Senate for advice and consent to ratification until we feel we have achieved meaningful participation from key players in the developing world.

- We must also recognize that the term “developing country” encompasses a wide range of nations, each of which is in a different stage of development and contributes its own level of emissions. Accordingly, there is no one-size-fits-all approach to measuring developing country participation. Clearly, a country with high GNP or one that emits a proportionally large share of global emissions should be expected to do more than one that is poor and low-emitting.

Can developing countries assume binding targets under the Kyoto Protocol?

- Yes, they can. As a prerequisite for participating in emissions trading, developing countries may voluntarily assume binding targets through amendment to the annex of the Protocol that lists countries with targets.
- The Kyoto Protocol does not include a separate article for developing nations to voluntarily assume targets.

Did developing countries agree to do *anything* in Kyoto?

- Yes. The Kyoto Protocol makes a down payment on the meaningful participation of developing countries.
- First, developing countries agreed to the creation of a clean development mechanism through which industrialized and developing countries can establish partnerships to cut emissions in the developing world, to the benefit of both parties. Specific projects -- such as construction of a high-tech, low-emitting power plants -- can include direct participation from the private sector. Industrialized countries will be able to use certified emissions reductions earned from such projects to contribute to their compliance with greenhouse gas reduction targets while developing countries get the technology they need for cleaner, sustainable development.
- Second, developing countries also agreed to advance the implementation of their existing commitments under the 1992 Framework Convention on Climate Change. These commitments, which apply to all Parties, include more specific reporting requirements on actions taken to reduce emissions and also call for the identification of specific sectors (including the energy, transport, and industry sectors as well as agriculture, forestry, and waste management) in which actions should be considered in developing national programs to combat climate change.

Is it true that the emissions trading regime, once established, will result in massive flows of foreign aid from the United States to Russia?

- No. Emissions trading is an entirely voluntary, free market mechanism, designed to help our companies achieve emissions reductions as cost-effectively as possible.
- While Russia, or some other country, may in fact have emissions permits to sell, we would be under no obligation to buy them. U.S. companies would be free to do so if they believed that purchasing such permits would be the most efficient and cost-effective way to comply with greenhouse gas reduction targets.
- A number of economic studies, as well as our own experience with domestic emissions trading to combat acid rain, indicate that international emissions trading has the potential to substantially lower the costs of complying with emissions targets.

Is it true that the Kyoto Protocol's binding emissions limits could compromise our national security interests in some way by limiting our capability to participate in certain military activities?

- No. The Kyoto Protocol achieves the objectives identified by the Department of Defense where international agreement was necessary to protect U.S. military operations. These objectives deal with the treatment of bunker fuels (i.e. -- fuels for international aviation or maritime use), with multilateral operations pursuant to the UN Charter, and with other multilateral operations such as U.S. training in another NATO country.

Is the Kyoto Protocol a threat to U.S. sovereignty?

- No, it is not. Under the Kyoto Protocol, individual nations may decide by themselves how best to comply with greenhouse gas emissions targets. The Conference specifically rejected proposals which would have imposed mandatory, standardized measures, such as energy taxes.
- As for the binding nature of the Protocol, it is no different from other binding treaties into which the United States has entered. The Clinton Administration believes that the Kyoto Protocol is in the best interests of the United States and will provide important environmental protection while ensuring continued economic growth and competitiveness.

Will we wait until the Protocol is ratified to take domestic actions to reduce emissions?

- No. President Clinton has laid out a comprehensive plan for cutting U.S. emissions of greenhouse gases that will enhance, not diminish, our economic growth and competitiveness. Elements of this plan are already being implemented.
- The President's plan includes \$6 billion in tax incentives and R&D spending on energy efficient and low carbon-emitting technologies, restructuring of the electricity industry that

will both cut emissions and save taxpayer dollars, overhauling of Federal energy use and procurement practices, and industry-by-industry consultations to develop specific voluntary plans for reducing emissions.

- Quick, decisive, and economically sensible action by the United States to cut emissions will also send a powerful signal to the rest of the world that we are prepared to lead in the effort to address global warming. In particular, this will help in our efforts to recruit developing countries to play a greater role.

How will the Kyoto Protocol impact the U.S. economy?

- The President has put forward a comprehensive program that, if fully funded and properly implemented, can reduce U.S. greenhouse gas emissions to the levels agreed in Kyoto while maintaining economic growth and competitiveness.
- In Kyoto, the U.S. succeeded in rejecting extreme and unrealistic targets proposed by other countries. Furthermore, we won acceptance of key free market mechanisms, such as emissions trading, which will substantially lower the costs of complying with emissions targets.

But aren't there studies suggesting that the Kyoto Protocol will cost millions of U.S. jobs and tank the economy?

- We've seen these kinds of studies every time this nation takes action to protect our environment. Whether it's climate change, clean air, or clean water, there continue to be those who believe that environmental protection must come at the expense of economic growth.
- But let's look at the record. Today, unemployment stands at 4.6%, the lowest in more than two decades, and the economy has generated more than 14 million new jobs since 1993. Inflation is low, investment is booming, and real wages are rising. All this good news despited the doomsday predictions of self-interested economic studies that warned of the disastrous consequences of the Clean Air Act, Clean Water Act, and other efforts to protect the environment.

Q: IS IT TRUE THAT, EVERYTHING ELSE BEING EQUAL, THE FASTER OUR GREENHOUSE GAS EMISSIONS GROW, THE MORE COSTLY IT WILL BE TO ACHIEVE THE GOAL OF 1990 EMISSIONS?

DOE RECENTLY RELEASED A REPORT THAT INDICATES THAT GREENHOUSE GAS EMISSIONS INCREASED SUBSTANTIALLY LAST YEAR. THIS APPEARS TO BE A RESULT OF THE STRONG U.S. ECONOMY. DOES THAT MEAN THAT IF OUR ECONOMY CONTINUES TO GROW, THAT THE PRESIDENT'S PLAN WILL RESULT IN MORE COSTLY MITIGATION EFFORTS?

A: We have learned from our nation's experiences and from our modeling efforts that, roughly speaking, two factors drive greenhouse gas emissions. First, as the economy grows, emissions increase. This is because our economy is still quite reliant on fossil fuels. Second, as the economy becomes more efficient at using energy, emissions decrease. Last year, the economy grew faster than the rate of energy efficiency improvement -- hence, greenhouse gas emissions increased. However, under the President's plan, we will support actions to make the economy more energy efficient through tax incentives and R&D programs. These efforts will allow us to continue to grow the economy while meeting our climate change goals at reasonable costs.

Q: THE COUNTRIES OF THE WORLD ARE MEETING IN KYOTO BECAUSE GOALS SET IN RIO (1990 IN 2000) WILL NOT BE ACHIEVED BY MOST COUNTRIES, INCLUDING THE U.S. IN THE U.S., WE ATTEMPTED VOLUNTARY MEASURES THROUGH CCAP. DO YOU CONSIDER CCAP A SUCCESS? AREN'T THE PRESIDENT'S PROPOSALS ON R&D AND TAX INCENTIVES JUST MORE OF CCAP?

A:

Q: SOME HAVE COMPARED 1990 BY 2010 TO THE OIL SHOCKS OF THE 1970s. DO YOU THINK THE PRESIDENT'S PROPOSAL WILL HIT THE ECONOMY THAT HARD? WHY/WHY NOT?

A:

Q: WE HAVE HEARD ABOUT HOW GREAT THE SO2 PERMIT TRADING SYSTEM HAS BEEN AND THAT IT WILL SERVE AS THE MODEL FOR THE CO2 PERMIT SYSTEM? DOES THAT MEAN THAT THE U.S. WILL GRANDFATHER PERMITS? TO WHOM?

A:

Q: DO WE HAVE ANY EXAMPLES OF AN INTERNATIONAL PERMIT TRADING SYSTEM? WOULD THIS BE A DIFFICULT TASK TO DO? HOW DO WE ENFORCE SUCH A SYSTEM? ISN'T THIS LIKE CREATING A NEW GLOBAL CURRENCY? HOW WILL A PERMIT SYSTEM WORK WITH COUNTRIES THAT DECIDE TO ACHIEVE GREENHOUSE GAS EMISSIONS REDUCTIONS THROUGH CARBON TAXES OR COMMAND AND CONTROL?

A:

Q: HOW DO WE MAKE JOINT IMPLEMENTATION WORK? HOW WILL PROJECTS BE APPROVED? WHO WILL HAVE THE AUTHORITY TO APPROVE THESE PROJECTS? WILL A U.N. AGENCY BE SET UP TO INSPECT ALL PROJECTS?

