FAX

cc: Staff, JS

UNITED STATES SENATOR • CONNECTICUT

Joseph I. Lieberman

Fax to: Alicia Munnell Date 4/28/97

Fax# 395 6958 Pages 5

From: Tamara Nameroff

224 9849

Message: For your information and review. Please feel free to contact me if you have questions.

United States Senate • Washington, D.C. • 20510-4601 • (202) 224-4041 Fax: (202) 224-9750

Congress of the United States
Washington, DC 20515

April 8, 1997

Dear Colleague:

More than 2,300 U.S. economists, including eight Nobel laureates, have endorsed a statement on the economics of addressing global climate change. This is significant. Never before have so many economists joined to issue a consensus policy declaration.

The statement, which is reprinted below, responds to the fundamental question facing policy makers on this issue: can the U.S. develop policies that will achieve significant reductions in greenhouse gas emissions without causing damage to the national economy? Resoundingly, the group of economists concluded that "[f]or the United States in particular, sound economic analysis shows that there are policy measures that would slow climate change without harming American living standards, and these measures may in fact improve U.S. productivity in the longer run."

Importantly, the economists emphasize the use of market-based approaches at both the international and national levels to slow climate change. They write, "[i]n order for the world to achieve its climatic objectives at minimum cost, a cooperative approach among nations is required--such as an international emissions trading agreement. The United States and other nations can most efficiently implement their climate policies through market mechanisms, such as carbon taxes or the auction of emissions permits." It is our view, however, that the strategy to adopt — for the United States and the world community — is one featuring enforceable international emissions trading. To encourage the involvement of all treaty parties and to maximize compliance flexibility, we must also take advantage of tools like joint implementation between nations.

The statement was drafted by five distinguished economists: Dale Jorgenson of Harvard University; Paul Krugman of M.I.T.; William Nordhaus of Yale University and two Nobel Prize winners — Kenneth Arrow of Stanford University and Robert Solow of M.I.T.

The United States and some 160 other parties to the U.N. Framework Convention on Climate Change plan to meet in December of this year to negotiate binding reduction targets for greenhouse gas emissions. The economic impacts of this international agreement will likely serve as the key consideration for U.S. policy makers as ratification is considered. To quote the five authors of the consensus statement, "[a]s the climate debate unfolds, it is imperative that public policy be guided by sound economics rather than misleading claims put forward by special interest groups." We could not agree more.

Additional commentary on the statement appeared recently in the *New York Times* and *Washington Post*. We have attached copies of both items for your consideration. Should you have questions or comments, please contact one of us directly, or have someone from your office call Tamara Nameroff of Senator Lieberman's staff at 224-9849 or Erika Feller of Representative Gilchrest's staff at 225-5311.

Sincerely,

Sen. Joe Lieberman

Rep. Wayne Gilchrest

ECONOMISTS' STATEMENT ON CLIMATE CHANGE

We the undersigned agree that:

I. The review conducted by a distinguished international panel of scientists under the auspices of the Intergovernmental Panel on Climate Change has determined that "the balance of evidence suggests a discernible human influence on global climate." As economists, we believe that global climate change carries with it significant environmental, economic, social, and geopolitical risks, and that preventive steps are justified.

II. Economic studies have found that there are many potential policies to reduce greenhouse-gas emissions for which the total benefits outweigh the total costs. For the United States in particular, sound economic analysis shows that there are policy options that would slow climate change without harming American living standards, and these measures may in fact improve U.S. productivity in the longer run.

III. The most efficient approach to slowing climate change is through market-based policies. In order for the world to achieve its climatic objectives at minimum cost, a cooperative approach among nations is required—such as an international emissions trading agreement. The United States and other nations can most efficiently implement their climate policies through market mechanisms, such as carbon taxes or the auction of emissions permits. The revenues generated from such policies can effectively be used to reduce the deficit or to lower existing taxes.

Kenneth J. Arrow

Dale W. Jorgenson

Paul R. Krugman

William D. Nordhaus

Robert M. Solow

and more than 2,300 others

The Washington Post

C6 SUNDAY, FEBRUARY 16, 1997

Staying Cool

WE NOW KNOW that the old saying attributed to Mark Twain—"We all grumble about the weather but nothing is *done* about it"—is not quite true. By virtue of the coal we burn and the gasoline we use and in a thousand other ways, we all have a great effect on the weather. The earth has grown warmer by about one degree, on average, during the last century, and scientists believe the process is accelerating. If nothing is done to slow global warming, the consequences in the next century are likely to be dire. Much turns on decisions the government must take this year.

After years of debate, few now dispute that the burning of fossil fuels releases gases into the atmosphere which then trap more of the sun's warmth than the planet would otherwise retain. The effects of this are more complex than the term "global warming" suggests. Some parts of the earth are likely to become colder, others drier; monsoon and hurricane paths may shift; storms may become more extreme; sea levels will rise. Many small islands and low-lying coastal areas, such as Maryland's Eastern Shore, are at risk. Relatively small temperature changes could have a dramatic impact on agriculture and even the spread of disease.

At the 1992 Earth Summit in Rio de Janeiro, the United States—which produces something like one-quarter of the world's greenhouse-gas emissions—vowed to reduce them to 1990 levels by the year 2000. It seemed a modest goal, but it won't be met. So last year the administration accepted, in principle, the notion of binding targets. Now nations are negotiating those targets—amounts and dates—hoping to reach agreement at yet another conference in Kyoto in December.

Opponents of meaningful action, led by parts of the energy and utilities industries, have shifted their strategy from attacking the scientists to warning of dire economic consequences. But last week more than 2,000 economists signed a statement challenging the industry claims. The broad array of economists, led by Nobel-Prize winners Kenneth J. Arrow and Robert M. Solow, said that measures to reduce greenhouse-gas emissions need not harm the economy—and "may in fact improve U.S. productivity in the longer run." That's because there are many innovative and energy-efficient technologies just awaiting the right financial incentives to enter the market. In many such fields, U.S. industry leads the way.

The key, then, is for the United States to set a goal that's not pushed off to some distant date like 2020 or beyond. A near-term date would send the signal industry needs to begin seriously investing in more efficient technologies, and the commercialization of such technologies would offer an alternative path for development to giants like China and India. Their economies are sure to grow in coming decades; and if they follow the U.S. path to prosperity, we will all be doing more than just grumbling about the weather.

Economic Scene | Peter Passell

Yawn. A global-warming alert.

But this one has solutions.

STERNLY worded petitions and ringing screeds of principle are as much a part of campus life as grade inflation — which is why Washington rarely takes them seriously. But the nation's movers and shakers would do well to pay attention to a statement on global warming by some 2,000 mostly academic economists.

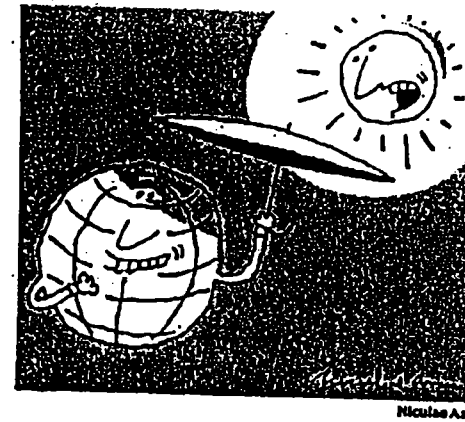
For one thing, the signatures collected by Redefining Progress, a group of policy-minded social scientists based in San Francisco, range from the newish left (Duncan Foley of Barnard College) to the skeptical center (James Heckman of the University of Chicago) to the libertarian right (Gordon Tullock of the University of Arizona). "Market-based approaches to coping with climate change generate as much consensus among economists as free trade," explains Paul Krugman of M.I.T., one of the organizers of the statement.

More important, the statement focuses on what is now regarded by insiders as a make-it-or-break-it issue in slowing atmospheric warming: designing an international system that permits rich economies to contribute cash in lieu of emissions reductions. "Allowing some to pay others to reduce greenhouse emissions could reduce the total cost by 80 to 90 percent," estimates William Nordhaus, an economist at Yale and another organizer of the statement.

• • •

Like any committee looking for consensus, the drafters of the climate statement cast their net widely. "We believe that global climate change carries with it significant environmental, economic, social and geopolitical risks, and that preventive steps are justified," the unshocking introduction reads.

Those who read on, however, will discover there is meat on these bones: "Sound economic analysis," the authors argue, "shows that there are policy options that would slow climate change without harming American living standards."



Nicolas Asch

And what might these policy options be? Here, the drafters take out a position that seems almost obvious to economists, but has barely entered the consciousness of environmental policy makers. "A cooperative approach among nations is required — such as an international emissions trading agreement," the statement asserts.

To understand where the economists really want the diplomats to go, consider where we are now. Current rates of deforestation and combustion of carbon-based fuels — coal, oil, gas — are adding carbon dioxide into the atmosphere faster than the oceans can absorb it. The higher carbon dioxide concentrations trap solar energy. Rising temperatures will likely change weather patterns radically and raise the level of the oceans.

Governments of all the major economies are vaguely committed to containing greenhouse gas emissions before once-a-century hurricanes become an annual event in the Caribbean, Kansas turns into a dust bowl and the Bay of Bengal doubles in size at the expense of Bangladesh. But the emphasis is on the vague: the process of setting emissions targets or creating political institutions to enforce the targets is in the talking stage.

That's where the economists' statement fits in. "We wanted to be there early," said Stephen DeCanio of the University of California at Santa Barbara, "before governments and politicians were locked into positions." Specifically, the statement is intended to give the Clinton Administration some help in pressing the idea of creating an international market in emissions permits at the next global meeting on climate change, set for Kyoto, Japan, in December.

The idea is simple. If and when world leaders start to deal with the practical issues, they are apt to set national targets for containing emissions that will be very expensive to meet in the rich industrial economies, and probably won't be honored in the large emerging economies like China, Russia, India and Indonesia.

Creating an emissions trading system that allows already rich economies to pay the emerging economies to use less energy and less carbon-intensive fuels as they develop offers a double dividend. It reduces the cost for developed countries, in turn reducing the chances their legislatures will balk. And it creates a pool of capital to be used as an incentive to push emerging economies toward environmentally benign growth.

Translation: Getting, say, China or India to switch from coal to natural gas, or to encourage energy conservation by charging world market prices at home would be a lot easier if they were paid billions of dollars each year to do it.

• • •

Not every economist who favors emissions trading signed the statement. "I'm worried it will be used at Kyoto to commit America to useless, expensive unilateral actions in reducing emissions," says Robert Hahn, an economist at the American Enterprise Institute.

But Mr. Nordhaus has very different worries. "Economists haven't been important players in environmental policy over the last 30 years," he said. "This time we could make a difference."

Jessica

April 28, 1997

cc: JAF

FROM: Jessica Wasserman (202-482-2351) 3 Pages

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DOC/NOAA Comments on 4/23 Climate Change Predecisional Draft/Memorandum for Deputies from Terry Garcia/Jessica Wasserman

General Points

1) The paper does not include enough discussion of the problem of developing country commitments. It is important to get Deputy level support now for an initiative to get developing countries on the Protocol. This issue should be included as an "Issue for Decision" on page 4.

B. Should the US support a Protocol that does not include new commitments from developing countries?

1. If US position is that some new developing country commitments are necessary, what level/type of commitments?

2. US willingness to do what it takes to get developing countries on board: e.g. intensify diplomatic efforts and fund GEF?

2) On page 5/last P of 2., it is confusing to condition any decision on the budget so strictly on trading and JI outcomes. We need to get Deputies to support a particular budget fairly soon and trading and JI remain uncertain (especially if we push large aspects of negotiating trading or JI off until after Kyoto). Better to emphasize that we know enough even without knowing outcome on trading and JI to make a decision about the budget. On page 3, 1990 levels in medium-term causes a 0.5-1.0% hit to GDP without factoring in trading or JI.

