FOIA Number: 2017-1095-F

FOIA MARKER

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

Collection/Record Group: Clinton Presidential Records

Subgroup/Office of Origin: Council of Economic Advisers

Series/Staff Member: Jeffrey Frankel

Subseries:

OA/ID Number: 13727

FolderID:

Folder Title:
Memo to POTUS June 97 [Global Climate Change] [1]

Stack:	Row:	Section:	Shelf:	Position:
S	20	5	1	2

[redacted]

7/1/97

NEC prin.

Kenn Thurm. HHS

Tobacco — aim last of July — mtg. w/ c of 21st

Kagan: Regulatory
- cigar
- access, adv & label
- environmntl smoke

Legal — liab., damages, anti-trust

Chris J. — Pgm & budget — where should money go

Bruce J. — Ind. performance & accountability — with help of CEA effects on industry. Incentive effects of penalties on co. behavior

Dan T — Separately: int. mkt access, x assistance ...

Race — sig. item. — study, dialog, actn — best practices — incl. CEA

New ideas

GCC — July 11 mtg. emissions

dom implemtn.

if we raise rev. what do we do with them

~~Science~~ techn.

Todd Stern roll like Daley on NAFTA. sell it, ... (1) public ed. & consciousness-raisg.
(2) outreach campaign to stakeholders

Dan T: GCC most contentious issue in 4 yrs. of summit — Pres pushed back as approp. against some of the more outrageous tones of ~~cmts~~.

Eur. Press giving grudging credit to US tone: pres. ack. problem, & emphasg realism + u.s. responsibility

Doug:
Big 3 auto CEOs
KMcG — July 21 event — mtg. with Nobel laureates sci + econ.

Trade

NAFTA Rept.

Rept - Sec 108 every 3 yrs on what countries want to do FTAs with. We said we would go get off, and do it with fast track proposal in Sept.

Africa — Crane bill — textiles & apparel — { we want same approach to both [cut cloth]

CBI — Bob Gramm introduce

war room to sell fast track. Need a Daley, Bob Kyle starts

NEC Principals Meeting
July 1, 1997

Agenda

I. Tobacco Settlement

II. Race Initiative

III. Climate Change

IV. New Ideas

V. Trade

- NAFTA Report
- Fast Track
- Africa

VI. Updates

- Budget and Tax
- Products Liability Reform

6/23/17

GCL

1990 levels of something 2010? 2020?

major crossed the Rubicon.

Dan T.: Necessary & recent ec. analyses: How to implement ~~agencies~~

Econ Analysis

Katie asked JY to call mtg. KT, Gene, DT, Ron K, Dave Tarr, Berger, Sylvia, Podesta, Josh, Larry

Strategy for ec. analysis of rec.

THE WHITE HOUSE

WASHINGTON

June 18, 1997

MEMORANDUM FOR THE PRESIDENT

FROM: KATHLEEN A. McGINTY
DANIEL K. TARULLO

SUBJECT: UPCOMING INTERNATIONAL EVENTS AND CLIMATE CHANGE

I. Action-Forcing Event

Over the next few weeks, you will have two high-profile events that focus attention on U.S. climate change policies: the Denver Summit of the Eight (June 20-22) and the United Nations General Assembly Special Session on Environment and Development (you are speaking on June 26). To date, the United States has called for binding emissions targets, flexibility in meeting those targets and the participation of all countries under the climate treaty, but has not signaled which specific emissions levels would be acceptable. Negotiations are set to conclude this December in Kyoto. Other countries and domestic constituencies are calling on the U.S. to state its views.

Your advisers are evaluating the specifics of a U.S. negotiating position, with some differences among them. However, there is a consensus that, even at the cost of significant criticism from other countries and environmental groups, it would be imprudent to take a specific position on emissions levels in the upcoming events. Instead, you should make a strong statement about the need to address the problem of climate change and begin an intense process of personally communicating with the American public on this issue with the objective of articulating a substantive policy position in the fall.

II. Background

Climate change may be the most significant economic and environmental policy issue to be addressed in the second term. There is now scientific consensus that human activities (primarily the burning of fossil fuels) are having a discernible influence on the global climate and that "climate change is likely to have wide-ranging and mostly adverse impacts on human health". The implication is that greenhouse gas concentrations must be held to responsible levels in the long term to avoid dire consequences. Greenhouse gas concentrations are at now their highest levels in 200,000 years and, absent policy interventions, concentrations at the end of the next century are predicted to be at a 50 million year high. Impacts are predicted to include higher temperatures (global average temperatures are predicted to increase 2-6.5 degrees F. by 2100), sea level rise (threatening low-lying areas), spread of infectious diseases, and more highly variable weather (with increased frequency of severe weather events such as droughts and floods).

The U.S. is the world's largest emitter of greenhouse gases, with roughly 25% of the world's total. Domestic greenhouse gas emissions have been growing by a bit over 1 percent per year, so that today's emissions are about 10 percent higher than in 1990. In many developing countries, emissions growth rates are higher, but per capita and overall emissions levels are lower. The developed countries are responsible for much of the accumulation of greenhouse gases in the atmosphere and currently are the largest emitters. By 2020-2040, however, the developing countries will surpass the developed countries in terms of emitting greenhouse gases. Since global climate is affected by greenhouse gas concentrations in the atmosphere, and since the efforts by any one country to reduce its emissions cannot have much of an effect on global concentrations, a sensible approach would call on all countries to play a role. The U.S. has urged developing countries to accept significant obligations (short of quantitative emissions targets) in the international treaty negotiations. To date, there has been little international support for the U.S. position on developing countries.

In general, market-based policies are believed to be the most efficient means to reduce greenhouse gas emissions, because these policies promote flexibility and minimize economic costs. The U.S. has urged that the climate change treaty promote maximum domestic flexibility in all countries, establish a system where countries with quantitative emissions targets can trade emissions rights, and establish a system of joint implementation, where developed and developing countries can undertake joint efforts to reduce emissions wherever the cost is lower.

In a Principals meeting to consider the U.S. position on emissions levels under the climate treaty, most of the participants indicated support for "stabilizing emissions in the medium term." (In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020). But many of the agencies and offices represented conditioned their support on success in achieving other elements of the U.S. negotiating position (e.g., international emissions trading, participation of developing countries). Several participants felt that further analytic work was needed, and expressed a desire to see further options developed.

In the view of many members of your Cabinet, calling for emissions to be stabilized at 1990 levels in the medium term and emphasizing the importance of other elements of the U.S. position would allow you to take the high ground. You could commit the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement. This would provide flexibility for future development of our position and, given the likely difficulty in convincing developing countries to participate more fully under the climate treaty, also offer a principled basis for walking away from an agreement in Kyoto should we decide it is in our interest to do so.

However, as several of your economic advisers noted, even the seemingly moderate goal of returning emissions levels to 1990 levels by 2010 would entail economic policy interventions greater than any we have undertaken during your Presidency. Even with the kind of flexibility components proposed by the United States, market-based policies designed to reduce greenhouse gas emissions significantly are likely to raise domestic fuel prices by significant amounts and to have particularly adverse effects on the coal industry. The result would be lower economic growth, with the most

APPENDIX D
ADDITIONAL BACKGROUND

A. Basis for Concern

The build-up of greenhouse gases in the atmosphere threatens fundamentally to 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 more than 10,000 years.

Potential impacts from climate change include sea level rise, the spread of infectious disease, extreme weather events (such as droughts and floods), loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century will increase 2-6.5 degrees F., sea-level rise will inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable), and an additional 50-80 million people will contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity). The international scientific assessment states that "climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life."

Nevertheless, significant uncertainties remain concerning the magnitude, timing and regional distribution of impacts. Currently, scientists are unable to predict changes in short-term weather patterns in particular regions.

Atmospheric concentrations of carbon dioxide (the most important greenhouse gas) are well above historic levels and climbing sharply. Concentrations are currently 360 parts per million (ppm), about 30% above pre-industrial levels and the highest in at least 200,000 years. Absent policy interventions, concentrations in 2100 are predicted to reach roughly 750 ppm, the highest in more than 30 million years.

B. Human Sources of Greenhouse Gases

The principal cause of the buildup in greenhouse gases is the burning of fossil fuels. Other human activities, including deforestation and mining, 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."

Developed countries are responsible for more than 75% of the increase in greenhouse gas concentrations since the beginning of the Industrial Revolution. In the decades ahead, however, emissions from developing countries are expected to grow sharply. By 2035, developing country emissions are expected to exceed those from the developed world.

APPENDIX B
ENVIRONMENTAL IMPACTS OF OPTIONS

1. Climate Change Impacts

Absent policy interventions, atmospheric greenhouse gas concentrations will increase during the next century to levels unknown on this planet for 50 million years. To avoid such extraordinary increases, *global* greenhouse gas emissions must begin to decline from projected levels early in the next century. For *global* emissions to begin to decline in this time frame, developed countries must move quickly to reduce their emissions, setting the stage for future rounds of negotiations.

In the short-term, the difference between the options presented in terms of additional greenhouse gas concentrations in the atmosphere is small. However, institutional and political factors will lead to important differences between these options. Options 3 and 4, for example, are unlikely to lead developing countries to participate meaningfully in the negotiating process. Option 1, on the other hand, may be so stringent that many businesses would simply work to block implementation rather than restructure activities to comply.

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 about 2010. For the world realistically to avoid a near-tripling of greenhouse gas concentrations (750 ppm), *global* emissions must deflect from this "business-as-usual" path by 2020. 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.

2. Other Environmental Impacts

Any of the options discussed here could have considerable environmental benefits unrelated to climate change. Measures to reduce greenhouse gas emissions would also reduce emissions of SOX, NOX and toxic pollutants such as mercury. Such measures would contribute significantly to meeting potential Clean Air Act standards for particulate matter and ozone. According to EPA estimates, monetizable benefits of reducing fine particles and ozone in connection with Option 1 or Option 2 could total tens of billions of dollars per year by 2010.

At the UN General Assembly Session, your advisers recommend that you again discuss the statement in strong terms, signaling your resolve to address this issue. They recommend the following language:

> There is no more serious issue than climate change, and it is clear that we will need seriously and significantly to reduce our emissions of greenhouse gases beginning with a strong agreement in Kyoto.
>
> We must remember that our goal is to stabilize concentrations of greenhouse gases in the atmosphere at an acceptable level, a task that must begin now, but which will require continuing sustained effort over many decades. So it is important that we set up a system that will work -- that will allow us to reduce our emissions at the lowest possible cost so that we can achieve the maximum protection of the environment. And it is also important that next steps send a strong signal of our intent, so that governments and industries can make significant investments in the new technologies that will be required if we are to achieve our ultimate goal. And finally, although those of us in the developed world who emit the largest quantities of these gases must take the lead, all countries must participate in moving toward the solution.

Your advisers recommend that you then begin to outline your personal involvement in the education campaign that will be necessary to build domestic acceptance for any meaningful emissions constraints. Although gaining consensus across the political spectrum is not possible on this issue, it may be possible to enhance support significantly among centrist constituencies and the public at large. Notwithstanding that you are speaking to a UN audience, you should direct your remarks to the American public.

You could announce specific means to pursue this dialogue, including your plans to host a White House Conference on Climate Change in September to bring together elected officials, business, labor, and environmental and scientific leaders, academics, and representatives of the public to discuss climate change policy. You could announce that this White House conference would be preceded by a series of regional conferences -- each hosted by members of your Cabinet. These high-level conferences would serve to educate the American public and bring forward ideas on how best to address climate change. A core goal of this and other efforts would be to break through to the American people with the message that "Climate change is an important issue for you and your family -- one that Bill Clinton believes we must address in a responsible way." Meanwhile, analytic work on policy alternatives would continue, informed by the public debate. We would aim to arrive at a complete U.S. negotiating position by the early fall.

You should be aware that this approach may lead to intense criticism of you and the Vice President by environmental groups. These groups have been calling on the U.S. to state a specific position on emissions levels, and will consider strong rhetoric and promises to engage personally in the issue to be inadequate. Some commentators will equate your approach with that of President Bush. (Bush refused to agree to any emissions levels in Rio. You reversed that position in April, 1993 and voluntarily committed the U.S. to reducing emissions to 1990 levels by the year 2000). However, your advisers believe that refraining from announcing specific goals until early fall is necessary to

APPENDIX A
OPTIONS IDENTIFIED TO PRINCIPALS AT RECENT MEETING

Earlier this month, we identified several options for principals concerning the U.S. position on emissions levels in the international climate change negotiations. Each option was defined in terms of a broad directional statement and further described by a particular combination of emissions levels and timing, to help clarify the meaning of the directional statement. Most agencies and offices (State, EPA, Energy, Agriculture, Transportation, Commerce, AID, CEA and the U.S. Ambassador to the United Nations) supported Option 2 below. Many of these offices and agencies conditioned their support for Option 2 on success in achieving other elements of the U.S. negotiating position (e.g., international emissions trading, participation of developing countries, etc.). Treasury and OMB voiced significant concerns.

In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020.

Following are the five options, with pros and cons, identified to principals:

Option 1: Call for "significantly reducing emissions in the medium term."

Such a statement would be interpreted to be consistent with the E.U. proposal (a 10-15% cut from 1990 emissions levels by 2010).

Pros:

- Environmental benefits could be large. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Many environmental groups would be pleased.

Cons:

- Could impose very large costs on the U.S. economy. Although these effects might ultimately be offset, GDP in 2005 could be reduced by 0.1-1.0% (with international emissions trading) and 0.1-2.0% (without). The price of gasoline could rise by 20-25 cents per gallon (with international emissions trading) to 35-50 cents (without).
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $110 billion (with international trading) to $270 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues).
- Business and labor would be very strongly opposed.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be close to zero.

Option 2: Call for "stabilizing emissions in the medium term and reducing thereafter." Emphasize that flexibility and the participation of all nations (including developing countries) are essential to addressing this problem.

This option is consistent with stabilizing emissions at 1990 levels by 2010 (though, as noted, "medium term" is interpreted as being between 2005 and 2020).

Pros:

- Allows you to take the high ground: committing the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement.
- Provides considerable flexibility for future development of our position. This option is consistent with stabilizing emissions at 1990 levels anywhere between 2005 and 2020.
- Environmental benefits (both climate and non-climate) could be significant. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Some environmental groups would be pleased; others would complain of lack of U.S. leadership.

Cons:

- Overall economic impacts of this option could be significant. Although these effects might ultimately be offset, GDP in 2010 could be reduced by 0.2-0.6% ($20-60 billion) and consumption by .3-1.0%. The price of gasoline could rise by 10-15 cents (with international emissions trading) or 20-40 cents (without).
- Dislocation in some sectors and regions (especially coal states) could be large and long-lasting.
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $60 billion (with international trading) to $190 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues).
- Most business and labor groups would be opposed, although some might support if the policy were coupled with other features they find attractive.
- Without significant changes in the political landscape, the prospects for ratification by the Senate and passage of implementing legislation in the next several years would be poor.

Option 3: Call for "*beginning* to reduce emissions by 2005 and stabilizing emissions by the end of the medium term, with further reductions thereafter."

This option envisions an international regime that mandates starting emissions reductions earlier than Option 2, but reducing emissions to 1990 levels over a longer period of time. While less constraining than Option 2, the rhetoric used to describe this option (other than the 2005 component) could be substantially identical to the rhetoric for Option 2.

Pros:

- Delaying the most stringent reductions would reduce economic costs, by allowing capital stock to turn over at a natural rate and technology to improve.
- Calling for concrete action before 2010 could be portrayed as more activist. Some agencies (not including the State Department) believe this could enhance our efforts to obtain agreement on international emissions trading and developing country participation.

Cons:

- Would be criticized by environmental community as showing lack of leadership by delaying stabilization.
- Would be criticized by moderate business groups (e.g., chemical companies, some utilities) who strongly oppose any target before the year 2010.
- Would be criticized by more hard-line business groups (fossil fuel producers, heavy manufacturing) and many in organized labor who oppose any action on climate change.
- In the view of the State Department and other agencies, would jeopardize our ability to achieve flexibility provisions (e.g., international emissions trading, joint implementation) and developing country participation in international negotiations.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be poor.

Option 4: Call for "eliminating emissions *growth* in the medium term, on the way to stabilization and eventual reduction of emissions."

For example, emissions would peak in 2010-2020, return to 1990 levels in the longer term (i.e., after 2020) and decline thereafter.

Pros:

- Economic costs would be relatively mild. Some economists would view this emissions path as consistent with one that would balance costs and benefits of climate change policy.
- Opposition in the business and labor communities would be mild.
- There is a chance an option along these lines would be ratified by the U.S. Senate in the next several years without major political changes.

Cons:

- With this option, there is no chance of obtaining international agreement on our "flexibility" or "developing country participation" proposals.
- Criticism from other countries and U.S. environmental groups would be very strong. Environmental groups would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Environmental benefits (both climate and non-climate) would be modest.
- Some economists (especially those who emphasize the environmental benefits of climate change policies) would criticize this option as inadequate.

Option 5: Call for "strong action on climate change" and "agreement in Kyoto." Say that the United States is continuing to study the issue of emissions levels and will elaborate on its position at a later time.

This roughly repeats prior statements by you and other administration officials.

Pros:

- Leaves options open for future decisions.
- Allows additional refinement of economic modeling runs before our position is announced.

Cons:

- Would be strongly criticized by environmental groups, who would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Without more definition of our position on emissions levels soon, our ability to achieve agreement to flexibility and developing country provisions in Kyoto will be seriously impaired.

APPENDIX C
ECONOMIC ANALYSIS

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

Economic models are by nature imprecise, especially when projecting over several decades. The models' limitations are exacerbated by the complex and far-reaching effects of any policy aimed at reducing greenhouse gas emissions. Some agencies believe it is important to stress that similar modeling in the past with respect to SO2 controls under the Clean Air Act dramatically overstated costs, due to unforeseen factors. Nevertheless, models can provide insight into the economic costs and benefits of various policy alternatives.

The "base case" modeling results presented here make the following key assumptions:

- Policy options are implemented by 2010, with a ten-year phase-in period.
- Domestic emissions reductions are achieved by an emissions trading system, where certain entities responsible for greenhouse gas emissions must have a permit, a limited number of permits are sold at auction, and permits may then be traded.
- All revenues raised through the auction process go to reduce the Federal budget deficit (or increase the budget surplus).
- There are no transaction costs nor compliance problems with the domestic emissions trading system.
- Monetary policy acts to offset the effects of reduced economic activity through lower interest rates.
- The path of technological progress over the forecast period has energy use per unit of GDP decreasing more rapidly than observed in most historical periods, consistent with increased emphasis on greenhouse gas emissions and energy efficiency.
- The rest of the economy remains unchanged, which will not occur over the long forecast period used. Unexpected shocks to the economy are likely to have very large effects on the estimates presented.

Results are presented for Options 1 through 4, but the figures associated with Options 3 and 4 should be viewed as illustrative only. These figures were not derived from specific IAT modeling of the emissions constraint policies listed as examples for these Options because the IAT has not examined any policies with emissions budgets for 2020 or later. The figures presented are no more than educated guesses, generated by referring to emissions constraints that were modeled. The IAT has the capability to model emissions policies that have targets for 2020 or later and will do so if policy makers think the effort would be helpful.

Three additional caveats should be noted. First, the base case masks disagreements among agencies over likely rates of technological innovation and diffusion. A faster rate of progress in energy-efficiency and carbon-reducing technologies could reduce estimated economic costs by as much as one-third relative to the base case estimates. However, a slower rate of technological progress than assumed in the base case would increase economic costs noticeably. Second, to the extent that domestic greenhouse gas constraints are not implemented through an emissions trading regime, but instead through less flexible regulatory programs, economic costs will be greater than those shown. Third, to the extent that the distribution of emission permits does not support increased levels of capital investment compared to the baseline, the long-term economic results will be less favorable than estimated by the models.

2. Results. As noted above, the United States has strongly supported international trading of greenhouse gases. With trading, countries with high abatement costs (e.g., the United States and Western Europe) could purchase emissions reductions in countries with lower abatement costs (e.g., in the former Soviet Union). Incorporating a well-functioning international market in emissions permits in the modeling reduces estimated energy price increases significantly. With international emissions trading, the United States is estimated to pay about $5 billion per year to other developed countries (including those in the former Soviet Union) to purchase permits, avoiding greater expenditures in compliance costs.

Results with international trading

Table 1 presents results from the base case with trading of emissions permits among Annex I nations. The trading takes place among all Annex I nations. (In countries where emissions have fallen below 1990 levels, such as in some parts of the former Soviet Union, trading is assumed to be allowed only to the extent there are corresponding emissions reductions from a "no-policy" baseline). All figures are presented relative to a "no-policy" baseline, in 1995 dollars.

The losses in aggregate economic activity are noticeable, but largely transitory. Table 1 shows GDP loss with international trading peaking at a few tenths of a percentage point in 2005-2010 for the case where emissions are stabilized at 1990 levels by 2010. After this initial loss, the economy begins to rebound as the proceeds from permit auctions reduce the Federal budget deficit (or increase the budget surplus), leading to lower interest rates. Businesses respond by making capital investments to offset higher energy costs. After a while, the economy catches up to its original growth path, indicating that the emissions reduction program modeled is implicitly pro-investment and that the economy is robust enough to withstand modest shocks.