A:

Q: WHO DO WE BUY OUR PERMITS FROM? WHO WILL WE LIKELY ENTER INTO JI AGREEMENTS WITH?

A:

Q: DID YOU CONDUCT AN ECONOMIC ANALYSIS OF THE AVAILABLE OPTIONS BEFORE THE PRESIDENT? IF SO, WHAT OTHER OPTIONS DID YOU ASSESS? DID THE PRESIDENT'S PROPOSAL RANK #1? WHEN WILL YOU RELEASE THIS ECONOMIC ANALYSIS?

A:

Q: WHAT ADVANTAGES/DISADVANTAGES MIGHT A TRADING SYSTEM HAVE OVER TAXES? WOULDN'T A TAX SYSTEM PROVIDE GREATER CERTAINTY TO INDUSTRY AND CONSUMERS? DON'T TAXES AND PERMITS HAVE THE SAME EFFECT ON ENERGY PRICES?

A:

Q: THE ECONOMIC COSTS OF THE PRESIDENT'S PROPOSAL APPEARS TO RELY ON INTERNATIONAL PERMIT TRADING AND JOINT IMPLEMENTATION. WITHOUT THESE MECHANISMS, THE COSTS WOULD LIKELY INCREASE SUBSTANTIALLY FOR THE U.S. IF WE DON'T GET THESE ELEMENTS IN A KYOTO PROTOCOL, WOULD YOU, AS THE PRESIDENT'S ECONOMIC ADVISER, RECOMMEND THAT THE U.S. WALK AWAY FROM THE DEAL?

A:

Q: SECRETARY PENA STATED THAT DOE'S 5 LABS STUDY "...SHOWED THAT WHAT WAS GOOD FOR THE ENVIRONMENT WOULD BE GOOD FOR THE ECONOMY." IS IT THE ADMINISTRATION'S POSITION THAT A \$50/TON CARBON PRICE WOULD BE GOOD FOR THE ECONOMY?

A:

Q: ALL PUBLICLY RELEASED ECONOMIC ANALYSES OF CLIMATE CHANGE (IAT, 5 LABS) DO NOT CONSIDER THE COSTS ASSOCIATED WITH DEVELOPMENT, IMPLEMENTATION, AND MONITORING OF A TRADING PROGRAM. ARE THESE OMISSIONS VALID AND REALISTIC? SHOULD PEOPLE ASSUME THAT THE COSTS ARE MINIMAL? DOES THIS MEAN THAT AN INTERNATIONAL TRADING SYSTEM WILL BE INEXPENSIVE TO SET UP AND OPERATE? WHAT KIND OF TRANSACTION COSTS DO YOU EXPECT FOR AN INTERNATIONAL TRADING PROGRAM? FOR A JI PROGRAM?

A:

Q: DOESN'T THE DOE 5 LABS STUDY PROVIDE A JUSTIFICATION FOR NOT RUSHING INTO LEGALLY BINDING EMISSIONS REDUCTION MANDATES IN KYOTO, BUT DELAYING -- EVEN FOR A FEW YEARS -- TO REAP THE BENEFITS OF THE KINDS OF R&D THE STUDY IS PROMOTING? CAN YOU QUANTIFY THE "COST" OF DELAYING 10 OR 20 YEARS?

A:

Q: WOULD STATE OR LOCAL GOVERNMENTS BE REQUIRED TO PURCHASE CARBON PERMITS? FEDERAL AGENCIES?

A:

Q: WHAT PENALTIES WOULD APPLY IF A DEVELOPING COUNTRY FAILED TO REDUCE ITS EMISSIONS AT AN AMOUNT COMMENSURATE WITH THE CARBON UNITS IT HAD SOLD?

A:

Q: CONGRESSMAN DINGELL SUGGESTED ON 6/19/97 THAT THE ADMINISTRATION'S ANALYSIS IS "TOO LATE TO INFORM THE PROCESS, AND LIKELY WILL BE USED TO JUSTIFY WHAT THE ADMINISTRATION HAS ALREADY DECIDED TO DO." WOULD YOU PLEASE COMMENT ON HIS CONCERNS.

A:

Q: MOST MODELING EFFORTS INDICATE THAT TO ACHIEVE 1990 BY 2010, U.S. CONSUMPTION OF COAL WOULD HAVE TO DECLINE SIGNIFICANTLY. DOES THIS MEAN THAT THE ADMINISTRATION'S POLICY IS ANTI-COAL? WHAT KIND OF IMPACT WILL THIS HAVE ON COAL MINERS?

A:

Peter R. Orszag

10/22/97 09:45:46
AM

Record Type: Record

To: Joseph E. Aldy/CEA/EOP

cc:

Subject:

Q: ARE YOU PROPOSING ANY OTHER STANDARDS AS PART OF YOUR PACKAGE?

A: As part of our industry-by-industry consultation process, we will be working with interested parties to explore all possible opportunities for reducing carbon emissions. That could include energy-efficiency standards if appropriate. But we are not putting out any specific proposals at this time. We want to elicit industry views on the subject.



Janet Yellen
United States Department of State
Washington, D.C. 20520

OCT 16 1997

TO: NEC - Gene Sperling
NEC - Dan Tarullo
CEQ - Katie McGinty

CC: EOP - Todd Stern

FROM: Under Secretary Stuart E. Eizenstat *SE*
Under Secretary Timothy E. Wirth *TEW*

SUBJECT: Economics of Climate Change Policy

As we prepare for the President's announcement of the USG proposal for Kyoto and upcoming negotiations in Kyoto, we will face difficult questions about the cost to the US economy of reducing greenhouse gas emissions. The public perception is that the Administration has dismissed the findings of the IAT's economic analysis and so we must be prepared to draw on other analyses to support the economic underpinnings of our target and timetable.

Of course, what we say about the economics of our target and timetable must be part of a larger message that the President conveys about our climate policy. The message should include several components, including a definition of the environmental goal (getting to safe concentrations of greenhouse gases) and the costs of inaction, technology initiatives and government-industry partnerships, financial instruments -- such as tradable permits -- that will lower the cost of our policy, and tax cuts if we raise revenue through permit auctions.

We have taken the liberty of drafting a "Q and A" on the underpinnings of our assessment of the economic impact of USG policy on climate change.*

Q: What will be the cost to the US economy of reducing greenhouse gas emissions? What economic analysis has the Administration used to guide USG policy on climate change?

A: The USG proposal calls for a target and timetable that is realistic and achievable. The USG proposal will allow us, quoting Dr. Janet Yellen, Chair of the Council of Economic Advisors, "to do it smart," thereby reducing costs and possibly producing net benefits for the US economy in the long run. The market-based mechanisms of the USG proposal will assure flexibility in the timing and location of reductions -- through multi-year emissions budgets rather than single year caps, international emissions trading and joint implementation, and expanded participation by developing countries -- and aggressively promote technological innovation. These kinds of mechanisms will minimize the cost of efforts to slow climate change.

In considering the economic impact of USG policy on climate change, the Administration has drawn on several economic analyses, including those of the World Resources Institute (WRI) and

the Energy Modeling Forum (EMF). These analyses provide valuable information, highlighting the benefits of market-based mechanisms, the need for “when” and “where” flexibility in implementing an emissions reduction program, and the importance of technological development and diffusion -- all of which are central pillars of the USG proposal for Kyoto. They indicate that a realistic and achievable policy will have only a modest impact on the US economy.

In particular, WRI assessed 16 economic models and found impacts ranging from 2.4% below to 2.4% above business-as-usual, or baseline, levels of US GDP in 2020, resulting from policies to stabilize greenhouse gas emissions at 1990 levels by 2010 and thereafter. WRI found that different models reach different conclusions because they start with substantially different assumptions. The costs of emissions reductions are lower when models assume that the US economy can adapt efficiently, that alternative non-fossil-fuel energy sources are available, that international trading and joint implementation are available, that revenues are “recycled” to cut taxes, and that greenhouse gas abatement avoids quantifiable damages from climate change or air pollution. According to EMF, costs are also lower when models include flexibility in the timing of emissions reductions.

Cost estimates at the “high end” of the WRI range arise from unduly pessimistic assumptions about the ability of the US economy to adapt to change, even in the long run, and opportunities for broad-based international participation, among other key factors. This pessimism is unwarranted. By including flexibility in the timing and location of emissions reductions and promoting technological innovation, the Administration is seeking to implement a policy which will minimize costs and possibly produce net economic benefits in the long run. The USG’s proposal for multi-year emissions budgets, international emissions trading and joint implementation, and expanded developing country participation will promote when and where flexibility. Further, the USG’s proposal for an aggressive program to promote research, development, and investment in energy-efficient technology will reduce costs.