3) In the Background section, C. should be Macro-economic Modeling Analyses. There should be an additional section following along the lines of:

D. Sectoral Economic Analysis

1) Total US emissions are distributed roughly equally among industry, residential /commercial (buildings), and transportation.

2) Increased cost per household by geography
3) Increased cost per major industry
4) Effect on employment per industry
[We must have something rough on each of these]

Particular Points

1) Page 3 is a bit confusing as to when referencing domestic versus international trading and developed versus developing countries. Need to be very clear that:

a) As long as have domestic trading only impact on GDP is negative 0.5-1.0%. (first tick)

b) When also have international trading with developed countries (be clear that this is defined to include former SU and satellites as they are usually referred to as "emerging markets" or "economies in transition", not developed countries) then the GDP loss is reduced by 60% (loss of 0.5-1.0%). (third tick)

c) When also have international trading with both developed and developing countries then the GDP loss is reduced by 85% (loss of 0.5-1.0%). (Is it really true that including "developed" countries yields a 60% reduction whereas including developing countries in the trading system yields only an additional 25% reduction- maybe because former SU is being counted as "developed"?) (third tick)

2) Page 3, tick 4: Is it really true that the U.S. has the competitive advantage when it comes to emissions reductions? What if EU bubble? What if 1990 baseline changes?

United States Department of State

Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs

Washington, D.C. 20520

April 28, 1997

TO: Distribution

FROM: OES - Eileen B. Claussen

SUBJECT: Climate Change Papers

The next Assistant Secretaries group meeting is scheduled for Friday, May 2, at 1:00 p.m., in Main State Room 7835. It is my intention to use this meeting to review and approve a series of papers which will already have been vetted through the interagency process at the staff level. After that, we will have one week for general consultations with the public and the environmental community to seek informal comments. Following those meetings, there will be a further revision of the papers, taking into consideration the comments received.

Papers will then be cleared by the Assistant Secretaries group, and given to the Deputies for approval prior to submission to the Climate Convention Secretariat in time to meet a June 1 deadline.

Where possible, Assistant Secretaries should help provide agency input toward staff-level work on these papers. Only through this input will it be possible to narrow the range of issues which may require Assistant Secretary-level decisions.

Please call Lilly Roots-Wiggins (647-1554) to confirm your attendance at this meeting. We hope to have all the papers distributed by Wednesday, April 30.

Attachment: List of climate change papers

List of Papers for Review/Approval at May 2 Assistant Secretaries Meeting

- Emissions Trading - No new text for the U.S. protocol; this paper would explain and elaborate on implementation of existing U.S. proposals.

- Joint Implementation - The decision will not be on text; rather, on elements for elaboration on the existing text (i.e. a focus on credit determination, verification, review and reporting). New text will be required by June 1.

- Annex C gases/sectors - Significant issues regarding the possible exclusion of either greenhouse gases or sectors. Text for the U.S. protocol proposal is required by June 1.

- Developing Country Initiatives - Decisions will not be taken with respect to new text; instead discussions will focus on the level of financial contributions for the country studies program, USIJI, etc.

- Early Banking - (Draft paper is being circulated at the staff level.) The issue is whether the international agreement should include provisions ensuring that early reduction efforts be credited against a future obligation. If yes, the text will be required by June 1.

- Reporting / Compliance - While this paper has already been approved at the Deputy level, decisions on other papers may lead to modification of the text (new text is required by June 1).

Please note that other papers may be developed; however, none are expected to require new text by June 1.

PROPOSED AGENDA

May 2 Assistant Secretaries Meeting

1. PAPERS TO BE REVIEWED/APPROVED

   - Emissions Trading - Explanation and elaboration of existing U.S. proposals only.
   - Joint Implementation - Decision on elements for elaboration on the existing text (i.e. a focus on credit determination, verification, review and reporting).
   - Annex C gases/sectors - Significant issues regarding the possible exclusion of either greenhouse gases or sectors.
   - Developing Country Initiatives - Discussions to focus on the level of financial contributions for the country studies program, USIJI, etc.
   - Early Banking - Should the international agreement include provisions ensuring that early reduction efforts be credited against a future obligation.
   - Reporting / Compliance - Paper has already been approved at the Deputy level.

2. OTHER BUSINESS

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

April 25, 1997

MEMBER

MEMORANDUM FOR STEVE SEIDEL
DAVID SANDALOW
MARK MAZUR

FROM: ALICIA MUNNELL

Let me begin my comments by reiterating how pleased I am that we are finally drafting a document that will provide the basis for discussion with principals. The highest levels of the administration must decide whether or not they are willing to have the USG propose a policy that can be characterized as raising the price of gasoline by 20-30 cents, increasing the price of coal fivefold, and potentially raising $100 billion per year through the sales of permits.

The fact that I view the economic implications of the target and timetable as the overarching issue strongly influences my view about the appropriate structure of the memo. Specifically, the primary thing we need to know is whether the principals are comfortable with a high, medium or low offer in the international negotiations. I think this should be the focus of the memo; domestic implementation should enter the discussion only as background. That is, we can tell the principals that we have tentatively decided that a domestic emissions trading program is the most efficient mechanism for meeting any targets decided upon in an international agreement. I don't think that this is an appropriate document for people to worry about whether we should increase our technology budget by a few hundred million. This memo should address the $100 billion issues not the $100 million issues.

Some specific suggestions

Page 1

- The introductory paragraph should lay out the decisions that we need to make in the international negotiating process.
- The 'Basis for Concern' section should include information on the sources of greenhouse gases.
- Somehow the introductory section should relate what we are contemplating doing in Kyoto to the larger issue of concentrations. My understanding is that even the most

aggressive steps we are thinking about between now and 2020 are minute compared to what needs to be done to have a serious effect on halting the build-up.

Page 2-3

- Economic Modeling Analyses does not need to be a separate section. It involves no policy decisions but rather simply provides estimates of the implications of alternatives. These estimates can be discussed in the context of evaluating alternative proposals.

Page 4-7

- In terms of the options, we need only directional guidance at this point. In terms of my own thinking, the easiest descriptions would be stabilizing at 1990 levels in the mid-term, something more stringent and something less stringent.
- We also need to include the possibility of doing something modest early in order to signal to business that the world is changing.
- Don't we also need to talk either here or in the introduction about what we envision doing after, say, 2020?
- Organizationally, I think it would be easier to lay out the three options and then have a summary discussion of economic, environmental, and political implications for all three options.

Page 7-9

- My view is that the entire domestic implementation discussion should be provided as background, not as decision issues. Essentially, we could say that we are considering a three pronged plan--emissions trading, investment in technology, and something else -- to reduce greenhouse gases.

PREDECISIONAL DRAFT 4/23
DO NOT QUOTE OR CITE

MEMORANDUM FOR THE DEPUTIES

FROM:

SUBJECT: Climate Change

The United States must commit to a reduction from baseline emissions by a certain date. That commitment has important economic implications for the U.S. economy and for our standing in the international community.

International climate change negotiations are scheduled to conclude in December 1997. This memorandum describes the background of those negotiations and sets forth some key issues for decision.

I. BACKGROUND

A. Basis for Concern

The build-up of greenhouse gases in the atmosphere threatens to fundamentally alter the Earth's climate. The most recent international scientific assessment concluded that global average temperatures will increase by 2-6.5 degrees F. by 2100, unless actions are taken to slow the build-up of greenhouse gases. This is the fastest increase in _____ years.

The principal cause of this build-up is the burning of fossil fuels. Other human activities, including deforestation, also play a role. The international scientific assessment concluded that "the balance of evidence suggests there is a discernible human influence on the global climate."

Potential impacts from climate change include sea level rise, the spread of infectious disease, more frequent and severe extreme weather events (such as floods, droughts and hurricanes), loss of forest cover, and shifts in agriculturally productive regions. However, significant uncertainties remain concerning the magnitude, timing and regional distribution of these impacts.

None of the actions contemplated during this round of negotiations will reverse the build-up of greenhouse gases in the atmosphere. This would require further steps by both developed and developing nations, well into the next century. Rather, this agreement would lower the emissions from what they otherwise would have been over the medium term.

Additional detail is set forth in Exhibit A.

B. International Negotiating Context

There is international agreement that the climate change problem is significant and warrants additional near-term action. Further, there is a global recognition that the existing UN

Framework Convention on Climate Change, signed in 1992, is inadequate to address this near-term need. The current round of negotiations is intended to ~~address~~ steps in the post-2000 period. In July 1996, the U.S. called for an approach that would include three key elements: a legally binding target (instead of the voluntary aims of the existing Convention), flexibility in implementation (e.g., emission trading and joint implementation), and the participation of developing countries. The U.S. proposal did not include a recommendation on an emissions budget (i.e., target and timetable).

Views of other countries vary considerably. Two proposals with targets and timetables have been put forward: small island nations have proposed that developed ~~nations~~ reduce emissions by 20% from 1990 levels by 2005, and the European Union has proposed that developed nations cut back 10-15% from 1990 levels by 2010. (The EU also proposed a yet unspecified target for 2005). Other nations including, including Australia, Japan and Canada have expressed concerns about moving too far too fast, but have not put forward any specific targets. Developing countries have strongly opposed any binding commitments on their part, stating that developed countries have been the largest source of emissions and must take the lead in addressing this problem.

Additional detail is set forth in Exhibit B.

C. Economic Modeling Analyses

An Interagency Analytical Team (IAT) has analyzed the economic impact of various emissions scenarios, using three different models. The results are broadly consistent with the ~~considerable literature on this subject.~~

Although economic modeling is not a precise science. Results depend heavily on assumptions that may or may not prove accurate. There is a significant risk of "false precision" (i.e., the use of point estimates to simplify presentation of results may obscure the considerable margin of error in any prediction). Similar (though in many respects simpler) modeling in the past (e.g., with the Clean Air Act's acid rain trading program) failed accurately to predict the costs of environmental controls. Therefore, the figures presented should be viewed as very rough estimates only.

Among the more important conclusions of the IAT are the following:

--Without policy interventions, emissions of greenhouse gases are projected to rise ___% from 1990 levels by 2010 and ____ by 2020. Greenhouse gas emissions from the developing world are projected to rise _____% from 1990 levels by 2010 and ____% by 2020.

Hard to tell principles that we all are willing $100 billion per year.

--Stabilizing US greenhouse gas emissions at 1990 levels in the medium-term (2006-2020) would likely lead to:

US GDP loss = smaller % of GDP

-- US GDP losses of roughly .5-1%, in the early years of a flexible compliance program, ~~(such as an~~ emissions trading regime~~)~~. GDP impacts could be ~~considerably~~ smaller, ~~depending on rates of~~ technology penetration ~~and other factors~~. Some models project GDP *increases* above baseline levels in later years, if implementation programs are structured to spur capital investment or help reduce the federal deficit.

further or some other flexible scheme, GDP loss could be larger

-- Gasoline prices in the period 2006-2020 roughly 20-30 cents above 1997 levels. The rate of any such increase would determined in large measure by the choice of implementation regime.

--Coal prices in the period 2006-2020 roughly 300% of 1997 levels.

--Improving the rate at which technologies are developed and diffused can significantly reduce costs (on the order of 30%).

-- Unlimited trading among developed countries could decrease costs in the US by roughly 60%. About half of U.S. reductions would be purchased from abroad, mostly from Russia. This would lead to transfers abroad of approximately $___billion per year. Unlimited trading among developed and developing countries could reduce US GDP costs over the 2006-2020 time frame by 85%, with over 70% of the reductions purchased from Russia, China and India.

--The United States can meet emission reductions targets at a lower cost than most other developed countries (including most European Union countries, Canada, Japan and Australia).

Additional detail is set forth in Exhibit C.

D. Political Considerations

II. ISSUES FOR DECISION

This section poses the following issues for decision:

A. What emissions budget should the US support?

B. ~~With respect to domestic implementation:~~ what should the US do regarding international agreement

1. Should the administration support a domestic emissions trading program and, if so, on what timetable should the details of that program be developed?