Coal bears the brunt of the emissions reduction policies, because coal is the most greenhouse gas intensive fuel. In general, the least costly way to garner significant emissions reductions is to replace coal in electricity generation and industrial uses.

Results without international trading

If an effective regime for trading international emissions permits is not established, then the estimated energy price increases are nearly doubled, with parallel economic losses. This situation is depicted for the base case in Table 2.

The losses in aggregate economic activity are significant, though again, largely transitory. Table 2 shows GDP loss without international trading peaking around 1 percent in 2005, for stabilizing emissions at 1990 levels in 2010. After this initial loss, the economy begins to rebound as revenue from the domestic permit auctions reduces the Federal budget deficit and lowers interest rates. Businesses respond by making additional capital investments, setting off a mini-"investment boom". By 2015, the economy is estimated (in some models) to regain and even surpass its original growth path. This result indicates that the emissions reduction program as modeled is pro-investment (because reduced personal consumption allows businesses the wherewithal to expand the capital stock).

Technology assumptions

Another possibility for mitigating economic costs is focusing attention and resources on programs that promise to decrease the rate at which the economy produces greenhouse gas emissions. Examples here might include an increased research and development effort or an initiative to more rapidly diffuse the most efficient energy practices through industry. The "hi-tech" set of assumptions added to the base case modeling shows that energy price increases could be reduced by 10-30 percent, by 2010, with larger reductions possible further in the future. Estimated economic costs of the base case policies would be correspondingly reduced.

Environmental benefits

The figures presented here do not reflect the environmental benefits associated with avoiding climate change, nor do they reflect collateral environmental benefits that may result from reduced emissions of greenhouse gases. Policies to reduce greenhouse gas emissions, for example, are likely to reduce emissions of other pollutants, including SOX, NOX, particulate matter and toxic pollutants (e.g., mercury). According to EPA estimates, the monetizable benefits of reducing fine particles and ozone in connection with either Option 1 or Option 2 could total tens of billions of dollars per year.

Economic effects are summarized on the charts below. Note that the figures presented for Options 3 and 4 are not based on actual IAT modeling, since the IAT has not examined any emissions budgets for 2020 or later. The figures for these Options are based on implied increases in carbon prices obtained from other IAT modeling efforts. Thus, the figures presented for Options 3 and 4 should be considered as illustrative only.

Table 1 --Base Case with OECD Emissions Trading*

Variable of Interest	Option 1 --10% below 1990 levels by 2010	Option 2 --1990 levels by 2010	Option 3 -- Implied carbon price increase of $20 per ton **	Option 4 -- Implied carbon price increase of $10 per ton **
GDP in 2005	-1.0% to -0.1%	-0.5% to 0.0%	-0.2% to 0.0%	-0.1% to 0.0%
GDP in 2010	about -0.3%	-0.4% to -0.1%	-0.2% to -0.1%	about -0.1%
GDP in 2020	-0.3% to +0.2%	about -0.1%	-0.1% to 0.0%	about 0.0%
Implied price increase per ton of carbon in 2010	about $85	about $50	about $20	about $10
Implied price increase per gallon of gasoline in 2010	about 20-25 cents	about 10-15 cents	about 5 cents	about 2-3 cents
Implied price increase per ton of coal in 2010***	about $50	about $30	about $10-15	about $6
Implied avg. price increase for residential elect. in 2010****	about 1.5 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh	about 0.3 cents per kwh
Decline in total employment in 2010 (national)	about 200,000	about 50,000-250,000	about 50,000-100,000	less than 50,000
Annual value of domestic emission permits (2010)	about $110 billion	about $60-70 billion	about $25-30 billion	about $10-15 billion

* Analysis of Joint Implementation (worldwide emissions trading) would show lower costs and imply greater purchases by the U.S. of emissions reductions abroad.

** *Although figures are presented, obtaining agreement under the climate treaty to an international emissions trading regime would be very unlikely with targets in this range.*

*** Current national average approximately $28/ton

**** Current national average approximately 8 cents/kilowatt hour

Table 2 --Base Case without OECD Emissions Trading

Variable of Interest	Option 1 --10% below 1990 levels by 2010	Option 2 --1990 levels by 2010	Option 3 --Implied carbon price increase of $35-50 per ton	Option 4 --Implied carbon price increase of $15-25 per ton
GDP in 2005	-2.0% to -0.1%	-1.0% to -0.1%	-0.5% to 0.0%	-0.3% to 0.0%
GDP in 2010	-0.7% to -0.3%	-0.6% to -0.2%	-0.4% to -0.1%	-0.2% to -0.1%
GDP in 2020	-0.3% to +1.0%	-0.6% to +0.2%	about -0.1%	about 0.0%
Implied price increase per ton of carbon in 2010	$130-200	$80-140	$35-50	$15-25
Implied price increase per gallon of gasoline in 2010	35-50 cents	20-40 cents	10-15 cents	5-10 cents
Implied price increase per ton of coal in 2010*	$80-120	$50-85	$20-30	about $10-15
Implied average price increase for residential electricity in 2010**	about 4 cents per kwh	about 1.5-3.0 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh
Decline in total employment in 2010 (national)	about 200,000-500,000	about 150,000-400,000	about 50,000-250,000	about 50,000 -100,000
Annual value of domestic emission permits (2010)	about $270 billion	about $110-190 billion	about $50-70 billion	about $20-35 billion

* Current national average approximately $28/ton

**Current national average approximately 8 cents/kilowatt hour.

The United States emits more greenhouse gases than any nation in the world (roughly 25% of the world's total). Our per capita emissions are among the world's highest --roughly 50% greater than the OECD average and eight times that of China. In the United States, greenhouse gas emissions come mainly from industry (1/3), transport (1/3) and buildings (1/3). Since 1990, U.S. greenhouse gas emissions have grown 7-8%. Without policy interventions, U.S. emissions are projected to grow 20-25% over 1990 levels by 2010.

None of the actions contemplated during this round of negotiations will, by themselves, reverse the build-up of greenhouse gases in the atmosphere or even slow it significantly. However, this round will set the stage for future negotiations over steps by both developed and developing countries, and will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted.

C. Clinton Administration Policies To Date

The Clinton administration has been active on this issue since Earth Day 1993, at which time you pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, designed to achieve that goal. Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected energy prices, however, this goal will not be achieved.

You have spoken to this issue on many occasions. In May 1997, in Costa Rica, you said "we must meet the challenge of climate change"; in April 1997, before departing for North Dakota, you discussed possible links between extreme weather events and greenhouse gas emissions; in your 1997 State of the Union, you called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate"; in December 1996, in Australia, you said "we must work to reduce harmful greenhouse gas emissions...If they continue unabated, the consequences will be nothing short of devastating the children here in this audience and their children."

The Administration has strongly supported research and development programs with significant climate change benefits. Examples include the Partnership for a New Generation of Vehicles (a $280 million program), the Global Change Research Program ($1.8 billion) and renewable energy and energy efficiency programs ($1 billion).

The United States has been an active participant in the international climate change negotiations, as described below.

D. International Negotiating Context

There is international agreement that the climate change problem is significant and requires action. There is also consensus that the existing UN Framework Convention on

Climate Change, signed in Rio in 1992, is inadequate. Under the Convention, developed countries set a goal of reducing greenhouse gas emissions to 1990 levels by the year 2000, but few will do so. The Convention contains no goal beyond the year 2000.

In April 1995, in Berlin, the Parties to the Convention agreed to negotiate next steps for the post-2000 period. Under the terms of the "Berlin Mandate, " developed nations would agree to quantified emissions limits over specified time frames (e.g., 2005, 2010 and 2020) by December 1997. Developing nations (who typically have less stringent obligations than developed nations in environmental treaties) agreed to reaffirm their existing commitments, and continue to advance implementation of these commitments in this round of negotiations.

In July 1996, the U.S. called for an approach that would include three key elements: (1) a binding target (instead of the existing Convention's non-binding goal), (2) flexibility in implementation (for example, through emissions trading among developed nations and "joint implementation" with developing nations), and (3) the participation of developing countries. The U.S. proposal did not include any particular target or timetable.

Support for most aspects of the U.S. proposal has been quite limited. Some aspects have encountered stiff opposition. Few countries have supported the US call for more active developing country participation under the Convention. Developing countries, in particular, have argued heatedly that the developed world is responsible for the buildup of greenhouse gases in the atmosphere and must take the lead in addressing the problem. Support for "joint implementation" has also been limited. Such a mechanism could significantly reduce overall costs to the U.S., but involve substantial international payments or transfer of technology by the private sector.

Views of other countries vary considerably. The European Union has proposed that developed nations cut back emissions 10-15% from 1990 levels by 2010 (and an as-yet unspecified amount by 2005). Small island nations have proposed that developed nations reduce emissions by 20% from 1990 levels by 2005. Other nations, including Australia, Japan and Canada, have expressed concerns about moving too far too fast, but have not put forward any specific targets.

E. Constituency Views.

At present, public attention to climate change is low. Although polling data indicate that the public believes climate change is a serious problem, few rank it high on a list of concerns. Public and media attention to the issue will likely grow as the Kyoto Conference approaches.

For many environmental groups, strong action on climate change is a litmus test for the administration's environmental policy. They plan public relations campaigns on the issue in the year ahead. Many environmental groups are calling for sharp emissions cuts early in the next century (e.g., 20% below 1990 levels by 2005). On the issue of emissions trading

and joint implementation, the environmental community is divided, with some groups (e.g., Environmental Defense Fund) strongly supportive and others (e.g., Sierra Club) strongly opposed. Most environmental groups will support flexibility provisions if coupled with emissions reductions below 1990 levels.

Business is composed of several camps. The largest --made up of coal companies, coal-dependent utilities, fuel producers, heavy industry and transporters --is strongly opposed to any action at Kyoto. This group is well-funded and poised for a significant public relations campaign. A second group --made up of chemical companies, natural gas interests, some appliance manufacturers and others --is cautiously supportive of action at Kyoto. A smaller third group --composed of natural gas, renewable energy and energy efficiency companies --strongly supports aggressive climate change policies. Many businesses point to international competitiveness as a primary concern. In a major speech recently, the CEO of BP broke ranks with other oil companies and said "it would be unwise and potentially dangerous" to ignore mounting evidence of climate change.

Earlier this year, more than 2000 economists (including six Nobel Laureates) signed a letter stating that "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." Recently, several dozen scientists sent the President a letter warning of the consequences of rapid climate change and urging us to limit change to the "lowest rate feasible."

Agriculture groups are only beginning to pay attention to this issue. They have been concerned about extreme weather, but also worried that climate change mitigation policies could lead to rising fuel costs and competitive disadvantage with developing countries. The U.S. insurance industry is also beginning to pay attention, especially the reinsurers (who have lobbied Congress for more money for climate change research).

Labor is increasingly opposed to action on climate change, largely in deference to the concerns of the United Mine Workers. An AFL-CIO resolution earlier this year was critical of the administration's climate change policy. Some unions --including the UAW, the Steelworkers, the Oil, Chemical and Atomic Workers, the AFT and the NEA --have taken more moderate views in the past.

Finally, the religious community is increasingly engaged on this issue. The National Council of Churches has collected more than 100,000 signatures in the past few months on a petition urging action on this issue.

F. Congressional Considerations

There is considerable skepticism about climate change on Capitol Hill. Most Republicans, and many Democrats, appear far more concerned about the costs of mitigation than the problem itself. Southern and western Republicans are, by and large, skeptical or hostile to action on climate change. Midwestern Democrats have expressed concern about

the impacts of climate change policies on coal and heavy manufacturing (especially autos). Northeast and West Coast Members are perhaps the most likely to support action on this issue.

Many Members cite the unwillingness of developing countries to accept quantitative emissions limits as a major concern. Increasingly, Members are complaining about a lack of openness in our decision-making process. Many are urging the administration to make key aspects of our policy and analysis known in the very near future.

"Advice and consent" of the Senate will be required for any agreement reached in Kyoto.

Implementing legislation will likely be needed as well. Favorable votes in the 105th Congress, or even the 106th, would be an enormous challenge. Ratification might need to await work on matters (e.g., joint implementation, developing country commitments) unlikely to be resolved in Kyoto.

G. Domestic Implementation

An Assistant Secretary-level working group has recommended a domestic climate change policy with three parts: domestic emissions trading programs, technology programs, and transition assistance programs. Details of these programs could be developed in consultation with constituencies in the months ahead.

i. Emissions Trading Programs Under domestic emissions trading programs, permits representing rights to emit greenhouse gases in the United States would be distributed, either through an auction or allocation system. Permits would be tradeable. Firms would have an incentive to control emissions where costs are low and sell reductions to firms facing higher control costs.

Domestic emissions trading programs are an attractive policy tool. Compared to traditional "command-and-control" regulatory approaches, they offer greater flexibility and lower costs. Such programs are being used successfully in several areas under the U.S. Clean Air Act.

Among the important issues to be addressed in designing a domestic emissions trading program are:

- Where the constraint is imposed. A "primary fuel" trading program would limit the production or import of fossil fuels. A "sectoral" trading program would limit emissions from one or more key sectors (e.g., utilities, transport and heavy manufacturing).

- How permits are distributed. Permits could be given to existing emitters, given to others (who could then sell them back to current emitters), auctioned, or some combination of the foregoing. If permits are auctioned, substantial revenues would

be raised. (Options for using these revenues include tax cuts, deficit reduction and support for transitional or technology programs). If permits are given away, recipients would potentially receive a windfall.

ii. Technology Programs. The cost of reducing greenhouse gas emissions between now and 2020 depends greatly on the ability to accelerate use of existing energy-efficient technologies. Over the longer-term, the solution to the climate change problem depends on developing and deploying new technologies that are even more efficient and/or based on non-carbon energy sources.

A range of government programs might help accelerate technological change. Information dissemination programs assist businesses and consumers in identifying opportunities to reduce the energy intensity of their products or services (e.g., using more energy efficient light bulbs, insulation, appliances, etc.). In addition, research and development programs generally aim to improve technologies by lowering production and operating costs. Large opportunities for cost-lowering research and development exist in buildings, transportation, combustion, renewables and sequestration (e.g., fuel cells, advanced industrial turbines, advanced diesel engines, and transportation biofuels). However, generating significant increases in budget support for technology programs will be challenging.

iii. Transition Assistance Programs. Under any of the policy options being considered, some workers and communities may be adversely affected. Workers in energy-intensive industries and those in energy extraction may be most likely to be hurt. Given the geographic isolation of some of these industries, the surrounding communities may also be adversely affected.

A transition program would reduce costs to individuals and communities. Transition assistance can help facilitate community and worker adjustments via retraining, job search assistance, and infrastructure development for new business in the community. As previous experience with acid rain, military base closures, and the federal government's own work force restructuring has demonstrated, the early development of such programs can be vital to building public support for a policy.

Among the important issues to address in designing a transition program are:

- Whether a new, categorical program should be designed or existing programs expanded. A new, categorical program would limit benefits to targeted workers and communities but allow for flexibility in benefit levels. Expansion of current programs to allow for increased usage is consistent with Administration program consolidation efforts but constrains program design flexibility.

- How the program will interact with the other components of climate change policy. Permit auctions could provide an important revenue source for these programs. Permit allocations could be used to "fund" transition assistance.

APPENDIX E
CLIMATE CHANGE:
THE PRESIDENT ENGAGES THE AMERICAN PUBLIC

Overall Goal: Show the American public that President Clinton is determined to combat climate change in a way that deserves broad support.

Overall Strategy: A Three Pronged Approach

A. President's Vision Set Forth at UNGA Special Session
B. Build Public Awareness Through POTUS and VPOTUS Events
C. Outreach to Policy Community

Implementing the Strategy:

A. President's Remarks at UNGA Special Session: Intensive Engagement to Chart Path Forward

Goal: Set President's vision for approaching climate change and begin drawing business, labor and environmentalists into a cooperative process on how best to move forward.

B. Build Public Awareness Through POTUS and VPOTUS Events

Goal: Elevate public understanding of the importance of changing climate and build support for national policy priorities developed cooperatively through an open dialogue with the range of affected constituencies.

Strategy:

i. **Presidential Events:**
   a. 3 radio addresses by end of September (first possibly on June 23)
   b. Message-of-the-day events; for example:
      - Kick-off of Million Solar Rooftops (Virginia PV plant or sites in SW/West Coast)
      - Visit Chicago's Board of Trade SO_2 Trading Center
      - Visit a GLOBE school site
      - Visit the Denver Clean Car Exhibit at G-8
      - Visit New York Harbor to highlight sea level rise issues
      - Visit National Park where fragile ecosystems are threatened.

ii. **Vice Presidential Events:**

a. Site visits to technology demonstration projects (e.g. biomass or wind demonstrations in Iowa or Minnesota)

b. Announce a New Clean Cities participant (Houston, Phoenix, New York City)

c. Partnership for Advanced Housing Technology (new development at Stapleton Airport in Denver or southern California/Florida in disaster vulnerable areas)

d. Visit a Federal facility participating in the Federal Energy Management Program

iii. **Regional and National Workshops**: Conduct three regional conferences leading to a White House Conference. Three to five cabinet members and senior White House staff would participate in each. Conferences conducted in roundtable format, chaired by senior Cabinet members. Each would begin with key presentations, followed by open dialogue. Open to press and encourage live C-Span coverage. Conduct press backgrounders before and after. Involve regional corporate CEO's, academics, environmental & labor leaders, governors, other state & local leaders, religious leaders and members of Congress. All conferences would be comprehensive, but each would have a special focus, tailored to region.

Locations:

- East: New Orleans, Charleston, Miami, or the New Jersey shore. Highlight: Coastal storms damage, infectious disease risk and forest system impacts in southern and eastern states.

- Mid: Columbus, Detroit, Chicago, or Indianapolis. Highlight: Agriculture shifts, coal community impacts, heavy manufacturing impacts and opportunities.

- West: Sacramento, Phoenix, Portland, Seattle or San Francisco. Highlight: Water resource conflicts, public lands impacts, technology response opportunities.

- National: White House/DC, Baltimore, Richmond, New York. Highlight: Comprehensive integration of concerns into a need and pathway for action.

C. Outreach to the Policy Community

Goal: Engage policy community (CEOs and Congress in particular) in design of policies that comprehensively address climate change mitigation and that garner their support.

Strategy:

i. President and VP should each reserve 10 - 12 slots for climate orientation briefings and meetings with industry leaders between now and Labor Day. Cabinet members should be given key responsibilities for particular sectors/industries. Should schedule in close coordination with National Dialogue meetings. Also encourage Cabinet members to host at least one public meeting and make a major speech.

   a. Examples for President: meeting with Nobel laureates, meeting with religious leaders, meet with Congressional leaders to stress environmental imperative.

   b. Examples for Vice President: Dinner with Congressional leaders; Lead a Congressional visit with scientific leaders to the Smithsonian's climate change exhibit.

ii. **Industry Roundtables:** Series of CEO meetings with POTUS, VP, Cabinet members & other senior staff. Offer our policy inclinations, get feedback and ask for their ideas on what's missing. Examples:

   a. Invite Norm Augustine, CEO of Lockhead Martin, to bring 10-15 CEOs of major environmental technology firms for meeting.

   b. Invite John Browne, CEO of BP, to bring 10-15 oil/gas CEOs for meeting.

   c. Invite R. Linn Draper, CEO of AEP, to bring 10-15 moderate electric utility CEOs for meeting.

   d. Invite Ken Lay, CEO of Enron, and Dennis Bakke, CEO of AES, to bring 10-15 independent power developers for meeting.

   e. Invite Michael Bonsignore, CEO of Honeywell, to bring 10-15 energy efficiency technology firms for meeting.

   f. Invite 10-15 renewable energy CEOs for meeting.

iii. Disseminate broadly the results of the review by the President's Advisors on Science and Technology (PCAST). The PCAST has been challenged to produce an energy strategy that will meet the "energy and environment needs of the next century" by October.

iv. Open meeting with the Washington, D.C., policy community on peer-reviewed economic analysis and other information to be used in the regional conferences.

Notional Schedule:

June 24-7:	OSTP South East Regional Workshop (Vanderbilt) -*scheduled*
June 25:	VP Attends OSTP Impacts Workshop (Nashville) -*scheduled*
June 26:	President Speaks at UNA Special Session -*scheduled*
June 27:	President meets with CEO's of Big 3 automakers -*scheduled*
June 28:	First Presidential radio address to speak to climate change, perhaps with discussion of transportation sector (mtg. with Big 3 on 6/27), including the results of SunRayce 97 (pv powered car race) -*TBD*
June/July:	VP hosts Congressional Dinner -*TBD*
Early July:	Public Release of Economic Analysis -*TBD*
Early July:	Cabinet Orientation -*TBD*
July 14-16:	OSTP North West Regional Workshop (Seattle) -*scheduled*
July/August:	Industry Roundtables with President, Vice President, Cabinet and industry leaders -*TBD*
Late July:	Eastern Regional Meeting -*TBD*
Mid August:	Mid Regional Meeting -*TBD*
Late August:	Western Regional Meeting -*TBD*
Late September:	White House National Conference -*TBD*
September:	President's Remarks to UNA -*TBD*
September 3-5:	OSTP New England Regional Meeting (U of NH) -*scheduled*
Nov. 10-12:	OSTP National Impacts Workshop at NAS -*scheduled*
October:	PCAST strategy due

serious effects in the earlier years. Thus, emissions control policies impose significant short term economic costs in order to achieve distant (though potentially enormous) environmental benefits.