* We are sending to you separately a memo regarding new developments that could further reduce the economic costs of climate change policy by redefining the calculation of the 1990 baseline, among other things. The range of economic impacts, as discussed in this memo, is without regard to the potential savings that we could gain if we chose to incorporate or otherwise build on those developments.

Drafted: EB - VAGreenfield
Cleared: EB/ESC - WRamsay
OES - MKimble
E - PBass
G - RPrudencio
S/P - Mlonata

Climate Change
December 15, 1997

Q: DO YOU EXPECT CONGRESS TO RATIFY THIS AGREEMENT WITHOUT PARTICIPATION BY DEVELOPING COUNTRIES?

A: First, this is an historic and unprecedented step -- the Kyoto agreement involves 160 nations, and it recognizes the crucial importance of specific steps to address climate change. We are proud of the leadership provided by the President and the Vice President in forging this agreement. But as the President has always emphasized, this is a global problem requiring a global solution, and we must have meaningful participation by the developing countries before we ratify the agreement. As the President and Vice President have emphasized, the agreement does not yet represent meaningful participation by the developing countries.

So we have further work to do before we can send the agreement to the Senate. But let me emphasize again, that this is an historic first step in protecting the earth from the dangers that scientists have identified with global warming. **This agreement is a resounding success for the US: we have locked in the progress that we made with developing countries on joint implementation, and the progress we made with the EU and Japan on our overall approach.**

FOLLOW: WHEN WILL YOU SUBMIT THIS TREATY TO THE SENATE?

A: The President has emphasized that before we submit the treaty for ratification, we must have meaningful participation by key developing countries. While we made some progress in Kyoto with developing countries, there is clearly more to be done. We will be actively pursuing such meaningful participation over the coming months.

[If pressed: I don't want to create any artificial deadlines. This is clearly a high priority, and we will be working on it aggressively as we head toward Buenos Aires next year.]

Q: DID YOU CAVE, WITH A 7 PERCENT REDUCTION BY 2008-2012?

A: This is an historic and unprecedented step, and involved a very complicated set of international negotiations -- including 160 nations -- on a difficult and complex issue. To reach agreement, we had to show some flexibility. But other countries did also. First, the timetable 2008-2012 was the President's position and was opposed by many, including the European Union, who wanted to start the binding period in 2005. Second, the agreement includes six greenhouse gases, which had been pushed only by the U.S. And third, the treaty reflects our emphasis on market-based systems. For example, the market-based Clean Development Mechanism is basically our Joint Implementation proposal, and should allow U.S. firms to take advantage of low-cost reductions in developing countries. Finally, the target and timetable itself is actually fairly close to our initial position. Some of the apparent movement actually reflects different accounting for

carbon sinks and three of the six gases. When you account for these accounting changes, the 7 percent decline is fairly close to our initial position -- no more than 3 percent below it.

Q: WHAT ARE YOUR NEXT STEPS, GIVEN THAT SOME SENATORS HAVE SAID THIS AGREEMENT IS DEAD ON ARRIVAL?

A: We view the agreement in Kyoto not as the end of the process, but as a historic beginning. It is a truly significant first step in dealing with a long-term problem that ultimately must be solved not only by developed -- but also by developing countries.

We have adopted a two-step process to this problem. This agreement locks in hard commitments by the developed countries, as well as some commitments by the developing countries (such as on the Clean Development Mechanism).

The President has made very clear that the United States would not take on legally binding targets until there is meaningful participation by developing countries. Despite some important progress, that meaningful participation is not yet present. We will be working hard over the coming months and years to secure that participation.

We will also be moving ahead with our domestic initiatives, including the \$5 billion package of R&D and tax incentives that will be part of the President's budget.

Q: DON'T ECONOMIC MODELS SUGGEST THAT THE KYOTO AGREEMENT WILL TANK THE ECONOMY AND COST MILLIONS OF JOBS?

A: There is a long history of corporate-sponsored studies concluding that environmental protection must come at the expense of economic growth, so it's hardly surprising that we see the same phenomenon with climate change. But let's look at the record: Today, the unemployment rate stands at 4.6 percent, the lowest in more than two decades, and the economy has generated 14 million new jobs since 1993. Inflation is low, investment is booming, and real wages are rising. All this good news despite the doomsday predictions of self-interested economic studies that warned of the disastrous consequences of the Clean Air Act, the Clean Water Act, and other efforts to protect the environment.

FOLLOW: BUT AREN'T THERE SPECIFIC MODELS SHOWING THAT THE KYOTO AGREEMENT WILL COST MILLIONS OF JOBS?

A: Those models ignore several key elements of the President's approach to climate change:

1. They ignore the President's \$5 billion package of tax cuts and Federal R&D: To spur energy efficiency and the development of lower-carbon energy sources, the Administration supports a major new package of tax cuts and R&D spending amounting to \$5 billion over five years.

2. They ignore the potential for increased use of existing energy-efficient products: As the Department of Energy's 5-Labs study illustrates, many existing technologies produce win-win solutions to reducing carbon emissions -- but nonetheless are still not widely used. The President is committed to expanding their reach. The models referenced assume little change in the penetration rate of existing energy-efficient equipment. Engineering studies suggest that we could reduce emissions by 20 percent at no (or negative cost) by improving the penetration of energy-efficient equipment.

3. They ignore the President's Federal energy initiative: To reduce greenhouse gas emissions from Federal sources, the Department of Energy will spearhead a comprehensive effort that includes expanded performance contracting to make Federal buildings more energy-efficient, improved Federal procurement practices, establishment of a new level of excellence for Federal building construction and renovation, and partnerships to improve the energy efficiency of Federal aircraft, ships and vehicles.

4. They ignore electricity restructuring: To spur further efforts to clean our air and deliver a downpayment on greenhouse gas emission reductions, while saving consumers billions, we will pursue a bold plan to restructure the energy sector. It is time to change the rules that are often more than 70 years old -- stifling innovations that can save money and impede newer, cleaner technologies.

5. They ignore international emissions trading. Two key components of the Kyoto agreement are an international system of emissions permit trading, and the Clean Development Mechanism -- which allows U.S. firms to benefit at home from improving energy efficiency abroad. Studies suggest that international trading and the Clean Development Mechanism can substantially reduce the costs of emissions reductions.

6. They ignore the economic costs associated with climate change itself. Climate change will lead to increased flooding, sea-level rise, and other dislocation. So looking just at the impact of reducing emissions on GDP is misleading.

Q: DOESN'T THE PRESIDENT'S PLAN AMOUNT TO THE LARGEST ENERGY TAX INCREASE IN HISTORY -- \$200 BILLION A YEAR OR MORE?

A: Not at all. The President's plan includes tax *cuts*, not tax increases. Those tax cuts will be part of our \$5 billion package to spur energy efficiency and reduce greenhouse gas emissions. Our plan does not involve tax increases at all.

FOLLOW: BUT ISN'T A PERMIT SYSTEM JUST LIKE A TAX?

A: No. First of all, the permit system would not begin until we have a decade's worth of experience with tax cuts, R&D, early credit, and other incentives to reduce greenhouse gas emissions. We have also built in regular 5-year reviews, to monitor how the economy is responding in this effort to address a critical environmental problem. Finally, economists will tell you that there are several critical differences between a permit system

and a tax. [For example, a permit system provides insurance that a given quantitative target will be met, whereas a tax does not. And unlike a tax, permits could be granted to firms based on historical emissions levels.]

Q: WON'T ENERGY PRICES INCREASE, JUST AS IF YOU IMPOSED A TAX?

A: First, we have a decade in which we will use tax cuts and R&D to spur energy efficiency. After that decade, when we enter the internationally binding period, there may be some shift in the relative price of carbon-intensive energy compared to less carbon-intensive energy. But that doesn't necessarily mean an increase in overall energy prices. Let's look at what happened over the past 15 years: In 1983, the real price of gasoline was \$1.84 per gallon. Fifteen years later, in 1997, it's now \$1.24 per gallon. Energy prices are very difficult to predict, and a variety of factors -- from electricity restructuring to international oil discoveries -- will play a role.

10/20

Timetable - doesn't want timetable to create Kyoto

2008-12/14 the most

Elec. utilities - want to start later

Larry: specificity not helpful

Will begin with ineqs $x(x+1)$

Will implement permits in 2005 to bend off BAC

Reich: economic kam doesn't think it will work. - bet it
might work.

POTUS + Congress ~~inter~~ must decide.

It is our ^{to comp} intention - a lot of uncertainties, - we will do everything we can to make it work in the end.

do everything we can to make it work.
 B Is it binding - yes, ^{indeed} but POTUS & Congress
 will have to decide + have to see if national
 interest is ^{really} threatened.