2. Should transition assistance be a central part of our climate change policy and, if so, on what timetable should the details of a program be developed?

3. Should the administration increase its support for technology programs to help address climate change?

Principles don't have to focus on new.

A. What emissions budgets should the US support?

1. Background

In climate change negotiations, the term "emissions budget" refers to the amount of greenhouse gases that may be emitted over a certain time period. The term is roughly synonymous with "target and timetable" (~~though an "emissions budget" connotes a longer period of time than a "target"~~).

To date, the United States ~~has not supported any emissions budget for the post-2000 period.~~ Our statements with respect to emissions budgets have been limited to the following:

--This round of negotiations should address emissions in the period 2006-2020.

--The base year for emissions budgets should be 1990.

--Emissions budgets should consist of multi-year periods (i.e., the target should not be a single year).

1. Stabilizing at 1990 levels by 2010
2. more ambitious
3. less ambitious

2. Agency Positions

Agencies have expressed support for the following emissions budgets:

OPTION 1: Achieve 90% of 1990 levels by a multi-year period around 2010.

OPTION 2: Achieve 95% of 1990 levels by a multi-year period around 2010.

OPTION 3: Achieve 1990 levels by a multi-year period around 2010.

OPTION 4: Achieve 1990 levels, on average, from 2010-2019.

Agencies have also supported several specific emissions budgets beyond the first budget period. The draft US negotiating text envisions emissions budgets in one or more periods. Some agencies view progressive reductions beyond the first budget period as a critical part of any US position.

In addition, some agencies support an "early emissions budget" in the period around 2005, less stringent than the Options described above. This would require a change in the US position, but could possibly be structured to win support from domestic constituencies and other countries in the negotiations.

The availability of various flexibilities (international emissions trading, joint implementation, banking and borrowing) fundamentally affects the emissions budgets the United States would be willing to support. The more such provisions are included in the agreement, the less costly it will be for the US to meet any given emissions budget. However, if the entire US obligation can be satisfied by purchasing low-cost reductions from abroad, the agreement will not provide large incentives for US industry to develop the technologies needed to address the climate change problem over the long-term.

3. Analysis of different options

The discussion below analyzes the four options supported by agencies based on: environmental impacts, economic impacts, domestic political implications, and implications for the international negotiations.

a. Environmental impacts

In terms of additional loadings of greenhouse gases into the atmosphere, the difference between the four options in the short-term is small. Under Option 1 (the most stringent), greenhouse gas concentrations in the atmosphere would likely be ____ ppm by 2015; under Option 4 (the least stringent), concentrations would likely be _____ ppm. This alone does not equate to significant environmental impacts.

However, the four options may produce different environmental impacts when considered as part of a longer, multi-decade path of reduced greenhouse gas emissions. For the world realistically to avoid a doubling of pre-industrial greenhouse gas concentrations (to 550 ppm) in the next century, global emissions must deflect from a "business-as-usual" path by no later than ____. For the world realistically to avoid a near-tripling of greenhouse gas concentrations (750 ppm) in the next century, global emissions must deflect from this "business-as-usual" path by _____. Even assuming steep reductions in greenhouse gas emissions in distant decades (which our children and grandchildren may or may not be able to achieve), reductions must begin soon to avoid serious environmental damage. This analysis is described in more detail in Exhibit ___.

Institutional and political factors also lead to important differences between these options. Some agencies believe that business will not take Option 4 seriously, because the budget period is too distant. Some agencies believe that business will not take Option 1 seriously, since the economic costs would be too great, and will simply work block implementation rather than restructure activities to comply. All agencies agree that developing countries, who will represent the bulk of emissions growth in the decades ahead, will only take serious actions to address emissions after the developed world has done so. This tends to argue for early, serious action, to leverage reductions in the developing world.

b. Economic impacts

c. Domestic political implications

As of today, ~~Options 1 and 2, and to a lesser extent Option 3~~, would be perceived as very strong environmental positions. Environmental constituencies would cheer; some business and regional interests would strongly oppose. Ratification of agreements with such emissions budgets would be very challenging for the foreseeable future.

Most environmentalists would see ~~Option 4~~ as unacceptable delay. More moderate business interests (e.g. utilities, chemical companies, natural gas) would be supportive.

Oil and coal lobbies will oppose any of these options, with considerable intensity. Heavy manufacturing will likely oppose these options as well, although there may be some opportunities for strategic alliances.

d. International negotiating implications

B. Domestic Implementation

1. Should the administration support a domestic emissions trading program and, if so, on what timetable should the details of that program be developed?

A. Background. All agencies agree that an emissions trading program should be a central part of our domestic climate change program. ~~Under~~ An emissions trading program, ~~permits~~ representing rights to emit greenhouse gases ~~would be distributed~~, either through an auction or allocation system. Trading of permits would allow firms to reduce compliance costs. Firms would have an incentive to control emissions where low cost reductions are feasible and to sell these reductions to other firms facing higher control costs.

Key issues in designing an emissions trading program include the following:

--~~Who gets emissions rights.~~ Permits ~~could~~ be given to existing emitters, given to others, auctioned to the highest bidders, ~~or some combination of the foregoing~~. If auctioned, ~~substantial~~ revenues could be raised. ~~Revenue reflow options include tax cuts to personal income, payroll or corporate taxes; deficit reduction; and support for transitional~~ or technology ~~programs.~~ If given to existing emitters, potentially substantial windfalls would go to permit holders.

--Where the cap is imposed: primary fuel versus sectoral.

--Comprehensiveness: all greenhouse gases could be covered under the program or only some subset (e.g., fossil fuels, fluorinated chemicals and methane).

B. Issue for Decision. At this time, the key decisions concerning emissions trading relate to the schedule for program development. Some agencies believe that key elements of program design should be decided quickly, to inform decisions on emissions budgets. Other agencies believe we should consult with domestic constituencies over the course of this calendar year before agreeing on key elements of program design.

OPTION 1: Support emissions trading, and work to define details of a program for announcement this summer.

Pros:

Cons: would be difficult to get meaningful feedback from constituencies before US further defines its position on emissions budgets.

OPTION 2: Support emissions trading, and consult with stakeholders to define details of a program for announcement late this fall or after Kyoto.

Pros:

Cons:

OPTION 3: Do not support emissions trading.

Pros:

Cons:

too devisive

2. Should a transition program be a central part of the administration's climate change policy and, if so, on what timetable should the details of that program be developed?

3. Should the administration increase its support of technology programs to help address climate change?

A. Background. The ~~economic analyses presented above demonstrates the potentially significant cost savings associated with a faster rates of technological change.~~ While we might expect some acceleration in the rate of technological change under an emissions trading program, some potential also exists for specific technology programs to spur technological change. The Climate Change Action Plan activities illustrate the potential for achieving significant greenhouse gas reductions by overcoming market barriers (e.g., information about new technologies). Current proposed funding for related programs include the following in FY 98: Climate Change Action Plan (DOE, EPA and USDA) -- $277 million; Partnership for New

Generation of Vehicles (DOE,DOC, NSF, EPA, and DOT) -- $281 million; and DOE's energy efficiency and renewables -- $1.08 billion.

Technology programs in such areas as fuel cells, advanced industrial turbines, advanced diesel engines, transportation biofuels, etc. could be adopted with the potential of accelerating development and diffusion of enhanced energy efficiency and lower cost alternatives to fossil fuels. These programs would not only reduce the costs of meeting any agreed upon target and timetable, but would also enhance U.S. competitiveness in what is likely to be a highly competitive growth market for exports and could also improve our energy security by decreasing our dependence on foreign oil.

B. Issue for Decision

OPTION 1: Increase support for technology programs.

Possible policies under this option include:

-veto threat on appropriations bills that do not provide President's FY98 request for renewable energy and energy efficiency ($1 billion, a 21% increase over FY97 enacted levels),

-ask President's science advisory panel to report back by October, 1997 on ways to accelerate rates of technological change in energy, other sector, and

-commit to steadily increasing budget requests for renewable energy and energy efficiency over the next five years.

OPTION 2: Status quo level of support for technology

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

MEMBER

April 25, 1997

MEMORANDUM FOR STEVE SEIDEL
DAVID SANDALOW
MARK MAZUR

FROM: JEFF FRANKEL JF

I agree completely with Alicia's comments on the Climate Change Predecisional Draft, especially on the importance of getting the memo to principals and the centrality of the "$100 billion issues".

Other substantive comments

p. 3 Cut "The rate of any such increase would [be] determined in large measure by the choice of implementation regime." While the choice obviously could have an effect on gasoline prices, I believe that it is not important enough to bear highlighting here.

Cut or modify "Improving the rate at which technologies are developed and diffused can significantly reduce costs (on the order of 30%)." This sentence has the implication, which we and some other agencies believe to be incorrect, that the government has it within its power to take policy measures (other than price measures) which are likely to have effects this large.

p. 4 II. B Add a fourth question on domestic implementation:

(i) Should all emission permits be allocated outright (e.g., "grandfathered," which is the equivalent of giving the $100 billion of emission rights to those who have emitted in the past), (ii) should all permits be distributed in such a way as to raise revenue (e.g., auctioned, so as to raise $100 billion in revenue), or (iii) should there be some combination of the two distribution schemes (such as grandfathering a large share at the beginning, but then phasing them out over a period of years, with the annually-auctioned share increasing over time).

p. 8 3A Sent. 2 add "slightly" after "technological change"; sent. 3 change "illustrate" to "claim;" and change the inappropriate phrase "market barriers" to the more accurate "public resistance."

p. 9 Main paragraph, at the end: add "On the other hand, some agencies believe that the benefits of such programs, while they might be large enough to justify the costs, are unlikely to accomplish a sizeable share of the required emission reductions, unless accompanied by additional market-oriented measures (implying substantial increases in the price of energy).

Minor stylistic suggestions

p. 1 "to fundamentally" is a split infinitive

p. 3 "70% of the emissions", rather than "70% of the reductions"

p. 8 3A delete "a" before faster.

In addition, regarding the Agency positions on emission budgets, I would like to contribute for the record my own proposal. I realize that it may not need to go into this memo. (I hope it is not ruled out by the bottom of page 4, together with the "early emissions budget" paragraph on p. 5.)