In the view of some of your advisers, there is strong evidence that total costs could be lowered significantly if policies were put in place to emphasize investment in productivity-enhancing technologies. A number of economic advisors believe that this use has not been established. Some of the technologies envisioned would not have a major impact by 2010, but could have significant impact in the decade that follows. An expanded program of research and policies encouraging innovation could have low costs and achieve broad political support.

The politics of this issue are difficult, at best. For many environmental groups, strong action on climate change is a litmus test of your environmental policy. If you fail to speak decisively on this issue at the Summit or the UN General Assembly Special Session, their criticism will be intense. European leaders such as Blair and Kohl will probably be both ambitious in their proposals and critical of our lack of specifics. On the other hand, much of the business community is strongly opposed to action that would significantly reduce greenhouse gas emissions. Fossil fuel and heavy manufacturing companies are poised to attack any policies that might be supported by environmental groups. Organized labor is increasingly opposed to strong actions, as well, largely in deference to the concerns of the United Mine Workers. Farmers are likely to oppose any policies that would increase energy prices. Southern and western Republicans in Congress are very skeptical about policies to constrain greenhouse gas emissions, as are Midwestern and coal state Democrats. Indeed, Senator Byrd currently has 45 signatures on a resolution requiring developing country obligations before U.S. agreement in Kyoto.

III. Recommendation

Your advisers believe it is necessary to undertake a serious educational effort to convince the American public that climate change is an important long-term issue that requires the United States to institute policy changes. Such an effort should be an interactive process, with you and your Cabinet members taking lead roles in listening to the public, elected officials, and interest groups, and then fashioning an appropriate policy response. Your advisers believe that such a process is necessary to develop a workable political consensus in the country for an effective climate change policy. If this consensus is not achieved, it will be virtually impossible to have an international climate change treaty limiting domestic greenhouse gas emissions ratified by the Senate in the foreseeable future.

Your advisers recommend that you address climate change at both the Denver Summit and the UN General Assembly Special Session. At Denver, as you have done in the past, you should discuss the subject in strong terms, noting that the science is quite clear on the scope of the climate change problem. You also should note that there are extensive differences in the various proposals made to begin the process of achieving a solution. You can sketch out the importance of creating a long-lasting framework for implementing worldwide climate change policies, because this is an issue of vast scope (covering many decades and all the countries on the earth). And you can call on the Eight to work together to ensure that the treaty negotiated at Kyoto is acceptable to all members.

develop the political and public consensus required to undertake any meaningful policy action on climate change. The alternative set of actions (making statements in the next few weeks supporting emissions constraints perceived as strong) would lead to harsh and lasting criticism from business and labor, in the opinion of your advisers. The resulting public and Congressional reaction could be so severely negative that you might be unable to take any significant policy steps on climate change. Moreover, criticism from these sources also could place other policy initiatives (environmental and others) in jeopardy.

Several appendices provide additional information. Appendix A lists five options identified to the Cabinet recently for statements by the President on climate change. Material analyzing the projected environmental impacts of these options is attached as Appendix B. Material summarizing the projected economic impacts of Options 1, 2, 3 and 4 are presented in Appendix C. Additional background material on climate change (including a discussion of domestic policy options) is attached as Appendix D. Finally, Appendix E sets forth possible elements of a strategy for you to engage the American public on this issue in the weeks and months ahead.

IV. Decision

That you approve the course outlined above.

_____ Approve _____ Disapprove _____ Discuss

DRAFT

Document No. _____

WHITE HOUSE STAFFING MEMORANDUM

DATE: 6-17 ACTION/CONCURRENCE/COMMENT DUE BY: 6-~~17~~ 18 9AM

SUBJECT: REVISED CLIMATE CHANGE MEMO

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☑	☐	McCURRY	☐	☐
BOWLES	☑	☐	McGINTY	☐	☐
McLARTY	☐	☐	NASH	☐	☐
PODESTA	☑	☐	RUFF	☐	☐
MATHEWS	☐	☐	SMITH	☐	☐
RAINES	☐	☐	REED	☐	☐
BAER	☑	☐	SOSNIK	☐	☐
ECHAVESTE	☐	☐	LEWIS	☐	☐
EMANUEL	☐	☐	YELLEN →	☑	☐
GIBBONS	☑	☐	STREETT	☐	☐
IBARRA	☐	☐	SPERLING	☑	☐
RADD	☑	☐	TARULLO	☐	☐
HIGGINS	☐	☐	VERVEER	☐	☐
HILLEY	☐	☐	_____	☐	☐
KLAIN	☑	☐	_____	☐	☐
BERGER	☑	☐	_____	☐	☐
LINDSEY	☐	☐	_____	☐	☐

REMARKS: Please let me know if you have comments

RESPONSE:

Staff Secretary
Ext. 6-2702

June 17, 1997

MEMORANDUM FOR THE PRESIDENT

FROM: KATHLEEN A. McGINTY
DANIEL K. TARULLO

SUBJECT: UPCOMING INTERNATIONAL EVENTS AND CLIMATE CHANGE

I. Action-Forcing Event

Over the next few weeks, you will have two high-profile events that focus attention on U.S. climate change policies: the Denver Summit of the Eight (June 20-22) and the United Nations General Assembly Special Session on Environment and Development (you are speaking on June 26). To date, the United States has called for binding emissions targets, flexibility in meeting those targets and the participation of all countries under the climate treaty, but has not signaled which specific emissions levels would be acceptable. Negotiations are set to conclude this December in Kyoto. Other countries and domestic constituencies are calling on the U.S. views to state its views.

Your advisers are evaluating the specifics of a U.S. negotiating position, with some differences among them. However, there is a consensus that, even at the cost of significant criticism from other countries and environmental groups, it would be imprudent to take a specific position on emissions levels in the upcoming events. Instead, you should make a strong statement about the need to address the problem of climate change and begin an intense process of personally communicating with the American public on this issue.

II. Background

Climate change may be the most significant economic and environmental policy issue to be addressed in the second term. There is now scientific consensus that human activities (primarily the burning of fossil fuels) are having a discernible influence on the global climate and that "climate change is likely to have wide-ranging and mostly adverse impacts on human health". The implication is that greenhouse gas concentrations must be held to responsible levels in the long term to avoid dire consequences. Greenhouse gas concentrations are at now their highest levels in 200,000 years and, absent policy interventions, concentrations at the end of the next century are predicted to be at a 50 million year high. Impacts

are predicted to include higher temperatures (global average temperatures are predicted to increase 2-6.5 degrees F. by 2100), sea level rise (threatening low-lying areas), spread of infectious diseases, and more highly variable weather (with increased frequency of severe weather events such as droughts and floods).

The U.S. is the world's largest emitter of greenhouse gases, with roughly 25% of the world's total. Domestic greenhouse gas emissions have been growing by a bit over 1 percent per year, so that today's emissions are about 10 percent higher than in 1990. In many developing countries, emissions growth rates are higher, but per capita and overall emissions levels are lower. The developed countries are responsible for much of the accumulation of greenhouse gases in the atmosphere and currently are the largest emitters. By 2020-2040, however, the developing countries will surpass the developed countries in terms of emitting greenhouse gases. Since global climate is affected by greenhouse gases concentrations in the atmosphere, and since the efforts by any one country to reduce its emissions cannot have much of an effect on global concentrations, a sensible approach would call on all countries to play a role. The U.S. has urged developing countries to accept significant obligations (short of quantitative emissions targets) in the international treaty negotiations. To date, there has been little international support for the U.S. position on developing countries.

In general, market-based policies are believed to be the most efficient means to reduce greenhouse gas emissions, because these policies promote flexibility and minimize economic costs. The U.S. has urged that the climate change treaty promote maximum domestic flexibility in all countries, establish a system where countries with quantitative emissions targets can trade emissions rights, and establish a system of joint implementation, where developed and developing countries can undertake joint efforts to reduce emissions wherever the cost is lower.

When faced with a specific set of choices for the U.S. position on emissions levels under the climate treaty, most of your Cabinet supported "stabilizing emissions in the medium term." (In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020). Many of the agencies and offices represented conditioned their support on success in achieving other elements of the U.S. negotiating position (e.g., international emissions trading, participation of developing countries).

In the view of many members of your Cabinet, calling for emissions to be stabilized at 1990 levels in the medium term and emphasizing the importance of other elements of the U.S. position would allow you to take the high ground. You could commit the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement. This would provide flexibility

I. BACKGROUND

Climate change is an issue of vast scale. Decisions on the issue posed in this memorandum could have significant environmental, economic and political consequences.

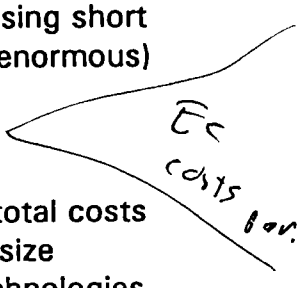
The build-up of greenhouse gases in the atmosphere threatens fundamentally to alter the Earth's climate. Currently, greenhouse gas concentrations are at their highest level in more than 200,000 years. (See Appendix A). Absent policy interventions, concentrations by the end of the next century will reach the highest level in more than *50 million* years. Impacts are predicted to include sea level rise, the spread of infectious disease, more frequent and severe droughts and floods, loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century will increase 2-6.5 degrees F., sea-level rise will inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable) and an additional 50-80 million people will contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity).

The cost of reducing greenhouse gas emissions is potentially substantial. The principal source of such emissions is the burning of fossil fuels, which powers the global economy. Meeting the emissions targets proposed by the European Union, for example, is predicted to reduce U.S. GDP in 2005 by 0.1-1.0%, increase gasoline prices in 2010 by 20-25 cents per gallon and increase coal prices in 2010 by almost 180%. Without a well-functioning system of international emissions trading, these figures would roughly double. Private capital outflows associated with an international emissions trading regime are predicted to be roughly $5 billion per year. Significantly, modeling indicates that economic losses from some policies are transitory: after an initial loss, the economy rebounds and catches up to its original growth path. Costs depend significantly on rates of technological innovation.

The Clinton administration has been active on this issue since Earth Day 1993, at which time the President pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, made up of several dozen mostly voluntary programs, designed to meet that goal. (Due to Congressional budget cuts and other factors, the goal will be missed by a wide margin). U.S. negotiators have shaped the international climate change negotiations by calling for binding emissions targets, "flexibility" provisions (such as international emissions trading and joint implementation) that would significantly lower costs of meeting those targets, and the participation of developing countries. The President has spoken to this issue several times in the past year, including in the 1997 State of the Union, where he called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate."

for future development of our position and, given the likely difficulty in convincing developing countries to participate more fully under the climate treaty, also offer a principled basis for walking away from an agreement in Kyoto should we decide it is in our interest to do so.

However, as several of your economic advisers noted, even the seemingly moderate goal of returning emissions levels to 1990 levels by 2010 could entail economic policy interventions greater than any we have undertaken during your Presidency. Even with the kind of flexibility components proposed by the United States, market-based policies designed to reduce greenhouse gas emissions significantly are likely to raise domestic fuel prices by significant amounts and to have particularly adverse effects on the coal industry. The likely result is a reduced level of economic activity, at least in the first few years after implementation. Thus, emissions control policies have the unfortunate effect of imposing short term economic costs in order to achieve distant (though potentially enormous) environmental benefits.



In the view of some of your advisers, there is strong evidence that total costs could be lowered significantly if policies were put in place to emphasize investment in productivity-enhancing technologies. Some of the technologies envisioned would not have a major impact by 2010, but could have significant impact in the decade that follows. An expanded program of research and policies encouraging innovation could have low costs and achieve broad political support.

The politics of this issue are difficult, at best. For many environmental groups, strong action on climate change is a litmus test of your environmental policy. If you fail to speak decisively on this issue at the Summit or the UN General Assembly Special Session, their criticism will be intense. European leaders such as Blair and Kohl will probably be both ambitious in their proposals and critical of our lack of specifics. On the other hand, much of the business community is strongly opposed to action that would significantly reduce greenhouse gas emissions. Fossil fuel and heavy manufacturing companies are poised to attack any policies that might be supported by environmental groups. Organized labor is increasingly opposed to strong actions, as well, largely in deference to the concerns of the United Mine Workers. Farmers are likely to oppose any policies that would increase energy prices. Southern and western Republicans in Congress are very skeptical about policies to constrain greenhouse gas emissions, as are Midwestern and coal state Democrats. Indeed, Senator Byrd currently has 45 signatures on a resolution requiring developing country obligations before U.S. agreement in Kyoto.

Developed countries are responsible for more than 75% of the increase in greenhouse gas concentrations since the beginning of the Industrial Revolution. In the decades ahead, however, emissions from developing countries are expected to grow sharply. By 2035, developing country emissions are expected to exceed those from the developed world.

The United States emits more greenhouse gases than any nation in the world (roughly 25% of the world's total). Our per capita emissions are among the world's highest -- roughly 50% greater than the OECD average and eight times that of China. In the United States, greenhouse gas emissions come mainly from industry (1/3), transport (1/3) and buildings (1/3). Since 1990, U.S. greenhouse gas emissions have grown 7-8%. Without policy interventions, U.S. emissions are projected to grow 20-25% over 1990 levels by 2010.

None of the actions contemplated during this round of negotiations will, by themselves, reverse the build-up of greenhouse gases in the atmosphere or even slow it significantly. However, this round will set the stage for future negotiations over steps by both developed and developing countries, and will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted.

C. Clinton Administration Policies To Date

The Clinton administration has been active on this issue since Earth Day 1993, at which time the President pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, designed to achieve that goal. Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected energy prices, however, this goal will not be achieved.

The administration has strongly supported research and development programs with significant climate change benefits. Examples include the Partnership for a New Generation of Vehicles (a $280 million program), the Global Change Research Program ($1.8 billion) and renewable energy and energy efficiency programs ($1 billion).

The United States has been an active participant in the international climate change negotiations, as described below.

D. International Negotiating Context

There is international agreement that the climate change problem is significant and requires action. There is also consensus that the existing UN Framework Convention on Climate Change, signed in Rio in 1992, is inadequate. Under the Convention, developed countries set a goal of reducing greenhouse gas emissions to 1990 levels by the year 2000, but few will do so.

Developed countries are responsible for more than 75% of the increase in greenhouse gas concentrations since the beginning of the Industrial Revolution. In the decades ahead, however, emissions from developing countries are expected to grow sharply. By 2035, developing country emissions are expected to exceed those from the developed world.

The United States emits more greenhouse gases than any nation in the world (roughly 25% of the world's total). Our per capita emissions are among the world's highest -- roughly 50% greater than the OECD average and eight times that of China. In the United States, greenhouse gas emissions come mainly from industry (1/3), transport (1/3) and buildings (1/3). Since 1990, U.S. greenhouse gas emissions have grown 7-8%. Without policy interventions, U.S. emissions are projected to grow 20-25% over 1990 levels by 2010.

None of the actions contemplated during this round of negotiations will, by themselves, reverse the build-up of greenhouse gases in the atmosphere or even slow it significantly. However, this round will set the stage for future negotiations over steps by both developed and developing countries, and will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted.

C. Clinton Administration Policies To Date

The Clinton administration has been active on this issue since Earth Day 1993, at which time the President pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, designed to achieve that goal. Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected energy prices, however, this goal will not be achieved.

The administration has strongly supported research and development programs with significant climate change benefits. Examples include the Partnership for a New Generation of Vehicles (a $280 million program), the Global Change Research Program ($1.8 billion) and renewable energy and energy efficiency programs ($1 billion).

The United States has been an active participant in the international climate change negotiations, as described below.

D. International Negotiating Context

There is international agreement that the climate change problem is significant and requires action. There is also consensus that the existing UN Framework Convention on Climate Change, signed in Rio in 1992, is inadequate. Under the Convention, developed countries set a goal of reducing greenhouse gas emissions to 1990 levels by the year 2000, but few will do so.

Of

9 June 1997

Memo to David Sandalow

From: Alicia Munnell
Jeff Frankel

RE: POTUS memo on climate change

Thanks you for the opportunity to comment on the decision memo before it goes to the principals for review. We are very concerned with the memo as drafted, and cannot sign off without some significant changes that will make it more useful for the President and Vice-President. Our comments fall into four categories.

Although we might understand how you got there,

1. **The CEA Position Mischaracterized.** The CEA position is described incorrectly in the current draft. CEA believes that Option 2 is an expensive option--more expensive than portrayed in the accompanying tables--and not consistent with an optimal path that maximizes the benefit-cost ratio as recommended by most economists. Nevertheless, we believe that global climate change is a potentially significant problem that can be solved only by the participation of both developed and developing countries. For this reason, we would be willing to go beyond what most economists recommend as an optimal path for efficient emission reduction if, and only if, we could secure (a) LDC commitment to "evolution," that is, eventual accession to emission limits similar to the Annex I countries; and (b) a flexible international trading system. We would like this reasoning spelled out in the discussion of Option 2 in the memo.

Second, our view of unilateral action should be stated as follows:

"If no agreement is reached in Kyoto, the CEA believes that the US should consider taking smaller unilateral actions to show good faith internationally, to start educating the American people, and to begin creating the incentives for energy-efficient investments."

2. Economic impacts of emission restraints understated. The tables presented in Appendix C show the most optimistic plausible outcomes from the alternative emission restraints. As such, they should be included. But to give a fairer sense of the possible economic impacts, the memo also should also include a second set of tables that assume (1) a lower rate of autonomous technological change (as suggested by the majority of the outside reviewers); and (2) a less optimal recycling of the domestic permit revenue such as reducing the personal income tax. In addition, all tables should include the decline in consumption as well as the decline in GDP.

still

3. Option 3 not well-developed. If the President and Vice-President do not want to sign on to a program with the enormous economic and political implications of Option 2, they need to have a viable alternative. As presented, Option 3 does not satisfy that criteria. Characterizing Option 3

as calling for "emission levels peaking in ~2020 at 2010, returning to 1990 levels in the longer term, and declining thereafter" would be more consistent with the international agenda. It would also be useful to spell out the benefits of such a proposal--namely, that its provisions are more likely to be adopted domestically [by U.S. Senate?] than those of the more ambitious plan. and that phasing in new capital gradually, as old energy-efficient capital wears out, is far more efficient than the more rapid option

4. The pros and cons of the options are not clearly spelled out. Each option should have a list of the three or four strongest arguments for and against. These should be more substantive than "take the high ground," or "would equate your performance...with George Bush's...." For example, suggested pros and cons for Option 2 would be as follows:

Pros

- Would allow the United States to show leadership on global climate change
- Would increase the likelihood of reaching agreement at Kyoto.
- Would produce substantial collateral benefits such reductions in ozone and PM.
- Coupled with demands for developing country provisions and flexibility, provides a principled way of negotiating internationally.

If adopted [or "if successful"],

Cons

- Would dramatically alter the Nation's fiscal structure, raising $100-200 billion per year if emission permits were auctioned.
- Would raise the price of gasoline by as much as 40 cents per gallon; would as much as quadruple the price of coal from $28/ton to $113/ ton.
- Would reduce GDP by as much as 0.6 percent in 2010, and consumption by as much as y percent.
- Would have enormous regional and industry impacts.

Finally, we have attached some detailed editorial comments.

~~As we said at the beginning,~~ we view the four points discussed above as being so serious that they preclude sending the memo even to the principals until the issues have been addressed.

I option 4 only?

DRAFT

APPENDIX A
POSSIBLE OPTIONS FOR DIRECTIONAL STATEMENTS

Last week, we identified several options for principals concerning the U.S. position on emissions levels in the international climate change negotiations. Each option was defined in terms of a broad directional statement and further described by a particular combination of emissions levels and timing, to help clarify the consequences of the directional statement.

You should note that in the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020.

The five options we identified are:

Option 1: Call for "significantly reducing emissions in the medium term."

Such a statement would be interpreted to be consistent with the E.U. proposal (a 10-15% cut from 1990 emissions levels by 2010).

Pros:

- Environmental benefits could be large. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Many environmental groups would be pleased.

Cons:

- Could impose very large costs on the U.S. economy. Although these effects might ultimately be offset, GDP in 2005 could be reduced by 0.1-1.0% (with international emissions trading) and 0.1-2.0% (without). The price of gasoline could rise by 20-25 cents per gallon (with international emissions trading) to 35-50 cents (without).
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $110 billion (with international trading) to $270 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues).
- Business and labor would be very strongly opposed.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be close to zero.

Option 2: Call for "stabilizing emissions in the medium term and reducing thereafter." Emphasize that flexibility and the participation of all nations (including developing countries) are essential to addressing this problem.