Confidant that if POTUS & Congress find it
Difficult our national interest were ^{seriously} ~~savagely~~
threatened, they would decide

Measu

W_2 vs. POT45

**PRELIMINARY AND INCOMPLETE: CLOSE HOLD
ECONOMIC Q&A
October 22, 1997, 9:00 am**

OVERVIEW

Q: WHAT IS THE ECONOMIC LOGIC OF THE PRESIDENT'S PLAN?

- A:
- As the President has emphasized, the risks posed by global climate change are real and sensible preventive steps are justified. The effects of addressing this critical issue depend on whether we do it smart or we do it dumb. Doing it smart means using market mechanisms, recognizing the uncertainties involved, and avoiding all unnecessary costs in reaching our goal.
 - The President's program is therefore intended to ensure that we explore all possible avenues for low-cost carbon reductions. It includes a graduated approach to reducing emissions, creates regular economic reviews, and emphasizes the importance of developing country participation in the global effort to address climate change.

Q: HOW DOES THIS PLAN RECOGNIZE THE UNCERTAINTY INVOLVED IN CLIMATE CHANGE?

- A: This program recognizes the uncertainty involved in the effort to address climate change in three ways:
- By adopting a graduated approach to emissions reductions, it allows us to grab the "low-hanging" fruit first.
 - By adopting a system of regular economic reviews, to monitor our progress and re-assess how the economy is responding. Only after we have accumulated ten years of experience with the program would we enter the internationally binding period.
 - By insisting that the United States will not adopt binding obligations until developing countries make adequate commitments in terms of their own obligations, and that developing countries must be included in the international permit trading system. This allows the U.S. to take advantage of low-cost reduction possibilities abroad. As a letter signed by 2500 economists -- including 8 Nobel prize-winners -- argues, "In order for the world to achieve its climatic objectives at least cost, a cooperative approach among nations is required -- such as an international emissions trading agreement."

Q: HOW DOES THIS PLAN RELATE TO LESSONS LEARNED FROM ECONOMIC MODELS?

A: The economics literature on climate change suggests several lessons, including:

- Efforts to address climate change involve substantial uncertainties, in terms of both the economy and the environment;
- A “cap and trade” system in which emission permits are issued and then traded among firms can substantially reduce the cost of meeting an emissions target by creating incentives for emissions to be reduced by those firms and in those activities where costs are lowest;
- International emission permit trading substantially lowers costs by applying the same cost-minimizing principle globally; and
- Joint implementation, whereby US firms would receive credit for undertaking emission reductions in countries with low abatement costs, would also lower the domestic burden.

The President’s plan reflects these crucial lessons:

- It reflects the underlying uncertainties involved by adopting a graduated approach to reducing emissions and instituting regular economic reviews.
- It includes a market-based emissions trading system that can substantially reduce costs relative to command-and-control approaches.
- It emphasizes international permit trading, and
- It conditions U.S. binding obligations on the participation of developing countries in the international system.

ECONOMIC COSTS OF CLIMATE CHANGE ITSELF

Q: WHAT ARE THE ECONOMIC COSTS OF CLIMATE CHANGE ITSELF? IS THERE AN ECONOMIC BENEFIT TO REDUCING CARBON EMISSIONS?

A: Yes. RANDY -- COULD YOU INSERT YOUR GCC RISKS INFORMATION HERE

TARGET AND TIMETABLE

Q: HOW DID YOU CHOOSE 1990 BY 2008 TO 2014, RATHER THAN ANY OTHER ALTERNATIVE?

A: The President carefully weighed a wide variety of different targets and timetables. Because of the multitude of economic, environmental, and diplomatic factors involved in each approach, this decision was very difficult. He decided that the best balancing of all these factors, and one that would represent a credible first step in addressing climate change, would be to set a target and timetable of reducing emissions to 1990 levels by 2008 to 2014. That is the proposal we will be bringing to Kyoto. The President feels that his graduated approach strikes the proper balance between those who wish to do more, at the possible risk of imposing significant costs on the economy, and those who wish to do less, at the possible risk of imposing significant costs on the environment.

Q: HOW EXACTLY IS THE TIMETABLE MEASURED? WHAT DOES 2008 TO 2014 MEAN?

A: The proposal means that the objective is to reduce average greenhouse gas emissions between 2008 and 2014 to their level in 1990. In 1990, *net* U.S. emissions of all greenhouse gases -- CO₂, methane, nitrogen oxide, etc. -- amounted to 1.46 billion metric tons of carbon equivalent. Total CO₂ (carbon dioxide) emissions amounted to 1.34 billion metric tons, and *net* carbon dioxide emissions amounted to 1.23 billion of this total. (Net means gross emissions minus sinks, such as forests.)

[The U.S. position is that the international agreement should be stated in terms of total net emissions.]

Q: WHAT WILL U.S. EMISSIONS BE IN 2008-2014 UNDER BUSINESS-AS-USUAL? HOW ABOUT OTHER COUNTRIES?

A: We don't have a precise answer for 2008-2014, but we do have estimates for 2010 -- which is likely to be close to the average for 2008 to 2014. According to projections from DOE's Energy Information Administration, U.S. CO₂ emissions under business-as-usual are expected to increase from 1.34 billion metric tons in 1990 to 1.72 billion in 2010 -- an increase of 29 percent.

Western Europe CO₂ emissions are projected to rise from 1.02 billion metric tons in 1990 to 1.21 billion in 2010 -- an increase of 19 percent.

[Japanese emissions are expected to rise from 308 million metric tons to 466 million -- an increase of 51 percent. That estimate, however, does not fully reflect the recent slow-down in growth in Japan, and may therefore be substantially overstated.]

World emissions are expected to rise by 46 percent, from 6.0 billion metric tons in 1990 to

8.8 billion metric tons in 2010.

Q: WHY DID YOU CHOOSE A MULTI-YEAR TIMETABLE?

A: As press reports earlier this week indicated, carbon emissions often fluctuate significantly from year to year, based on economic growth, the weather, and other variables. The purpose of the multi-year timetable is to average over several years and thus minimize the impact of year-to-year fluctuations on meeting our international obligation.

Q: DOESN'T RESEARCH (BY MANNE AND RICHEL) SHOW THAT THE PRESIDENT'S TARGET AND TIMETABLE IMPOSES SUBSTANTIALLY HIGHER ECONOMIC COSTS FOR NO ADDITIONAL ENVIRONMENTAL BENEFIT, RELATIVE TO A MORE GRADUAL ADJUSTMENT PATH?

A: Some economic research does suggest that relative to the plan proposed by the President, a more backloaded approach to emissions reductions could reduce the costs involved, even while resulting in the same ultimate concentration of carbon in the atmosphere. But the emissions paths called for under such a plan rely on very steep -- and perhaps implausible -- declines in the out-years to ensure that the same concentration goal is met. [If we had proposed such a path, we would undoubtedly have been criticized for proposing a plan that was too backloaded.]

The President feels that his graduated, three-stage approach strikes the proper balance between those who wish to do more, at the possible risk of imposing significant costs on the economy, and those who wish to do less, at the possible risk of imposing significant costs on the environment.

GDP AND EMPLOYMENT

Q: WHAT IS THE EFFECT ON GDP?

- A:
- The precise effect on GDP is very difficult to assess. To provide some perspective: as you all know, it is difficult to gauge exactly what impact the balanced budget agreement will have on the U.S. economy's growth rate, levels of employment, interest rates and consumption over the next five years. But with global climate change, it is orders of magnitude more difficult to gauge the effects on the economy. Global climate change involves not just the next five years and not just the American economy, but, rather economic and physical processes that operate globally and over decades.
 - To reflect this uncertainty, the President has proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial

permit trading system. He has also proposed regular economic reviews, to ensure that the economic costs are not excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period.

- President Clinton's top priority, since his first days in office, has been revitalizing the U.S. economy, creating jobs and investing in people and technology to enhance long-term growth. We have made tremendous progress, and the President is not going to jeopardize that progress. Nor would we expect any future President or Congress to do so.
- As for specific estimates of the impact on GDP -- which again are highly uncertain -- I would emphasize that two key components of the President's plan are that developing countries adopt binding targets and participate in an international permit trading system. As 2500 economists -- including 8 Nobel prize-winners -- have argued, "In order for the world to achieve its climatic objectives at least cost, a cooperative approach among nations is required -- such as an international emissions trading agreement."
- With these two components -- developing country participation and international trading -- economic analysis suggests that the effect on GDP is likely to be minimal -- and much less than the typical variation in growth from quarter to quarter or year to year. [With worldwide trading, economic models suggest that the effect on GDP in 2010 is likely to amount to less than 0.1 percent of GDP.]