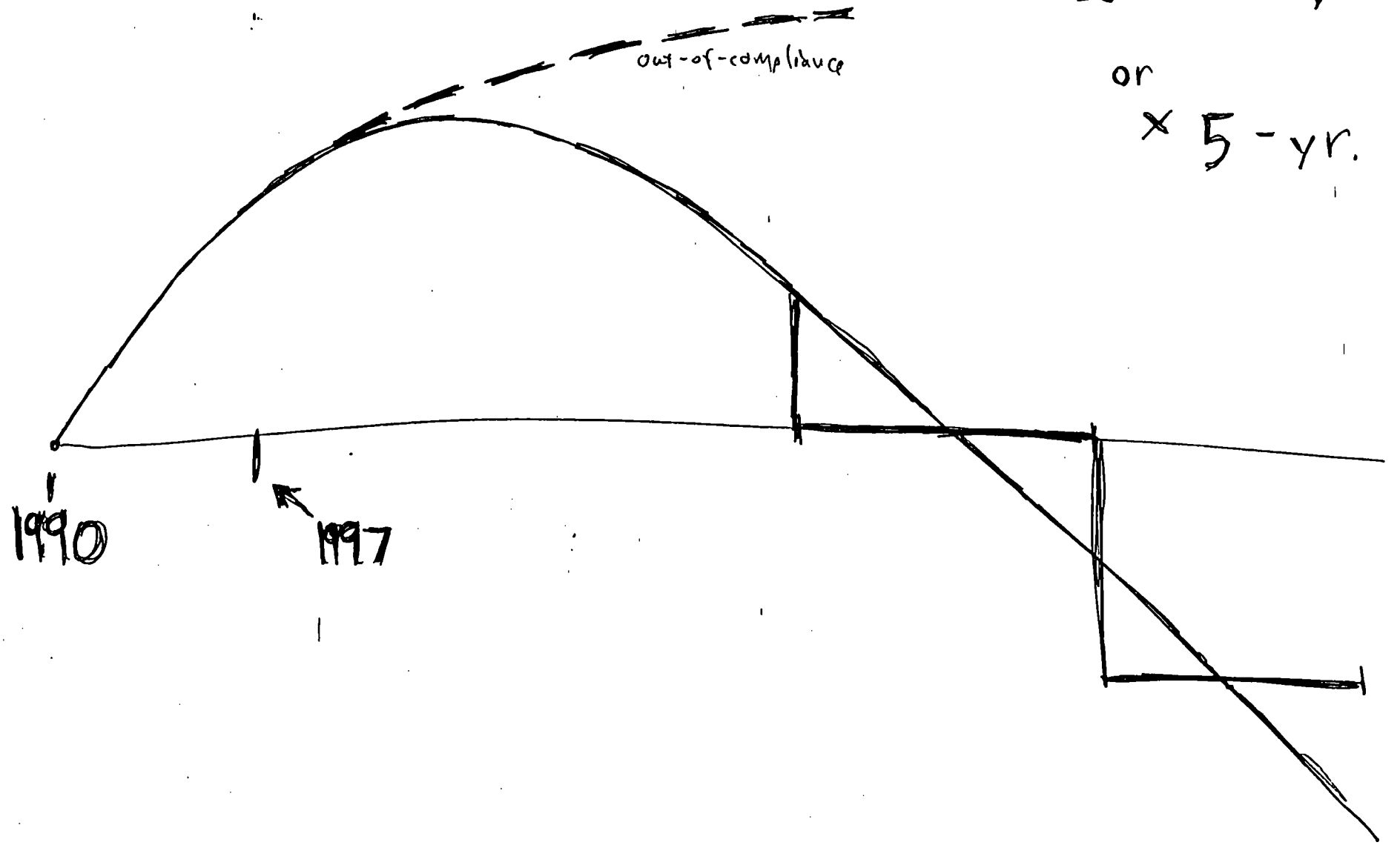
The proposal: Emissions shall be averaged over three-year periods. There shall be seven three-year periods [beginning, for example, in 2000 or 2002], with the peak-emissions period as the second of the seven. Whenever a country misses a three-year target it receives a warning; but a country is not ruled out of compliance unless it misses three such targets.

In other words, the binding requirement is to hit at least 5 of the 7 targets. Thus a country receives a clear warning at a stage when it is still feasible to get back into the system.

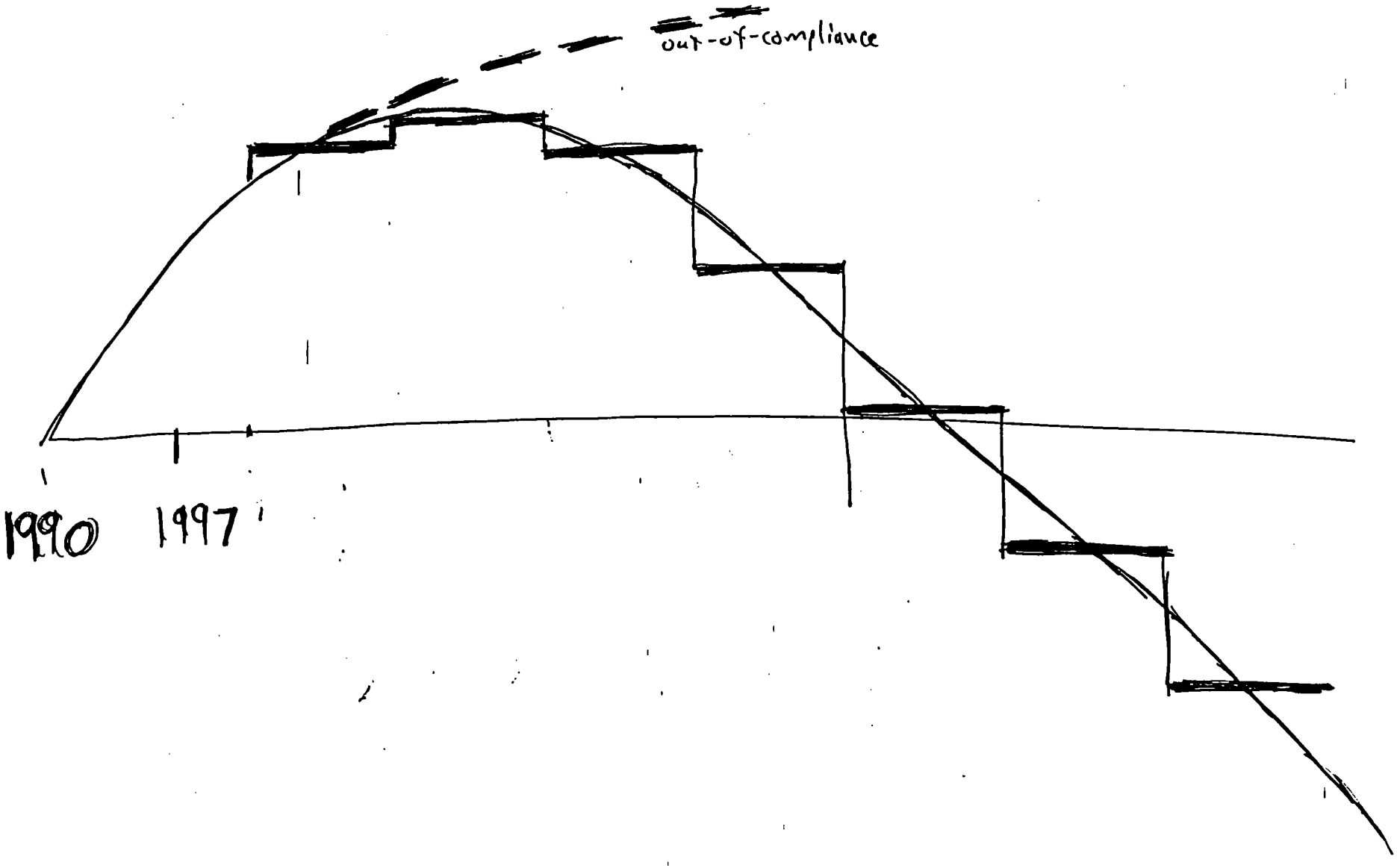
Existing plan: 2 x 10-yr.

or

x 5-yr.



Frankel proposal: 7 × 3-yr.



fyi

United States Department of State

Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs

Washington, D.C. 20520

Ann in Roster

cc: JAF JS

April 28, 1997

4/30 mtg has been cancelled Ellen

TO: Distribution

FROM: OES - Eileen B. Claussen

SUBJECT: Climate Change Papers

The next Assistant Secretaries group meeting is scheduled for Friday, May 2, at 1:00 p.m., in Main State Room 7835. It is my intention to use this meeting to review and approve a series of papers which will already have been vetted through the interagency process at the staff level. After that, we will have one week for general consultations with the public and the environmental community to seek informal comments. Following those meetings, there will be a further revision of the papers, taking into consideration the comments received.

Papers will then be cleared by the Assistant Secretaries group, and given to the Deputies for approval prior to submission to the Climate Convention Secretariat in time to meet a June 1 deadline.

Where possible, Assistant Secretaries should help provide agency input toward staff-level work on these papers. Only through this input will it be possible to narrow the range of issues which may require Assistant Secretary-level decisions.

Please call Lilly Roots-Wiggins (647-1554) to confirm your attendance at this meeting. We hope to have all the papers distributed by Wednesday, April 30.

Attachment: List of climate change papers

List of Papers for Review/Approval at May 2 Assistant Secretaries Meeting

- Emissions Trading - No new text for the U.S. protocol; this paper would explain and elaborate on implementation of existing U.S. proposals.

- Joint Implementation - The decision will not be on text; rather, on elements for elaboration on the existing text (i.e. a focus on credit determination, verification, review and reporting). New text will be required by June 1.

- Annex C gases/sectors - Significant issues regarding the possible exclusion of either greenhouse gases or sectors. Text for the U.S. protocol proposal is required by June 1.

- Developing Country Initiatives - Decisions will not be taken with respect to new text; instead discussions will focus on the level of financial contributions for the country studies program, USIJI, etc.

- Early Banking - (Draft paper is being circulated at the staff level.) The issue is whether the international agreement should include provisions ensuring that early reduction efforts be credited against a future obligation. If yes, the text will be required by June 1.

- Reporting / Compliance - While this paper has already been approved at the Deputy level, decisions on other papers may lead to modification of the text (new text is required by June 1).

Please note that other papers may be developed; however, none are expected to require new text by June 1.

PROPOSED AGENDA

May 2 Assistant Secretaries Meeting

1. PAPERS TO BE REVIEWED/APPROVED

   - Emissions Trading - Explanation and elaboration of existing U.S. proposals only.
   - Joint Implementation - Decision on elements for elaboration on the existing text (i.e. a focus on credit determination, verification, review and reporting).
   - Annex C gases/sectors - Significant issues regarding the possible exclusion of either greenhouse gases or sectors.
   - Developing Country Initiatives - Discussions to focus on the level of financial contributions for the country studies program, USIJI, etc.
   - Early Banking - Should the international agreement include provisions ensuring that early reduction efforts be credited against a future obligation.
   - Reporting / Compliance - Paper has already been approved at the Deputy level.

2. OTHER BUSINESS

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FROM: David Doniger, U.S. EPA, Air and Radiation 260-2865 AND
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Note to David Sandalow, Mark Mazur, Steve Seidel
From David Doniger and David Gardiner, EPA
Re: Draft Memo
April 28, 1997

The draft memo is a solid start. We have the following suggestions for refining it. Our primary concerns fall in five areas:

(1) The background section on environmental impacts needs to be sharpened. Key points to add are given below.

(2) The background section on economic modeling also needs to be elaborated and sharpened. Attachment A is a suggested redrafting of this section.

(3) We should move forward with modeling the environmental and economic implications of emissions budget scenarios of interest. The main issue for now is to frame appropriate scenarios for analysis so that results will be available in a useful timeframe.

(4) The discussion of emissions trading in domestic implementation needs to be sharpened to frame key substantive issues and key issues of timing and process for further policy development. Attachment B is a suggested redrafting of this section.

(5) The technology development discussion in the memo (and the background paper) does not include sufficient emphasis on near-term technology diffusion. We will provide suggested changes to the background paper and this section of the memo later today.

1. Environmental Background (Section I(A))

Several additional major points need to come across in the short section on "basis for concern:"

- The first paragraph inadvertently suggests that the problem "tops out" at 2-6.5 degrees and 2100. It should note that the temperature will continue to increase, and impacts will continue to worsen, thereafter. An illustration might be sea level rise -- a doubling of pre-industrial GHG levels implies not only an 18 inch sea level rise in the next century, but an eventual and unstoppable rise of *7 feet* over the longer term.

- The second paragraph should note the irreversibility and the potential magnitude of the problem (long atmospheric life-times of gases, long lead-time needed to significantly change emissions paths, the global scope and extraordinary magnitude of potential impacts).

- There should be a new third paragraph addressing emissions-to-concentration relationships. It should say that emissions to date have already raised GHG levels __ percent over pre-industrial levels, that business-as-usual emissions scenarios imply a doubling by ___, a tripling or quadrupling by ___, etc. It should say that most assessments to date have looked at impacts in a doubling scenario only, and that significant adverse effects would be associated with a doubling, and even greater risks with higher levels.