This option is consistent with stabilizing emissions at 1990 levels by 2010 (though, as noted, "medium term" is interpreted as being between 2005 and 2020).

Pros:

- Allows you to take the high ground: committing the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement.
- Provides considerable flexibility for future development of our position. This option is consistent with stabilizing emissions at 1990 levels anywhere between 2005 and 2020.
- Environmental benefits (both climate and non-climate) could be significant. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Some environmental groups would be pleased; others would complain of lack of U.S. leadership.

Cons:

- Overall economic impacts of this option could be significant. Although these effects might ultimately be offset, GDP in 2010 could be reduced by 0.2-0.6% ($20-60 billion) and consumption by .3-1.0%. The price of gasoline could rise by 10-15 cents (with international emissions trading) or 20-40 cents (without).
- Dislocation in some sectors and regions (especially coal states) could be large and long-lasting.
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $60 billion (with international trading) to $190 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues).
- Most business and labor groups would be opposed, although some might support if the policy were coupled with other features they find attractive.
- Without significant changes in the political landscape, the prospects for ratification by the Senate and passage of implementing legislation in the next several years would be poor.

Option 3: Call for "*beginning* to reduce emissions by 2005 and stabilizing emissions by the end of the medium term, with further reductions thereafter."

This option envisions an international regime that mandates starting emissions reductions earlier than Option 2, but reducing emissions to 1990 levels over a longer period of time. While less constraining than Option 2, the rhetoric used to describe this option (other than the 2005 component) could be substantially identical to the rhetoric for Option 2.

Pros:

- Delaying the most stringent reductions would reduce economic costs, by allowing capital stock to turn over at a natural rate and technology to improve.

- Calling for concrete action before 2010 could be portrayed as more activist. Some agencies (not including the State Department) believe this could enhance our efforts to obtain agreement on international emissions trading and developing country participation.

Cons:

- Would be criticized by environmental community as showing lack of leadership by delaying stabilization.
- Would be criticized by moderate business groups (e.g., chemical companies, some utilities) who strongly oppose any target before the year 2010.
- Would be criticized by more hard-line business groups (fossil fuel producers, heavy manufacturing) and many in organized labor who oppose any action on climate change.
- In the view of the State Department and other agencies, would jeopardize our ability to achieve flexibility provisions (e.g., international emissions trading, joint implementation) and developing country participation in international negotiations.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be poor.

Option 4: Call for "eliminating emissions *growth* in the medium term, on the way to stabilization and eventual reduction of emissions."

For example, emissions would peak in 2010-2020, return to 1990 levels in the longer term (i.e., after 2020) and decline thereafter.

Pros:

- Economic costs would be relatively mild. Some economists would view this emissions path as consistent with one that would balance costs and benefits of climate change policy.
- Opposition in the business and labor communities would be mild.
- There is a chance an option along these lines would be ratified by the U.S. Senate in the next several years without major political changes.

Cons:

- With this option, there is no chance of obtaining international agreement on our "flexibility" or "developing country participation" proposals.
- Criticism from other countries and U.S. environmental groups would be very strong. Environmental groups would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Environmental benefits (both climate and non-climate) would be modest.
- Some economists (especially those who emphasize the environmental benefits of climate change policies) would criticize this option as inadequate.

Option 5: Call for "strong action on climate change" and "agreement in Kyoto." Say that the United States is continuing to study the issue of emissions levels and will elaborate on its position at a later time.

This roughly repeats prior statements by you and other administration officials.

Pros:

- Leaves options open for future decisions.
- Allows additional refinement of economic modeling runs before our position is announced.

Cons:

- Would be strongly criticized by environmental groups, who would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Without more definition of our position on emissions levels soon, our ability to achieve agreement to flexibility and developing country provisions in Kyoto will be seriously impaired.

APPENDIX B
ENVIRONMENTAL IMPACTS OF OPTIONS

1. Climate Change Impacts

Absent policy interventions, atmospheric greenhouse gas concentrations will increase during the next century to levels unknown on this planet for 50 million years. To avoid such extraordinary increases, *global* greenhouse gas emissions must begin to decline from projected levels early in the next century. For *global* emissions to begin to decline in this time frame, developed countries must move quickly to reduce their emissions, setting the stage for future rounds of negotiations.

In the short-term, the difference between the options presented in terms of additional greenhouse gas concentrations in the atmosphere is small. However, institutional and political factors will lead to important differences between these options. Options 3 and 4, for example, are unlikely to lead developing countries to participate meaningfully in the negotiating process. Option 1, on the other hand, may be so stringent that many businesses would simply work to block implementation rather than restructure activities to comply.

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 about 2010. For the world realistically to avoid a near-tripling of greenhouse gas concentrations (750 ppm), *global* emissions must deflect from this "business-as-usual" path by 2020. 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.

2. Other Environmental Impacts

Any of the options discussed here could have considerable environmental benefits unrelated to climate change. Measures to reduce greenhouse gas emissions would also reduce emissions of SOX, NOX and toxic pollutants such as mercury. Such measures would contribute significantly to meeting potential Clean Air Act standards for particulate matter and ozone. According to EPA estimates, monetizable benefits of reducing fine particles and ozone in connection with Option 1 or Option 2 could total tens of billions of dollars per year by 2010.

APPENDIX C
ECONOMIC ANALYSIS

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

Economic models are by nature imprecise, especially when projecting over several decades. The models' limitations are exacerbated by the complex and far-reaching effects of any policy aimed at reducing greenhouse gas emissions. Some agencies believe it is important to stress that similar modeling in the past with respect to SO2 controls under the Clean Air Act dramatically overstated costs, due to unforeseen factors. Nevertheless, models can provide insight into the economic costs and benefits of various policy alternatives.

The "base case" modeling results presented here make the following key assumptions:

- Policy options are implemented by 2010, with a ten-year phase-in period.
- Domestic emissions reductions are achieved by an emissions trading system, where certain entities responsible for greenhouse gas emissions must have a permit, a limited number of permits are sold at auction, and permits may then be traded.
- All revenues raised through the auction process go to reduce the Federal budget deficit (or increase the budget surplus).
- There are no transaction costs nor compliance problems with the domestic emissions trading system.
- Monetary policy acts to offset the effects of reduced economic activity through lower interest rates.
- The path of technological progress over the forecast period has energy use per unit of GDP decreasing more rapidly than observed in most historical periods, consistent with increased emphasis on greenhouse gas emissions and energy efficiency.
- The rest of the economy remains unchanged, which will not occur over the long forecast period used. Unexpected shocks to the economy are likely to have very large effects on the estimates presented.

Results are presented for Options 1 through 4, but the figures associated with Options 3 and 4 should be viewed as illustrative only. These figures were not derived from specific IAT modeling of the emissions constraint policies listed as examples for these Options because the IAT has not examined any policies with emissions budgets for 2020 or later. The figures presented are no more than educated guesses, generated by referring to emissions constraints that were modeled. The IAT has the capability to model emissions policies that have targets for 2020 or later and will do so if policymakers think the effort would be helpful.

Three additional caveats should be noted. First, the base case masks disagreements among agencies over likely rates of technological innovation and diffusion. A faster rate of progress in energy-efficiency and carbon-reducing technologies could reduce estimated economic

costs by as much as one-third relative to the base case estimates. However, a slower rate of technological progress than assumed in the base case would increase economic costs noticeably. Second, to the extent that domestic greenhouse gas constraints are not implemented through an emissions trading regime, but instead through less flexible regulatory programs, economic costs will be greater than those shown. Third, to the extent that the distribution of emission permits does not support increased levels of capital investment compared to the baseline, the long-term economic results will be less favorable than estimated by the models.

2. Results. As noted above, the United States has strongly supported international trading of greenhouse gases. With trading, countries with high abatement costs (e.g., the United States and Western Europe) could purchase emissions reductions in countries with lower abatement costs (e.g., in the former Soviet Union). Incorporating a well-functioning international market in emissions permits in the modeling reduces estimated energy price increases significantly. With international emissions trading, the United States is estimated to pay about $5 billion per year to other developed countries (including those in the former Soviet Union) to purchase permits, avoiding greater expenditures in compliance costs.

Results with international trading

Table 1 presents results from the base case with trading of emissions permits among Annex I nations. The trading takes place among all Annex I nations. (In countries where emissions have fallen below 1990 levels, such as in some parts of the former Soviet Union, trading is assumed to be allowed only to the extent there are corresponding emissions reductions from a "no-policy" baseline). All figures are presented relative to a "no-policy" baseline, in 1995 dollars.

The losses in aggregate economic activity are noticeable, but largely transitory. Table 1 shows GDP loss with international trading peaking at a few tenths of a percentage point in 2005-2010 for the case where emissions are stabilized at 1990 levels by 2010. After this initial loss, the economy begins to rebound as the proceeds from permit auctions reduce the Federal budget deficit (or increase the budget surplus), leading to lower interest rates. Businesses respond by making capital investments to offset higher energy costs. After a while, the economy catches up to its original growth path, indicating that the emissions reduction program modeled is implicitly pro-investment and that the economy is robust enough to withstand modest shocks.

Coal bears the brunt of the emissions reduction policies, because coal is the most greenhouse gas intensive fuel. In general, the least costly way to garner significant emissions reductions is to replace coal in electricity generation and industrial uses.

Results without international trading

If an effective regime for trading international emissions permits is not established, then the estimated energy price increases are nearly doubled, with parallel economic losses. This situation is depicted for the base case in Table 2.

The losses in aggregate economic activity are significant, though again, largely transitory. Table 2 shows GDP loss without international trading peaking around 1 percent in 2005, for stabilizing emissions at 1990 levels in 2010. After this initial loss, the economy begins to rebound as revenue from the domestic permit auctions reduces the Federal budget deficit and lowers interest rates. Businesses respond by making additional capital investments, setting off a mini-"investment boom". By 2015, the economy is estimated (in some models) to regain and even surpass its original growth path. This result indicates that the emissions reduction program as modeled is pro-investment (because reduced personal consumption allows businesses the wherewithal to expand the capital stock).

Technology assumptions

Another possibility for mitigating economic costs is focusing attention and resources on programs that promise to decrease the rate at which the economy produces greenhouse gas emissions. Examples here might include an increased research and development effort or an initiative to more rapidly diffuse the most efficient energy practices through industry. The "hi-tech" set of assumptions added to the base case modeling shows that energy price increases could be reduced by 10-30 percent, by 2010, with larger reductions possible further in the future. Estimated economic costs of the base case policies would be correspondingly reduced.

Environmental benefits

The figures presented here do not reflect the environmental benefits associated with avoiding climate change, nor do they reflect collateral environmental benefits that may result from reduced emissions of greenhouse gases. Policies to reduce greenhouse gas emissions, for example, are likely to reduce emissions of other pollutants, including SOX, NOX, particulate matter and toxic pollutants (e.g., mercury). According to EPA estimates, the monetizable benefits of reducing fine particles and ozone in connection with either Option 1 or Option 2 could total tens of billions of dollars per year.

Economic effects are summarized on the charts below. Note that the figures presented for Options 3 and 4 are not based on actual IAT modeling, since the IAT has not examined any emissions budgets for 2020 or later. The figures for these Options are based on implied increases in carbon prices obtained from other IAT modeling efforts. Thus, the figures presented for Options 3 and 4 should be considered as illustrative only.

Table 1 -- Base Case with OECD Emissions Trading*

Variable of Interest	Option 1 -- 10% below 1990 levels by 2010	Option 2 -- 1990 levels by 2010	Option 3 -- Implied carbon price increase of $20 per ton **	Option 4 -- Implied carbon price increase of $10 per ton **
GDP in 2005	-1.0% to -0.1%	-0.5% to 0.0%	-0.2% to 0.0%	-0.1% to 0.0%
GDP in 2010	about -0.3%	-0.4% to -0.1%	-0.2% to -0.1%	about -0.1%
GDP in 2020	-0.3% to +0.2%	about -0.1%	-0.1% to 0.0%	about 0.0%
Implied price increase per ton of carbon in 2010	about $85	about $50	about $20	about $10
Implied price increase per gallon of gasoline in 2010	about 20-25 cents	about 10-15 cents	about 5 cents	about 2-3 cents
Implied price increase per ton of coal in 2010***	about $50	about $30	about $10-15	about $6
Implied avg. price increase for residential elect. in 2010****	about 1.5 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh	about 0.3 cents per kwh
Decline in total employment in 2010 (national)	about 200,000	about 50,000-250,000	about 50,000-100,000	less than 50,000
Annual value of domestic emission permits (2010)	about $110 billion	about $60-70 billion	about $25-30 billion	about $10-15 billion

* Analysis of Joint Implementation (worldwide emissions trading) would show lower costs and imply greater purchases by the U.S. of emissions reductions abroad.

** *Although figures are presented, obtaining agreement under the climate treaty to an international emissions trading regime would be very unlikely with targets in this range.*

*** Current national average approximately $28/ton

**** Current national average approximately 8 cents/kilowatt hour

Table 2 -- Base Case without OECD Emissions Trading

Variable of Interest	Option 1 -- 10% below 1990 levels by 2010	Option 2 -- 1990 levels by 2010	Option 3 -- Implied carbon price increase of $35-50 per ton	Option 4 -- Implied carbon price increase of $15-25 per ton
GDP in 2005	-2.0% to -0.1%	-1.0% to -0.1%	-0.5% to 0.0%	-0.3% to 0.0%
GDP in 2010	-0.7% to -0.3%	-0.6% to -0.2%	-0.4% to -0.1%	-0.2% to -0.1%
GDP in 2020	-0.3% to +1.0%	-0.6% to +0.2%	about -0.1%	about 0.0%
Implied price increase per ton of carbon in 2010	$130-200	$80-140	$35-50	$15-25
Implied price increase per gallon of gasoline in 2010	35-50 cents	20-40 cents	10-15 cents	5-10 cents
Implied price increase per ton of coal in 2010*	$80-120	$50-85	$20-30	about $10-15
Implied average price increase for residential electricity in 2010**	about 4 cents per kwh	about 1.5-3.0 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh
Decline in total employment in 2010 (national)	about 200,000-500,000	about 150,000-400,000	about 50,000-250,000	about 50,000 - 100,000
Annual value of domestic emission permits (2010)	about $270 billion	about $110-190 billion	about $50-70 billion	about $20-35 billion

* Current national average approximately $28/ton

**Current national average approximately 8 cents/kilowatt hour.

APPENDIX D
ADDITIONAL BACKGROUND

A. Basis for Concern

The build-up of greenhouse gases in the atmosphere threatens fundamentally to 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 more than 10,000 years.

Potential impacts from climate change include sea level rise, the spread of infectious disease, extreme weather events (such as droughts and floods), loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century will increase 2-6.5 degrees F., sea-level rise will inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable), and an additional 50-80 million people will contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity). The international scientific assessment states that "climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life."

Nevertheless, significant uncertainties remain concerning the magnitude, timing and regional distribution of impacts. Currently, scientists are unable to predict changes in short-term weather patterns in particular regions.

Atmospheric concentrations of carbon dioxide (the most important greenhouse gas) are well above historic levels and climbing sharply. Concentrations are currently 360 parts per million (ppm), about 30% above pre-industrial levels and the highest in at least 200,000 years. Absent policy interventions, concentrations in 2100 are predicted to reach roughly 750 ppm, the highest in more than 50 million years.

B. Human Sources of Greenhouse Gases

The principal cause of the buildup in greenhouse gases is the burning of fossil fuels. Other human activities, including deforestation and mining, 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."

Developed countries are responsible for more than 75% of the increase in greenhouse gas concentrations since the beginning of the Industrial Revolution. In the decades ahead, however, emissions from developing countries are expected to grow sharply. By 2035, developing country emissions are expected to exceed those from the developed world.

The United States emits more greenhouse gases than any nation in the world (roughly 25% of the world's total). Our per capita emissions are among the world's highest -- roughly

50% greater than the OECD average and eight times that of China. In the United States, greenhouse gas emissions come mainly from industry (1/3), transport (1/3) and buildings (1/3). Since 1990, U.S. greenhouse gas emissions have grown 7-8%. Without policy interventions, U.S. emissions are projected to grow 20-25% over 1990 levels by 2010.

None of the actions contemplated during this round of negotiations will, by themselves, reverse the build-up of greenhouse gases in the atmosphere or even slow it significantly. However, this round will set the stage for future negotiations over steps by both developed and developing countries, and will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted.

C. Clinton Administration Policies To Date

The Clinton administration has been active on this issue since Earth Day 1993, at which time you pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, designed to achieve that goal. Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected energy prices, however, this goal will not be achieved.

You have spoken to this issue on many occasions. In May 1997, in Costa Rica, you said "we must meet the challenge of climate change"; in April 1997, before departing for North Dakota, you discussed possible links between extreme weather events and greenhouse gas emissions; in your 1997 State of the Union, you called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate"; in December 1996, in Australia, you said "we must work to reduce harmful greenhouse gas emissions...If they continue unabated, the consequences will be nothing short of devastating the children here in this audience and their children."

The Administration has strongly supported research and development programs with significant climate change benefits. Examples include the Partnership for a New Generation of Vehicles (a $280 million program), the Global Change Research Program ($1.8 billion) and renewable energy and energy efficiency programs ($1 billion).

The United States has been an active participant in the international climate change negotiations, as described below.

D. International Negotiating Context

There is international agreement that the climate change problem is significant and requires action. There is also consensus that the existing UN Framework Convention on Climate Change, signed in Rio in 1992, is inadequate. Under the Convention, developed countries set a goal of reducing greenhouse gas emissions to 1990 levels by the year 2000, but few will do so. The Convention contains no goal beyond the year 2000.

In April 1995, in Berlin, the Parties to the Convention agreed to negotiate next steps for the post-2000 period. Under the terms of the "Berlin Mandate, " developed nations would agree to quantified emissions limits over specified time frames (e.g., 2005, 2010 and 2020) by December 1997. Developing nations (who typically have less stringent obligations than developed nations in environmental treaties) agreed to reaffirm their existing commitments, and continue to advance implementation of these commitments in this round of negotiations.

In July 1996, the U.S. called for an approach that would include three key elements: (1) a binding target (instead of the existing Convention's non-binding goal), (2) flexibility in implementation (for example, through emissions trading among developed nations and "joint implementation" with developing nations), and (3) the participation of developing countries. The U.S. proposal did not include any particular target or timetable.

Support for most aspects of the U.S. proposal has been quite limited. Some aspects have encountered stiff opposition. Few countries have supported the US call for more active developing country participation under the Convention. Developing countries, in particular, have argued heatedly that the developed world is responsible for the buildup of greenhouse gases in the atmosphere and must take the lead in addressing the problem. Support for "joint implementation" has also been limited. Such a mechanism could significantly reduce overall costs to the U.S., but involve substantial international payments or transfer of technology by the private sector.

Views of other countries vary considerably. The European Union has proposed that developed nations cut back emissions 10-15% from 1990 levels by 2010 (and an as-yet unspecified amount by 2005). Small island nations have proposed that developed nations reduce emissions by 20% from 1990 levels by 2005. Other nations, including Australia, Japan and Canada, have expressed concerns about moving too far too fast, but have not put forward any specific targets.

E. Constituency Views.

At present, public attention to climate change is low. Although polling data indicate that the public believes climate change is a serious problem, few rank it high on a list of concerns. Public and media attention to the issue will likely grow as the Kyoto Conference approaches.

For many environmental groups, strong action on climate change is a litmus test for the administration's environmental policy. They plan public relations campaigns on the issue in the

year ahead. Many environmental groups are calling for sharp emissions cuts early in the next century (e.g., 20% below 1990 levels by 2005). On the issue of emissions trading and joint implementation, the environmental community is divided, with some groups (e.g., Environmental Defense Fund) strongly supportive and others (e.g., Sierra Club) strongly opposed. Most environmental groups will support flexibility provisions if coupled with emissions reductions below 1990 levels.

Business is composed of several camps. The largest -- made up of coal companies, coal-dependent utilities, fuel producers, heavy industry and transporters -- is strongly opposed to any action at Kyoto. This group is well-funded and poised for a significant public relations campaign. A second group -- made up of chemical companies, natural gas interests, some appliance manufacturers and others -- is cautiously supportive of action at Kyoto. A smaller third group -- composed of natural gas, renewable energy and energy efficiency companies -- strongly supports aggressive climate change policies. Many businesses point to international competitiveness as a primary concern. In a major speech recently, the CEO of BP broke ranks with other oil companies and said "it would be unwise and potentially dangerous" to ignore mounting evidence of climate change.

Earlier this year, more than 2000 economists (including six Nobel Laureates) signed a letter stating that "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." Recently, several dozen scientists sent the President a letter warning of the consequences of rapid climate change and urging us to limit change to the "lowest rate feasible."

Agriculture groups are only beginning to pay attention to this issue. They have been concerned about extreme weather, but also worried that climate change mitigation policies could lead to rising fuel costs and competitive disadvantage with developing countries. The U.S. insurance industry is also beginning to pay attention, especially the reinsurers (who have lobbied Congress for more money for climate change research).