FOLLOW: BUT DON'T SOME MODELS SHOW DECLINES IN GDP OF 1 TO 2 PERCENT? IS THAT "MINIMAL"?

A: Some models do indeed show declines of those amounts, but they ignore several key issues:

- First, there is much uncertainty over cost projections that are 13 or more years into the future -- 13 years ago, we could never have predicted that we would now have an unemployment rate below 5 percent, core inflation below 2.5 percent, and a budget deficit substantially under \$50 billion.
- Second, to reflect the uncertainty involved in addressing climate change, the President has proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial permit trading system. He has also proposed regular economic reviews, to ensure that the economic costs are not excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period.

- Third, most models ignore the economic costs associated with climate change itself -- increased flooding, sea-level rise, and other dislocation. So looking just at the impact of reducing emissions on GDP is misleading.
- Finally, those estimates are based on model runs that assume that developing countries do *not* adopt binding targets and that there is no international permit trading -- even though both are key components of the President's plan. When those components are included in the analysis, the effects on GDP are predicted to be substantially lower. [With worldwide trading, economic models suggest that the effect on GDP in 2010 is likely to amount to about 0.1 percent of GDP.]

Q: WHAT IS THE EFFECT ON OVERALL EMPLOYMENT?

A: Same as answer to GDP question above, but substituting "employment" for "GDP." [With worldwide trading, the effect on employment is likely to be about 75,000 jobs -- about one-third the average *monthly* job creation since President Clinton took office.]

Q: DIDN'T AN EPI REPORT SHOW THAT OVERALL EMPLOYMENT WOULD FALL BY MORE THAN 1.5 MILLION UNDER THE PRESIDENT'S PLAN?

A: No. The EPI report assumed no international trading and no developing country participation -- key components of the President's plan. Other results suggest that such omissions produce grossly misleading results. The President's plan also includes regular economic reviews, precisely to ensure that the economic costs are not excessive.

After all, President Clinton's top priority, since his first days in office, has been revitalizing the economy, creating jobs and investing in people and technology to enhance long-term growth. And we have made tremendous progress: growth is strong, unemployment is down to 4.9 percent, and over 13 million jobs have been created since January 1993. He is not going to jeopardize that progress.

Q: WHAT ABOUT EMPLOYMENT IN SPECIFIC SECTORS?

A: President Clinton's top priority, since his first days in office, has been revitalizing the economy, creating jobs and investing in people and technology to enhance long-term growth. And we have made tremendous progress: growth is strong, unemployment is down to 4.9 percent, and over 13 million jobs have been created since January 1993. He is not going to jeopardize that progress.

As the President has emphasized, the risks posed by global climate change are real and sensible preventive steps are justified. It is likely that in the effort to address this substantial challenge, some sectors will gain and some will lose. The regular economic reviews that are a critical part of the President's plan, and his commitment to developing a

system of transition assistance for any affected workers, are intended to minimize any costs.

FOLLOW: WHICH SPECIFIC SECTORS WILL BE HURT?

[A: We would expect that the impact would be more significant in carbon-intensive and energy-intensive sectors. But we do not have precise modeling results, showing which industries will gain and which will be hurt. I should note, however, that the President has expressed his commitment to working with interested parties to develop a system of transition assistance, to reduce the burden on workers in affected industries.]

PERMIT PRICES AND ENERGY PRICE INCREASES

Q: DON'T MOST MODELS SUGGEST THAT CARBON PRICES WILL HAVE TO RISE BY \$100 TO \$200 PER TON TO REDUCE EMISSIONS TO 1990 LEVELS BY 2010?

A: Many models have concluded that permit prices would need to be in that range to reduce emissions to 1990 levels by 2010 with no international trading. But such trading, including with developing countries, is a key component of the President's plan. The economics literature suggests that if international trading were to develop, the costs involved would be substantially reduced.

I should also note that there is much uncertainty over cost projections that are 13 or more years into the future -- 13 years ago, we could never have predicted that we would now have an unemployment rate below 5 percent, core inflation below 2.5 percent, and a budget deficit substantially under \$50 billion.

To reflect the uncertainty involved in addressing climate change, the President has proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial permit trading system. He has also proposed regular economic reviews, to ensure that the economic costs are not excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period

FOLLOW: HOW MUCH OF A DIFFERENCE DOES INTERNATIONAL TRADING REALLY MAKE?

A:

- I hesitate to give a precise answer because of the substantial uncertainties involved in the analytical effort, and because of the institutional difficulties in making international trading a reality. But many reports suggest that international trading *could* substantially reduce the cost.

- The World Bank is already working on designing a system for international trade in permits. Some experiments have already been conducted -- including one in the Nordic countries that suggested that international trading "can be an important means of reducing the costs to achieve a greenhouse gas objective." [Peter Bohm, "A Joint Implementation as Emission Quota Trade: An Experiment Among Four Nordic Countries," Nordic Council of Ministers, February 7, 1997.]
- Over 2500 economists -- including 8 Nobel prize-winners -- have signed a letter emphasizing that "In order for the world to achieve its climatic objectives at least cost, a cooperative approach among nations is required -- such as an international emissions trading agreement."
- A recent report written by several leading climate change economists and published by the Pacific Northwest National Laboratory this month suggests that worldwide permit trading would allow us to reach 1990 levels by 2010 for a permit price of approximately \$25 per ton in 2010 -- or an increase of about 6 cents per gallon of gasoline after 13 years. [JA Edmonds, SH Kim, CN MacCracken, RD Sands, MA Wise, "Return to 1990: The Cost of Mitigating United States Carbon Emissions in the Post-2000 Period," Battelle, October 1997.]

Q: DIDN'T THE 5-LABS STUDY CONCLUDE THAT CARBON PRICES WOULD HAVE TO RISE BY \$50 TO REACH 1990 LEVELS BY 2010, AND ISN'T THAT ON THE OPTIMISTIC SIDE?

A: The 5-Labs study examined a scenario in which there was no international trading, and concluded that the permit price would have to be \$50 to reduce emissions to 1990 levels by 2010 with no such trading. But the President's plan emphasizes international trading, including with developing countries, and the economics literature suggests that worldwide trading substantially reduces the costs involved.

[The Department of Energy has released an analysis that combines international permit trading with the results of the 5-Labs study, and concluded that a permit price of \$25 or lower in 2010 would allow the country to meet its target and timetable.]

Q: ISN'T \$25 PER TON OF CARBON STILL A SUBSTANTIAL INCREASE IN ENERGY COSTS?

A: As the President has emphasized, the risks posed by global climate change are real and sensible preventive steps are justified. Some increase in the relative price of energy is necessary to address climate change. Under the President's plan, any relative price shifts involved would not take effect until 2005 or later.

[Note: \$25 per ton translates into about 6 cents per gallon of gasoline, and approximately \$200 per year for the average family.]

Q: DON'T SOME ADS SUGGEST THAT GAS PRICES WOULD HAVE TO RISE BY 50 CENTS?

- A:
- Those ads are misleading. They seem to be based on especially pessimistic views about what could happen if we attempted to reduce emissions to 1990 levels without international trading. But such trading, including with developing countries, is a key component of the President's plan. Since the economics literature suggests that worldwide trading substantially reduces the costs involved, those ads are misleading.
 - With our position on a shared global commitment, gasoline prices would likely increase in the range of 5-15¢ -- gasoline prices have varied by more than this since 1983

(Treasury analysis: standard deviation of gas prices, '83-'97: 22¢ -- note, I believe that most of this was driven by the Persian Gulf War.)

CREDIBILITY

Q: HOW CAN YOU POSSIBLY REDUCE EMISSIONS TO 1990 LEVELS BY [2010] WITHOUT IMPOSING EXCESSIVE COSTS ON THE ECONOMY?

- A:
- Climate change is a critical challenge facing the country, but there is substantial uncertainty surrounding how costly it will be to address. Given this uncertainty, it would be irresponsible not to explore all possible avenues for low-cost emissions reductions before undertaking any effort that would be excessively costly.
 - The President's graduated, three-stage approach therefore recognizes that there is substantial uncertainty over any project that is 13 or more years into the future -- 13 years ago, we could never have predicted that we would now have an unemployment rate below 5 percent, core inflation below 2.5 percent, and a budget deficit substantially under \$50 billion.
 - To reflect the uncertainty involved in addressing climate change, the President has proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial permit trading system. He has also proposed regular economic reviews, to ensure that the economic costs are not

excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period.

- I don't know for sure that we can succeed in this effort, but I'll tell you one thing: After the first two stages of the President's program, we will have made a credible first step and we'll know a lot more than we do now about both the science and economics of climate change.

SAFETY VALVE, ECONOMIC REVIEWS, AND "BINDING" TARGET

Q: IS THE TARGET AND TIMETABLE BINDING?