- The current third paragraph, on impacts, should begin by quoting the following sentence from the 1995 IPCC WGII summary: "Climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life." Deaths from heat-stress should be specifically mentioned. The last sentence on uncertainties should mention the possibility of unforseen adverse surprises, analogous to appearance of the ozone hole (e.g., potential change in gulf stream resulting in the freezing of Northern Europe).

- The last paragraph should begin by concluding that the potential magnitude and essential irreversibility of our actions argue for a precautionary approach. It can then say (more positively than as drafted): "Actions being considered during this round of negotiations will not, by themselves, stop the build-up of GHGs in the atmosphere. The results of this round, however, will send important market signals regarding the priority of developing and applying climate-friendly technologies, and will set the stage for future rounds of negotiations over further steps in the next century by both developed and developing countries."

2. Economic Impact (Section I(C))

This section currently does not present sufficient information on model characteristics and limitations, and on key assumptions that affect model results. The current draft of this section also peeks ahead too far to the impacts associated with scenarios, before those scenarios have been set forth. It would be better to concentrate at this point in the memo on the model characteristics, limitations, and key assumptions. Results associated with scenarios would be better relocated to the "economic impacts" discussion on page 6. A suggested redraft of Section I(C) is attached.

3. Scenarios

We have thought further about whether the memo should discuss specific scenarios or just directional indicators (flat, lower, or higher). We agree that in June it may be sufficient for the Administration to be in a position to make public a directional signal, without specific numbers. In order to get to that point, however, we need to provide decisionmakers with environmental and economic information on some specific, indicative scenarios. So we would move forward on attempting to model and report the environmental and economic results of such scenarios.

Some runs have been done of alternate scenarios (10% above and below 1990 levels in 2010, and 1990 levels in 2005 and 2015). The group may also want to refine the scenarios in the chart we handed out at the last meeting (knocking some out for the sake of simplicity, e.g., the 95% case) and ask for more runs. These will be useful for later, finer grain decisions even they won't be done by in late May.

4. Discussion of Domestic Implementation Options

The discussion of domestic implementation issues (Section II(B)) should be recast and sharpened.

- It currently identifies three issues for separate treatment: design of emissions trading systems, design of adjustment assistance programs. and design of programs to accelerate technology diffusion. We would switch the technology development and transition assistance sections. The nature and extent of transition problems is largely a function of the cost of the program. The technology acceleration programs will reduce those costs and possibly alter on whom they fall. Transition assistance thus should be addressed last.

- The emissions trading discussion currently focuses on whether to develop and announce a full-blown cap-and-trade program this summer, or whether to proceed more slowly with a stakeholder process. The former is not, practically, a real option. The real issues are choices within the latter option.

- In addition, the emissions trading discussion misses the opportunity to explain key interactions, i.e., how the specific design of cap-and-trade programs can be used to (1) foster faster technology progress, (2) avoid excessive price increases and wealth transfers in sensitive areas, and (3) provide transition assistance or compensation to heavily impacted groups.

A suggested redraft of Section B(1) is attached.

5. Discussion of Technology Programs

As noted above, the discussion of technology development in the memo (and the background paper) does not include sufficient emphasis on near-term technology diffusion. We will provide suggested changes to the background paper and this section of the memo later today.

Attachment A: Suggested changes to Section I(C), Economic Modeling Analyses

An Interagency Analytical Team (IAT) has analyzed the economic impact of various emissions scenarios, using three different models. The results are broadly consistent with the considerable literature on this subject.

Economic modeling is not a precise science, especially when looking 10-25 years into the future. Results depend heavily on the choice of models and on key assumptions used in those models. Models designed to assess economic performance over short time periods (1/2-2 years) tend to overestimate dislocations when used over a 10-20 year timeframe, while other models designed to assess long-term equilibria may underestimate short term dislocations. Some models have richer descriptions of real technology choices than others. Some models can simulate multilateral action, while others effectively assume unilateral U.S. action, which overstates U.S. impacts. Many key assumptions in the models are subject to policy control or influence (e.g., costs and diffusion rates for improved technology, design of the tradeable permits system, Federal Reserve responses). Thus deciding which models and what assumptions are the most reasonable is a key issue in determining which results are most pertinent for decisionmaking and public debate.

With all models, there is a significant risk of "false precision" (i.e., point estimates of results may obscure considerable margins of error). Similar (although in many respects simpler) modeling in the past (e.g., for the Clean Air Act's acid rain cap-and-trade program) substantially overstated the costs of environmental controls. Therefore, the figures presented should be considered carefully in light of model and assumption choices and viewed as very rough estimates only.

Among the more important IAT results are the following:

--Baseline. Without policy interventions, emissions of greenhouse gases are projected to rise considerably. Emission in the U.S., other developed countries, and developing countries are projected to grow above 1990 levels by __%, __%, and __% by 2010, and by __%, __%, and __% by 2020.

--Scenarios. The IAT chose as a "benchmark" scenario returning U.S. emissions of GHGs to the 1990 level by 2010 and maintaining that level through 2020. Other scenarios were run varying the emission level and/or the timing.

--All scenarios assumed flexible, market-based domestic implementation programs (such as an emission trading regime). Some scenarios included the additional flexibility of *international* emissions trading with developed and developing countries. None of the scenarios, however, captured all of the flexibility options included in U.S. proposals (i.e., none simulated the cost-reducing potential of

multi-year averaging, banking, and borrowing).

--Assumptions. Key policy-relevant assumptions include .... [rates of technology diffusion and R&D, choices as to the ownership and disposition of the value of emissions permits, Fed responses, [others?]] These assumptions have large impacts on the results. For example:

--Improving the rate at which energy-efficiency technologies are developed and diffused can reduce costs significantly. Costs projected under relatively slow technology diffusion assumptions are approximately _% greater than under accelerated diffusion assumptions.

--The maximum GDP loss assuming adverse Fed responses [another example: adverse policies on revenue recycling] is _ times more severe than under more favorable assumptions.

--International Emissions Trading. International trading can also substantially reduce costs. Unlimited emissions trading among developed countries could reduce costs in the U.S. by up to roughly 60%. In this case, about half of U.S. reductions would be purchased from abroad, mostly from Russia. While U.S. costs would be reduced, approximately $__ billion per year would be transferred abroad. Unlimited trading among developed and developing countries could reduce US costs by 85%, with over 70% of the reductions purchased from Russia, China, and India.

--General Conclusions. Considering model limitations and reasonable assumptions concerning accelerated rates of technological change, stabilizing U.S. greenhouse gas emissions at 1990 levels from 2010 through 2020 could lead to:

--short-term GDP losses in the early years of less than _% in the year of maximum impact (around 20__?). Some [Most?/two?] of the models project GDP *increases* above baseline in subsequent years if implementation programs are structured to spur capital investment or reduce the federal deficit.

--increases in average household energy costs (heating and cooling plus gasoline) of approximately __%. This cost increase is the net effect of higher energy prices (e.g., __-__ cents per gallon of gasoline) partially offset by lower energy demand due to use of more energy-efficient equipment, vehicles, etc. (Some program designs could lead to large windfall profits; disposition of permits could prevent or recoup windfall profits and compensate energy users for most of potential price increases.)

--coal and oil demand could drop by __% and __%, respectively; natural gas demand could increase by __% **[Note, should focus on fuel demand (or production levels), not fuel prices, at least not exclusively. In options modeled so far, permits are required of fuel providers and thus the permit price shows up bundled in the apparent prices of coal or gasoline. In other system designs (e.g., where power generators or auto companies have the requirement to have a permit), permit prices will *not* be bundled in with fuels. In fact, coal or gasoline prices would be driven *down* under these designs. Fuel demand (or production) will be far more constant between options than fuel price. If avoiding fuel price increases is an important consideration, some designs will recommend themselves over others.]**

--renewable energy production could increase by __%.

--employment in key areas....

--International Competitiveness. The United States can meet emission reductions targets at lower cost than most other developed countries (including most European Union countries, Canada, Japan, and Australia). [There is little evidence of competitive disadvantage regarding developing countries, especially if developing countries begin to take some actions under this agreement and negotiate further commitments in a next round of negotiations.]

--Specific results for possible budget scenarios are presented in section II of this memorandum.

Attachment B: Suggested redraft of Section II(B)(1)

Agencies have developed options for domestic implementation programs with the following objectives in mind: (a) assuring that the U.S. will meet its emissions budgets under the agreement, (b) minimizing the true (social) cost of compliance, (c) minimizing price increases and wealth transfers above and beyond the true cost of compliance, and (d) cushioning effects on groups adversely affected by implementation.

Three possible program elements have been identified to serve these objectives: (1) flexible, market-based programs to create cap emissions and allow emissions trading, (2) policies and programs to encourage more rapid development and diffusion of cost-effective technologies to avoid or reduce emissions, and (3) policies and programs to provide transition assistance to adversely affected groups.

Each discussion below identifies both key substantive issues and key issues of process and timing.

1. What kinds of programs to limit greenhouse gas emissions should the administration support, and what process and timetable should be used to develop the details?

A. Background. All agencies agree that an emissions trading program should be a central part of our domestic climate change program. Under an emissions trading program, total allowable GHG emissions would be constrained ("capped") to the level permitted by the U.S. emissions budget under the agreement. Permits or "allowances" authorizing the emission of greenhouse gases would be distributed, either through an auction or allocation system. Trading of permits would allow firms to reduce the cost of compliance with the GHG budget. Firms or others required to have permits would have an incentive to take actions to reduce GHG emissions whose costs are relatively low, and to avoid actions with relatively higher costs.

Key issues in designing an emissions trading program include the following:

--What will be constrained or capped? Will the program directly cap *emissions* of greenhouse gases (especially CO_2), or will it be based on indirect approaches: e.g., constraining *fuel use* or the *carbon content of fuels*?

--To whom will the constraint apply? (I.e., who will be required to have permits or allowances to emit)? Primary fuel providers (coal, oil, and natural gas producers)? Refiners? Utilities and large industries? Home owners? Automobile companies? Motorists?

--To whom will the permits or allowances be distributed, and by what means? Should they be allocated to existing emitters or fuel providers ("grandfathered"), or allocated on the basis of other formulas? Should some or all of the permits be set aside to be "earned" by companies

who increase their production of competitively priced efficient goods (e.g., high mileage vehicles)? Should some or all of the permits be auctioned to the highest bidder? Some combination of the above?

--If auctioned, substantial revenues could be raised. Revenue reflow options include tax cuts to personal income, payroll or corporate taxes; deficit reduction; and support for transitional and technology programs.

--Some allocation approaches (e.g., grandfathering existing fuel providers or existing emitters) could lead to substantial windfalls. Other allocation approaches offer the potentially to reduce or avoid windfalls.

--Comprehensiveness: Will all greenhouse gases be covered under the trading program or only some subset (e.g., CO_2 from fossil fuels, flourinated chemicals and methane)? Policies and measures would need to be developed and implemented for managing the GHG emissions not subject to the "cap and trade" program.

--Minimizing social costs and avoiding unacceptable price increases and wealth transfers: Which program designs will most effectively motivate self-interested action to adopt high efficiency and low carbon alternatives? Which designs will most effectively avoid politically unacceptable price increases and wealth transfers?

B. Issue for Decision. All agencies believe some form of emissions cap-and-trade program as the cornerstone of the Administration's approach to domestic implementation. At this time, the key question is whether to announce support for such a program in the summer timeframe, and if so, with what degree of specificity and what process to engage stakeholders in further program development. Some agencies believe that key elements of program design should be decided quickly, to inform decisions on emissions budgets. Other agencies believe we should consult with domestic constituencies over the course of this calendar year before agreeing on key elements of program design. ***[Note: EPA is not sure whether there is an agency that favors the former approach. (EPA does not.) If there is no proponent of option 1, then it should be dropped.]***

OPTION 1: Support a cap and trade program as an essential component of US domestic program and work to define details of a program for announcement this summer.