Labor is increasingly opposed to action on climate change, largely in deference to the concerns of the United Mine Workers. An AFL-CIO resolution earlier this year was critical of the administration's climate change policy. Some unions -- including the UAW, the Steelworkers, the Oil, Chemical and Atomic Workers, the AFT and the NEA -- have taken more moderate views in the past.

Finally, the religious community is increasingly engaged on this issue. The National Council of Churches has collected more than 100,000 signatures in the past few months on a petition urging action on this issue.

F. Congressional Considerations

There is considerable skepticism about climate change on Capitol Hill. Most Republicans, and many Democrats, appear far more concerned about the costs of mitigation than the problem itself.

Southern and western Republicans are, by and large, skeptical or hostile to action on climate change. Midwestern Democrats have expressed concern about the impacts of climate change policies on coal and heavy manufacturing (especially autos). Northeast and West Coast Members are perhaps the most likely to support action on this issue.

Many Members cite the unwillingness of developing countries to accept quantitative emissions limits as a major concern. Increasingly, Members are complaining about a lack of openness in our decision-making process. Many are urging the administration to make key aspects of our policy and analysis known in the very near future.

"Advice and consent" of the Senate will be required for any agreement reached in Kyoto. Implementing legislation will likely be needed as well. Favorable votes in the 105th Congress, or even the 106th, would be an enormous challenge. Ratification might need to await work on matters (e.g., joint implementation, developing country commitments) unlikely to be resolved in Kyoto.

G. Domestic Implementation

An Assistant Secretary-level working group has recommended a domestic climate change policy with three parts: domestic emissions trading programs, technology programs, and transition assistance programs. Details of these programs could be developed in consultation with constituencies in the months ahead.

i. Emissions Trading Programs Under domestic emissions trading programs, permits representing rights to emit greenhouse gases in the United States would be distributed, either through an auction or allocation system. Permits would be tradeable. Firms would have an incentive to control emissions where costs are low and sell reductions to firms facing higher control costs.

Domestic emissions trading programs are an attractive policy tool. Compared to traditional "command-and-control" regulatory approaches, they offer greater flexibility and lower costs. Such programs are being used successfully in several areas under the U.S. Clean Air Act.

Among the important issues to be addressed in designing a domestic emissions trading program are:

--Where the constraint is imposed. A "primary fuel" trading program would limit the production or import of fossil fuels. A "sectoral" trading program would limit emissions from one or more key sectors (e.g., utilities, transport and heavy manufacturing).

--How permits are distributed. Permits could be given to existing emitters, given to others (who could then sell them back to current emitters), auctioned, or some combination of the foregoing. If permits are auctioned, substantial revenues would be raised. (Options for using these revenues include tax cuts, deficit reduction and support for transitional or technology programs). If permits are given away, recipients would potentially receive a windfall.

ii. Technology Programs. The cost of reducing greenhouse gas emissions between now and 2020 depends greatly on the ability to accelerate use of existing energy-efficient technologies. Over the longer-term, the solution to the climate change problem depends on developing and deploying new technologies that are even more efficient and/or based on non-carbon energy sources.

A range of government programs might help accelerate technological change. Information dissemination programs assist businesses and consumers in identifying opportunities to reduce the energy intensity of their products or services (e.g., using more energy efficient light bulbs, insulation, appliances, etc.). In addition, research and development programs generally aim to improve technologies by lowering production and operating costs. Large opportunities for cost-lowering research and development exist in buildings, transportation, combustion, renewables and sequestration (e.g., fuel cells, advanced industrial turbines, advanced diesel engines, and transportation biofuels). However, generating significant increases in budget support for technology programs will be challenging.

iii. Transition Assistance Programs. Under any of the policy options being considered, some workers and communities may be adversely affected. Workers in energy-intensive industries and those in energy extraction may be most likely to be hurt. Given the geographic isolation of some of these industries, the surrounding communities may also be adversely affected.

A transition program would reduce costs to individuals and communities. Transition assistance can help facilitate community and worker adjustments via retraining, job search assistance, and infrastructure development for new business in the community. As previous experience with acid rain, military base closures, and the federal government's own work force restructuring has demonstrated, the early development of such programs can be vital to building public support for a policy.

Among the important issues to address in designing a transition program are:

---Whether a new, categorical program should be designed or existing programs expanded. A new, categorical program would limit benefits to targeted workers and communities but allow for flexibility in benefit levels. Expansion of current programs to allow for increased usage is consistent with Administration program consolidation efforts but constrains program design flexibility.

---How the program will interact with the other components of climate change policy. Permit auctions could provide an important revenue source for these programs. Permit allocations could be used to "fund" transition assistance.

Document No. _____

WHITE HOUSE STAFFING MEMORANDUM

DATE: 6/16 ACTION/CONCURRENCE/COMMENT DUE BY: 6/17 2:00 pm

SUBJECT: Climate Change

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☑	☐	McCURRY	☐	☑
BOWLES	☑	☐	McGINTY	☐	☐
McLARTY	☐	☐	NASH	☐	☐
PODESTA	☑	☐	RUFF	☐	☐
MATHEWS	☑	☐	SMITH	☐	☐
RAINES	☐	☐	REED	☐	☐
BAER	☑	☐	SOSNIK	☑	☐
ECHAVESTE	☐	☐	LEWIS	☑	☐
EMANUEL	☑	☐	YELLEN	☑	☐
GIBBONS	☑	☐	STREETT	☐	☐
IBARRA	☐	☐	SPERLING	☑	☐
RADD	☐	☐	TARULLO	☐	☐
HIGGINS	☐	☐	VERVEER	☐	☐
HILLEY	☑	☐	_____	☐	☐
KLAIN	☑	☐	_____	☐	☐
BERGER	☑	☐	_____	☐	☐
LINDSEY	☐	☐	_____	☐	☐

REMARKS: Please advise

RESPONSE:

Staff Secretary

'97 JUN 16 PM5:57

THE WHITE HOUSE

WASHINGTON

June 16, 1997

MEMORANDUM FOR THE PRESIDENT

FROM: KATHLEEN A. McGINTY
DANIEL K. TARULLO

SUBJECT: UPCOMING INTERNATIONAL EVENTS AND CLIMATE CHANGE

I. Action-Forcing Event

Over the next few weeks, you will have two high-profile events that focus attention on U.S. climate change policies: the Denver Summit of the Eight (June 20-22) and the United Nations General Assembly Special Session on Environment and Development (you are speaking on June 26). To date, the United States has called for binding emissions targets, flexibility in meeting those targets and the participation of all countries under the climate treaty, but has not signaled which specific emissions levels would be acceptable. Negotiations are set to conclude this December in Kyoto. Other countries and domestic constituencies are calling on the U.S. views to state its views.

Your advisers are evaluating the specifics of a U.S. negotiating position, with some differences among them. However, there is a consensus that, even at the cost of significant criticism from other countries and environmental groups, it would be imprudent to take a specific position on emissions levels in the upcoming events. Instead, you should begin an intense process of personally communicating with the American public on this issue.

II. Background

Climate change may be the most significant economic and environmental policy issue to be addressed in the second term. There is now scientific consensus that human activities (primarily the burning of fossil fuels) are having a discernible influence on the global climate and that "climate change is likely to have wide-ranging and mostly adverse impacts on human health". The implication is that greenhouse gas concentrations have to be held to responsible levels in the long term to avoid dire consequences. Greenhouse gas concentrations are at now their highest levels in 200,000 years and, absent policy interventions, concentrations at the end of the next century are predicted to be at a 50 million year high. Impacts are predicted to include higher temperatures (global average temperatures are predicted to increase 2-6.5 degrees F. by 2100), sea level rise (threatening low-lying areas), spread of infectious diseases, and more highly variable weather (with increased frequency of severe weather events such as droughts and floods).

The U.S. is the world's largest emitter of greenhouse gases, with roughly 25% of the world's total. Domestic greenhouse gas emissions have been growing by a bit over 1 percent per year, so that today's emissions are about 10 percent higher than in 1990. In many developing countries, emissions growth rates are higher, but per capita and overall emissions levels are lower. The developed countries are responsible for much of the accumulation of greenhouse gases in the atmosphere and currently are the largest emitters. By 2020-2040, however, the developing countries will surpass the developed countries in terms of emitting greenhouse gases. Since global climate is affected by greenhouse gases concentrations in the atmosphere, and since the efforts by any one country to reduce its emissions cannot have much of an effect on global concentrations, a sensible approach would call on all countries to play a role. The U.S. has urged developing countries to accept significant obligations (short of quantitative emissions targets) in the international treaty negotiations. To date, there has been little international support for the U.S. position on developing countries.

In general, market-based policies are believed to be the most efficient means to reduce greenhouse gas emissions, because these policies promote flexibility and minimize economic costs. The U.S. has urged that the climate change treaty promote maximum domestic flexibility in all countries, establish a system where countries with quantitative emissions targets can trade emissions rights, and establish a system of joint implementation, where developed and developing countries can undertake joint efforts to reduce emissions wherever the cost is lower.

When faced with a specific set of choices for the U.S. position on emissions levels under the climate treaty, most of your Cabinet supported "stabilizing emissions in the medium term." (In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020). Many of the agencies and offices represented conditioned their support on success in achieving other elements of the U.S. negotiating position (e.g., international emissions trading, participation of developing countries).

However, as several of your economic advisers noted, the seemingly moderate goal of returning emissions levels to 1990 levels by 2010 could entail economic policy interventions greater than any we have undertaken during your Presidency. Even with the kind of flexibility components proposed by the United States, market-based policies designed to reduce greenhouse gas emissions significantly are likely to raise domestic fuel prices by significant amounts and to have particularly adverse effects on the coal industry. The likely result is a reduced level of economic activity, at least in the first few years after implementation. Thus, emissions control policies have the unfortunate effect of imposing short term economic costs in order to achieve distant (though potentially enormous) environmental benefits.

In the view of some of your advisers, there is strong evidence that total costs could be lowered significantly if policies were put in place to emphasize investment in productivity-enhancing technologies. Some of the technologies envisioned would not have a major impact by 2010, but could have significant impact in the decade that follows. An expanded program of research and policies encouraging innovation could have low costs and achieve broad political support.

The politics of this issue are difficult, at best. For many environmental groups, strong action on climate change is a litmus test of your environmental policy. If you fail to speak decisively on this issue at the Summit or the UN General Assembly Special Session, their criticism will be intense. European leaders such as Blair and Kohl will probably be both ambitious in their proposals and critical of our lack of specifics. On the other hand, much of the business community is strongly opposed to action that would significantly reduce greenhouse gas emissions in the short term. Fossil fuel and heavy manufacturing companies are poised to attack any policies that might be supported by environmental groups. Organized labor is increasingly opposed to strong actions, as well, largely in deference to the concerns of the United Mine Workers. Farmers are likely to oppose any policies that would increase energy prices. Southern and western Republicans in Congress are very skeptical about policies to constrain greenhouse gas emissions, as are Midwestern and coal state Democrats. Indeed, Senator Byrd currently has 45 signatures on a resolution requiring developing country obligations before U.S. agreement in Kyoto.

III. Recommendation

Your advisers believe that the American public is not prepared for far-reaching proposals that could substantially increase fuel costs. They believe it is necessary to undertake a serious educational effort to convince the American public that climate change is an important long-term issue that requires the United States to institute policy changes. Such an effort should be an interactive process, with you and your Cabinet members taking lead roles in listening to the public, elected officials, and interest groups, and then fashioning an appropriate policy response. Your advisers believe that such a process is necessary to develop a workable political consensus in the country for an effective climate change policy. If this consensus is not achieved, it will be virtually impossible to have an international climate change treaty limiting domestic greenhouse gas emissions ratified by the Senate in the foreseeable future.

Your advisers recommend that you address climate change at both the Denver Summit and the UN General Assembly Special Session. At Denver, as you have done in the past, you should discuss the subject in strong terms, noting that the science is quite clear on the scope of the climate change problem. You also should note that there are extensive differences in the various proposals made to begin the process of achieving a solution. You can sketch out the importance of creating a long-lasting framework for implementing worldwide climate change policies, because this is an issue of vast scope (covering many decades and all the countries on the earth). And you can call on the Eight to work together to ensure that the treaty negotiated at Kyoto is acceptable to all members.

At the UN General Assembly Session, your advisers recommend that you begin to outline your personal involvement in the education campaign that will be necessary to build domestic acceptance for any meaningful emissions constraints. Although gaining consensus across the political spectrum is not possible on this issue, it may be possible to enhance support significantly among centrist constituencies and the public at large. Notwithstanding that you are speaking to a UN audience, you should direct your remarks to the American public.

You could announce specific means to pursue this dialogue, including your plans to host a White House Conference on Climate Change in September to bring together elected officials, business, labor, and environmental and scientific leaders, academics, and representatives of the public to discuss climate change policy. You could announce further that this White House conference would be preceded by a series of regional conferences that will offer greater public participation and involve the entire Cabinet in the process. These high-level conferences would serve to educate the American public and bring forward ideas on how best to address climate change. A core goal of this and other efforts would be to break through to the American people with the message that "Bill Clinton is working on climate change." Meanwhile, analytic work on policy alternatives would continue, informed by the public debate. We would aim to arrive at a complete U.S. negotiating position by the early fall.

You should be aware that this approach may lead to intense criticism of you and the Vice President by environmental groups. Your climate change policies will likely be equated with those of President Bush at the Rio Earth Summit. (Bush refused to agree to any emissions levels at Rio. You reversed that position in April, 1993 and voluntarily committed the U.S. to reducing emissions to 1990 levels by the year 2000). However, your advisers believe that refraining from announcing specific goals until early fall is necessary to develop the political and public consensus required to undertake any meaningful policy action on climate change. The alternative set of actions (making statements in the next few weeks supporting emissions constraints perceived as strong) would lead to harsh and lasting criticism from business and labor, in the opinion of your advisers. The resulting public and Congressional reaction could be so severely negative that you might be unable to take any significant policy steps on climate change. Moreover, criticism from these sources also could place other policy initiatives (environmental and others) in jeopardy.

Several appendices provide additional information. Appendix A lists five options identified to the Cabinet for specific statements on climate change. The options are arrayed in order from most stringent to least stringent, spanning the range of possible policies that could be developed by the early Fall. Material analyzing the projected environmental impacts of these options is attached as Appendix B. Material summarizing the projected economic impacts of Options 1, 2, 3 and 4 are presented in Appendix C. Additional background material on climate change (including a discussion of domestic policy options) is attached as Appendix D.

IV. Decision

That you approve the course outlined above.

_____ Approve _____Disapprove _____Discuss

ISSUE FOR DECISION

In your trips to the Denver Summit of the Eight (June 20-22) and UN General Assembly Special Session on Environment and Development (June 26), what should you say concerning the U.S. position on emissions levels under the climate treaty?

NEED FOR DECISION

To date, the U.S. has not supported any specific emissions levels under the climate treaty. Other countries and domestic constituencies are calling on us to state our views. At the Denver Summit of the Eight, Chancellor Kohl and others will press you on this issue. At the UNGA Special Session, media and constituency interest in this issue will be high. Both meetings offer important opportunities to advance and explain our position.

I. BACKGROUND

Climate change is an issue of vast scale. Decisions on the issue posed in this memorandum could have significant environmental, economic and political consequences.

The build-up of greenhouse gases in the atmosphere threatens fundamentally to alter the Earth's climate. Currently, greenhouse gas concentrations are at their highest level in more than 200,000 years. (See Appendix A). Absent policy interventions, concentrations by the end of the next century will reach the highest level in more than *50 million* years. Impacts are predicted to include sea level rise, the spread of infectious disease, more frequent and severe droughts and floods, loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century are projected to increase 2-6.5 degrees F., sea-level rise is projected to inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable) and an additional 50-80 million people are projected to contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity).

The economic costs of reducing greenhouse gas emissions is potentially substantial. The principal source of such emissions is the burning of fossil fuels, which powers the global economy. Stabilizing emissions at 1990 levels by 2010 (ten years later than envisioned in the Climate Change Action Plan) is projected to reduce U.S. GDP in 2010 by 0.1-0.4% (with somewhat larger reductions in consumption), increase gasoline prices in 2010 by 10-15 cents per gallon and more than double the price of coal. Without a well-functioning system of international emissions trading, these figures would be even higher -- a U.S. GDP loss of 0.2-0.6% (with slightly larger reductions in consumption), gasoline price increase in 2010 of 20-40 cents per gallon and roughly a tripling of the price of coal. Private capital outflows associated with an international emissions trading regime are predicted to be roughly $5 billion per year.

These economic estimates also show assume that ~~revenues raised by~~ auctioning emissions permits are used for deficit reduction -- costs could be higher if implementation programs are less favorable to investment or lower if programs are more favorable to investment. Significantly, modeling indicates that economic losses from some policies are largely transitory: after an initial loss, the economy rebounds and ~~catches up to~~ its original ~~growth path~~. Costs depend significantly on rates of technological innovation. Effects on some sectors and regions of the economy will be much larger than effects on the economy as a whole.

This administration has been active on this issue since Earth Day 1993, at which time you pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, we issued the Climate Change Action Plan, made up of several dozen mostly voluntary programs, designed to meet that goal. (Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected oil prices, the goal will be missed by a wide margin). U.S. negotiators have shaped the international climate change negotiations by calling for binding emissions targets, "flexibility" provisions (such

would raise roughly $60-$90 billion per year in revenues. This revenue raising would almost certainly be viewed as a tax increase -- the largest in history. To emphasize the impact of reducing emissions

as international emissions trading and joint implementation) that would significantly lower costs of meeting those targets, and the participation of developing countries. You have spoken to this issue several times in the past year, including in the 1997 State of the Union, where you called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate."

The politics of this issue are difficult, at best. For many environmental groups, strong action on climate change is a litmus test for your environmental policy. If you fail to speak decisively on this issue in Denver (at the Summit) or New York (at the UNGA Special Session), their criticism will be intense. On the other hand, much of the business community is strongly opposed to action on climate change. Fossil fuel and heavy manufacturing companies are poised vigorously to attack any policies the environmental community might support. Labor is increasingly opposed to action as well, largely in deference to the concerns of the United Mine Workers. Southern and western Republicans on the Hill are very skeptical about this agenda, as are midwestern and coal state Democrats.

II. OPTIONS

Earlier this week, we identified several options for principals concerning the U.S. position on emissions levels in the international climate change negotiations. Each option was defined in terms of a broad directional statement you might offer at the Denver Summit or UNGA Special Session.

The meeting produced a considerable convergence of views. Most agencies (State, Commerce, Transportation, Energy, Agriculture, EPA, AID, OSTP and CEA) supported an option in which you would call for "stabilizing emissions in the medium term and reducing – thereafter." In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020.

Several caveats are important:

First, many of these agencies conditioned their support on success in obtaining flexibility provisions (e.g., international emissions trading, joint implementation) and the participation of developing countries. These agencies generally believe that any statement you make concerning emissions levels should be coupled with a strong statement on the importance of these additional provisions. Some agencies believe we should not accept any agreement at Kyoto unless developing countries agree to eventual accession to emissions limits similar to developed countries.

Second, the Treasury Department and OMB have significant concerns about the economic costs and political feasibility of stabilizing in the 2010 timeframe. These agencies note that opponents would characterize domestic emissions trading regime as a tax, with revenues larger than any tax increase yet considered by your administration. Treasury also focused on the potential wealth transfers possible under some control regimes, noting that these transfers could be several times the size of the tax cuts contemplated in the balanced budget agreement. Treasury note that cost estimates are based on the assumption that underlying economic growth rates through 2010 will average just over 2%, and that costs

CEA shares Treasury and OMB's concerns and recognizes that Option 2 is not consistent with an optimal path that maximizes the benefit-cost ratio as recommended by many economists. Nevertheless, CEA believes that solving the global climate change problem requires the participation of both developed and developing countries. For this reason, CEA is willing to go beyond what most economists recommend as an optimal path for efficient emission reduction if, and only if, the U.S. could secure (a) LDC commitment to "evolution," that is, eventual accession to emission limits similar to the Annex I countries; and (b) a flexible international trading system.

of achieving any target would increase if these growth rates were higher. CEA insert - - -

Third, many participants noted the magnitude of this decision for the second term agenda. There is a widely held view that we cannot take this on without you and the Vice President making this a top tier issue during the next several years. Some agencies think this could be the most significant issue you address in the second term.

Fourth, at least one agency (Energy) linked its support to strong administration backing for increased funding for greenhouse gas-related technology programs in the years ahead. OSTP argued that, with appropriate investments, we can meet both our climate change and economic goals with advanced technologies (such as the 80 mpg "supercar" being developed by the Partnership for a New Generation of Vehicles). Energy, EPA and OSTP argue strongly that these technologies were not adequately considered in the economic modeling showing GDP and job losses. In contrast, the economic agencies argue that technology assumptions in the modeling are overly optimistic.

Finally, one agency (CEA) stated that if no agreement is reached Kyoto, the U.S. should consider taking ~~relatively~~ small unilateral actions to show good faith internationally, to start educating the American people, and to begin creating the incentives for energy efficient investments. Possible examples might include...