A: Yes, it is our intention to comply with our stated target and timetable. There are a lot of uncertainties, but we will do everything we can to make it work. It would not be reasonable to expect this President, or any future President or Congress, to impose excessive costs on the economy to meet that target. However, the President is confident that we can achieve this goal and continue to grow our economy.

Q: THEN HOW CAN YOU CLAIM THAT THE TARGET AND TIMETABLE IS BINDING, WHEN MOST ECONOMIC MODELS SUGGEST THAT YOU CAN'T REDUCE EMISSIONS THAT MUCH WITHOUT INCURRING EXCESSIVE COSTS?

- A:
- First, there is much uncertainty over any cost projections that are 13 or more years into the future -- 13 years ago, we could never have predicted that we would now have an unemployment rate below 5 percent, core inflation below 2.5 percent, and a budget deficit substantially under \$50 billion.
 - Second, the models to which you refer assume no worldwide permit trading. But such trading, including with developing countries, is a key component of the President's plan. The economics literature suggests that worldwide trading substantially reduces the costs involved.
 - Finally, all we are saying is that it is unreasonable to ignore the reality that future Congresses will always have the option to protect the economy or to undertake more environmental action. We should therefore recognize that decisions about whether the United States was willing to bear the costs that could be necessary to meet the target and timetable goal will, in a sense, have to be made at that time.

Q: HOW CAN YOU ENSURE THAT THE COSTS ARE NOT EXCESSIVE?

- To ensure that the costs are not excessive, the President has proposed a graduated,

three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial permit trading system. He has also proposed regular economic reviews, precisely to ensure that the economic costs are not excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period.

- The President has also emphasized the participation of developing countries, and an international system of trading permits, as key components of his climate change plan. Such factors should substantially reduce the costs involved.

Q: WILL THESE REVIEWS FORM PART OF THE INTERNATIONAL TREATY?

A: No, although the treaty already includes broad language that preserves a country's right to take protective action if the costs involved become excessive.

Q: HOW CAN YOU SIGN AN INTERNATIONAL TREATY THAT DOESN'T REFLECT THE PROTECTIONS YOU ARE CLAIMING DOMESTICALLY?

A: No country would ever be expected to sacrifice its national interests -- including either its national security or its economic well-being -- on the basis of an international treaty. So let me put it this way: We would be just as committed to this treaty, if we get an adequate agreement, as any other we have ever adopted.

Q: DO YOU INTEND TO MEET YOUR BINDING OBLIGATION?

A: We certainly intend to meet any binding obligation under the treaty, should the terms of that treaty be adequately negotiated. The issue is a critical one, and the President feels strongly that we must begin to take corrective action. But there are understandably a host of imponderables involved in this undertaking -- which involves actions over a decade or more. So I am also confident that if the costs of action are excessively high, the Congress and the President will make appropriate adjustments.

Q: DOES YOUR PROPOSAL INCLUDE A "SAFETY VALVE"?

A: That term has unfortunately become a bit maligned. Our proposal includes a variety of mechanisms to ensure that the economic costs involved are not excessive -- including the graduated, three-step approach with regular economic reviews and the commitment to an international trading regime. You can call them what you want.

Q: DIDN'T THE ADMINISTRATION PROPOSE A "SAFETY VALVE" INVOLVING A MAXIMUM PERMIT PRICE?

A: The issue of whether it would make sense to impose a ceiling on the permit price in the

internationally binding period (Stage 3) has been raised by researchers at Resources for the Future, and was discussed during the President's climate change conference.

FOLLOW: WHY DIDN'T THE ADMINISTRATION ADOPT SUCH AN APPROACH?

A: We felt it was unnecessary to impose a formal ceiling price during the internationally binding period at this time. We are confident that our graduated approach, with its regular economic reviews and scope for adjustments by future Presidents and Congresses, provides sufficient protection against excessive economic costs.

Q: WHO WILL CONDUCT THE ECONOMIC REVIEWS?

A: The reviews will be conducted by relevant experts and officials. It is possible that we would form a commission to conduct them.

Q: WHAT IMPACT WILL THE REVIEWS HAVE ON POLICY?

A: The reviews will help to ensure that policy-makers, both in the Administration and in Congress, have the best possible information on how the economy is responding to the effort to address climate change, how other countries are performing relative to their own commitments, and how the climate is changing in response to human activities. That information will then undoubtedly be used to make any adjustments that seem appropriate to policy-makers in the future. It doesn't seem wise for me to speculate about what form such adjustments would take -- whether in terms of more aggressive environmental action, or less aggressive.

STANDARDS

Q: ARE YOU PROPOSING ANY INCREASE IN CAFE STANDARDS TO IMPROVE FUEL EFFICIENCY AND REDUCE EMISSIONS?

A: In the DOT appropriations bill that was just passed and signed into law, Congress precluded any change in CAFE standards for FY 1998. So we do not currently have the authority to change CAFE standards.

Q: ARE YOU PROPOSING ANY OTHER STANDARDS AS PART OF YOUR PACKAGE?

A: As part of our industry-by-industry consultation process, we will be working with interested parties to explore all possible opportunities for reducing carbon emissions. That could include energy-efficiency standards if appropriate. But we are not putting out any specific proposals at this time. We want to elicit industry views on the subject.

TAX INCREASES

Q: DOESN'T THE PRESIDENT'S PLAN AMOUNT TO THE LARGEST ENERGY TAX INCREASE IN HISTORY -- \$200 BILLION A YEAR OR MORE?

A: Not at all. The President's plan includes tax *cuts*, not tax increases. It does not involve tax increases at all.

FOLLOW: BUT ISN'T A PERMIT SYSTEM JUST LIKE A TAX?

A: No. There are several critical differences between a permit system and a tax. For example, a permit system provides insurance that a given quantitative target will be met, whereas a tax does not.

FOLLOW: BUT IF YOU AUCTION THE PERMITS, ISN'T THAT A TAX?

A: First, we have not decided to auction the permits. Second, just for the record, there are still several critical differences between such an auctioned permit system and a tax. For example, the permit system provides insurance that a given quantitative target will be met, whereas a tax does not. And any revenue from the auctions could be used to *reduce* other taxes -- so that the entire effort would be revenue-neutral.

Q: WON'T ENERGY PRICES INCREASE, JUST AS IF YOU IMPOSED A TAX?

A: Climate change is a critical issue, and some increase in the relative price of energy will ultimately be necessary to address it. But it would be irresponsible not to explore all possible alternatives before resorting to moderate relative price change. The President has therefore proposed a graduated, three-stage approach to emissions reductions -- starting with a period of voluntary action, tax incentives, R&D, and Federal efficiency improvements, and then followed by a trial permit trading system. He has also proposed regular economic reviews, to ensure that the costs are not excessive. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period. The President has also emphasized the participation of developing countries, and an international system of trading permits, as key components of his climate change plan. Such factors should substantially reduce the costs involved.

Q: HOW DOES THIS EFFORT COMPARE TO THE BTU TAX?

A: This effort is not a tax, so it is not directly comparable. And energy price increases would not occur for eight years or more -- in 2005 or later. But in terms of oil prices, the effect of a \$25 carbon permit price is approximately the same. Remember, however, that the increase would not occur until 2005.

[A \$25 permit price is equivalent to approximately 60 to 70 cents per million BTUs. In 1993, the Administration proposed a tax of 26 cents per million BTUs plus a 34 cents per million BTUs tax on oil.]

DETAILS OF PERMIT SYSTEM, INCLUDING GRANDFATHERING VERSUS AUCTIONING

Q: HAVE YOU DECIDED WHETHER THE PERMITS WOULD BE AUCTIONED OR GRANDFATHERED?

A: No. That is a very important issue that we will explore with Congress and other interested parties when the time comes for developing domestic implementation legislation.

Q: WHERE WOULD THE PERMIT REQUIREMENTS BE IMPOSED?

A: That is a very important issue that we will explore with Congress and other interested parties when the time comes for developing domestic implementation legislation.

COMPETITIVENESS

Q: WON'T THIS PLAN LEAD TO MASSIVE SHIFTS OF U.S. INDUSTRY AND JOBS ABROAD?

- A:
- No. The President has made very clear that we will not assume binding obligations until the developing countries make adequate commitments in terms of their own obligations.
 - I would also note that non-tradeable sectors account for a substantial share of carbon emissions. Transportation and buildings, for example, account for roughly two-thirds of U.S. emissions. For these sectors, the "competitiveness" argument seems largely irrelevant.
 - In most manufacturing sectors, furthermore, energy costs are a small percentage of total costs. According to the 1995 Annual Census of Manufactures, energy costs for manufacturing industries averaged just 2.2 percent of total costs.