Pros:

Cons: i) Real analysis of the different impacts of alternative program designs has not been completed, and will be difficult to accomplish in the near term.

ii) Would be difficult to get meaningful feedback from constituencies before US

further defines its position on emissions budgets.

iii) Emissions trading raises a number of controversial political and legal issues (windfall profits, distribution of permits, is a permit a "right" to pollute). Working these through will take more time than we have before this summer or even before Kyoto.

OPTION 2: Support a cap and trade program; construct a small number of "strawman" program designs and initiate consultations with stakeholders.

Pros: Provides concrete illustrations of what program could look like; provides focus for detailed analysis and discussion, without locking administration into any single option.

Cons: See iii, above. While it is not necessary to fully resolve these issues in the context of offering a number of strawman options, the existence of strawmen may cause these issues to come to the fore more sharply.

OPTION 3: Support a cap and trade program as essential component of US domestic policy and initiate consultations with constituents without any strawmen designs.

Pros: Invites unfocused discussion.

Cons: Less than above, still an element of iii.

OPTION 4: Support flexible instruments for implementing domestic commitments; initiate consultations with constitutents.

Pros: Less detail to shoot at.

Cons: Invites speculation that Administration is considering emissions taxes (the "other" economic instrument often advocated).

PREDECISIONAL DRAFT 4/23
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MEMORANDUM FOR THE DEPUTIES

FROM:

SUBJECT: Climate Change

International climate change negotiations are scheduled to conclude in December 1997. This memorandum describes the background of those negotiations and sets forth some key issues for decision.

I. BACKGROUND

A. Basis for Concern

The build-up of greenhouse gases in the atmosphere threatens to fundamentally alter the Earth's climate. The most recent international scientific assessment concluded that global average temperatures will increase by 2-6.5 degrees F. by 2100, unless actions are taken to slow the build-up of greenhouse gases. This is the fastest increase in _____ years.

The principal cause of this build-up is the burning of fossil fuels. Other human activities, including deforestation, also play a role. The international scientific assessment concluded that "the balance of evidence suggests there is a discernible human influence on the global climate."

Potential impacts from climate change include sea level rise, the spread of infectious disease, more frequent and severe extreme weather events (such as floods, droughts and hurricanes), loss of forest cover, and shifts in agriculturally productive regions. However, significant uncertainties remain concerning the magnitude, timing and regional distribution of these impacts

None of the actions contemplated during this round of negotiations will reverse the build-up of greenhouse gases in the atmosphere. This would require further steps by both developed and developing nations, well into the next century.

Additional detail is set forth in Exhibit A.

B. International Negotiating Context

There is international agreement that the climate change problem is significant and warrants additional near-term action. Further, there is a global recognition that the existing UN

Framework Convention on Climate Change, signed in 1992, is inadequate to address this near-term need. The current round of negotiations is intended to address steps in the post-2000 period. In July 1996, the U.S. called for an approach that would include three key elements: a legally binding target (instead of the voluntary aims of the existing Convention), flexibility in implementation (e.g., emission trading and joint implementation), and the participation of developing countries. The U.S. proposal did not include a recommendation on an emissions budget (i.e., target and timetable).

Views of other countries vary considerably. Two proposals with targets and timetables have been put forward: small island nations have proposed that developed nations reduce emissions by 20% from 1990 levels by 2005, and the European Union has proposed that developed nations cut back 10-15% from 1990 levels by 2010. (The EU also proposed a yet unspecified target for 2005). Other nations including, including Australia, Japan and Canada have expressed concerns about moving too far too fast, but have not put forward any specific targets. Developing countries have strongly opposed any binding commitments on their part, stating that developed countries have been the largest source of emissions and must take the lead in addressing this problem.

Additional detail is set forth in Exhibit B.

C. Economic Modeling Analyses

An Interagency Analytical Team (IAT) has analyzed the economic impact of various emissions scenarios, using three different models. The results are broadly consistent with the considerable literature on this subject.

Economic modeling is not a precise science. Results depend heavily on assumptions that may or may not prove accurate. There is a significant risk of "false precision" (i.e., the use of point estimates to simplify presentation of results may obscure the considerable margin of error in any prediction). Similar (though in many respects simpler) modeling in the past (e.g., with the Clean Air Act's acid rain trading program) failed accurately to predict the costs of environmental controls. Therefore, the figures presented should be viewed as very rough estimates only.

Among the more important conclusions of the IAT are the following:

--Without policy interventions, emissions of greenhouse gases are projected to rise ___% from 1990 levels by 2010 and ____ by 2020. Greenhouse gas emissions from the developing world are projected to rise _____% from 1990 levels by 2010 and ____% by 2020.

--Stabilizing US greenhouse gas emissions at 1990 levels in the medium-term (2006-2020) would likely lead to:

-- US GDP losses of roughly .5-1%, in the early years of a flexible compliance program (such as an emissions trading regime). GDP impacts could be considerably smaller, depending on rates of technology penetration and other factors. Some models project GDP *increases* above baseline levels in later years, if implementation programs are structured to spur capital investment or help reduce the federal deficit.

-- Gasoline prices in the period 2006-2020 roughly 20-30 cents above 1997 levels. The rate of any such increase would determined in large measure by the choice of implementation regime.

--Coal prices in the period 2006-2020 roughly 300% of 1997 levels.

--Improving the rate at which technologies are developed and diffused can significantly reduce costs (on the order of 30%).

-- Unlimited trading among developed countries could decrease costs in the US by roughly 60%. About half of U.S. reductions would be purchased from abroad, mostly from Russia. This would lead to transfers abroad of approximately $___billion per year. Unlimited trading among developed and developing countries could reduce US GDP costs over the 2006-2020 time frame by 85%, with over 70% of the reductions purchased from Russia, China and India.

--The United States can meet emission reductions targets at a lower cost than most other developed countries (including most European Union countries, Canada, Japan and Australia).

Additional detail is set forth in Exhibit C.

D. Political Considerations

II. ISSUES FOR DECISION

This section poses the following issues for decision:

A. What emissions budget should the US support?

B. With respect to domestic implementation:

1. Should the administration support a domestic emissions trading program and, if so, on what timetable should the details of that program be developed?

2. Should transition assistance be a central part of our climate change policy and, if so, on what timetable should the details of a program be developed?

3. Should the administration increase its support for technology programs to help address climate change?

A. What emissions budgets should the US support?

1. Background

In climate change negotiations, the term "emissions budget" refers to the amount of greenhouse gases that may be emitted over a certain time period. The term is roughly synonymous with "target and timetable" (though an "emissions budget" connotes a longer period of time than a "target").

To date, the United States has not supported any emissions budget for the post-2000 period. Our statements with respect to emissions budgets have been limited to the following:

--This round of negotiations should address emissions in the period 2006-2020.

--The base year for emissions budgets should be 1990.

--Emissions budgets should consist of multi-year periods (i.e., the target should not be a single year).

2. Agency Positions

Agencies have expressed support for the following emissions budgets:

OPTION 1: Achieve 90% of 1990 levels by a multi-year period around 2010.

OPTION 2: Achieve 95% of 1990 levels by a multi-year period around 2010.

OPTION 3: Achieve 1990 levels by a multi-year period around 2010.

OPTION 4: Achieve 1990 levels, on average, from 2010-2019.

Agencies have also supported several specific emissions budgets beyond the first budget period. The draft US negotiating text envisions emissions budgets in one or more periods. Some agencies view progressive reductions beyond the first budget period as a critical part of any US position.

In addition, some agencies support an "early emissions budget" in the period around 2005, less stringent than the Options described above. This would require a change in the US position, but could possibly be structured to win support from domestic constituencies and other countries in the negotiations.

The availability of various flexibilities (international emissions trading, joint implementation, banking and borrowing) fundamentally affects the emissions budgets the United States would be willing to support. The more such provisions are included in the agreement, the less costly it will be for the US to meet any given emissions budget. However, if the entire US obligation can be satisfied by purchasing low-cost reductions from abroad, the agreement will not provide large incentives for US industry to develop the technologies needed to address the climate change problem over the long-term.

3. Analysis of different options

The discussion below analyzes the four options supported by agencies based on: environmental impacts, economic impacts, domestic political implications, and implications for the international negotiations.

a. Environmental impacts

In terms of additional loadings of greenhouse gases into the atmosphere, the difference between the four options in the short-term is small. Under Option 1 (the most stringent), greenhouse gas concentrations in the atmosphere would likely be ____ ppm by 2015; under Option 4 (the least stringent), concentrations would likely be _____ ppm. This alone does not equate to significant environmental impacts.

However, the four options may produce different environmental impacts when considered as part of a longer, multi-decade path of reduced greenhouse gas emissions. For the world realistically to avoid a doubling of pre-industrial greenhouse gas concentrations (to 550 ppm) in the next century, global emissions must deflect from a "business-as-usual" path by no later than _____. For the world realistically to avoid a near-tripling of greenhouse gas concentrations (750 ppm) in the next century, global emissions must deflect from this "business-as-usual" path by _____. Even assuming steep reductions in greenhouse gas emissions in distant decades (which our children and grandchildren may or may not be able to achieve), reductions must begin soon to avoid serious environmental damage. This analysis is described in more detail in Exhibit ___.

Institutional and political factors also lead to important differences between these options. Some agencies believe that business will not take Option 4 seriously, because the budget period is too distant. Some agencies believe that business will not take Option 1 seriously, since the economic costs would be too great, and will simply work block implementation rather than restructure activities to comply. All agencies agree that developing countries, who will represent the bulk of emissions growth in the decades ahead, will only take serious actions to address emissions after the developed world has done so. This tends to argue for early, serious action, to leverage reductions in the developing world.

b. Economic impacts

c. Domestic political implications

As of today, Options 1 and 2, and to a lesser extent Option 3, would be perceived as very strong environmental positions. Environmental constituencies would cheer; some business and regional interests would strongly oppose. Ratification of agreements with such emissions budgets would be very challenging for the foreseeable future.

Most environmentalists would see Option 4 as unacceptable delay. More moderate business interests (e.g. utilities, chemical companies, natural gas) would be supportive.

Oil and coal lobbies will oppose any of these options, with considerable intensity. Heavy manufacturing will likely oppose these options as well, although there may be some opportunities for strategic alliances.

d. International negotiating implications

B. Domestic Implementation

1. Should the administration support a domestic emissions trading program and, if so, on what timetable should the details of that program be developed?

A. Background. All agencies agree that an emissions trading program should be a central part of our domestic climate change program. Under an emissions trading program, permits representing rights to emit greenhouse gases would be distributed, either through an auction or allocation system. Trading of permits would allow firms to reduce compliance costs. Firms would have an incentive to control emissions where low cost reductions are feasible and to sell these reductions to other firms facing higher control costs.

Key issues in designing an emissions trading program include the following:

--Who gets emissions rights. Permits could be given to existing emitters, given to others, auctioned to the highest bidders, or some combination of the foregoing. If auctioned, substantial revenues could be raised. Revenue reflow options include tax cuts to personal income, payroll or corporate taxes; deficit reduction; and support for transitional or technology programs. If given to existing emitters, potentially substantial windfalls would go to permit holders.

--Where the cap is imposed: primary fuel versus sectoral.

--Comprehensiveness: all greenhouse gases could be covered under the program or only some subset (e.g., fossil fuels, fluorinated chemicals and methane).

B. Issue for Decision. At this time, the key decisions concerning emissions trading relate to the schedule for program development. Some agencies believe that key elements of program design should be decided quickly, to inform decisions on emissions budgets. Other agencies believe we should consult with domestic constituencies over the course of this calendar year before agreeing on key elements of program design.

OPTION 1: Support emissions trading, and work to define details of a program for announcement this summer.

Pros:

Cons: would be difficult to get meaningful feedback from constituencies before US further defines its position on emissions budgets.

OPTION 2: Support emissions trading, and consult with stakeholders to define details of a program for announcement late this fall or after Kyoto.