In light of the foregoing, and after further discussions, we are identifying five options for you in Denver and New York. They are:

Option 1: Call for "significantly reducing emissions in the medium term." (Cut emissions 10-15 percent from 1990 levels by 2010)

Comment: Interior Department supports this option, stating that strong measures are necessary to protect the resources it manages. Such a statement would be interpreted to be consistent with the E.U. proposal ~~(a 10-15% cut from 1990 emissions levels by 2010)~~.

Pros:

- Environmental benefits could be large. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Many environmental groups would be pleased. $110 → $70

Cons: Raises [illegible] of a billion per year

- Could impose very large costs on the U.S. economy.
- Business and labor would be very strongly opposed.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be close to zero.

Option 2: Call for "stabilizing emissions in the medium term and reducing thereafter." Emphasize that flexibility and the participation of ~~all nations (including~~ developing countries~~)~~ are essential to addressing this problem. (Stabilize emissions at 1990 levels by 2010)

Comment: This is the recommendation from most of the Cabinet. In making this recommendations, the Cabinet focused on a specific emissions target: stabilizing emissions at 1990 levels by 2010.

Pros:

- Allows you to take the high ground: committing the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement.
- Provides considerable flexibility for future development of our position: consistent with stabilizing emissions at 1990 levels anywhere between 2005 and 2020.
- Environmental benefits (both climate and non-climate) could be significant.
- Some environmental groups would be pleased; others would complain of lack of U.S. leadership.

Cons: Raises permit revenues of $60-100 billion per year

- Overall economic impacts of this option could be significant (although GDP impacts could be transitory).
- Dislocation in some sectors and regions (especially coal states) could be large.
- Most business and labor groups would be opposed, although some might support if the policy were coupled with other features they find attractive.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be poor.

Option 3: Call for "beginning to reduce emissions *growth* by 2005 and stabilizing emissions toward the end of the medium term, with further reductions thereafter." (Reduce emission growth by 2005 and stabilizing by 2020)

Comment: This option envisions an international regime that mandates starting emissions reductions earlier than Option 2, but reducing emissions to 1990 levels over a longer period of time. While less constraining than Option 2, the rhetoric used to describe this option (other than the 2005 component) could be substantially identical to the rhetoric for Option 2.

achieved by 2020

could be viewed as balancing interests of environmentalists and business

Pros:

- Delayed target date reduces economic costs, allowing capital stock to turn over at a natural rate and technology to improve.
- Calling for early target date could be portrayed as an activist approach.
- ~~more?~~

Cons: Raises permit revenues by $ billion per year

- Would be criticized by environmental community as showing lack of leadership by delaying stabilization ~~for more than two decades~~.

- Would be criticized by moderate business groups (e.g. chemical companies, some utilities) who strongly oppose any target before the year 2010.
- Would be criticized by more hard-line business groups (fossil fuel producers, heavy manufacturing) and many in organized labor who oppose any action on climate change.
- Jeopardizes our ability to achieve flexibility provisions ~~(e.g., international emissions trading, joint implementation)~~ and developing country participation in international negotiations.
- Without significant changes in the political landscape, the prospects for ratification by the Senate ~~in the next~~ several years would be poor.

Option 4: Call for "reducing emissions *growth* in the medium term, on the way to stabilization and eventual reduction of emissions."

Comment: ~~For example~~, emissions ~~would~~ peak in 2010, return to 1990 levels in the longer term (i.e. after 2020) and decline thereafter.

Pros:

- Economic costs would be relatively mild. Some economists would view this emissions path as consistent with one that would balance costs and benefits of climate change policy.
- Opposition in the business and labor communities would be mild.
- There is a chance an option along these lines would be ratified by the U.S. Senate in the next several years without major political changes.

Cons

- ~~With~~ this option, ~~there is no chance of~~ obtaining international agreement on our "flexibility" or "developing country participation" proposals.
- Criticism from other countries and U.S. environmental groups would be very strong. Environmental groups would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Environmental benefits (both climate and non-climate) would be modest.
- ~~Some~~ Economists ~~(especially those~~ who emphasize the environmental benefits of climate change policies) would criticize this option as inadequate.

Option 5: Call for "strong action on climate change" and "agreement in Kyoto." Say that the United States is continuing to study the issue of emissions levels and will elaborate on its position at a later time.

Comment: This roughly repeats prior statements by you and other administration officials.

Pros:

- Leaves options open for future decisions.
- Allows additional refinement of economic modeling runs before our position is announced.

Cons:

- Would be strongly criticized by environmental groups, ~~who would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit~~.
- Without more definition of our position on emissions levels soon, our ability to achieve agreement to flexibility and developing country provisions in Kyoto will be seriously impaired.

Material analyzing the environmental impacts of these options is attached as Appendix B. Material summarizing the projected economic impacts of Options 1 and 2 are presented in Appendix C. The interagency analysis team has not examined options that stabilize emissions at 1990 levels in 2020 or beyond (e.g. Options 3 and 4). Additional background material on climate change (including a discussion of domestic policy options) is attached as Appendix D.

III. Recommendation

Your advisers believe it is necessary to undertake a serious educational effort to convince the American public that climate change is an important long-term issue that requires the United States to institute policy changes. Such an effort should be an interactive process, with you and your Cabinet members taking lead roles in listening to the public, elected officials, and interest groups, and then fashioning an appropriate policy response. Your advisers believe that such a process is necessary to develop a workable political consensus in the country for an effective climate change policy. If this consensus is not achieved, it will be virtually impossible to have an international climate change treaty limiting domestic greenhouse gas emissions ratified by the Senate in the foreseeable future.

Your advisers recommend that you address climate change at both the Denver Summit and the UN General Assembly Special Session. At Denver, as you have done in the past, you should discuss the subject in strong terms, noting that the science is quite clear on the scope of the climate change problem. You also should note that there are extensive differences in the various proposals made to begin the process of achieving a solution. You can sketch out the importance of creating a long-lasting framework for implementing worldwide climate change policies, because this is an issue of vast scope (covering many decades and all the countries on the earth). And you can call on the Eight to work together to ensure that the treaty negotiated at Kyoto is acceptable to all members.

At the UN General Assembly Session, your advisers recommend that you again discuss the statement in strong terms, signaling your resolve to address this issue. They recommend the following language:

> There is no more serious issue than climate change, and it is clear that we will need to seriously and significantly reduce our emissions of greenhouse gases beginning with a strong agreement in Kyoto.
>
> We must remember that our goal is to stabilize concentrations of greenhouse gases in the atmosphere at an acceptable level, a task that must begin now, but which will require continuing sustained effort over many decades. So it is important that we set up a system that will work -- that will allow us to reduce our emissions at the lowest possible cost so that we can achieve the maximum protection of the environment. And it is also important that next steps send a strong signal of our intent, so that governments and industries can make significant investments in the new technologies that will be required if we are to achieve our ultimate goal. And finally, although those of us in the developed world who emit the largest quantities of these gases must take the lead, all countries must participate in moving toward the solution.

Your advisers recommend that you then begin to outline your personal involvement in the education campaign that will be necessary to build domestic acceptance for any meaningful emissions constraints. Although gaining consensus across the political spectrum is not possible on this issue, it may be possible to enhance support significantly among centrist constituencies and the public at large. Notwithstanding that you are speaking to a UN audience, you should direct your remarks to the American public.

You could announce specific means to pursue this dialogue, including your plans to host a White House Conference on Climate Change in September to bring together elected officials, business, labor, and environmental and scientific leaders, academics, and representatives of the public to discuss climate change policy. You could announce that this White House conference would be preceded by a series of regional conferences -- one hosted by each member of your Cabinet. These high-level conferences would serve to educate the American public and bring forward ideas on how best to address climate change. A core goal of this and other efforts would be to break through to the American people with the message that "Climate change is an important issue for you and your family -- one that Bill Clinton believes we must address in a responsible way." Meanwhile, analytic work on policy alternatives would continue, informed by the public debate. We would aim to arrive at a complete U.S. negotiating position by the early fall.

You should be aware that this approach may lead to intense criticism of you and the Vice President by environmental groups. These groups have been calling on the U.S. to state a specific position on emissions levels, and will consider strong rhetoric and promises to engage personally in the issue to be inadequate. Some commentators will equate your approach with that of President Bush. (Bush refused to agree to any emissions levels in Rio. You reversed that position in April, 1993 and voluntarily committed the U.S. to reducing emissions to 1990 levels by the year 2000). However, your advisers believe that refraining from announcing specific goals until early fall is necessary to develop the political and public consensus required to undertake any meaningful policy action on climate change. The alternative set of actions (making statements in the next few weeks supporting emissions constraints perceived as strong) would lead to harsh and lasting criticism from business and labor, in the opinion of your advisers. The resulting public and Congressional reaction could be so severely negative that you might be unable to take any significant policy steps on climate change. Moreover, criticism from these sources also could place other policy initiatives (environmental and others) in jeopardy.

Several appendices provide additional information. Appendix A lists five options identified to the Cabinet recently for statements by the President on climate change. Material analyzing the projected environmental impacts of these options

is attached as Appendix B. Material summarizing the projected economic impacts of Options 1, 2, 3 and 4 are presented in Appendix C. Additional background material on climate change (including a discussion of domestic policy options) is attached as Appendix D. Finally, Appendix E sets forth a strategy for you to engage the American public on this issue in the weeks and months ahead.

IV. Decision

That you approve the course outlined above.

_____ Approve _____Disapprove _____Discuss

APPENDIX A
OPTIONS IDENTIFIED TO PRINCIPALS AT RECENT MEETING

Earlier this month, we identified several options for principals concerning the U.S. position on emissions levels in the international climate change negotiations. Each option was defined in terms of a broad directional statement and further described by a particular combination of emissions levels and timing, to help clarify the meaning of the directional statement. Most agencies and offices (State, EPA, Energy, Agriculture, Transportation, Commerce, AID, CEA and the U.S.

Ambassador to the United Nations) supported Option 2 below. Many of these offices and agencies conditioned their support for Option 2 on success in achieving other elements of the U.S. negotiating position (e.g., international emissions trading, participation of developing countries, etc.). Treasury and OMB voiced significant concerns.

In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020.

Following are the five options, with pros and cons, identified to principals:

Option 1: Call for "significantly reducing emissions in the medium term."

Such a statement would be interpreted to be consistent with the E.U. proposal (a 10-15% cut from 1990 emissions levels by 2010).

Pros:

- Environmental benefits could be large. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Many environmental groups would be pleased.

Cons:

- Could impose very large costs on the U.S. economy. Although these effects might ultimately be offset, GDP in 2005 could be reduced by 0.1-1.0% (with international emissions trading) and 0.1-2.0% (without). The price of gasoline could rise by 20-25 cents per gallon (with international emissions trading) to 35-50 cents (without).
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $110 billion (with international trading) to $270 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues).
- Business and labor would be very strongly opposed.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be close to zero.

Option 2: Call for "stabilizing emissions in the medium term and reducing thereafter." Emphasize that flexibility and the participation of all nations

(including developing countries) are essential to addressing this problem.

This option is consistent with stabilizing emissions at 1990 levels by 2010 (though, as noted, "medium term" is interpreted as being between 2005 and 2020).

Pros:

- Allows you to take the high ground: committing the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement.
- Provides considerable flexibility for future development of our position. This option is consistent with stabilizing emissions at 1990 levels anywhere between 2005 and 2020.
- Environmental benefits (both climate and non-climate) could be significant. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Some environmental groups would be pleased; others would complain of lack of U.S. leadership.

Cons:

- Overall economic impacts of this option could be significant. Although these effects might ultimately be offset, GDP in 2010 could be reduced by 0.2-0.6% ($20-60 billion) and consumption by .3-1.0%. The price of gasoline could rise by 10-15 cents (with international emissions trading) or 20-40 cents (without).
- Dislocation in some sectors and regions (especially coal states) could be large and long-lasting.
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $60 billion (with international trading) to $190 billion (without). (Annual permit revenues is not a measure of economic loss, but is one indicator of structural changes in the economy. A domestic implementation scheme could be designed to raise *no* permit revenues). the magnitude of
- Most business and labor groups would be opposed, although some might support if the policy were coupled with other features they find attractive.
- Without significant changes in the political landscape, the prospects for ratification by the Senate and passage of implementing legislation in the next several years would be poor.

Option 3: Call for "*beginning* ~~to reduce~~ emissions by 2005 and stabilizing emissions by the end of the medium term, with further reductions thereafter."

This option envisions an international regime that mandates starting emissions reductions earlier than Option 2, but reducing emissions to 1990 levels over a longer period of time. While less constraining than Option 2, the rhetoric used to describe this option (other than the 2005 component) could be substantially identical to the rhetoric for Option 2.

Pros:

- Delaying the most stringent reductions would reduce economic costs, by allowing capital stock to turn over at a natural rate and technology to improve.
- Calling for concrete action before 2010 could be portrayed as more activist. Some agencies (not including the State Department) believe this could enhance our efforts to obtain agreement on international emissions trading and developing country participation.

Cons:

- Would be criticized by environmental community as showing lack of leadership by delaying stabilization.
- Would be criticized by moderate business groups (e.g., chemical companies, some utilities) who strongly oppose any target before the year 2010.
- Would be criticized by more hard-line business groups (fossil fuel producers, heavy manufacturing) and many in organized labor who oppose any action on climate change.
- In the view of the State Department and other agencies, would jeopardize our ability to achieve flexibility provisions (e.g., international emissions trading, joint implementation) and developing country participation in international negotiations.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be poor.

Option 4: Call for "eliminating emissions *growth* in the medium term, on the way to stabilization and eventual reduction of emissions."

For example, emissions would peak in 2010-2020, return to 1990 levels in the longer term (i.e., after 2020) and decline thereafter.

Pros:

- Economic costs would be relatively mild. Some economists would view this emissions path as consistent with one that would balance costs and benefits of climate change policy.
- Opposition in the business and labor communities would be mild.

- There is a chance an option along these lines would be ratified by the U.S. Senate in the next several years without major political changes.

Cons:

- With this option, there is no chance of obtaining international agreement on our "flexibility" or "developing country participation" proposals.
- Criticism from other countries and U.S. environmental groups would be very strong. Environmental groups would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Environmental benefits (both climate and non-climate) would be modest.
- ~~Some~~ A few economists (especially those who emphasize the environmental benefits of climate change policies) would criticize this option as inadequate.

Option 5: Call for "strong action on climate change" and "agreement in Kyoto." Say that the United States is continuing to study the issue of emissions levels and will elaborate on its position at a later time.

This roughly repeats prior statements by you and other administration officials.

Pros:

- Leaves options open for future decisions.
- Allows additional refinement of economic modeling runs before our position is announced.

Cons:

- Would be strongly criticized by environmental groups, who would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Without more definition of our position on emissions levels soon, our ability to achieve agreement to flexibility and developing country provisions in Kyoto will be seriously impaired.

APPENDIX B
ENVIRONMENTAL IMPACTS OF OPTIONS

1. Climate Change Impacts

Absent policy interventions, atmospheric greenhouse gas concentrations will increase during the next century to levels unknown on this planet for 50 million years. To avoid such extraordinary increases, *global* greenhouse gas emissions must begin to decline from projected levels early in the next century. For *global* emissions to begin to decline in this time frame, developed countries must move quickly to reduce their emissions, setting the stage for future rounds of negotiations.

In the short-term, the difference between the options presented in terms of additional greenhouse gas concentrations in the atmosphere is small. However, institutional and political factors will lead to important differences between these options. Options 3 and 4, for example, are unlikely to lead developing countries to participate meaningfully in the negotiating process. Option 1, on the other hand, may be so stringent that many businesses would simply work to block implementation rather than restructure activities to comply.

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 about 2010. For the world realistically to avoid a near-tripling of greenhouse gas concentrations (750 ppm), *global* emissions must deflect from this "business-as-usual" path by 2020. 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.

2. Other Environmental Impacts

Any of the options discussed here could have considerable environmental benefits unrelated to climate change. Measures to reduce greenhouse gas emissions would also reduce emissions of SOX, NOX and toxic pollutants such as mercury. Such measures would contribute significantly to meeting potential Clean Air Act standards for particulate matter and ozone. According to EPA estimates, monetizable benefits of reducing fine particles and ozone in connection with Option 1 or Option 2 could total tens of billions of dollars per year by 2010.

APPENDIX C
ECONOMIC ANALYSIS

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

Economic models are by nature imprecise, especially when projecting over several decades. The models' limitations are exacerbated by the complex and far-reaching effects of any policy aimed at reducing greenhouse gas emissions. Some agencies believe it is important to stress that similar modeling in the past with respect to SO2 controls under the Clean Air Act dramatically overstated costs, due to unforeseen factors. Nevertheless, models can provide insight into the economic costs and benefits of various policy alternatives.

The "base case" modeling results presented here make the following key assumptions:

- Policy options are implemented by 2010, with a ten-year phase-in period.
- Domestic emissions reductions are achieved by an emissions trading system, where certain entities responsible for greenhouse gas emissions must have a permit, a limited number of permits are sold at auction, and permits may then be traded.
- All revenues raised through the auction process go to reduce the Federal

budget deficit (or increase the budget surplus).

- There are no transaction costs nor compliance problems with the domestic emissions trading system.
- Monetary policy acts to offset the effects of reduced economic activity through lower interest rates.
- The path of technological progress over the forecast period has energy use per unit of GDP decreasing more rapidly than observed in most historical periods, consistent with increased emphasis on greenhouse gas emissions and energy efficiency.
- The rest of the economy remains unchanged, which will not occur over the long forecast period used. Unexpected shocks to the economy are likely to have very large effects on the estimates presented.

Results are presented for Options 1 through 4, but the figures associated with Options 3 and 4 should be viewed as illustrative only. These figures were not derived from specific IAT modeling of the emissions constraint policies listed as examples for these Options because the IAT has not examined any policies with emissions budgets for 2020 or later. The figures presented are no more than educated guesses, generated by referring to emissions constraints that were modeled. The IAT has the capability to model emissions policies that have targets for 2020 or later and will do so if policy makers think the effort would be helpful.

Three additional caveats should be noted. First, the base case masks disagreements among agencies over likely rates of technological innovation and diffusion. A faster rate of progress in energy-efficiency and carbon-reducing technologies could reduce estimated economic costs by as much as one-third relative to the base case estimates. However, a slower rate of technological progress than assumed in the base case would increase economic costs correspondingly ~~noticeably~~. Second, to the extent that domestic greenhouse gas constraints are not implemented through an emissions trading regime, but instead through less flexible regulatory programs, economic costs will be greater than those shown. Third, to the extent that the distribution of emission permits does not support increased levels of capital investment compared to the baseline, the long-term economic results will be less favorable than estimated by the models.

2. Results. As noted above, the United States has strongly supported international trading of greenhouse gases. With trading, countries with high abatement costs (e.g., the United States and Western Europe) could purchase emissions reductions in countries with lower abatement costs (e.g., in the former Soviet Union). Incorporating a well-functioning international market in emissions permits in the modeling reduces estimated energy price increases significantly. With international emissions trading, the United States is

estimated to pay about $5 billion per year to other developed countries (including those in the former Soviet Union) to purchase permits, avoiding greater expenditures in compliance costs.

Results with international trading

Table 1 presents results from the base case with trading of emissions permits among Annex I nations. The trading takes place among all Annex I nations. (In countries where emissions have fallen below 1990 levels, such as in some parts of the former Soviet Union, trading is assumed to be allowed only to the extent there are corresponding emissions reductions from a "no-policy" baseline). All figures are presented relative to a "no-policy" baseline, in 1995 dollars.

The losses in aggregate economic activity are noticeable, but largely transitory. Table 1 shows GDP loss with international trading peaking at a few tenths of a percentage point in 2005-2010 for the case where emissions are stabilized at 1990 levels by 2010. After this initial loss, the economy begins to rebound as the proceeds from permit auctions reduce the Federal budget deficit (or increase the budget surplus), leading to lower interest rates. Businesses respond by making capital investments to offset higher energy costs. After a while, the economy catches up to its original growth path, indicating that the emissions reduction program modeled is implicitly pro-investment and that the economy is robust enough to withstand modest shocks.

Coal bears the brunt of the emissions reduction policies, because coal is the most greenhouse gas intensive fuel. In general, the least costly way to garner significant emissions reductions is to replace coal in electricity generation and industrial uses.

Results without international trading

If an effective regime for trading international emissions permits is not established, then the estimated energy price increases are nearly doubled, with parallel economic losses. This situation is depicted for the base case in Table 2.

The losses in aggregate economic activity are significant, though again, largely transitory. Table 2 shows GDP loss without international trading peaking around 1 percent in 2005, for stabilizing emissions at 1990 levels in 2010. After this initial loss, the economy begins to rebound as revenue from the domestic permit auctions reduces the Federal budget deficit and lowers interest rates. Businesses respond by making additional capital investments,

setting off a mini-"investment boom". By 2015, the economy is estimated (in some models) to regain and even surpass its original growth path. This result indicates that the emissions reduction program as modeled is pro-investment (because reduced personal consumption allows businesses the wherewithal to expand the capital stock).

Technology assumptions

Another possibility for mitigating economic costs is focusing attention and resources on programs that promise to decrease the rate at which the economy produces greenhouse gas emissions. Examples here might include an increased research and development effort or an initiative to more rapidly diffuse the most efficient energy practices through industry. The "hi-tech" set of assumptions added to the base case modeling shows that energy price increases could be reduced by 10-30 percent, by 2010, with larger reductions possible further in the future. Estimated economic costs of the base case policies would be correspondingly reduced.

Environmental benefits

The figures presented here do not reflect the environmental benefits associated with avoiding climate change, nor do they reflect collateral environmental benefits that may result from reduced emissions of greenhouse gases. Policies to reduce greenhouse gas emissions, for example, are likely to reduce emissions of other pollutants, including SOX, NOX, particulate matter and toxic pollutants (e.g., mercury). According to EPA estimates, the monetizable benefits of reducing fine particles and ozone in connection with either Option 1 or Option 2 could total tens of billions of dollars per year.

Economic effects are summarized on the charts below. Note that the figures presented for Options 3 and 4 are not based on actual IAT modeling, since the IAT has not examined any emissions budgets for 2020 or later. The figures for these Options are based on implied increases in carbon prices obtained from other IAT modeling efforts. Thus, the figures presented for Options 3 and 4 should be considered as illustrative only.

Table 1 --Base Case with OECD Emissions Trading*

Variable of Interest	Option 1 --10% below 1990 levels by 2010	Option 2 --1990 levels by 2010	Option 3 -- Implied carbon price increase of $20 per ton **	Option 4 -- Implied carbon price increase of $10 per ton **
GDP in 2005	-1.0% to -0.1%	-0.5% to 0.0%	-0.2% to 0.0%	-0.1% to 0.0%
GDP in 2010	about -0.3%	-0.4% to -0.1%	-0.2% to -0.1%	about -0.1%
GDP in 2020	-0.3% to +0.2%	about -0.1%	-0.1% to 0.0%	about 0.0%
Implied price increase per ton of carbon in 2010	about $85	about $50	about $20	about $10
Implied price increase per gallon of gasoline in 2010	about 20-25 cents	about 10-15 cents	about 5 cents	about 2-3 cents
Implied price increase per ton of coal in 2010***	about $50	about $30	about $10-15	about $6
Implied avg. price increase for residential elect. in 2010****	about 1.5 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh	about 0.3 cents per kwh
Decline in total employment in 2010 (national)	about 200,000	about 50,000-250,000	about 50,000-100,000	less than 50,000
Annual value of domestic emission permits (2010)	about $110 billion	about $60-70 billion	about $25-30 billion	about $10-15 billion

* Analysis of Joint Implementation (worldwide emissions trading) would show lower costs and imply greater purchases by the U.S. of emissions reductions abroad.

** *Although figures are presented, obtaining agreement under the climate treaty to an international emissions trading regime would be very unlikely with targets in this range.*

*** Current national average approximately $28/ton
**** Current national average approximately 8 cents/kilowatt hour

Table 2 --Base Case without OECD Emissions Trading

Variable of Interest	Option 1 --10% below 1990 levels by 2010	Option 2 --1990 levels by 2010	Option 3 --Implied carbon price increase of $35-50 per ton	Option 4 --Implied carbon price increase of $15-25 per ton
GDP in 2005	-2.0% to -0.1%	-1.0% to -0.1%	-0.5% to 0.0%	-0.3% to 0.0%
GDP in 2010	-0.7% to -0.3%	-0.6% to -0.2%	-0.4% to -0.1%	-0.2% to -0.1%
GDP in 2020	-0.3% to +1.0%	-0.6% to +0.2%	about -0.1%	about 0.0%
Implied price increase per ton of carbon in 2010	$130-200	$80-140	$35-50	$15-25
Implied price increase per gallon of gasoline in 2010	35-50 cents	20-40 cents	10-15 cents	5-10 cents
Implied price increase per ton of coal in 2010*	$80-120	$50-85	$20-30	about $10-15
Implied average price increase for residential electricity in 2010**	about 4 cents per kwh	about 1.5-3.0 cents per kwh	about 1 cent per kwh	about 0.5 cents per kwh
Decline in total employment in 2010 (national)	about 200,000-500,000	about 150,000-400,000	about 50,000-250,000	about 50,000 -100,000
Annual value of domestic emission permits (2010)	about $270 billion	about $110-190 billion	about $50-70 billion	about $20-35 billion

* Current national average approximately $28/ton
**Current national average approximately 8 cents/kilowatt hour.

APPENDIX D
ADDITIONAL BACKGROUND

A. Basis for Concern

The build-up of greenhouse gases in the atmosphere threatens fundamentally to 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 more than 10,000 years.

Potential impacts from climate change include sea level rise, the spread of infectious disease, extreme weather events (such as droughts and floods), loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century will increase 2-6.5 degrees F., sea-level rise will inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable), and an additional 50-80 million people will contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity). The international scientific assessment states that "climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life."

Nevertheless, significant uncertainties remain concerning the magnitude, timing and regional distribution of impacts. Currently, scientists are unable to predict changes in short-term weather patterns in particular regions.

Atmospheric concentrations of carbon dioxide (the most important greenhouse gas) are well above historic levels and climbing sharply.

Concentrations are currently 360 parts per million (ppm), about 30% above pre-industrial levels and the highest in at least 200,000 years. Absent policy interventions, concentrations in 2100 are predicted to reach roughly 750 ppm, the highest in more than 50 million years.

B. Human Sources of Greenhouse Gases

The principal cause of the buildup in greenhouse gases is the burning of fossil fuels. Other human activities, including deforestation and mining, 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."

Developed countries are responsible for more than 75% of the increase in greenhouse gas concentrations since the beginning of the Industrial Revolution. In the decades ahead, however, emissions from developing countries are expected to grow sharply. By 2035, developing country emissions are expected to exceed those from the developed world.

The United States emits more greenhouse gases than any nation in the world (roughly 25% of the world's total). Our per capita emissions are among the world's highest --roughly 50% greater than the OECD average and eight times that of China. In the United States, greenhouse gas emissions come mainly from industry (1/3), transport (1/3) and buildings (1/3). Since 1990, U.S. greenhouse gas emissions have grown 7-8%. Without policy interventions, U.S. emissions are projected to grow 20-25% over 1990 levels by 2010.

None of the actions contemplated during this round of negotiations will, by themselves, reverse the build-up of greenhouse gases in the atmosphere or even slow it significantly. However, this round will set the stage for future negotiations over steps by both developed and developing countries, and will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted.

C. Clinton Administration Policies To Date

The Clinton administration has been active on this issue since Earth Day 1993, at which time you pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, the Administration issued the Climate Change Action Plan, designed to achieve that goal. Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected energy prices,

however, this goal will not be achieved.

You have spoken to this issue on many occasions. In May 1997, in Costa Rica, you said "we must meet the challenge of climate change"; in April 1997, before departing for North Dakota, you discussed possible links between extreme weather events and greenhouse gas emissions; in your 1997 State of the Union, you called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate"; in December 1996, in Australia, you said "we must work to reduce harmful greenhouse gas emissions...If they continue unabated, the consequences will be nothing short of devastating the children here in this audience and their children."

The Administration has strongly supported research and development programs with significant climate change benefits. Examples include the Partnership for a New Generation of Vehicles (a $280 million program), the Global Change Research Program ($1.8 billion) and renewable energy and energy efficiency programs ($1 billion).

The United States has been an active participant in the international climate change negotiations, as described below.

D. International Negotiating Context

There is international agreement that the climate change problem is significant and requires action. There is also consensus that the existing UN Framework Convention on Climate Change, signed in Rio in 1992, is inadequate. Under the Convention, developed countries set a goal of reducing greenhouse gas emissions to 1990 levels by the year 2000, but few will do so. The Convention contains no goal beyond the year 2000.

In April 1995, in Berlin, the Parties to the Convention agreed to negotiate next steps for the post-2000 period. Under the terms of the "Berlin Mandate, " developed nations would agree to quantified emissions limits over specified time frames (e.g., 2005, 2010 and 2020) by December 1997. Developing nations (who typically have less stringent obligations than developed nations in environmental treaties) agreed to reaffirm their existing commitments, and continue to advance implementation of these commitments in this round of negotiations.

In July 1996, the U.S. called for an approach that would include three key elements:
(1) a binding target (instead of the existing Convention's non-binding goal), (2) flexibility in implementation (for example, through emissions trading among

developed nations and "joint implementation" with developing nations), and (3) the participation of developing countries.
The U.S. proposal did not include any particular target or timetable.

Support for most aspects of the U.S. proposal has been quite limited. Some aspects have encountered stiff opposition. Few countries have supported the US call for more active developing country participation under the Convention. Developing countries, in particular, have argued heatedly that the developed world is responsible for the buildup of greenhouse gases in the atmosphere and must take the lead in addressing the problem. Support for "joint implementation" has also been limited. Such a mechanism could significantly reduce overall costs to the U.S., but involve substantial international payments or transfer of technology by the private sector.

Views of other countries vary considerably. The European Union has proposed that
developed nations cut back emissions 10-15% from 1990 levels by 2010 (and an as-yet unspecified amount by 2005). Small island nations have proposed that developed nations reduce emissions by 20% from 1990 levels by 2005. Other nations, including Australia, Japan and Canada, have expressed concerns about moving too far too fast, but have not put forward any specific targets.

E. Constituency Views.

At present, public attention to climate change is low. Although polling data indicate that the public believes climate change is a serious problem, few rank it high on a list of concerns. Public and media attention to the issue will likely grow as the Kyoto Conference approaches.

For many environmental groups, strong action on climate change is a litmus test for the administration's environmental policy. They plan public relations campaigns on the issue in the year ahead. Many environmental groups are calling for sharp emissions cuts early in the next century (e.g., 20% below 1990 levels by 2005). On the issue of emissions trading and joint implementation, the environmental community is divided, with some groups (e.g., Environmental Defense Fund) strongly supportive and others (e.g., Sierra Club) strongly opposed. Most environmental groups will support flexibility provisions if coupled with emissions reductions below 1990 levels.

Business is composed of several camps. The largest --made up of coal companies, coal-dependent utilities, fuel producers, heavy industry and transporters --is strongly opposed to any action at Kyoto. This group is well-funded and poised for a significant public relations campaign. A second group --made up of chemical companies, natural gas interests, some appliance

manufacturers and others --is cautiously supportive of action at Kyoto. A smaller third group --composed of natural gas, renewable energy and energy efficiency companies --strongly supports aggressive climate change policies. Many businesses point to international competitiveness as a primary concern. In a major speech recently, the CEO of BP broke ranks with other oil companies and said "it would be unwise and potentially dangerous" to ignore mounting evidence of climate change.

Earlier this year, more than 2000 economists (including six Nobel Laureates) signed a letter stating that "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." Recently, several dozen scientists sent the President a letter warning of the consequences of rapid climate change and urging us to limit change to the "lowest rate feasible."

Agriculture groups are only beginning to pay attention to this issue. They have been concerned about extreme weather, but also worried that climate change mitigation policies could lead to rising fuel costs and competitive disadvantage with developing countries. The U.S. insurance industry is also beginning to pay attention, especially the reinsurers (who have lobbied Congress for more money for climate change research).

Labor is increasingly opposed to action on climate change, largely in deference to the concerns of the United Mine Workers. An AFL-CIO resolution earlier this year was critical of the administration's climate change policy. Some unions --including the UAW, the Steelworkers, the Oil, Chemical and Atomic Workers, the AFT and the NEA --have taken more moderate views in the past.

Finally, the religious community is increasingly engaged on this issue. The National Council of Churches has collected more than 100,000 signatures in the past few months on a petition urging action on this issue.

F. Congressional Considerations

There is considerable skepticism about climate change on Capitol Hill. Most Republicans, and many Democrats, appear far more concerned about the costs of mitigation than the problem itself. Southern and western Republicans are, by and large, skeptical or hostile to action on climate change. Midwestern Democrats have expressed concern about the impacts of climate change policies on coal and heavy manufacturing (especially autos). Northeast and West Coast Members are perhaps the most likely to support action on this issue.

Many Members cite the unwillingness of developing countries to accept quantitative emissions limits as a major concern. Increasingly, Members are complaining about a lack of openness in our decision-making process. Many are urging the administration to make key aspects of our policy and analysis known in the very near future.

"Advice and consent" of the Senate will be required for any agreement reached in Kyoto.
Implementing legislation will likely be needed as well. Favorable votes in the 105th Congress, or even the 106th, would be an enormous challenge. Ratification might need to await work on matters (e.g., joint implementation, developing country commitments) unlikely to be resolved in Kyoto.

G. Domestic Implementation

An Assistant Secretary-level working group has recommended a domestic climate change policy with three parts: domestic emissions trading programs, technology programs, and transition assistance programs. Details of these programs could be developed in consultation with constituencies in the months ahead.

I. Emissions Trading Programs Under domestic emissions trading programs, permits representing rights to emit greenhouse gases in the United States would be distributed, either through an auction or allocation system. Permits would be tradeable. Firms would have an incentive to control emissions where costs are low and sell reductions to firms facing higher control costs.

Domestic emissions trading programs are an attractive policy tool. Compared to traditional "command-and-control" regulatory approaches, they offer greater flexibility and lower costs. Such programs are being used successfully in several areas under the U.S. Clean Air Act.

Among the important issues to be addressed in designing a domestic emissions trading program are:

--Where the constraint is imposed. A "primary fuel" trading program would limit the production or import of fossil fuels. A "sectoral" trading program would limit emissions from one or more key sectors (e.g., utilities, transport and heavy manufacturing).

--How permits are distributed. Permits could be given to existing emitters, given to others (who could then sell them back to current emitters),

auctioned, or some combination of the foregoing. If permits are auctioned, substantial revenues would be raised. (Options for using these revenues include tax cuts, deficit reduction and support for transitional or technology programs). If permits are given away, recipients would potentially receive a windfall.

ii. Technology Programs. The cost of reducing greenhouse gas emissions between now and 2020 depends greatly on the ability to accelerate use of existing energy-efficient technologies. Over the longer-term, the solution to the climate change problem depends on developing and deploying new technologies that are even more efficient and/or based on non-carbon energy sources.

A range of government programs might help accelerate technological change. Information dissemination programs assist businesses and consumers in identifying opportunities to reduce the energy intensity of their products or services (e.g., using more energy efficient light bulbs, insulation, appliances, etc.). In addition, research and development programs generally aim to improve technologies by lowering production and operating costs. Large opportunities for cost-lowering research and development exist in buildings, transportation, combustion, renewables and sequestration (e.g., fuel cells, advanced industrial turbines, advanced diesel engines, and transportation biofuels). However, generating significant increases in budget support for technology programs will be challenging.

iii. Transition Assistance Programs. Under any of the policy options being considered, some workers and communities may be adversely affected. Workers in energy-intensive industries and those in energy extraction may be most likely to be hurt. Given the geographic isolation of some of these industries, the surrounding communities may also be adversely affected.

A transition program would reduce costs to individuals and communities. Transition assistance can help facilitate community and worker adjustments via retraining, job search assistance, and infrastructure development for new business in the community. As previous experience with acid rain, military base closures, and the federal government's own work force restructuring has demonstrated, the early development of such programs can be vital to building public support for a policy.

Among the important issues to address in designing a transition program are:

---Whether a new, categorical program should be designed or existing programs expanded. A new, categorical program would limit benefits to

targeted workers and communities but allow for flexibility in benefit levels. Expansion of current programs to allow for increased usage is consistent with Administration program consolidation efforts but constrains program design flexibility.

---How the program will interact with the other components of climate change policy. Permit auctions could provide an important revenue source for these programs. Permit allocations could be used to "fund" transition assistance.

ISSUE FOR DECISION

In your trips to the Denver Summit of the Eight (June 20-22) and UN General Assembly Special Session on Environment and Development (June 26), what should you say concerning the U.S. position on emissions levels under the climate treaty?

NEED FOR DECISION

To date, the U.S. has not supported any specific emissions levels under the climate treaty. Other countries and domestic constituencies are calling on us to state our views. At the Denver Summit of the Eight, Chancellor Kohl and others will press you on this issue. At the UNGA Special Session, media and constituency interest in this issue will be high. Both meetings offer important opportunities to advance and explain our position.

I. BACKGROUND

Climate change is an issue of vast scale. Decisions on the issue posed in this memorandum could have significant environmental, economic and political consequences. Many of your advisors believe you cannot take on this agenda without making climate change a top tier issue for the second term.

The Science

The build-up of greenhouse gases in the atmosphere threatens fundamentally to alter the Earth's climate. Currently, greenhouse gas concentrations are at their highest level in more than 200,000 years. (See Appendix A). Absent policy interventions, concentrations by the end of the next century will reach the highest level in more than *50 million* years. Impacts are predicted to include sea level rise, the spread of infectious disease, more frequent and severe droughts and floods, loss of forest cover and shifts in agriculturally-productive regions. Absent policy interventions, global average temperatures by the end of the next century are projected to increase 2-6.5 degrees F., sea-level rise is projected to inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable) and an additional 50-80 million people are projected to contract malaria worldwide. According to a NOAA study, average July temperatures in Washington, D.C. by the end of the next century are expected to increase by 5-15 degrees F. (with greater humidity).

true ?

Even the most ambitious agreements contemplated during this round of negotiations will have only a small direct effect on greenhouse gas concentrations in the atmosphere. However, this round will send important signals to the private sector that could affect the rate at which beneficial technologies are developed and adopted, and will set the stage for future negotiations with both developed and developing countries. To avoid extraordinary increases in greenhouse gas concentrations during the lifetimes of our children and grandchildren, *global* greenhouse gas emissions must begin to decline from projected levels early in the next century. For *global* emissions to begin to decline in this time frame, developed countries must move quickly to reduce their emissions, spurring the development of technologies and setting the stage for future rounds of negotiations.

Economic Costs

The economic costs of reducing greenhouse gas emissions are potentially substantial. The principal source of such emissions is the burning of fossil fuels, which powers the global economy. Stabilizing emissions at 1990 levels by roughly 2010, as recommended by most of your Cabinet, is projected to reduce U.S. GDP in 2010 by 0.1-0.4% (with somewhat larger reductions in consumption), increase gasoline prices in 2010 by 10-15 cents per gallon and more than double the price of coal. Without a well-functioning system of international trading, these figures would be even higher -- a U.S. GDP loss of 0.2-0.6% (with slightly larger reductions in consumption), gasoline price increase in 2010 of 20-40 cents per gallon and roughly a tripling of the price of coal. However, private ~~capital outflows~~ outward transfers abroad associated with an international emissions trading regime

a majority

would by themselves be substantial -- one preliminary estimate is roughly $5 billion per year. Significantly, modeling indicates that economic losses from some policies are largely transitory: after an initial loss, the economy rebounds and catches up to its original growth path. Effects on some sectors and regions of the economy will be much larger than effects on the economy as a whole.

These modeling results are necessarily approximate. Economic models are by nature imprecise, especially when projecting over several decades. Your economic advisers note that these results assume relatively modest baseline economic growth, as well as domestic climate change policies that are relatively favorable to investment, and that actual effects could be larger. EPA and other agencies note that similar modeling in the past with respect to SO2 emissions under the Clean Air Act dramatically overstated costs, due to unforeseen factors. The results mask disagreements among your advisers on likely rates of technological innovation and diffusion. A faster rate of progress in energy-efficiency and carbon-reducing technologies than assumed in the models would reduce estimated economic costs; a slower rate would increase costs.

International Negotiations

This round of negotiations under the climate treaty is set to conclude in Kyoto this December. U.S. negotiators have shaped the negotiations by calling for binding emissions targets, "flexibility" provisions (such as international emissions trading and joint implementation) that would significantly lower costs of meeting those targets, and the participation of developing countries. The U.S. has not yet made any statement about emissions levels we would support.

Views of other countries vary considerably. The European Union has proposed that developed nations cut back emissions 10-15% from 1990 levels by 2010 (and an as-yet unspecified amount by 2005). Small island nations have proposed that developed nations reduce emissions by 20% from 1990 levels by 2005. Other nations, including Australia, Japan and Canada, have expressed concerns about moving too far too fast, but have not put forward any specific targets. Support for most aspects of the U.S. proposal has been quite limited. Some aspects -- especially our call for more active developing country participation under the treaty -- have encountered stiff resistance.

Domestic Policies

This administration has been active on climate change since Earth Day 1993, at which time you pledged to return U.S. greenhouse gas emissions to 1990 levels by the year 2000, and then to continue the trend of reduced emissions. In October 1993, you issued the Climate Change Action Plan, made up of several dozen mostly voluntary programs, designed to meet that goal. (Due to Congressional budget cuts, higher-than-expected economic growth and lower-than-expected oil prices, the goal will be missed by a wide margin). You have spoken to this issue several times in the past year, including in the 1997 State of the Union, where you called for "reduc[ing] the greenhouse gases that challenge our health even as they change our climate."

Stabilizing emissions at the 1990 levels recommended by most of your Cabinet would require

new domestic programs. One likely approach would be an emissions trading program, which might be imposed on some combination of fossil fuel producers and importers, domestic utilities, industry and/or transportation. Emissions rights could be auctioned, or could be given to existing producers, importers or emitters. If auctioned, permits would raise tens of billions of dollars annually, which could offset the deficit, add to a budget surplus, be returned to businesses or consumers, or used for other purposes. Other important components of a domestic policy package would include technology programs (to spur development and diffusion of beneficial technologies) and transition assistance.

Domestic Politics

The politics of this issue are difficult, at best. Any agreement at Kyoto will ultimately require ratification by the Senate and, in all likelihood, passage of implementing legislation by both houses of Congress.

For many environmental groups, strong action on climate change is a litmus test for your environmental policy. If you fail to speak decisively on this issue in Denver (at the Summit) or New York (at the UNGA Special Session), their criticism will be intense. On the other hand, there appears as yet to be only limited public support for the kinds of measures that may be necessary to reduce greenhouse gas emissions domestically. Much of the business community is strongly opposed to action on climate change. Fossil fuel and heavy manufacturing companies are poised vigorously to attack any policies the environmental community might support. They will characterize any emissions control or trading regime as a tax and, regardless of merits, may even use numbers in the $100-$200 billion dollar range to characterize this as the largest tax increase ever. Labor is increasingly opposed to action as well, largely in deference to the concerns of the United Mine Workers. Southern and western Republicans on the Hill are very skeptical about this agenda, as are midwestern and coal state Democrats.

II. OPTIONS

Last week, we identified several options for principals concerning the U.S. position on emissions levels in the international climate change negotiations. Each option was defined in terms of a broad directional statement you might offer at the Denver Summit or UNGA Special Session. Each was also described by a particular combination of emissions levels and timing, to help clarify the consequences of positions you might take.

The meeting produced a considerable convergence of views. Most agencies (State, Commerce, Transportation, Energy, Agriculture, EPA, AID, OSTP and CEA) supported an option in which you would call for "stabilizing emissions in the medium term and reducing thereafter." In the parlance of the climate change negotiations, "stabilizing" means returning greenhouse gas emissions to 1990 levels and "medium term" means 2005-2020.

Several caveats are important:

First, many of these agencies conditioned their support on success in obtaining flexibility

provisions (e.g., international emissions trading, joint implementation) and the participation of developing countries. These agencies generally believe that any statement you make concerning emissions levels should be coupled with a strong statement on the importance of these additional provisions. Some agencies believe we should not accept any agreement at Kyoto unless developing countries agree to eventual accession to emissions limits similar to developed countries.

Second, the Treasury Department and OMB have significant concerns about the economic costs and political feasibility of stabilizing emissions at 1990 levels in roughly 2010, the timeframe endorsed by most of your advisers. The Department of State and other agencies, however, believe that a commitment to stabilization at any later date would damage U.S. credibility internationally and severely limit our ability to influence the international negotiations. CEA shares Treasury and OMB's concerns, and believes that stabilizing emissions at 1990 levels in or near 2010 would not optimally balance economic costs and environmental benefits. Nevertheless, CEA believes that solving the global climate change problem requires participation of both developed and developing countries. For this reason, CEA is willing to accept a more ambitious path if absolutely necessary to secure (a) developing countries' commitment to eventual accession to emission limits similar to developed countries, and (b) a flexible international emissions trading system.

Third, many participants noted the magnitude of this decision for the second term agenda. There is a widely held view that we cannot take this on without you and the Vice President making this a top tier issue during the next several years. Some agencies think this could be the most significant issue you address in the second term and an issue that could have a lasting legacy.

Fourth, at least one agency (Energy) linked its support to strong administration backing for increased funding for greenhouse gas-related technology programs in the years ahead. OSTP argued that, with appropriate investments, we can meet both our climate change and economic goals with advanced technologies (such as the 80 mpg "supercar" being developed by the Partnership for a New Generation of Vehicles). Energy, EPA and OSTP argue strongly that these technologies were not adequately considered in the economic modeling. They believe that investments in productivity-enhancing technologies can significantly reduce costs. In contrast, the economic agencies argue that technology assumptions in the modeling are overly optimistic.

Finally, one agency (CEA) stated that if no agreement is reached Kyoto, the U.S. should consider taking relatively small unilateral actions to show good faith internationally, to start educating the American people and to begin creating the incentives for energy efficient investments.

In light of the foregoing, and after further discussions, we are identifying five options for you in Denver and New York. They are:

Option 1: Call for "significantly reducing emissions in the medium term."

Interior Department supports this option, stating that strong measures are necessary to protect the resources it manages. Such a statement would be interpreted to be consistent with the E.U. proposal (a 10-15% cut from 1990 emissions levels by 2010).

Pros:

- Environmental benefits could be large. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Many environmental groups would be pleased.

Cons:

- Could impose very large costs on the U.S. economy. Although these effects might ultimately be offset, GDP in 2005 could be reduced by 0.1-1.0% (with international trading) and 0.1-2.0% (without). The price of gasoline could rise by 20-25 cents per gallon (with international emissions trading) to 35-50 cents (without).
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $110 billion (with international trading) to $270 billion (without). (Annual permit revenues is not the same as cost: a domestic implementation scheme could be designed to raise *no* permit revenues).
- Business and labor would be very strongly opposed.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be close to zero.

Option 2: Call for "stabilizing emissions in the medium term and reducing thereafter." Emphasize that flexibility and the participation of all nations (including developing countries) are essential to addressing this problem.

This is the recommendation from a majority of the Cabinet. In making this recommendations, the Cabinet focused on a specific emissions target: stabilizing emissions at 1990 levels by 2010. Most supported doing so by 2010 (although some agencies could support a timeframe stretching later, such as to 2015 or 2020).

Pros:

- Allows you to take the high ground: committing the U.S. to meaningful emissions reductions, while insisting on other principles we consider vital to an agreement.
- Provides considerable flexibility for future development of our position. This option is consistent with stabilizing emissions at 1990 levels anywhere between 2005 and 2020.
- Environmental benefits (both climate and non-climate) could be significant. EPA estimates non-climate benefits (such as reducing fine particles and ozone) would be tens of billions of dollars.
- Some environmental groups would be pleased; others would complain of lack of U.S. leadership.

Cons:

- Overall economic impacts of this option could be significant. Although these effects might ultimately be offset, GDP in 2010 could be reduced by 0.2-0.6% ($20-60 billion) and consumption by .3-1.0%. The price of gasoline could rise by 10-15 cents (with international emissions trading) or 20-40 cents (without).
- Dislocation in some sectors and regions (especially coal states) could be large and long-lasting.
- If program were implemented through a domestic emissions trading program in which all permits were auctioned, permit revenues could be in the range of $60 billion (with international trading) to $190 billion (without). (Annual permit revenues is not the same as cost: a domestic implementation scheme could be designed to raise *no* permit revenues).
- Most business and labor groups would be opposed, although some might support if the policy were coupled with other features they find attractive.
- Without significant changes in the political landscape, the prospects for ratification by the Senate and passage of implementing legislation in the next several years would be poor.

Option 3: Call for "*beginning* to reduce emissions by 2005 and stabilizing emissions by the end of the medium term, with further reductions thereafter."

This option envisions an international regime that mandates starting emissions reductions earlier than Option 2, but reducing emissions to 1990 levels over a longer period of time. While less constraining than Option 2, the rhetoric used to describe this option (other than the 2005 component) could be substantially identical to the rhetoric for Option 2.

Pros:

- Delaying the most stringent reductions would reduce economic costs substantially, by allowing capital stock to turn over at a natural rate and technology to improve.
- Calling for concrete action before 2010 could be portrayed as more activist. Some agencies (not including the State Department) believe this could enhance our efforts to obtain agreement on international emissions trading and developing country participation.

Cons:

- Would be criticized by environmental community as showing lack of leadership by delaying stabilization.
- Would be criticized by moderate business groups (e.g. chemical companies, some utilities) who strongly oppose any target before the year 2010.
- Would be criticized by more hard-line business groups (fossil fuel producers, heavy manufacturing) and many in organized labor who oppose any action on climate change.
- In the view of the State Department and other agencies, would jeopardize our ability to achieve flexibility provisions (e.g., international emissions trading, joint implementation) and developing country participation in international negotiations.
- Without significant changes in the political landscape, the prospects for ratification by the Senate in the next several years would be poor.

Option 4: Call for "reducing emissions *growth* in the medium term, on the way to

stabilization and eventual reduction of emissions."

For example, emissions would peak in 2010, return to 1990 levels in the longer term (i.e. after 2020) and decline thereafter.

Pros:

- Economic costs would be relatively mild. Some economists would view this emissions path as consistent with one that would balance costs and benefits of climate change policy.
- Opposition in the business and labor communities would be mild.
- There is a chance an option along these lines would be ratified by the U.S. Senate in the next several years without major political changes.

Cons

- With this option, there is no chance of obtaining international agreement on our "flexibility" or "developing country participation" proposals.
- Criticism from other countries and U.S. environmental groups would be very strong. Environmental groups would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Environmental benefits (both climate and non-climate) would be modest.
- Some economists (especially those who emphasize the environmental benefits of climate change policies) would criticize this option as inadequate.

Option 5: Call for "strong action on climate change" and "agreement in Kyoto." Say that the United States is continuing to study the issue of emissions levels and will elaborate on its position at a later time.

Comment: This roughly repeats prior statements by you and other administration officials.

Pros:

- Leaves options open for future decisions.
- Allows additional refinement of economic modeling runs before our position is announced.

Cons:

- Would be strongly criticized by environmental groups, who would equate your performance in New York with George Bush's performance at the 1992 Rio Earth Summit.
- Without more definition of our position on emissions levels soon, our ability to achieve agreement to flexibility and developing country provisions in Kyoto will be seriously impaired.

Material analyzing the environmental impacts of these options is attached as Appendix B. Material summarizing the projected economic impacts of Options 1, 2, 3 and 4 are presented in

Appendix C. Additional background material on climate change (including a discussion of domestic policy options) is attached as Appendix D.

To: Jeff
From: Mark

Inside E.P.A. Weekly report
An Inside Washington Publication

An exclusive report on the U.S. Environmental Protection Agency

Vol. 18, No. 24 - June 13, 1997

But 'trading' could erase negative impacts

INTERAGENCY CLIMATE STUDY PREDICTS ECONOMIC HARDSHIP FOR KEY INDUSTRIES

A draft administration economic analysis suggests that U.S. energy-producing and manufacturing industries could suffer dramatic revenue and job losses under new international greenhouse gas reduction commitments now being negotiated by parties to the United Nations Framework Convention on Climate Change.

But the analysis suggests that the implementation of international emissions trading, the use of emerging technologies and joint implementation — the pillars of the U.S. position on climate change — would substantially mitigate the negative economic impacts that would stem from an aggressive greenhouse gas treaty.

continued on page 17

EPA CONSIDERS NEW OPTION FOR SOFTENING IMPACTS OF NEW OZONE STANDARD

EPA officials are considering adopting a policy for implementing a new national ozone standard that will protect those areas that are currently attaining the existing standard from automatically being thrown into noncompliance with a new standard.

Agency sources say the move would free those affected areas from imposing any new controls on their local industries for some time, but industry sources counter that the policy would be illegal and could not be pursued unless the Clean Air Act was rewritten.

EPA currently plans to establish a new national ambient air quality standard (NAAQS) for ozone this July that

continued on page 6

Under new deal with Environmental Defense Fund

EPA TO CONSIDER BROADER RANGE OF RISKS IN HAZWASTE REGULATORY PROGRAM

EPA has reached a tentative agreement with environmentalists to investigate whether the agency should consider the risks posed by air emissions from industrial wastes when deciding if they should be regulated as hazardous substances, a move that industry sources say could significantly expand the regulatory reach of the Resource Conservation & Recovery Act.

At presstime June 11, industry organizations were expected to tell EPA June 12 whether they would oppose the agreement. Industry sources say that while the regulatory implications of the agreement are unclear at this time, the

continued on page 10

Drawing fire from all sides

NATIONAL SECURITY COMMITTEE PASSES SWEEPING SUPERFUND REFORM BILL

On June 11, the House National Security Committee passed legislation that would overhaul hazardous waste cleanup rules under Superfund, substantially limit states' authority to run cleanups at federal facilities, and rewrite provisions of the Resource Conservation & Recovery Act.

House Democratic staff, environmentalists, and state officials say they are outraged by the bill's sweeping Superfund reform provisions, and several GOP staffers on the Commerce and Transportation & Infrastructure Committees say the legislation took them by surprise. GOP staff say they are still evaluating the legislation's impacts, and have not yet decided how

continued on next page

INSIDE

plasma samples are a poor substitute for this more accurate data.

Industry officials are concerned by this development because the FQPA caps the total amount of risk that a pesticide or class of pesticides can pose to the public. Because this data collection protocol may overestimate risk, industry sources fear that fewer pesticide tolerances will be issued.

But EPA sources disagree with the industry criticism. One EPA source says that sometimes plasma data overestimates the number of such enzymes, and sometimes it does not. This source points out that industry initially claimed that there was no correlation between plasma data and brain data, but recent rat studies proved this position had no basis. This source says that the flexibility in the new protocol will allow EPA to measure the effects of each chemical on a case by case basis, and predicts it is unlikely that the use of plasma data alone will result in overestimates of risk.

EPA sources say the endorsement of the policy is important for other reasons as well. One EPA official stresses that much of the existing data on organophosphates stems from plasma samples. This source notes that EPA has a limited amount of time to finish their reregistration of organophosphates, and warns that this data will be needed if the agency is going to meet its statutory reregistration obligations.

ANALYSIS SAYS TRADING COULD EASE CLIMATE CHANGE IMPACTS . . . begins page one

White House officials say the draft analysis, obtained by *Inside EPA*, strengthens the administration's hand in the ongoing international climate change negotiations, arguing that the analysis bolsters the U.S. position that emissions trading is the most cost-effective way to reduce greenhouse gas emissions.

But industry officials say that it will likely be impossible to craft an international emissions trading scheme before a new climate change treaty is signed this December, and fear that joint implementation policies will fail because developing countries will not be bound by the treaty.

Last summer in Berlin, parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed that voluntary efforts to reduce greenhouse gas (GHG) emissions are insufficient to prevent global warming, and pledged to negotiate new, mandatory commitments to reduce GHG emissions in the post-2000 period. In general, UNFCCC parties are seeking an agreement that will limit or substantially reduce GHG emissions, such as carbon dioxide, from 1990 levels. The current negotiations are expected to culminate with a final agreement in Kyoto this December.

While many parties to the UNFCCC have called for binding emissions targets and harmonized international policies to meet them, the U.S. has proposed establishing a system under which countries would have emissions "budgets" and could "trade" emissions rights among themselves. Under this trading system, countries could either reduce their emissions or purchase emissions "rights" from other countries who have reduced GHG emissions well below their budget limits. U.S. officials say that an international emissions trading market would provide signatories with an opportunity to secure the most cost-effective emissions reductions.

The White House last year convened an Interagency Analytical Team (IAT) to model the economic impacts of different greenhouse gas emissions reduction targets and policies. The IAT relied on three scientific models to gauge the impact of climate policies — the Data Resources, Inc. (DRI) macroeconomic model, the Second Generation Model (SGM), and the Markal-Macro model. An administration source says that because the three models rely on different economic assumptions, together they provide a "mosaic" of the basic impacts of climate policies.

The IAT modeled the effects of reducing GHG emissions to 1990 levels in the year 2010, and assumed the creation of a domestic emissions trading program. Much of the report describes economic impacts gleaned from the DRI model, which does not account for international emissions trading.

Administration officials stress that the analysis will change substantially once comments from peer reviewers are incorporated. Most of the peer review of the analysis was completed this week, and a White House source says that reviewers' comments will lead to significant changes in the analysis. "This is an early draft," another White House official says, also stressing that the policy assumptions used in the modeling effort do not reflect the administration's preferred GHG emissions reduction targets and timetables.

According to the May 16 draft report from the IAT, climate change policies could have substantial negative economic impacts on energy-producing industries in the next 20 years. For example, under the DRI model, coal mining would suffer a 25.9 percent decrease in output by 2010 and 39.3 percent decrease in 2020. Electric utilities' output would decline by 11.6 percent in 2010 and 17.7 percent in 2020, and natural gas producers would lose 19.9 percent in output by 2010 and 18.2 percent by 2020.

The analysis notes that employment losses in the coal mining industry would be "severe" in certain parts of the country. Furthermore, while electric utilities experience smaller percentage reductions in output, their losses are larger in dollar terms. According to the analysis, "utility output declines by about $30 billion in 2010 and $52 billion in 2020 when compared to the base case."

The analysis also shows losses, though not as substantial, in annual output for energy-intensive manufacturing industries such as chemicals, paper, and food and kindred products.

But the analysis suggests that negative economic impacts could be significantly mitigated by international emissions trading and other policies proposed by the U.S. in the UNFCCC negotiations. According to the analysis, the SGM model shows that "international trading of carbon permits among the Annex I [developed] countries leads to sizable reductions in costs needed to stabilize emissions." The analysis says that "under trading with 'corresponding reductions,' the implicit price of carbon falls dramatically."

In addition, the analysis says that "joint implementation" with developing countries would reduce the price of emissions permits even further. Joint implementation (JI) refers to emissions abatement projects conducted jointly between developed and developing countries.

Administration officials say the draft analysis bolsters the White House's push for an international trading scheme and generally vindicates the policies they have sought in the UNFCCC negotiations. "We are seeing some substantial potential cost savings" from emissions trading and JI, an administration official says, adding that the "models are confirming our earlier intuition . . . it strengthens our position." A White House official says that the analysis "shows very strongly" that the policies proposed by the Clinton administration would mitigate the negative economic impacts of new climate change commitments.

But industry officials say that the policies pursued by the U.S. cannot be fully fleshed out and implemented by December when the new treaty is expected to be signed. "There is no way you can have a viable trading program put in place between now and December," one industry official says, arguing that the complexity of the approach and political difficulty of allocating energy use among countries will be insurmountable. This official adds that there is no technology in existence which will help the U.S. reduce energy use enough by 2010 to reduce emissions to 1990 levels. And several industry sources say that since developing countries are not bound by the UNFCCC to meet the terms of the treaty, they will not likely embrace joint implementation.

An administration official, however, says the White House is increasingly optimistic that a workable trading scheme can be fashioned in time to meet new targets. "The practical mechanics don't look as scary as six months ago," this source says. "It's not a simple system, but it doesn't have to be so complicated as to be infeasible."

EPA GRAPPLES WITH PROPOSAL TO EXPAND TOXICS RELEASE INVENTORY

EPA is grappling with its proposal to expand the toxics release inventory to include "materials-accounting information," according to sources close to the debate who say agency staff are divided over which statute provides the agency with the most legal authority to pursue the effort.

Industry sources say they are already poised to challenge the rule as soon as it is proposed, arguing that EPA clearly does not have the statutory authority to extend the program in this way. EPA "is trying to make the statutes fit the project . . . it doesn't work that way," an industry source says.

EPA's Toxics Release Inventory (TRI) requires certain industries to report toxics emissions to the agency on an annual basis. On Sept. 25, 1996, EPA issued an advance notice of proposed rulemaking that would require companies to include "materials-accounting" information in their annual TRI reports. Materials-accounting calls for collecting data on the amount of a toxic chemical coming into a facility, the amount transformed into products or wastes, and the amount leaving the facility site.

EPA now hopes to propose a materials-accounting rule in early 1998. Industry groups have long objected to EPA's efforts on this front and have challenged the agency's statutory authority to move forward. Sources close to the debate say that EPA staff are now grappling with this issue and are divided over which statute provides the agency with the authority to support the effort.

One agency source explains that none of the existing statutes explicitly allows EPA to expand TRI to include materials-accounting. Under the Emergency Planning & Community Right-to-Know Act (EPCRA), EPA is instructed to develop the TRI. But the statute explicitly lays out the information that EPA must obtain from industry, and excludes materials-accounting information from this list. Under the Toxics Substances Control Act (TSCA), however, EPA can collect chemical-use information from chemical manufacturers but cannot report it publicly.

Industry sources say neither TSCA nor EPCRA is a direct match for EPA's new effort. Hence, EPA is trying to "mix and match" the statutes in hopes of creating a "hodgepodge" of authorities to "make the program work," an industry source says. Industry sources say they are poised to file suit against EPA as soon as a rule is proposed. "We do not believe [EPA] can mold statutes to make them fit their program," an industry source says.

EPA sources acknowledge that they are having discussions on the question of statutory authority and are trying to determine the best way to approach the project. One EPA official asserts, however, that the agency believes it has a broad array of available statutory authorities that it could use to require reporting of new data elements. For example, this source argues that aside from TSCA and EPCRA, the Pollution Prevention Act, Clean Water Act, and Clean Air Act all provide some authority for such a project.

Other agency staffers admit, however, that EPA is divided over how to proceed with such an effort in the face of legal challenges. "I think we're on shaky ground here," an agency staffer says. But this source says discussions are not focused on "whether we should do this . . . but how we should do it."