DEVELOPING COUNTRIES AND INTERNATIONAL TRADING

Q: WHAT SPECIFIC MODELS SHOW THAT WORLDWIDE INTERNATIONAL TRADING ALLOWS RELATIVELY LOW-COST REDUCTIONS?

- A:
- According to JA Edmonds, SH Kim, CN MacCracken, RD Sands, MA Wise, "Return to 1990: The Cost of Mitigating United States Carbon Emissions in the

Post-2000 Period,” Battelle, October 1997, the cost of reaching 1990 levels by 2010 with worldwide trading would be a permit price of \$26 per ton in 2010.

- The models used by the Interagency Analytical Team to produce its draft report suggest that the permit price needed to reduce emissions to 1990 levels by 2010 would be between \$9 and \$20 in 2010.

Q: DOESN'T INTERNATIONAL TRADING MEAN THAT WE ARE ESCAPING OUR OBLIGATION TO REDUCE EMISSIONS?

A: No. A ton of carbon emitted from Argentina is just as damaging to the global climate system as a ton of carbon emitted from the United States. So we are contributing just as much to the effort to address global climate change if we facilitate reductions abroad as if we reduce here. The U.S. position has therefore always emphasized the efficiency of allowing least-cost reductions wherever they occur in the world.

Q: WON'T INTERNATIONAL TRADING MEAN THAT WE ARE SENDING BILLIONS OF DOLLARS ABROAD, AND EXPANDING OUT TRADE DEFICIT?

A: First, it is difficult to predict precisely how large the trade in these permits will be. Second, the estimates we do have suggest that such trade could amount to a few billion dollars a year -- a relatively modest amount. Third, our balance of payments statisticians have not determined whether such trade would show up in the trade deficit at all, or would be more appropriately handled in other parts of the balance of payments (e.g., other elements of the current account, or within the capital account). Fourth, our oil imports should decline as a result of efforts to address climate change. Some estimates suggest that our trade deficit could therefore *narrow* as a result of the effort. Finally, some believe that a climate policy provides an opportunity for U.S. companies to sell their technological know-how to other countries to assist them in meeting their emissions targets.

Q: IS INTERNATIONAL TRADING REALLY FEASIBLE, ESPECIALLY WITH DEVELOPING COUNTRIES?

- A:
- Creating a system of international trading will undoubtedly be a challenge for the United States and other parties to any climate change treaty. But the President is firmly committed to the concept, because it is an efficient, market-based approach to emissions reductions -- it substantially reduces the costs of meeting our target.
 - The World Bank has already begun work on how such an international trading system could function.
 - And some carbon trades are already occurring under our pilot Joint

Implementation program.

Q: HOW CAN WE EXPECT COUNTRIES LIKE INDIA AND CHINA TO PARTICIPATE IN AN INTERNATIONAL TRADING REGIME?

A: Such countries already participate in international trade in other products. The President has made clear that we will not adopt binding obligations until the developing countries make adequate commitments in terms of their own obligations. And once they have made such commitments, there is no reason to suspect that they would be unwilling to be guided by economic incentives in deciding whether to sell carbon emissions permits on an international market.

PROCESS ON ECONOMIC MODELING AND ECONOMIC ANALYSIS

Q: WHAT ECONOMIC ANALYSIS AND MODELS DID YOU USE IN EVALUATING DIFFERENT POLICIES?

A: We relied on a wide variety of published analyses and outside experts, as well as the professional judgment of the Administration's top economists. Given the uncertainties involved, it would have been imprudent to rely on one single model or set of models. So we wound up relying on a large number of analyses and views -- including the results from the Energy Modeling Forum at Stanford University, the Intergovernmental Panel on Climate Change, and others.

Q: WHAT IS THE INTERAGENCY ANALYTICAL TEAM? DOES ITS REPORT REFLECT THE ADMINISTRATION'S OFFICIAL ECONOMIC ANALYSIS?

- A:
- When the Administration evaluates possible policies, it normally sets up a variety of staff-level working groups to inform the principals' discussions. The Interagency Analytical Team (IAT) was one such group -- an informal group of modelers from various agencies in the Federal government.
 - Once the relevant principals within the Administration looked over the staff work and the peer review comments on it, it was decided that further activity would be futile because of the difficulty of developing a model or set of models that can give us a definitive answer as to the economic impacts of a given climate change policy. So the IAT report is *not* the Administration's official economic analysis on this issue.
 - The working group's draft report, which was released on July 15, summarizes the preliminary results of the modeling effort. That modeling effort produced some useful lessons, but -- as illustrated by comments from peer reviewers -- it also suffered from shortcomings.

- As Janet Yellen emphasized in her testimony on July 15, the lessons and the shortcomings of the exercise point to one clear conclusion: the effort to develop a model or set of models that can give us a definitive answer on the precise economic impact of a given climate change policy is futile. Rather, we are left with a set of parameters and relationships that influence estimates of the impacts. As she indicated, it is more productive to employ a broad set of economic tools to analyze policy options than to seek to develop a single definitive model. So that's what we did.

ECONOMIC TEAM RUMORS

Q: ISN'T IT TRUE THAT THE ECONOMIC TEAM OBJECTED TO THE PRESIDENT'S CHOICE OF EMISSIONS REDUCTIONS?

A: I'm sure that you can understand that the advice given by any Administration officials to the President must remain confidential. But I can assure you that the economic team supports the President's package, especially its emphasis on a market-based approach and on international trading.

Q: BUT DOESN'T YOUR OWN ANALYSIS SHOW THAT REACHING 1990 BY 2010 WOULD INVOLVE SUBSTANTIAL COSTS?

A: It seems inappropriate for me to reveal the analysis and views that I have shared with the President. I can say that I have informed him of the results from conventional economic models available in the public domain, and discussed both the benefits and limitations of such models. Given the importance I attach to frank internal discussions, I would prefer not to elaborate beyond that -- except to note once again, that there is much uncertainty involved in the estimates and that worldwide international trading, a key component of the President's plan, reduces the costs involved significantly.

COMPONENTS OF STAGE 1

Q: WHAT DOES STAGE 1 OF THE PRESIDENT'S PLAN ENTAIL?

A: The first stage, which applies until 2005, includes:

- **\$5 billion for tax cuts and R&D:** A package of carbon-reducing tax incentives and other programs amounting to \$5 billion over 5 years. For example, the package may include tax credits for carbon-saving technologies such as renewable energy sources.
- **Federal energy efficiency improvement:** A Federal government energy efficiency initiative is being developed by the Department of Energy, in conjunction with the

Department of Defense, OMB, and other relevant agencies. It includes expanding the use of Energy Savings Performance Contracts, reinventing federal procurement, taking a "sustainable design" approach to federal facilities, and developing more efficient military propulsion systems. The effort would also include a review of existing Executive Orders on purchases, and preparation of a new Executive Order to fill any gaps.

- **Industry-by-industry consultation:** We will encourage businesses, on an industry by industry basis, to prepare plans for reductions that they believe they could achieve on their own and how they could best achieve them. Each relevant industry would prepare a plan over the next 6-12 months.
- **Credit for early action:** The President and Vice President strongly support appropriate rewards for those who promptly take early action to reduce emissions. The details of how such an early credit system would operate, however, are complex and can't be fully articulated until the details of an overall permit trading system are worked out. We should state our support for early action and indicate that early actors will be appropriately rewarded.
- **Electricity restructuring:** The President has announced his support for restructuring the electricity industry, which -- if done properly -- could help to reduce carbon emissions, save consumers billions of dollars, and improve the efficiency of our economy.
- **Transition Assistance.** We will work cooperatively with labor and Congress to insure that we give proper assistance to any workers who are dislocated by the changes in energy usage inherent in any climate change plan.

ELECTRICITY RESTRUCTURING

Q: WHAT EFFECT DOES ELECTRICITY RESTRUCTURING HAVE ON CARBON EMISSIONS?

A: If done properly, electricity restructuring has the potential to reduce carbon emissions by rewarding pursuit of greater efficiency in the generation and use of electricity. According to conservative estimates, restructuring could save U.S. residential and industrial consumers \$20 billion per year. A well-crafted restructuring package could also produce significant carbon emissions reductions. As we heard at the President's climate change conference, we currently waste two-thirds of the energy used to produce electricity -- and restructuring could help to reduce that waste. Other potential elements of a restructuring package, including a renewables portfolio standard and green labeling, could also reduce carbon emissions.

Q: WHAT IS THE PRESIDENT'S PLAN FOR ELECTRICITY RESTRUCTURING? WHEN WILL THE DETAILS BE AVAILABLE?