Pros:

Cons:

OPTION 3: Do not support emissions trading.

Pros:

Cons:

2. Should a transition program be a central part of the administration's climate change policy and, if so, on what timetable should the details of that program be developed?

3. Should the administration increase its support of technology programs to help address climate change?

A. Background. The economic analyses presented above demonstrates the potentially significant cost savings associated with a faster rates of technological change. While we might expect some acceleration in the rate of technological change under an emissions trading program, some potential also exists for specific technology programs to spur technological change. The Climate Change Action Plan activities illustrate the potential for achieving significant greenhouse gas reductions by overcoming market barriers (e.g., information about new technologies). Current proposed funding for related programs include the following in FY 98: Climate Change Action Plan (DOE, EPA and USDA) -- $277 million; Partnership for New

Generation of Vehicles (DOE,DOC, NSF, EPA, and DOT) -- $281 million; and DOE's energy efficiency and renewables -- $1.08 billion.

Technology programs in such areas as fuel cells, advanced industrial turbines, advanced diesel engines, transportation biofuels, etc. could be adopted with the potential of accelerating development and diffusion of enhanced energy efficiency and lower cost alternatives to fossil fuels. These programs would not only reduce the costs of meeting any agreed upon target and timetable, but would also enhance U.S. competitiveness in what is likely to be a highly competitive growth market for exports and could also improve our energy security by decreasing our dependence on foreign oil.

B. Issue for Decision

OPTION 1: Increase support for technology programs.

Possible policies under this option include:

-veto threat on appropriations bills that do not provide President's FY98 request for renewable energy and energy efficiency ($1 billion, a 21% increase over FY97 enacted levels),

-ask President's science advisory panel to report back by October, 1997 on ways to accelerate rates of technological change in energy, other sector, and

-commit to steadily increasing budget requests for renewable energy and energy efficiency over the next five years.

OPTION 2: Status quo level of support for technology

cc: JAF
JS

CLIMATE CHANGE DISTRIBUTION LIST

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Climate Change – International Context

Background

There is international agreement that the climate change problem is significant and warrants additional near-term action. Further, there is a global recognition that the existing U.N. Framework Convention on Climate Change, signed in 1992, is inadequate to address this near term need. Current negotiations to develop next steps under the Convention began in April 1995 at the first meeting of the Parties to the Convention. At that session, the Parties agreed to begin negotiations toward a new legal instrument (a protocol or an amendment to the Convention) that would deal with next steps – in particular, how to address climate change in the post-2000 period. They agreed to conclude this effort by their third meeting, now set for Kyoto in December 1997.

In July 1996 at the second meeting of the Parties the United States called for an approach which would include three key elements: a legally binding target (instead of the voluntary aims of the existing Convention), flexibility in implementation (e.g., emissions trading and joint implementation), and the participation of developing countries. The U.S. call galvanized the negotiations, with ministers endorsing the objective of a legally binding instrument in the Geneva Declaration adopted by a large majority at the meeting.

U.S. Protocol Proposal

In January 1997, the United States tabled a framework protocol proposal that amplified the positions set forth in Geneva:

- developed countries would adopt binding emissions budgets covering specific periods, although no budget levels or timeframes were specified; provisions would be developed for detailed monitoring, review and compliance;

- countries with budgets would be able to trade emissions between themselves, and jointly implement projects with countries that do not have budgets, so that the most cost-effective reductions can be taken;

- developing countries would be required to take measures that reduce emissions, measure the effects of these measures, and report on the actions taken;

- advanced developing/newly developed countries (e.g., Korea and Mexico) would agree, on a voluntary basis, to adopt binding emissions budgets that might differ from those for industrialized countries; and

- all Parties would agree to adopt binding GHG emissions budgets in a future, post-Kyoto negotiation, with provisions for automatic "graduation" from one category to another based on agreed indicators.

Views Abroad

The U.S. proposal has received mixed reactions abroad. Some view it as the most comprehensive and forward looking of any proposal yet tabled. Others criticize it for focusing on design features without providing any indication of the level of emissions reduction to which we are prepared to commit. Countries (and positions) fall within several different groups:

European Union: Strong domestic green politics drive many key players in the EU (Germany, Netherlands, Denmark), although differences with the southern tier (Italy, Spain, Portugal) as well as France split the EU on some issues. They have set a target of 15 percent reduction below 1990 levels by 2010 for all developed countries (with the EU to meet the target jointly rather than as individual countries). While all analyses suggest that this is an unrealistic goal, it provides the EU with the moral high ground. Nominally supporting flexibility, the EU largely limits this to members states. They also reject a strong call for developing country actions.

Non-EU Developed Countries (Japan, Canada and Australia, Eastern Europeans, NIS/FSU): Japan, as host (and chair) of the Kyoto meeting is anxious for its success, but has reached no internal agreement on a desired outcome. Both Japan and Australia have supported allowing each industrialized country to have a different reduction target based on national circumstances (an idea considered almost impossible to negotiate by Kyoto). Canada and Australia have supported including flexibility provisions and developing country obligations in next steps, while Japan is weak on both. Many Eastern European countries await their turn to join the EU and have been reluctant to challenge EU positions. Further, most have seen dramatic declines in their own emissions due to economic decline – and few anticipate even returning to 1990 levels until 2005 or 2010. Russia (the world's third largest emitter) is the most vocal in the NIS/FSU group and takes a line independent of the EU. Russia has supported flexibility provisions and developing country participation – largely the result of a successful Gore-Chernomyrdin process.

Developing Countries: Big countries (principally China, India and Brazil) drive the international developing country position; they argue that the developed world is responsible for global warming and should pay to redress the problem. Despite the public rhetoric, some (including China and Brazil) have been willing to engage constructively on a bilateral basis, and have significant domestic programs. OPEC, led by Saudi Arabia and Nigeria, fears that action to combat global warming will diminish oil revenues. They have called for developing countries to be "compensated" if their economies are affected, and have blocked adopting rules of procedure under the Convention. Small Island States, with an alliance 37 members strong, fears that sea level rise will inundate them. They have pushed for aggressive next steps (i.e., a 20 percent reduction in OECD emissions below 1990 levels by the year 2005).

The Kyoto Agreement: Key Elements

For us to reach an agreement that is in line with the framework we have proposed, and with a chance of Senate ratification, there are five elements that will be required:

1) **Intensive Diplomatic Efforts**: These are now underway at all levels and in various fora. Ultimately, they may require the personal involvement of the President and Vice-President. Opportunities such as the G-7, UNGASS, and APEC must be used to stress the importance we attach to reaching an agreement, to promote understanding of our position and to highlight what will be needed for the United States to sign on.

2) **Agreement on Emissions:** We cannot hope to convince others of the desirability of flexibility (the EU) or the need for greater commitment (developing countries) unless we have a serious emissions reduction target to put on the table. The bottom line number need not be announced until late in the negotiations – but a signal of the direction in which we intend to move must be given as soon as possible. For example, were we to indicate at UNGASS that we believe a reduction target in Kyoto must take us below 1990 levels, we may be able to prevent other countries from taking key elements of our position off the table.

3) **Negotiating Flexibility:** We will need to decide how much we can achieve in the Kyoto agreement itself and how much we could defer to subsequent discussions. For example, to win on some of our flexibility proposals, we may need to be willing to delay their implementation beyond Kyoto (e.g., subject to further agreement on guidelines). This could also be true with respect to emissions trading. In each case, we will need to consider precisely how much we must have in the agreement itself, recognizing that the commitments will not be implemented until well after the year 2000.

4) **Closer Partnership with Developing Countries:** For us to be successful, we must forge a closer partnership with developing countries. Already U.S. bona fides have been questioned (by developing countries and by other donors) because Congress has not appropriated the amounts requested by the Administration for the Global Environment Facility (GEF), the principal vehicle for implementing our financial commitments under the Convention (we pledged $430 million in 1994, but have been able to contribute less than half this amount). If we cannot improve our record of meeting our commitments, we will not be able to persuade others to take on any serious obligation – particularly developing countries. We will also need to consider launching a new U.S. initiative to repackage and enhance existing U.S. bilateral efforts that support developing and transition countries in responding to the threat of climate change.

5) **A Comprehensive Domestic Strategy with Constituency Building:** An extensive effort will be required to develop support for Senate advice and consent to ratification, as well as for implementing legislation. Key members of Congress, as well as business, environmental, and state and local government representatives, must be found and cultivated to help carry the agreement forward. It will be critical that vocal support be

obtained well prior to Kyoto, or the Administration will be accused (inaccurately) of negotiating the treaty without adequate consultation. Key to this will be the release of information on the international process, and on the methods used to generate the agreement on an emission target. We must also develop a process to educate the public.

United States Department of State

Bureau of Oceans and International Environmental and Scientific Affairs

Washington, D.C. 20520

DATE: 4-24-97

NUMBER OF PAGES TO FOLLOW: 5

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MESSAGE:

To: Avi
rec'd 4/29/97
for State Dept
(Under Secy for Global Affairs)

Earth Day is upon us once again. Like most people who think at all about how much burden their way of life places on Spaceship Earth, I feel a bit guilty. But my conscience is clearer than usual this year--and so are those of 2,500 other economists.

Let me explain. A few months ago an organization called Redefining Progress enlisted five economists--the Nobel laureates Robert Solow and Kenneth Arrow, together with Harvard's Dale Jorgenson, Yale's William Nordhaus, and myself--to circulate an "Economists' Statement on Climate Change," calling for serious measures to limit the emission of greenhouse gases. To be honest, I agreed to be one of the original signatories mainly as a gesture of goodwill, and never expected to hear any more about it; but the statement ended up being signed by, yes, more than 2,500 economists. Whatever else may come of the enterprise, it was an impressive demonstration of a little-known fact: Many economists are also enthusiastic environmentalists.

Partly this is just because of who economists are: Being by definition well-educated and, for the most part, pretty well-off, they have the usual prejudices of their class--and most upper-middle-class Americans are sentimental about the environment, as long as protecting it does not impinge on their lifestyle. (I'm happy to reuse my grocery bags--but don't expect me to walk to the supermarket.) But my unscientific impression is that economists are on average more pro-environment than other people of similar incomes and backgrounds. Why? Because standard economic theory automatically predisposes those who believe in it to favor strong environmental protection.

This is not, of course, the popular image. Everyone knows that economists are people who know the price of everything and the value of nothing, who think that anything that increases gross domestic product is good and anything else is worthless, and who believe that whatever free markets do must be right. (A recent example of how this stereotype gets perpetuated is the article by garden-shop entrepreneur Paul Hawken in the current *Mother Jones*. I'm sorry to say that some of the people at Redefining Progress published an impressively ill-informed diatribe along the same lines in the *Atlantic* back in 1995.)

But the reality is that even the most conventional economic doctrine is a lot more subtle than that. True, economists generally believe that a system of free markets is a pretty efficient way to run an economy, *as long as the prices are right*--as long, in particular, as people pay the true social cost of their actions. Environmental issues, however, more or less by definition involve situations in which the price is wrong--in which the private costs of an activity fail to reflect its true social costs. Let me quote from the textbook (by William Baumol and Alan Blinder) that I assigned when I taught Economics 1 last year: "When a firm pollutes a river, it uses some of society's resources just as surely as when it burns coal. However, if the firm pays for coal but not for the use of clean water, it is to be expected that management will be economical in its use of coal and wasteful in its use of water." In other words, when it comes to the environment, we do not expect the free market to get it right.

So what should be done? Going all the way back to Paul Samuelson's first edition in 1948, every economics textbook I know of has argued that the government should intervene in the market to discourage activities that damage the environment. The usual recommendation is to do so either by charging fees for the right to engage in such nasty activities--a k a "pollution taxes"--or by auctioning off rights to pollute. Indeed, as the extraordinary response to the climate-change statement reminds us, the idea of pollution taxes is one of those iconic positions, like free trade, that commands the assent of virtually every card-carrying economist. Yet while pollution and related "negative externalities" such as traffic congestion are obvious problems, in practice, efforts to make markets take environmental costs into account are few and far between. So economists who actually believe the things they teach generally support a

much more aggressive program of environmental protection than the one we actually have. True, they tend to oppose detailed regulations that tell people exactly how they must reduce pollution, preferring schemes that provide a financial incentive to pollute less but leave the details up to the private sector. But I would be hard pressed to think of a single economist not actually employed by an anti-environmental lobbying operation who believes that the United States should protect the environment less, not more, than it currently does. (The signers of the climate-change statement, incidentally, included 13 economists from the University of Chicago.)

But won't protecting the environment reduce the gross domestic product? Not necessarily--and anyway, so what?

At first sight, it might seem obvious that pollution taxes will reduce GDP. After all, any tax reduces the incentives to work, save, and invest. Thus a tax on exhaust emissions from cars will induce people to drive cleaner cars or avoid driving altogether. But since it will also in effect lower the payoff to earning extra money (since you wouldn't end up driving the second car you could buy with that money anyway), people will not work as hard as they would have without the tax. The result is that taxes on pollution (or anything else) will, other things being equal, tend to reduce overall monetary output in the economy--which is to say, GDP.

But things need not be equal, because there is already a whole lot of taxing and spending going on. Even in the United States, where the government is smaller than in any other advanced country, about a third of GDP passes through its hands. So existing taxes already discourage people from engaging in taxable activities like working or investing.

What this means is that the revenue from any new taxes on pollution could be used to reduce other taxes, such as Social Security contributions or the income tax (but not, of course, the capital-gains tax). While the pollution taxes would discourage some activities that are counted in the GDP, the reduction in other taxes would encourage other such activities. So measured GDP might well fall very little, or even rise.

Does this constitute an independent argument for taxing pollution, quite aside from its environmental payoff? Would we want to have, say, a carbon tax even if we weren't worried about global warming? Well, there has been an excruciatingly technical argument about this, mysteriously known as the "double dividend" debate; the general consensus seems to be no, and that on balance pollution taxes would be more likely to reduce GDP slightly than to increase it.

But so what? "Gross domestic product is not a measure of the nation's economic well-being"--so declares the textbook as soon as it introduces the concept. If getting the price of the environment right means a rise in consumption of nonmarket goods like clean air and leisure time at the expense of marketed consumption, so be it.

Isn't this amazing? Not only do thousands of economists agree on something, but what they agree on is the warm and cuddly idea that we should do more to protect the environment. Can 2,500 economists be wrong? Well, yes—but this time they aren't. The Great Green Tax Shift—a shift away from taxes on employment and income toward taxes on pollution and other negative externalities—has everything going for it. It is supported by good science and good economics, as well as by good intentions.

Inevitably, then, it appears at the moment to be a complete political nonstarter. The problem, as with many good policy ideas, is that the Great Green Tax Shift runs up against the three I's.

United States Department of State

Washington, D.C. 20520

April 10, 1997

MEMORANDUM

TO: Schedulers for Climate Change Deputies Group
See Attached Sheet for Distribution

FROM: Debbie Jones
Staff Assistant
Office of Under Secretary Timothy E. Wirth
Office: 202-647-6205
Fax: 202-647-0753

SUBJECT: Climate Change Luncheons

As you know from the memo to the Climate Deputies Group dated March 4, there are two climate change luncheons to be held in April. I am asking that you respond ASAP of your principal's attendance. Thank you for your cooperation.

- The next Climate Change luncheon will be held on **Wednesday, April 16 from 12:30 - 2:00 pm in the Henry Clay Room** on the 8th floor of the State Department. The luncheon is in honor of Mr. Robert Shapiro, Chairman, President & Chief Executive Officer of Monsanto Company. Mr. Shapiro has led Monsanto through a major transformation, and the company is now the world leader in bio-engineering related agribusiness. The impact of climate change for agriculture makes this transition even more compelling. Bio attached.

- On **Wednesday, April 30 from 12:00 - 1:30 p.m. in the Henry Clay Room**, Mr. Wirth has invited Mr. Kenneth Lay, President of ENRON, to speak at the climate change luncheon. Mr. Lay has transformed ENRON into a broad energy company and views climate change as a great opportunity for business and the USA. Bio attached.

Also mentioned in the memo sent to the Climate Deputies Group, there was a luncheon scheduled on Thursday, May 8 for the new director of the National Renewable Energy Laboratory. It will be rescheduled at a later time, and I will contact you as soon as there is a confirmed date.

7 pages to follow

g/admin:cliassts

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Jeffrey Frankel	CEA	(O) 395-5046 (F) 395-6947 POC: Francine
John Garamendi	Interior	(O) 208-6291 (F) 208-1873 POC: Gwen
Jack Gibbons	White House	(O) 456-7116 (F) 456-6021 POC: Susie
T. J. Glauthier	OMB	(O) 395-4561 (F) 395-4639 POC: Alecia

Sherri Goodman	Defense	(O) (703) 695-6639 (F) (703) 693-7011 POC: Diedra
Joshua Gotbaum	Treasury	(O) 622-2200 (F) 622-2633 POC: Rosemary
Fred Hansen	EPA	(O) 260-4724 (F) 401-3764 POC: Linda H.
Elgie Holstein	NEC	(O) 456-2801 (F) 456-2223 POC: Gay
Jeff Lang	USTR	(O) 395-5114 (F) 395-4549 POC: Dena
Katie McGinty	CEQ	(O) 456-5147 (F) 456-2710 POC: Robert
Jerry Melillo	White House	(O) 456-6202 (F) 456-6025 POC: Sandy
Cynthia Metzler	Labor	(O) 219-8213 (F) 219-7659 POC: Pamela
Alicia Munnell	CEA	(O) 395-5036 (F) 395-6958 POC: Lisa
Richard Rominger	USDA	(O) 720-6158 (F) 720-5437 POC: Joanne

David Sandalow	CEQ	(O) 456-6224 (F) 456-2710 POC: Wendy
Lois Schiffer	Justice	(O) 514-2701 (F) 514-0557 POC: Norma
James Steinberg	White House	(O) 456-9480 (F) 456-9490 POC: Kathy
Lawrence Summers	Treasury	(O) 622-1080 (F) 622-0081 POC: Judy
Dan Tarullo	NEC	(O) 456-5353 (F) 456-1605 POC: Kristin
Kevin Thurm	HHS	(O) 690-6133 (F) 690-7755 POC: Vivian
John White	Defense	(O) (703) 695-6352 (F) (703) 697-9080 POC: Lynn
Timothy E. Wirth	State	(O) 647-6240 (F) 647-0753 POC: Debbie
John (Randy) Wood	State	(O) 647-9796 (F) 647-0753 POC: Debbie

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February, 1997

BIOGRAPHICAL SKETCH

ROBERT B. SHAPIRO
Chairman, President and Chief Executive Officer
Monsanto Company

Robert Shapiro is Chairman, President and Chief Executive Officer of Monsanto Company.

Mr. Shapiro joined Searle, now a unit of Monsanto, in 1979 as Vice President and General Counsel. In 1982, he was named President of the newly formed NutraSweet Group of Searle. When Searle was acquired by Monsanto in 1985, he was appointed Chairman and Chief Executive Officer of The NutraSweet Company, a subsidiary of Monsanto. In 1990, he was named Executive Vice President, Monsanto Company, and President, The Agricultural Group, an operating unit of Monsanto. He became Monsanto's President and Chief Operating Officer in 1993 and was appointed to his present position in April 1995.

Before joining Searle, Mr. Shapiro was Vice President and General Counsel for General Instrument Corporation. Previously, he served as an attorney with the New York law firm of Poletti, Freidin, Prashker, Feldman and Gartner, and a professor of law at Northeastern University in Boston and the University of Wisconsin in Madison. Mr. Shapiro served in government as Special Assistant to the General Counsel and later to the Undersecretary of the U.S. Department of Transportation. He also has been a consultant to state and local governments on law enforcement, service delivery systems and transportation policy.

Mr. Shapiro is a member of the President's Advisory Committee for Trade Policy and Negotiations and the Trade and Environment Policy Advisory Committee. He has served under previous appointments on the Advisory Committee on Industrial Innovation, White House Domestic Policy Review; the Civil Aeronautics Board Advisory Committee on Procedure; and the Massachusetts Governor's Task Force on Transportation. He has also served as vice chairman of the Committee on Corporate Counsel of the American Bar Association.

Mr. Shapiro is currently on the boards of directors of Citicorp, Silicon Graphics, U.S.-Japan Business Council, Inc., Rand's Institute for Civil Justice, Worcester Foundation For Biomedical Research, and Tufts University Board of Overseers to the School of Nutrition. He is also a member of The Business Roundtable and The Business Council. In St. Louis, Mr. Shapiro is a member of Civic Progress, Inc. and serves on the boards of the Missouri Botanical Garden, Washington University and Barnes-Jewish Hospital.

Mr. Shapiro has received the John R. Miller Award as the Outstanding Corporate Marketing Executive of 1984, and the Special Citation for Outstanding Achievement from Sales and Marketing Management magazine.

Mr. Shapiro is a 1959 graduate of Harvard College and a 1962 graduate of Columbia University School of Law. He is married to Kemery Bloom. He has three children and lives in St. Louis.

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KENNETH L. LAY
Chairman and Chief Executive Officer
Enron Corp.

Kenneth L. Lay is chairman and chief executive officer of Enron Corp. He was named to that position in February 1986, following the merger of Houston Natural Gas and InterNorth, Inc. in July 1985. Previously, Lay was president of Continental Resources Company (formerly Florida Gas Company) and executive vice president of The Continental Group, the parent company of Continental Resources Company, before joining Transco Energy Company in May 1981, as president, chief operating officer and a director. He joined Houston Natural Gas in June 1984 as chairman and chief executive officer.

A native of Missouri, Lay was a Phi Beta Kappa graduate in economics from the University of Missouri, where he also received a master's degree in economics. Upon graduation, he began his career in 1965 as a corporate economist with Exxon Company, U.S.A. Subsequently, he earned a Ph.D. in economics from the University of Houston.

Lay served as an officer in the U.S. Navy, and held the positions of Technical Assistant to a Commissioner of the Federal Energy Regulatory Commission and Deputy Under Secretary for Energy of the U.S. Department of Interior. Additionally, while in Washington, Lay was an assistant professor at George Washington University, teaching graduate courses in micro- and macro-economic theory and government-business relations.

Currently, Lay serves on the Board of Directors of Compaq Computer Corporation, Eli Lilly and Company and Trust Company of the West. He is a member of The Business Council, the National Petroleum Council and the American Enterprise Institute. He is a member of the Board of Trustees of The H. John Heinz III Center for Science, Economics and the Environment. Lay was recently named one of the 25 top managers for 1996 by *Business Week*. He has also been selected to receive the Private Sector Council's 1997 Leadership Award.

Previous key roles have included serving as chairman of the Greater Houston Partnership and chairman of the University of Houston Board of Regents. In addition, he served as chairman of the Houston Host Committee for the 1992 Republican National Convention and as co-chairman of the 1990 Houston Economic Summit Host Committee.

Married to the former Linda Phillips of Washington D.C., the Lays have five children: Robyn, Mark, David, Elizabeth and Beau.

Enron Corp. is one of the world's largest integrated natural gas and electricity companies and operates one of the world's largest natural gas transmission systems. Enron is the largest purchaser and marketer of natural gas and the largest non-regulated marketer of electricity in North America. Enron markets natural gas liquids worldwide and manages the largest portfolio of fixed-price natural gas risk management contracts in the world. Enron is one of the largest independent developers and producers of electricity in the world and is a major supplier of solar and wind renewable energy worldwide. The company generated approximately $13.3 billion in revenues in 1996 and had approximately $16 billion in assets at year-end.

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