A: We will be refining our own thinking on this issue over the coming months, and look forward to working with all interested parties to ensure that we can craft a restructuring package that saves American consumers money and is good for the environment.

Q: IS IT TRUE THAT, EVERYTHING ELSE BEING EQUAL, THE FASTER OUR GREENHOUSE GAS EMISSIONS GROW, THE MORE COSTLY IT WILL BE TO ACHIEVE THE GOAL OF 1990 EMISSIONS?

DOE RECENTLY RELEASED A REPORT THAT INDICATES THAT GREENHOUSE GAS EMISSIONS INCREASED SUBSTANTIALLY LAST YEAR. THIS APPEARS TO BE A RESULT OF THE STRONG U.S. ECONOMY. DOES THAT MEAN THAT IF OUR ECONOMY CONTINUES TO GROW, THAT THE PRESIDENT'S PLAN WILL RESULT IN MORE COSTLY MITIGATION EFFORTS?

A: We have learned from our nation's experiences and from our modeling efforts that, roughly speaking, two factors drive greenhouse gas emissions. First, as the economy grows, emissions increase. This is because our economy is still quite reliant on fossil fuels. Second, as the economy becomes more efficient at using energy, emissions decrease. Last year, the economy grew faster than the rate of energy efficiency improvement -- hence, greenhouse gas emissions increased. However, under the President's plan, we will support actions to make the economy more energy efficient through tax incentives and R&D programs. These efforts will allow us to continue to grow the economy while meeting our climate change goals at reasonable costs.

Q: THE COUNTRIES OF THE WORLD ARE MEETING IN KYOTO BECAUSE GOALS SET IN RIO (1990 IN 2000) WILL NOT BE ACHIEVED BY MOST COUNTRIES, INCLUDING THE U.S. IN THE U.S., WE ATTEMPTED VOLUNTARY MEASURES THROUGH CCAP. DO YOU CONSIDER CCAP A SUCCESS? AREN'T THE PRESIDENT'S PROPOSALS ON R&D AND TAX INCENTIVES JUST MORE OF CCAP?

A: The Climate Change Action Plan did not achieve its goal of stabilizing 1990 emissions by 2000 because of substantially inadequate funding for the programs. The President's proposal is distinctly different from CCAP. First, the Administration has proposed a binding target, not a voluntary target. The R&D and tax incentive programs are coupled with a carbon permit system. The binding target and the carbon permit system send a credible signal to industry that the U.S. is serious about meeting its climate change goals. Second, this proposal includes much more funding for R&D and tax incentives than presently allocated to CCAP. By increasing funding (by 6 times above CCAP level), the

probability of success of these programs to reduce greenhouse gas emissions will be much higher.

Q: SOME HAVE COMPARED 1990 BY 2010 TO THE OIL SHOCKS OF THE 1970s. DO YOU THINK THE PRESIDENT'S PROPOSAL WILL HIT THE ECONOMY THAT HARD? WHY/WHY NOT?

A: People who have made comparisons of 1990 by 2010 to the oil shocks have not

Q: WE HAVE HEARD ABOUT HOW GREAT THE SO2 PERMIT TRADING SYSTEM HAS BEEN AND THAT IT WILL SERVE AS THE MODEL FOR THE CO2 PERMIT SYSTEM? DOES THAT MEAN THAT THE U.S. WILL GRANDFATHER PERMITS? TO WHOM?

A:

Q: DO WE HAVE ANY EXAMPLES OF AN INTERNATIONAL PERMIT TRADING SYSTEM? WOULD THIS BE A DIFFICULT TASK TO DO? HOW DO WE ENFORCE SUCH A SYSTEM? ISN'T THIS LIKE CREATING A NEW GLOBAL CURRENCY? HOW WILL A PERMIT SYSTEM WORK WITH COUNTRIES THAT DECIDE TO ACHIEVE GREENHOUSE GAS EMISSIONS REDUCTIONS THROUGH CARBON TAXES OR COMMAND AND CONTROL?

A:

Q: HOW DO WE MAKE JOINT IMPLEMENTATION WORK? HOW WILL PROJECTS BE APPROVED? WHO WILL HAVE THE AUTHORITY TO APPROVE THESE PROJECTS? WILL A U.N. AGENCY BE SET UP TO INSPECT ALL PROJECTS?

A:

Q: WHO DO WE BUY OUR PERMITS FROM? WHO WILL WE LIKELY ENTER INTO JI AGREEMENTS WITH?

A:

Q: DID YOU CONDUCT AN ECONOMIC ANALYSIS OF THE AVAILABLE OPTIONS BEFORE THE PRESIDENT? IF SO, WHAT OTHER OPTIONS DID YOU ASSESS? DID THE PRESIDENT'S PROPOSAL RANK #1? WHEN WILL

YOU RELEASE THIS ECONOMIC ANALYSIS?

A:

Q: WHAT ADVANTAGES/DISADVANTAGES MIGHT A TRADING SYSTEM HAVE OVER TAXES? WOULDN'T A TAX SYSTEM PROVIDE GREATER CERTAINTY TO INDUSTRY AND CONSUMERS? DON'T TAXES AND PERMITS HAVE THE SAME EFFECT ON ENERGY PRICES?

A:

Q: THE ECONOMIC COSTS OF THE PRESIDENT'S PROPOSAL APPEARS TO RELY ON INTERNATIONAL PERMIT TRADING AND JOINT IMPLEMENTATION. WITHOUT THESE MECHANISMS, THE COSTS WOULD LIKELY INCREASE SUBSTANTIALLY FOR THE U.S. IF WE DON'T GET THESE ELEMENTS IN A KYOTO PROTOCOL, WOULD YOU, AS THE PRESIDENT'S ECONOMIC ADVISER, RECOMMEND THAT THE U.S. WALK AWAY FROM THE DEAL?

A:

Q: SECRETARY PENA STATED THAT DOE'S 5 LABS STUDY "...SHOWED THAT WHAT WAS GOOD FOR THE ENVIRONMENT WOULD BE GOOD FOR THE ECONOMY." IS IT THE ADMINISTRATION'S POSITION THAT A \$50/TON CARBON PRICE WOULD BE GOOD FOR THE ECONOMY?

A:

Q: ALL PUBLICLY RELEASED ECONOMIC ANALYSES OF CLIMATE CHANGE (IAT, 5 LABS) DO NOT CONSIDER THE COSTS ASSOCIATED WITH DEVELOPMENT, IMPLEMENTATION, AND MONITORING OF A TRADING PROGRAM. ARE THESE OMISSIONS VALID AND REALISTIC? SHOULD PEOPLE ASSUME THAT THE COSTS ARE MINIMAL? DOES THIS MEAN THAT AN INTERNATIONAL TRADING SYSTEM WILL BE INEXPENSIVE TO SET UP AND OPERATE? WHAT KIND OF TRANSACTION COSTS DO YOU EXPECT FOR AN INTERNATIONAL TRADING PROGRAM? FOR A JI PROGRAM?

A:

Q: DOESN'T THE DOE 5 LABS STUDY PROVIDE A JUSTIFICATION FOR NOT RUSHING INTO LEGALLY BINDING EMISSIONS REDUCTION MANDATES IN KYOTO, BUT DELAYING -- EVEN FOR A FEW YEARS -- TO REAP THE

BENEFITS OF THE KINDS OF R&D THE STUDY IS PROMOTING? CAN YOU QUANTIFY THE "COST" OF DELAYING 10 OR 20 YEARS?

A:

Q: WOULD STATE OR LOCAL GOVERNMENTS BE REQUIRED TO PURCHASE CARBON PERMITS? FEDERAL AGENCIES?

A:

Q: WHAT PENALTIES WOULD APPLY IF A DEVELOPING COUNTRY FAILED TO REDUCE ITS EMISSIONS AT AN AMOUNT COMMENSURATE WITH THE CARBON UNITS IT HAD SOLD?

A:

Q: CONGRESSMAN DINGELL SUGGESTED ON 6/19/97 THAT THE ADMINISTRATION'S ANALYSIS IS "TOO LATE TO INFORM THE PROCESS, AND LIKELY WILL BE USED TO JUSTIFY WHAT THE ADMINISTRATION HAS ALREADY DECIDED TO DO." WOULD YOU PLEASE COMMENT ON HIS CONCERNS.

A:

Q: MOST MODELING EFFORTS INDICATE THAT TO ACHIEVE 1990 BY 2010, U.S. CONSUMPTION OF COAL WOULD HAVE TO DECLINE SIGNIFICANTLY. DOES THIS MEAN THAT THE ADMINISTRATION'S POLICY IS ANTI-COAL? WHAT KIND OF IMPACT WILL THIS HAVE ON COAL MINERS?

A: