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Environment - Climate Change [Folder 2] [4]

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A Review of the National Action -- A Strategic Perspective

The U.S. National Action Plan identifies the types of programs, policies and measures the U.S. is undertaking to address the issue of global climate change. The Plan suggests that "the best approach is to take low-cost actions now, without any overarching targets and timetables, and further recommends that the actions be reassessed in the year 2000 based upon vigorous research conducted in the intervening years." The approach put forward is sensible -- both for the U.S. and others. Fossil fuels provide more than 90 percent of the world's commercial energy. Before obtaining a better idea of what is at stake, it would be reckless to incur the costs entailed by a rapid transition away from inexpensive carbon-intensive fuels.

The actions contained in the Plan are estimated to reduce domestic emissions by 125 to 200 million metric tons of carbon equivalent in the year 2000. The vast majority of the reduction is through decreases in carbon emissions. The Plan properly acknowledges that the sum total cannot be accurately quantified due to enormous uncertainties about technology, policy effects, prices, and baseline economic growth rates. Still, there is some danger that the Plan may be misconstrued as suggesting that emissions could be stabilized at little additional cost. The emission reductions cited will be achieved only if a number of new programs have unprecedented success. And even then, carbon dioxide emissions would still be 4 to 14 percent above current levels by the year 2000. Closing that gap could be quite costly.

Although the Plan provides an enormous amount of useful information, it is an incomplete guide to decision making. First, a more comprehensive discussion of avoidance, mitigation and adaptation costs is needed. What are the costs of various management strategies and how do they change over time? Secondly, the U.S. actions need to be discussed in the context of a global strategy. Actions designed in isolation could turn out to be inefficient or even counterproductive. Finally, sensible greenhouse policy requires a careful balancing of costs and impacts. More consideration needs to be given to what these actions will buy in terms of reduced environmental damage. In what follows, we lay out a number of issues that we believe are in need of further exploration.

Future emissions are highly uncertain. As the National Action Plan suggests, future carbon emissions are sensitive to a number of factors: population growth, economic activity, energy use per unit of economic output, technical progress, etc. Many of these factors are inherently uncertain. For example, it is difficult enough to predict GDP for the next quarter. Predicting it for the next decade is a daunting task. Figure 1 illustrates the enormous degree of uncertainty surrounding future carbon emissions. The analysis was conducted by the Intergovernmental Panel on Climate Change (IPCC) and is at the global level. Each of the emission paths represents a different perspective on the future

character of the energy system. Note the considerable uncertainty surrounding the year 2000 projection. The degree of uncertainty widens, as we move out over time. Analyses for the U.S. tell a similar story.

Committing to a fixed target may be expensive. Figure 1 suggests that committing to a fixed target entails considerable risk. Stabilization in 2000 will be relatively easy, if future emissions will be low in any event. But this is far from certain. If we are currently on a high growth trajectory, stabilization is likely to be expensive. This is apparent from a recent EPRI study. The researchers calculated costs for a scenario in which U.S. carbon emissions are stabilized at 1990 levels by the year 2000 and then gradually reduced by 20% by 2010. Figure 2 shows the annual losses in GDP due to the carbon constraint. By 2000, costs approach 1 percent of GDP. At this point, the rise in energy prices begins to have a significant effect on the share of gross economic output available for consumption and investment.

The focus on 2000 may be misleading. According to Figure 2, annual costs are apt to be a good deal higher in later years. This is because emissions are expected to grow under business as usual. As a result, the necessary reduction in emissions required to maintain stabilization will also grow. For example, it will be necessary to remove approximately twice as much carbon in 2010 as in 2000 in order to achieve 1990 emission levels. Unless the marginal costs of emissions abatement drops a good deal faster and further than we believe likely, the costs to the economy can only increase over time. Focusing on 2000 may give misleading indications about the overall costs of stabilizing emissions.

The costs of a carbon constraint in 2000 depend on the long-term goals. Discussions of the cost of emission controls often focus on a single year. In particular, there has been considerable debate over how much stabilizing emissions would cost the U.S. at the turn of the century. According to Figure 2, costs could approach 1% of GDP by that year. This estimate, however is quite sensitive to assumptions about longer term goals. Energy investments are often long lived. Consumers and producers will be guided by their expectations for the long term. If they believe further cuts are forthcoming, they will accelerate the shift away from carbon-intensive fuels. This will mean higher costs, not only for subsequent years, but also for the year 2000.

The marginal costs of emissions abatement will be highest in the early years. Figure 3 shows the marginal costs of abatement for a scenario in which emissions are stabilized at 1990 levels by the year 2000 and then gradually reduced by 20 percent below this level by 2010. Note that there are significant variations in abatement costs at different times. The reason for the overshoot in the early decades of the 21st century is insufficient supplies of carbon-free alternatives.

This is due to constraints on the rate at which new technologies can be introduced into the marketplace.¹

Providing more time for a managed transition will result in significant savings. The spike in the abatement cost curve points to several interesting questions. What if the carbon constraint were delayed by a decade or two to give the economy more time to adapt? What would be the impact on costs? Figure 4 shows how costs vary with the date of the target. Slipping the carbon constraint by ten and twenty years reduces cumulative discounted costs by 25 percent and 40 percent, respectively.

It should come as no surprise that the price tag for a carbon constraint is sensitive to the date of its implementation. The shift to a less carbon intensive economy cannot happen overnight. The time scale for large-scale deployment of new supply technologies is typically measured in decades. Widespread adoption of highly-efficient end-use technologies also takes time. Energy efficient systems are often embedded in long lived durable goods (autos, housing, equipment, structures), and these will not be replaced instantaneously. The process can be accelerated, but at a cost.

Providing for a more managed transition has a minor impact on cumulative emissions. Clearly, flexibility in managing the transition to a less carbon intensive economy is worth a great deal. But what will it cost in terms of incremental environmental damage? This turns out to be the more troublesome question. Large uncertainties remain in our understanding of the greenhouse effect, its likely impacts, and the effectiveness of various countermeasures.

Given the current state of knowledge, it is difficult to assess the costs of a delay. Initial work in this area, however, suggests that the costs may be modest. Schlesinger and Jiang (1991) have looked at the impacts of a 10 year delay in initiating any of the IPCC emission reduction scenarios, and they find that the effect on projected global warming in 2100 is small. Nordhaus (1992) has examined the impact of a 10 year delay in implementing what he identifies as the optimal global policy, and also finds the impact to be small.

It is straightforward to calculate the effect of a U.S. delay upon its cumulative emissions over the next century. From Figure 5, we see that a ten year delay increases total U.S. emissions over the 21st century by between 3 to 4 percent. Delaying implementation by 20 years increases cumulative emissions by 9%.

¹ That marginal costs are higher in the earlier years is not inconsistent with the fact that annual costs increase as we move out in time. It may be more expensive to remove a ton of carbon in the early years, but we have more tons to remove later on.

Electrification will be an important part of the long-term solution. Figure 6 shows how carbon emissions are likely to evolve in the absence of explicit measures to reduce emissions. Even without constraints, carbon emissions from the electric sector are expected to virtually disappear by the second half of the next century. This is because environmental considerations are likely to lead to the development of economically competitive alternatives to carbon-intensive fossil fuels. Conversely, emissions from the nonelectric sector are expected to increase. As conventional oil resources are exhausted, they are likely to be replaced by coal and shale based synthetics. These fuels emit twice as much carbon per unit of energy as conventional oil. What Figure 6 tells us is that, if the goal is to reduce overall carbon emissions, electrification will be an important part of the solution.

The Greenhouse effect is inherently a global issue. Globally, carbon emissions have increased at an average annual rate of 3.3 percent per year since 1950. The absolute level of emissions rose from 1.6 to 6 billion tons. Over the same period, there has been a significant shift in the pattern of global contributions. For example, in 1950 North America and Western Europe accounted for 68% of total emissions. By 1980 their share had fallen to 43%. In contrast the portion attributed to China and to other developing countries in Latin America, Southeast Asia, and Africa rose from 7 to 20% over the same period. According to recent estimates by the IPCC, this trend is likely to continue. By the end of the next century, the OECD is only expected to account for 20% of global emissions.

Focus on developed countries may be counter productive. Country-specific policies need to be examined in the context of the global economy. This is particularly true in the case of carbon taxes. Countries that do not agree to emission reductions may find their competitive position enhanced. If their energy use turns out to be more energy intensive than countries adopting a particular set of measures, the result may be more rather than less emissions.

Current targets are arbitrary. Although calls for reducing CO₂ emissions have been a common theme at international conferences on global warming, the proposals vary widely. They range from slowing the rate of growth to more than halving the absolute level of current emissions. Rather than arbitrary percentage targets, a sensible policy will involve balancing incremental impacts and costs (National Academy of Sciences 1991). This will be difficult to do without a better understanding of the consequences of global warming. More detailed study is needed on the environmental, economic, and social impacts of the continued accumulation of CO₂ in the atmosphere.

The issue is one of buying insurance. Given existing uncertainties, policy makers would do well to act as though they were purchasers of greenhouse insurance. They must weigh the possible costs of delay against those of premature action, but also recognize that there are not enough resources available to purchase insurance against all conceivable downside risks. In

addition to limiting greenhouse gas emissions, there are other forms of greenhouse insurance. Among the options are continuing research to reduce the uncertainties related to climate change and to develop new supply and conservation technologies. Policy makers must decide how to divide the greenhouse insurance dollar among competing needs. What portion goes to the immediate abatement of emissions? What portion goes to resolving scientific uncertainties? And what portion goes to technology development?

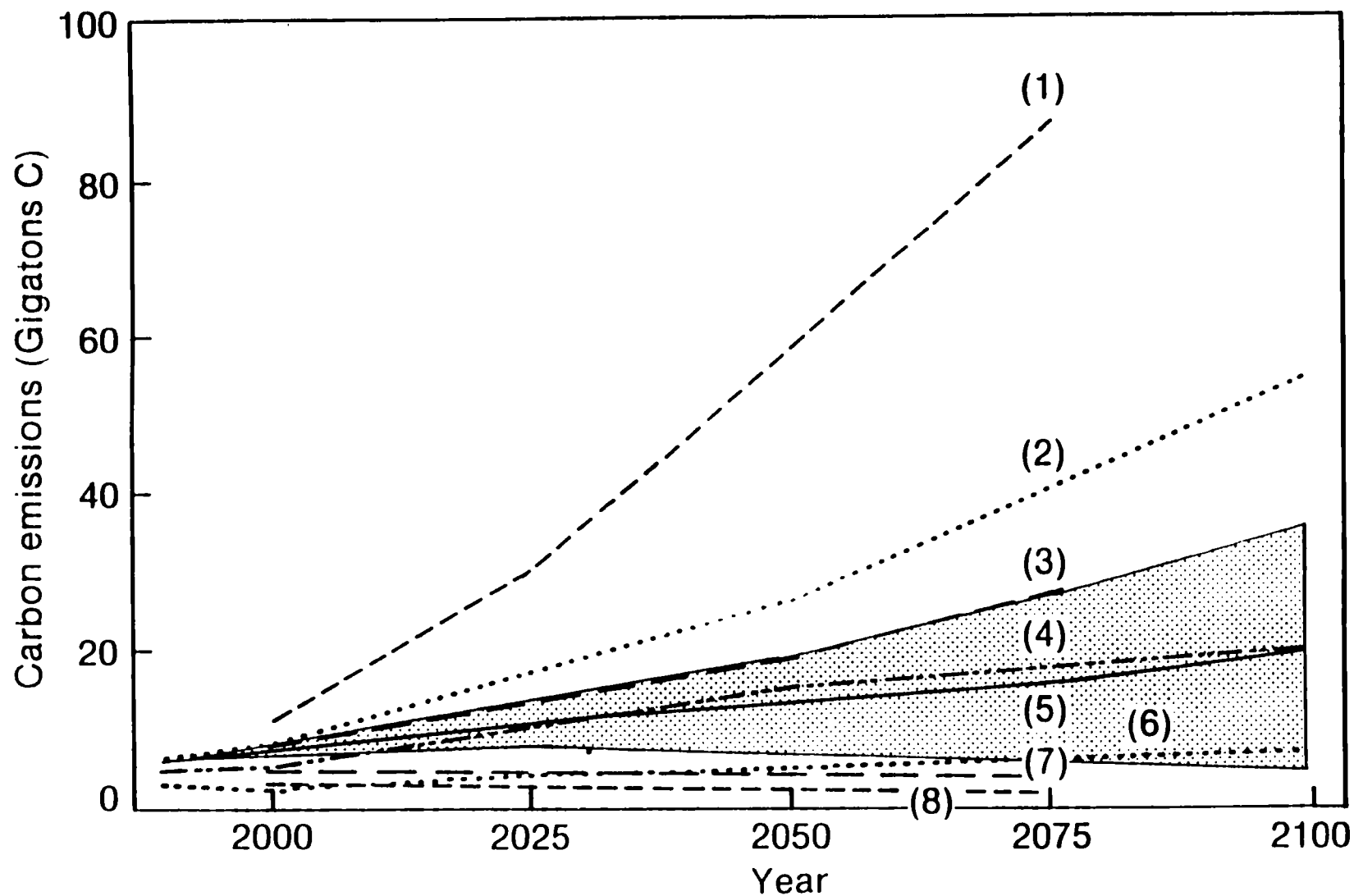


Figure 1. Uncertainty analyses for carbon emissions from fossil fuel. The following studies are represented: Edmonds - (1) 95th percentile, (3) 75th percentile, (7) 25th percentile, and (8) 5th percentile; Nordhaus and Yohe - (2) 95th percentile, (4) 50th percentile, and (6) 5th percentile; also (5) IS92a. The shaded area indicates the range of the IS92 scenarios.

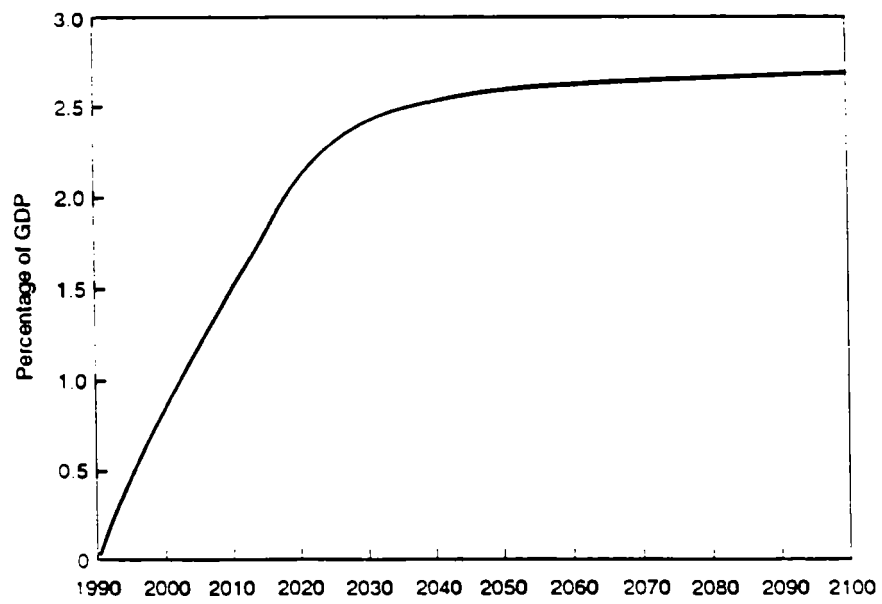


Figure 2
Annual losses due to carbon limit

Source: Manne and Richels (1992a)

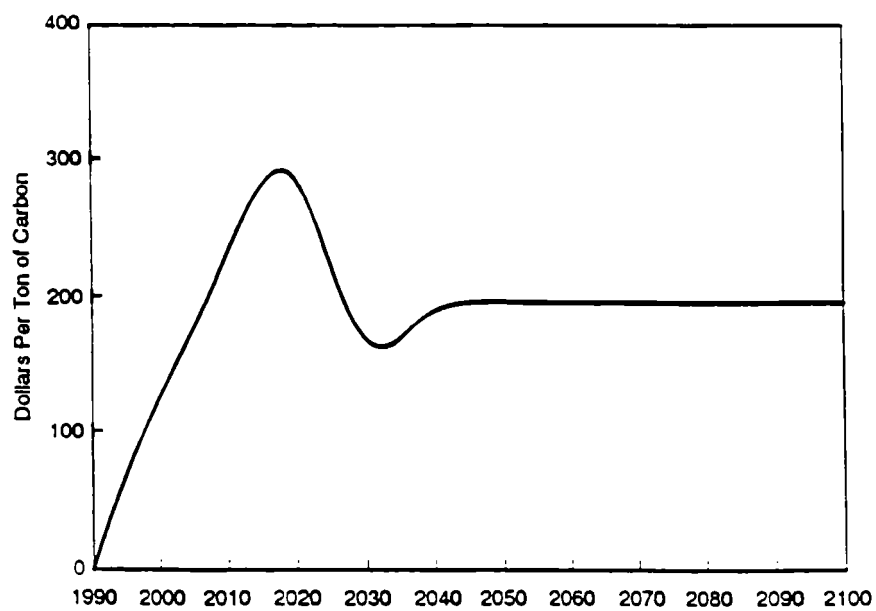


Figure 3
Marginal cost of emissions abatement

Source: Manne and Richels (1992a)

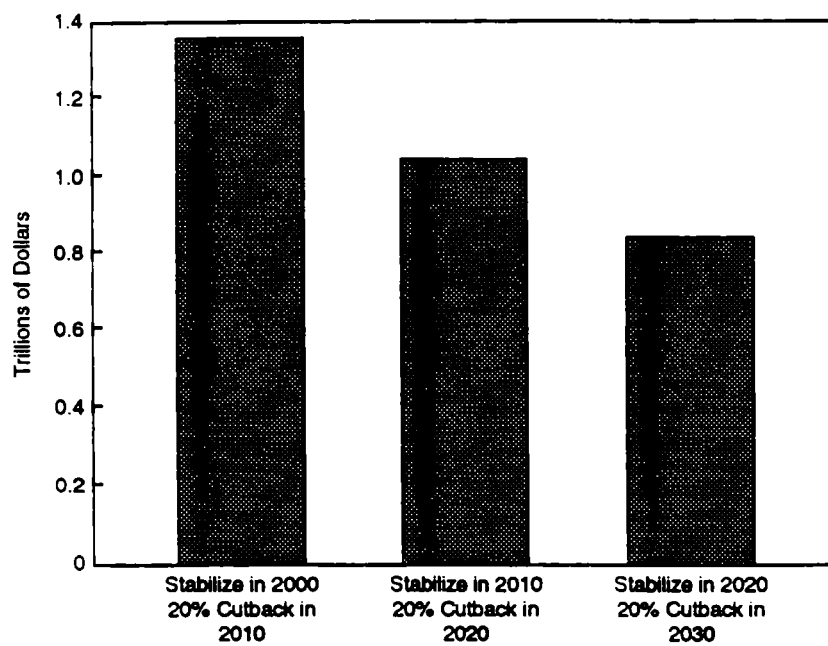


Figure 4
Effect of timing on costs of carbon constraint (1990-2100)

Source: Manne and Richels (1992b)

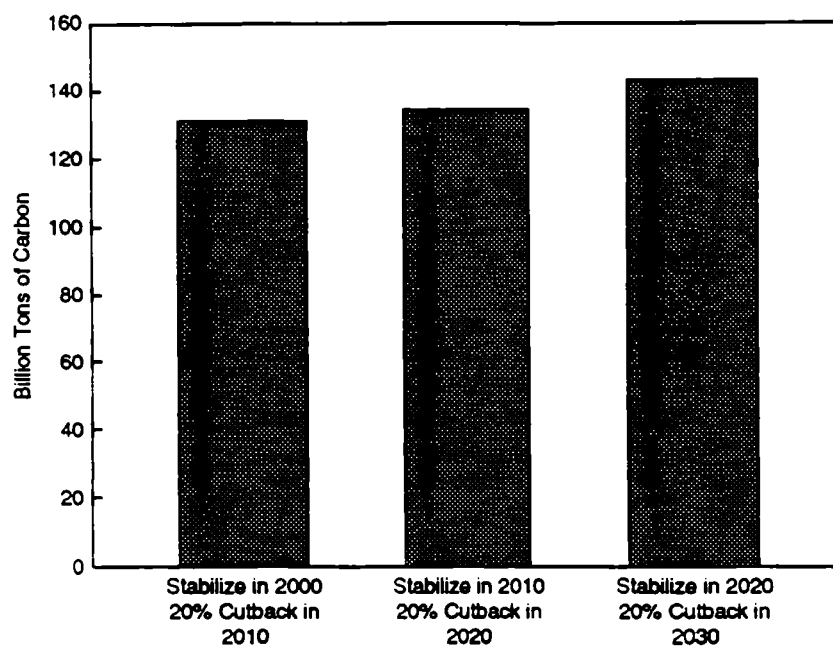


Figure 5
Effect of timing on total carbon emissions (1990-2100)

Source: Manne and Richels (1992b)

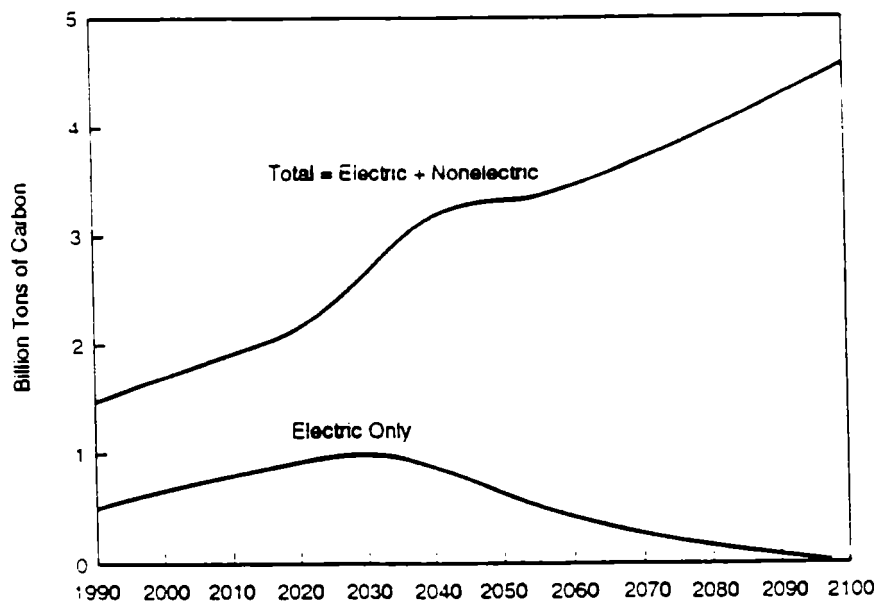


Figure 6
Carbon emissions under business as usual

Source: Manne and Richels (1992a)

References

Intergovernmental Panel on Climate Change. 1992. Climate Change 1992 - the Supplementary Report to the IPCC Scientific Assessment. Cambridge University Press. Cambridge.

A.S. Manne and R.G. Richels. 1992a. Buying Greenhouse Insurance - the Economic Costs of CO2 Emission Limits. The MIT Press, Cambridge, Mass.

A.S. Manne and R.G. Richels. 1992b. "Reducing U.S. CO2 Emissions - the Value of Flexibility in Timing." in Global Climate Change - A Petroleum Industry Perspective. International Petroleum Industry Environmental Conservation Association, London.

W.D. Nordhaus. 1992. "Rolling the 'Dice': An Optimal Transition Path for Controlling Greenhouse Gases." Paper presented at the Annual Meeting of the American Society for the Advancement of Science, Chicago, February.

M.E. Schlesinger and X. Jiang. 1991. "Revised Projection of Future Greenhouse Warming", *Nature* 350, March.

Points for Meeting with Gibbons & Wirth re: IPCC

- o The question is what will best serve the United States. There is a real opportunity here for us all to benefit -- it's not just a contest among State, OSTP and CEA to divide a fixed pie.
- The IPCC is a technical expert body; its function is to publish an expert report.
 - Many countries, especially developing countries, have been mistrustful of the US sending policy diplomats to lead the US effort in the IPCC. The last Administration sent diplomats to lead these expert meetings; we need to bolster the scientific credibility of this activity.
 - In particular, developing countries tend to see economics as hopelessly political (i.e. politicized). For example, in 1991 Brazil blocked the creation of an economics working group on that basis.
 - If we send diplomats to lead for the US in the IPCC, the US will lose influence in the IPCC. State will be running it, but it will be a sinking ship.
 - For this to be a success, we need to present a scientific face: send top natural scientists and social scientists to the IPCC.
 - The US will gain influence in the IPCC. Other countries will trust our participation. This will benefit the US as a whole, and State Dept. too -- State will be part of a team running a growing project.
 - The US will encourage more top experts from other countries to join this effort.
 - That is what has worked so well in Working Group 1 (atmospheric science), where the US lead has been a scientist (Watson).
 - In Working Group 3 (economics), we need to do the same. Otherwise, the top economists will not get involved in the IPCC, and the IPCC economics report will be a failure.

- So we can all work together.
 - The US lead in each Working Group will be the relevant science expert.
 - The State Dept. would be Deputy Head of Delegation to each meeting, and we would rely heavily on State for all diplomatic functions. State would continue to do a great deal of coordinating work for IPCC, with OSTP/CEA.
- o The great importance of the IPCC is in its credibility as an expert body separate from the policy debates in the formal Intergovernmental Negotiating Committee (INC) on the Framework Convention.
- State would of course lead the delegations to INC.
 - The IPCC effort is very much like the "Project '88" effort chaired by Senator Wirth (D-CO) and the late Senator John Heinz (R-PA): a bipartisan effort, directed by Rob Stavins at Harvard, to generate credible expert advice on the use of economic incentives in environmental policy. Project '88 has been very successful in getting key ideas into the policy process -- but because it had expert credibility. The IPCC needs the same.

Rebuttal points:

- o "Intergovernmental" (in the title of the IPCC) does not mean diplomats only. CEA and OSTP are governmental bodies; we are government officials. The key for the US government is how best to represent itself. Of course we will all work together to make this a foreign policy success as well as a scientific success.
- o Who should lead the US delegation to Working Group 2 ?
(Watson will be the international Chair of Working Group 2.)
 - OSTP suggests James Baker, new head of NOAA. He's an oceanographer.
 - But WG 2 is supposed to look at impacts, adaptation and mitigation actions, including costs and benefits.
 - It might be better to have someone with an expertise in policy as well.
 - How about the person who will be Director of Climate Change at DOE ? That position was created by the Energy Policy Act of 1992, but is not yet filled.

Proposed Structure

<u>WG</u>	<u>Lead of US team / delegation</u>
WG 1	Bob Watson (OSTP) and Dan Albritton (NOAA) Coordination: CEES and State Dept.
WG 2	James Baker (NOAA) (??) (how about the new Director of Climate at DOE ?) Coordination: State Dept. [International chair of WG 2: Bob Watson]
WG 3	Joe Stiglitz (CEA) Coordination: CEES/ERNRE and State Dept.

Idea: Just make it a think piece - substance, not a glove tossed at his feet.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

April 29, 1993

MEMORANDUM FOR TIM WIRTH

FROM: JOHN H. GIBBONS
LAURA D. TYSON

SUBJECT: US Leadership in the Intergovernmental Panel on Climate Change (IPCC)

On Earth Day 1993, President Clinton announced that the US would take the lead in addressing the challenge of global warming and, at the same time, he reaffirmed the nation's commitment to reducing our emissions of greenhouse gases. Accordingly, we would like to move ahead aggressively to put into place the US scientific and technical leadership for the Intergovernmental Panel on Climate Change (IPCC). As you know, these IPCC assessments are critical in providing the scientific and technical background for the activities and decisions of the Intergovernmental Negotiating Committee (INC).

The IPCC is a technical and scientific body, separate from the INC. In order to accomplish the most technically sound assessments of climate change, countries are meant to be represented at meetings of the IPCC by their best scientific and technical expertise on the science, economics, impacts, and response strategies for climate change. Ideally, the individuals should be internationally renowned in their fields. WG-1 has been a success - both for the IPCC and for the US - because it is run by the best US and foreign scientists. The same should be true of WG-2 + 3. We believe that it is essential to separate the functions of policy-formulation and negotiation from the international scientific/economic/technical assessment process. The reason for this is that US interests in the IPCC and the INC may both be compromised without this separation. If policy negotiators lead the US delegations to IPCC meetings, the IPCC process could be viewed as being policy-driven. Hence, the value of the IPCC assessments to State Department lead delegations to the INC would be diminished. Therefore, while DOS must continue to lead the US negotiations at the INC and interagency process for the INC, it is crucial to change the heads of the US delegations to Working Groups #2, #3 and the Plenary Sessions as well as the US coordination mechanism for the IPCC and replace them with US leaders in the fields of science, technology, and economics.

This approach will be good for

Accordingly, our recommended choices are senior-level individuals in the current administration who have already demonstrated international leadership in the fields of science, technology, and economics. We would suggest that Deputy Heads of delegation could be senior officials from the Department of State with the appropriate technical backgrounds. Our recommendations are as follows:

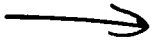
the US overall, including beneficial for the State Dept, because it would expand US influence in the IPCC rather than let it decline. (over)

Many developing countries fear economics is politics;

US input

reducing US clout in the IPCC and impairing the IPCC's credibility.

Cont'd



If the US goes to the IPCC with a policy face, other countries will mistrust US participation, and US influence will shrink. State will be in charge of a business losing market share. But if the US goes to the IPCC with a scientific expert face — and includes State as deputy head of delegation and in key coordinating roles ~~and~~ internationally — US influence will grow, both ~~with~~ with other IPCC countries and by bringing ~~the~~ esteemed non-government experts (e.g. top US economists) into the IPCC process. State will then be a member of the management team of a growing business, building market share — better for all concerned.

(1) Working Group #1: Science

Historical Context

The US Government has coordinated its input and peer-review process through the FCCSET/CEES, which has an established assessment working group co-chaired by Dr. Robert Watson (formerly of NASA, now of OSTP) and Dr. Gary Evans (USDA). USG delegations at WG #1 plenary sessions have been chaired by Dr. Watson.

Future Approach

The CEES Assessment Working Group will continue to provide the head of the USG delegation for WG #1 (Dr. Watson and Dr. Dan Albritton, NOAA) as well as the secretariat and coordination functions for the US input to WG #1.

(2) Working Group #2: Impacts, Adaptation and Mitigation

Historical Context

On February 12, 1993, Dr. Robert Watson (OSTP) was named to succeed Mr. Robert Reinstein (DOS) as the US Co-Chairman of the IPCC WG #2. Until that time, ^{both} DOS provided the US Co-Chairman, headed the US delegation and provided Secretariat and coordination support.

Future Approach

Dr. Watson will continue as US Co-Chair of IPCC WG #2. However, to insure that Dr. Watson is viewed as an impartial chair, Dr. Watson will not head the USG delegation; instead, Head of Delegation should be Dr. D. James Baker, Administrator-designee of NOAA. The ~~CEES Assessment Working Group~~ (sketch) (chaired by Dr. Watson) will provide Secretariat support to Drs. Watson and Baker as well as the coordination function. State/OES would serve as Deputy Head of Delegation.

(3) Working Group #3: Economics and Cross-Cutting Issues

Historical Context

This is a new Working Group

Future Approach

The Head of the USG Delegation, will be Dr. Joe Stiglitz, Member-Designate of the Council of Economic Advisors, and Chairman of the FCCSET/CEES Subcommittee on Economics Research on Natural Resources and the Environment (ERNRE). The ERNRE will provide the coordination and Secretariat function for US technical information and input.

State/OES or State/EB would serve as Deputy Head of Delegation.

(4) Plenary Sessions IPCC

Historical Context

Until February 12, 1993, Mr. Robert Reinstein, of the Department of State headed the US delegation to the IPCC and DOS/OES coordinated the overall US representation to the IPCC.

Future Approach

OSTP will coordinate the scientific + technical input to IPCC, Dr. Watson, as Head of WG #1, US CoChair of WG #2, and member of ERNRE, should head the US delegation to the Plenary Sessions of IPCC. The CEES Assessment Working Group, which he chairs, will provide Secretariat support as well as the coordination function for US activities in WG #1, WG #2, and Plenary Sessions.

OSTP
and
State/OES

with
assistance
from State

The IPCC is a technical and scientific body, separate from the INC. In order to accomplish the most technically sound assessments of climate change, countries are meant to be represented at meetings of the IPCC by their best scientific and technical expertise on the science, economics, impacts, and response strategies for climate change. Ideally, the individuals should be internationally renowned in their fields. WG #1 has been a success – both for the IPCC and for the U.S. – because it is run by the best U.S. and foreign scientists. The same should be true of WGs #2 & #3.

*F. Enron
(Climate Change)*

It is essential to separate the functions of policy-formulation and negotiation from the international scientific/economic/technical assessment process. US interests in the IPCC and the INC may both be compromised without this separation. Many developing countries fear economics is politics. If policy negotiators lead the US delegations to IPCC meetings, U.S. input could be viewed as being policy-driven, reducing U.S. clout in the IPCC and impairing the IPCC's credibility. Therefore, while DOS must continue to lead the US negotiations at the INC and interagency process for the INC, it is crucial that the heads of the US delegations to Working Groups #2, #3 and the Plenary Sessions, as well as the U.S. coordination mechanism for the IPCC, be U.S. leaders in the fields of science, technology, and economics.

This approach will be good for the U.S. overall, including beneficial for the State Department, because it would expand U.S. influence in the IPCC rather than let it decline. If the U.S. goes to the IPCC with a policy face, other countries will mistrust U.S. participation, and U.S. influence will shrink. But if the U.S. goes to the IPCC with a scientific expert face – and includes State as deputy head of delegation internationally – U.S. influence will grow, both with other IPCC countries and by bringing esteemed non-government experts (e.g., top U. S. economists) into the IPCC process.

(1) Working Group #1: Science

Historical Context

The US Government has coordinated its input and peer-review process through the FCCSET/CEES, which has an established assessment working group co-chaired by Dr. Robert Watson (formerly of NASA, now of OSTP) and Dr. Gary Evans (USDA). USG delegations at WG #1 plenary sessions have been chaired by Dr. Watson.

Future Approach

The CEES Assessment Working Group will continue to provide the head of the USG delegation for WG #1 (Dr. Watson and Dr. Dan Albritton, NOAA) as well as the secretariat and coordination functions for the US input to WG #1.

(2) **Working Group #2: Impacts, Adaptation and Mitigation**

Historical Context

On February 12, 1993, Dr. Robert Watson (OSTP) was named to succeed Mr. Robert Reinstein (DOS) as the US Co-Chairman of the IPCC WG #2. Until that time, DOS provided the US Co-Chairman, headed the US delegation and provided Secretariat and coordination support.

Future Approach

Dr. Watson will continue as US Co-Chair of IPCC WG #2. However, to insure that Dr. Watson is viewed as an impartial chair, Dr. Watson will not head the USG delegation; instead, Head of Delegation should be Dr. D. James Baker, Administrator-designee of NOAA. The CEES Assessment Working Group will provide Secretariat support to Drs. Watson and Baker as well as the coordination function. State/OES would serve as Deputy Head of Delegation.

(3) **Working Group #3: Economics and Cross-Cutting Issues**

Historical Context

This is a new Working Group

Future Approach

The Head of the USG Delegation, will be Dr. Joe Stiglitz, Member-Designate of the Council of Economic Advisors, and Chairman of the FCCSET/CEES Subcommittee on Economics Research on Natural Resources and the Environment (ERNRE). The ERNRE will provide the coordination and Secretariat function for US technical information and input. State/OES or State/EB would serve as Deputy Head of Delegation.

(4) **Plenary Sessions IPCC**

Historical Context

Until February 12, 1993, Mr. Robert Reinstein, of the Department of State headed the US delegation to the IPCC and DOS/OES coordinated the overall US representation to the IPCC.

Future Approach

OSTP will coordinate the scientific and technical input to IPCC, with assistance from State. Dr. Watson would head the US delegation to the Plenary Sessions of IPCC. OSTP and State/OES will provide Secretariat support as well as the coordination function for US activities for Plenary Sessions.

*F
Environ
Conc
Chair*

Committee on Earth and Environmental Sciences
Subcommittee on Economic Research on Natural Resources and the
Environment (ERNRE)

Wednesday April 28, 1993 2:00-3:00
OEOB 324

AGENDA

- * First Meeting of IPCC Working Group 3, May 3-7, Montreal
 - Role of economic research and ERNRE
 - Strategy: What is US delegation attempting to accomplish?
 - Tactics: How do we get there?
 - Logistics: Agenda, communications, etc.
- * Canadian draft outline
 - Comments, suggestions
 - Items to emphasize
 - Items for revision
 - Sensitivity about US domination
- * Delegation matters
 - Delegation meeting State Dept. Thursday 1:00
 - Delegation list
 - Other countries' representatives

**** This paper is intended to serve as the basis for discussion among members of the U.S. delegation and not as instructions for the delegation. It should not be circulated outside the USG. ****

**GUIDELINES FOR USG DELEGATION TO IPCC WORKING GROUP 3 MEETING
MONTREAL May 3-7**

General:

- * The Administration is committed to the work of WG3, and strongly supports the elevation of economics in the work of the IPCC.**
 - The US recognizes the critical importance of sound economics in the policy discussions to come.
 - The US believes that economics is the bridge between natural science and policymaking in global change, and that insights from economic research will greatly improve the quality of the policy that emerges from the <Conference of the Parties?>.
- * The US believes the work of WG3 is essentially scientific rather than political.**
 - US commitment to this view is indicated by the appointment of one of the leading US academic economists as head of delegation.
 - The US believes that policy discussions should in general not be part of WG3's agenda, except insofar as different policy instruments must be evaluated, and ***
- * The Administration supports the outline informally circulated by the Canadians.**

The outline is for internal USG background use and should not be circulated.
- * The Administration would be pleased to provide review, comments, suggestions, and staff support where feasible to the Canadian and Korean co-chairs.**
 - US domination of climate change economics research. The US has the world's strongest research community on the economics of climate change. More professional economists engaged in research on climate change live and work in the US than in any other country. Far more than half of all citations on climate change in the scholarly literature are from economists at American universities and research institutions.
 - Sensitivity about US enforcing its views. At the same time,

US participants must be sensitive to other countries' sensitivity about U.S. domination.

- The best approach is likely to be ***
- Further, US participants should not circulate US technical recommendations, as this might make it more difficult for the chairs to accept US recommendations.

Specific Points:

- * **Terms of Reference notes**
- * Top-down/bottom up question only one part of a much larger question.
- * **Specific notes on Canadian outline.**

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

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World Meteorological Organization
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Partial List of participants
at Montreal
May 3-7

IPCC Working Group III -
Economics

4/27/93

Additional people

Attending IPCC WG-3.

Sweden - Leif Bernergard, then EPA

Denmark - Fritz Anderson, National Envtl Resch Inst.
Jeff Fenger, " " " "

Norway - Ted Hauisch, CICERO
Per Stiansen, Min. of Envt

Finland - Jaakko Ojala, Min. of Trade
Salo Asi-Kainen, Min. of Envt

Jordan - Ameen Khareem, Meteorological Service

Canada - Doug Russell, Envt Canada
Policy Office

(Jim Bruce will be WG-3 co-chair)

total estimate: 375 for Monday evening
incl. govt representatives
and workshop participants

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V A R I O U S P A R T I C I P A N T S

Place of Meeting : MONTREAL
Date : 03/05/93 to 07/05/93
Meeting Form Number : 91-93
Budget code : 5035220
Title of Meeting :

FIRST SESSION OF THE REORGANIZED WG III OF IPCC

DR NIKOLAI AKSARIN
CENTRAL ASIAN RESERACH HYDROMETEOROLOGICAL
INSTITUTE (SANIGMI)
72, OBSERVATORSKAYA STREET
(REP. OF UZBEKISTAN CIS
TELEPHONE : 3712 33 61 13 FAX : 3712 332025
TRAVEL : No PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
ONLY PERDIEM TO BE PAID IN MONTREAL

MR Y.S. AL-HAJ
C/O DR A. ALMAKALEH
DIRECTORATE GENERAL OF CIVIL AVIATION
& METEOROLOGY PO BOX 1042 ZUBEIRI STREET
SANA'A

YEMEN
TELEX : 2334 CIVAIR YE FAX : 274126
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR SABIR ALI TAHA
METEOROLOGICAL DEPARTMENT
PO BOX 574
KHARTOUM

Visa requested

SUDAN
TELEPHONE : 71 693, 78 836, 72992 TELEX : 23 088 GV FAX : TLG: GOVMET KHARTOUM
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR LEONCIO A. AMADORE
PHILIPPINE ATMOSPHERIC SERVICES ADMINISTRATION
PAGASA
QUEZON BOULEVARD EXTENSION
QUEZON CITY
PHILIPPINES
TELEPHONE : 00632-922-7813 FAX : 00632-922-7872
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 2

MR CORNELIS R. BECKER
METEOROLOGICAL SERVICE SURINAME
DUISBURGLAAN/LEYSWEG 1 - PO BOX 2273
GROOT-PARAMARIBO
PARAMARIBO
SURINAME

TELEPHONE : 597 460029 TELEX : METEO PARAMARIBO FAX : 597-464901/490627
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR J.R. BHATT
MINISTRY OF ENVIRONMENT & FORESTS
CGO COMPLEX, LODI ROAD
NEW DELHI

110003 INDIA
TELEPHONE : 4361669/525-7519156 FAX : 4360678
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR JOHN BONGAARTS
~~THE POPULATION COUNCIL~~
~~1 DAG HAAMERSKJOLD PLAZA~~
~~NEW YORK, NY 10017~~
~~USA~~
TELEPHONE : 001 212 339 0500 FAX : 001 212 755 6052
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

MR ANTHONY E BORG
MINISTRY OF FOREIGN AFFAIRS
MERCHANTS STREET
VALETTA

MALTA
TELEX : 406 1471 MODMIT MW FAX : 356 23 4494/3694
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

*call from n' Borg
on 26/04
DSA robe paid
in Montreal
higher to be reimburs
ed after meeting*

LUIS CACERES
INST. COLOMBIANO DE HIDROLOGIA (INAMHI)
PARIS 270 Y GASPAR DE VILLAROEL
QUITO

ECUADOR
TELEPHONE : 433-934, 433-935, 936 TELEX : DIRMETECUADOR, QUITO FAX : 433 934
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 3

MR JULIO CANALES
SERVICIO NACIONAL DE METEOROLOGIA
E HIDROLOGIA DEL PERU - AV. REPUBLICA DEL CHILE
295 - OFICINA 205

LIMA

PERU

TELEPHONE : (5114) 336340/330166 TELEX : METEO PERU LIMA FAX : (5114) 336340
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR MDIAYE CHEIKH SYLLA
DIRECTION DE L'ENVIRONNMENT
23, RUE CALMETTE
BP 4049

DAKAR

SENEGAL

TELEPHONE : 221 21 07 25 FAX : 221 23 38 64
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ABDIMITAL, TURNALIEVICH CHINGODJIEV
RESPUBLIKA OF KIRGYSTAN
GOVERNMENT BUILDING
BISHKEK

REP OF KIRGYSTAN

TELEPHONE : 3312-21-83-77 FAX : 3312-21.86.27
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

PROF WILLIAM, R. CLINE
INSTITUTE FOR INTERNATIONAL ECONOMICS
11 DUPONT CIRCLE, NW
WASHINGTON DC 20036
USA

TELEPHONE : 01 202 328 6295 FAX : 01 202 328 54 32
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

MR IAN COLLINS
MINISTRY OF ENVIRONMENT
ECONOMIC PLANNING & EXTERNAL RELATIONS

SEYCHELLES

TELEPHONE : 24688 TELEX : 2260 MINAE SZ FAX : 24845
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 4

DR ZHOU DADI
HEAD ENERGY SYSTEMS ANALYSIS DIVISION
ENERGY RESEARCH INSTITUTE
BUILDING 917
ANWAI DATUNLU
BEIJING
CHINA

FAX :86 01 809 2728

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No

ATTENDANCE FROM : 03/05/93 TO : 07/05/93

THEY HAVE RESERVED A ROUND TRIP TICKET BY AIR CHINA LEAVING BEIJING ON MAY
ST AND MONTREAL ON MAY 8TH

DR D. DAGVADORJ
HYDROMETEOROLOGY INSTITUTE
C/O BATJARGAL
MINISTER OF ENVIRONMENT
MONGOLIA

TELEX :79343 MACNE MH

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No

ATTENDANCE FROM : 03/05/93 TO : 07/05/93

visa Requested

MR KAIS DALY
AGENCE DE LA MAITRISE DE L'ENERGIE
3, RUE 8000 MONTPLAISIR 1002
TUNIS

TUNISIA

TELEPHONE :787 700 TELEX :15286 TN FAX :784 624

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No

ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR JAMES A. EDMONDS
BATTELLE PACIFIC NORTHWEST LABORATORIES
901 D. STREET SW
SUITE 900
WASHINGTON DC 20024-2115
USA

TELEPHONE :01 202 646 5234 FAX :01 202 646 5233

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No

ATTENDANCE FROM : 03/05/93 TO : 07/05/93

INVITED SPEAKER

DR TIBOR FARAGO
MINISTRY OF ENVIRONMENTAL PROTECTION
PO U 44/50
1011 BUDAPEST

HUNGARY

TELEPHONE : (361) 201 41 33 FAX : (361) 201 28 46

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No

ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 5

MR LEMMA GONFA
NATIONAL METEOROLOGICAL SERVICE AGENCY
PO BOX 1090
ADDIS ABABA
ETHIOPIA
TELEPHONE : 002511/51 22 99 TELEX : 21474 TMET ET FAX : 002511/51 70 66
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

PROF HANS GOTTINGER
C/O ISGM
SCHLOSS WALDSEE
D-7967 BAD WALDSEE
GERMANY
TELEPHONE : 4975 24 4115 FAX : 4975 24 8836
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

CORO CARLOS A GREZZI
DIRECCION DE MEDIO AMBIENTE
CALLE GABRIEL PEREIRA 3184
APTO. 1001
MONTEVIDEO
URUGUAY
FAX : 62 26 93
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR M. GRUBB
ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS
10, ST. JAMES SQUARE
LONDON SW1Y 4LE
UNITED KINGDOM
TELEPHONE : 71 930 2233 TELEX : RIIA TLXIR 896691 FAX : 71 839 3593
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

MR EWARYST HILLE
C/O MINISTRY OF ENVIRONMENTAL PROTECTION
DEPARTMENT OF INTERNATIONAL COOPERATION
52-54 Wawelska street
00-922 WARSAW
POLAND
TELEPHONE : 48 22251133/39120042 TELEX : 824196 DIC PL FAX : (48)22-25 39 72
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 6

DR ABDEL MONEIM ABDEL RAHMAN IBRAHIM
THE METEOROLOGICAL AUTHORITY
PO BOX 11784
KOUBRY EL-QUOBBA
CAIRO

EGYPT

TELEPHONE : 202- 830053-830069 TELEX : 94293 METEG UN FAX : 202-2849857
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

PROF J. ILUKOR
DEPARTMENT OF PHYSICS - MAKERERE UNIVERSITY
PO BOX 7062
KAMPALA

UGANDA

TELEPHONE : C/O P. OKOT-DPT MET, FAX : 25166
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR PETRAS KORKUTIS
LITHUANIAN ADMINISTRATION
OF HYDROMETEOROLOGY
6 RUDNYOS STREET
VILNIUS, GSP, 232600

LITHUANIA

TELEPHONE : 8-0122-75 11 94 TELEX : 303337 ORAI FAX : 0103702 753500
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ELOI CACOU N. KOUADIO-IV
MINISTERE DE L'ENVIRONNEMENT
ABIDJAN

REP DE COTE D'IVOIRE

FAX : 225-211106/214561
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR ABDELKARIM KURBANOVITCH KURBANOV
734025 BOKHTAR ST, 12 DUSHANBE
DUSHANBE

TAJIKISTAN

TELEPHONE : 232878 TELEX : 116277 FAMIR SUV FAX : 377-27-55-81
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 7

MRS NANA YAYA LANSRY HAIDARA
MINISTERE DU DEVELOPPEMENT RURAL ET DE
L'ENVIRONNEMENT
BAMAKO

MALI

TELEPHONE : 00223.22.29.79 FAX : 00223 22 52 26
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR JUAN LLANES REGUEIRO
INSTITUTO DE METEOROLOGIA
Apartado 17032 - Habana 17,
CP 11700
HABANA

CUBA

TELEPHONE : 617500, 621051/58-40 TELEX : 512618, 512610 ISMETCU
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ASHTON LUGAY
C/O MR FELIX GREGOIRE
MINISTRY OF AGRICULTURE
FORESTRY & WILDLIFE DIVISION
BOTANICAL GARDENS ROSEAU

DOMINICA

WEST INDIES
FAX : 809 44 87 999
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR FRANCISCO MABJAIA
NATIONAL ENVIRONMENT COMMISSION
C/O BERNARDO FERRAZ, GENERAL DIRECTOR
NEC

MOZAMBIQUE

TELEX : 6-962 CNMA MO
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

CECILIA MACKENNA
DIRECCION DE POLITICA ESPECIAL
DEPARTAMENTO DE MEDIO AMBIENTE
MINISTERIO DE RELACIONES EXTERIORES
SANTIAGO DE CHILE

CHILE

TELEPHONE : 0056 2) 6980301-6982 TELEX : 501 - FAX : 6994202
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 8

 MR , MAHBOOB ELAHI
 MINISTRY OF ENVIRONMENT & URBAN AFFAIRS
 ISLAMABAD
 PAKISTAN

TELEX :54434 EUA PK
 TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
 ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR . MANFUL
 ENVIRONMENTAL PROTECTION COUNCIL
 GHANA

TELEX :2609 ENVIRON GH
 TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
 ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR A MANNE
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 STANFORD UNIVERSITY
 STANFORD, CALIFORNIA 94305
 USA

TELEPHONE :01 415 858 2142 FAX :01 415 723 4107
 TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
 ATTENDANCE FROM : 03/05/93 TO : 07/05/93
 INVITED SPEAKER

125 GAIDA MATISONE
 LATVIAN HYDROMETEOROLOGICAL AGENCY
 19 K. VALDEMARA ST.,
 LV-1010
 RIGA

LATVIA
 TELEPHONE :(0132) 332829 TELEX :161151 SHAR SU FAX :007013 2286783
 TRAVEL : No PER DIEM : Yes LUMP SUM : No
 ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ARMANDO MELIAN
 MINISTERIO DE ENERGIA Y MINAS
 Parte central torre oeste
 piso 16 -
 CARACAS 1010
 VENEZUELA

TELEPHONE :507 6604-6601-6080 TELEX :31 21 692/21550 FAX :582575/4386-2497
 TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
 ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 9

DUMITRU MIHU
MINISTRY OF ENVIRONMENT
UNDERSECRETARY OF STATE OFFICE
NATIONAL COMMITTEE ON CLIMATE CHANGE
ROMANIA

FAX : 0040 120 403
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR MOHUN MUNASINGHE
THE WORLD BANK
1818 H STREET NW
WASHINGTON DC 20433
USA

FAX : 001 202 477 0968
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

DR NEBOJSA NAKICENOVIC
INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS
IIASA
A-2361 LAXENBURG
AUSTRIA

TELEPHONE : 43 22 36 71 521 FAX : 43 22 36 71 1313
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

MR . NKAYA-LOUBAKI
DIRECTION GENERALE DE L'ENVIRONNEMENT
BP 958
BRAZZAVILLE
CONGO

TELEX : 5282 KG FAX : 242-8371-50/83.39.87
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

PROF RICHARD NORGAARD
ENERGY AND RESOURCES GROUP
UNIVERSITY OF CALIFORNIA
BERKELEY
BUILDING T-4 ROOM 100
BERKELEY, CALIFORNIA 94720
BERKELEY
USA

FAX : 001 501 548 4815
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

Visa requested

26/04/93 Page : 10

LEONARD NURSE
COASTAL CONSERVATION PROJECT UNIT
OISTINGS GOVERNMENT COMPLEX OISTINGS CHRIST CHURCH
GOVERNMENT OF BARBADOS
BARBADOS
TELEPHONE : 428-5945 FAX : 428-6023
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR JOHN NYLANDER
MINISTRY OF LANDS, MINES & ENERGY
PO BOX 10-9024
1000 MONROVIA 10
LIBERIA
FAX : 00874-1505746
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

R.S. ODINGO
DR
Dptment of Geography-Uni of Nairobi
P.O. Box 30197,
NAIROBI
KENYA
TELEPHONE : 334244 TELEX : VARSITYKE FAX : 220 228
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR KEN B ONNO
NATIONAL WEATHER SERVICE
PO BOX 6046
BOROKO, NCD
PAPUA NEW GUINEA
TELEPHONE : 252788 FAX : 252740
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MS MARIA DEL CARMEN OROZCO CHINCHILLA
INSTITUTO METEOROLOGICO NACIONAL
APARTADO POSTAL 7-3350
SAN JOSE
COSTA RICA
TELEPHONE : 23.18.37 TELEX : 2867 METICA CR
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 11

DR R.K. PACHAURI
TATA ENERGY RESEARCH INSTITUTE
TERI
7, JOR BAGH
NEW-DELHI - 110003
INDIA

TELEPHONE :46 27 651 FAX :91 11-46 21 770
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 04/05/93
MR PACHAURI WOULD LIKE TO LEAVE MONTREAL ON THE OF MAY 4TH SINCE HE
IS REQUIRED BACK TO DELHI FOR ANOTHER COMMITMENT
INVITED SPEAKER - TO BE PAID C/O UNDP OFFICE FOR TRAVEL AND PERDIEM

MRS JYOTI PARIKH

DR
INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH
GEN VARDYA MARG GOREGAON,
BOMBAY-400 065

INDIA
TELEPHONE :8402752 TELEX :11-70040 IGI IN FAX :DEVRES-BOMBAY-400 06
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER
TRAVEL AND DSA WILL BE REIMBURSED IN MONTREAL

BUBU PATEH JALLOW
DEPARTMENT OF WATER RESOURCES
7E MARINA PARADE,
BANJUL

GAMBIA
TELEPHONE :28214,28216 TELEX :IN-2426/2205 GPMB GV FAX :220 28628
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

ERNESTO PINEDA AGUILAR
DIRECCION GENERAL DE AERONAUTICA CIVIL
APARTADO N030145
TEGUCIGALPA D.C.
HONDURAS C.A.
TELEPHONE :33-8075/1112/14 TELEX :1523 HO-cable:DIRGA FAX :504-333683
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

DR VASILY PRIDATKO
DEPARTMENT OF ENVIRONMENTAL MONITORING OF MINISTRY FOR
ENVIRONMENTAL PROTECTION OF UKRAINE
5, KRESHCHATYK STR.
KIEV-1, 252001

UKRAINE
FAX :044-2298383,2298050
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 12

DR JUAN ALBERTO ROCCATAGLIATA
AVDA JULIO A. ROCA 782, PISO 7
1067 CAPITAL FEDERAL
BUENOS AIRES
ARGENTINA

TELEPHONE : 343-0181/9 X304 FAX : 331-6376
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MRS S. ROUDNEVA
COUNCIL OF MINISTERS
HOUSE OF GOVERNMENT
MINSK 220010
REPUBLIC OF BELARUS

FAX : 007/0172 296 665
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ERNEST RUKANGIRA
MINISTERE DE L'ENVIRONNEMENT ET DU
TOURISME

BP 2378

KIGALI

RWANDA

TELEPHONE : 250-72237/250-77415 FAX : 250-74834/76263

TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR. O. SALIH
DIRECTION DE LA PROTECTION DE LA NATURE

BP 170

NOUAKCHOTT

MAURITANIA

TELEPHONE : 22 22 51824 FAX : 0022 22 51834
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR MICHAEL STUBBS
METEOROLOGICAL DEPARTMENT

PO BOX N-8330

NASSAU N.P.

BAHAMAS

TELEPHONE : 809 325-4840/2 FAX : 800-327-5275
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

26/04/93 Page : 13

DR PETER STURM
HEAD RESOURCE ALLOCATION DIVISION
OECD
2 RUE ANDRE PASCAL
75775 PARIS CEDEX 16
FRANCE
TELEPHONE : 33 1 45 24 87 09 FAX : 33 1 45 24 85 00
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93
INVITED SPEAKER

MR . TENORIO
NATIONAL INSTITUTE OF ECOLOGY
C/O MR JAIME BRASH
COMISION NACIONAL PARA EL AHORRO DE ENERGIA
MEXICO
MEXICO
TELEPHONE : 553 99 69/55396012 FAX : 553 97 53
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR CHARIT TINGSARADH
ENVIRONMENTAL RESEARCH INSTITUTE
CHULALONGKORN UNIVERSITY
PHYATHAI ROAD
BANGKOK 10330
THAILAND
TELEPHONE : 662-2514426-27 FAX : 662-2525929
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR ROGER TONLEU
MINISTERE DE L'ENVIRONNEMENT
ET DES FORETS
YAOUNDE
CAMEROON
FAX : 237 215 350
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

MR NGUYEN TRONG HIEU TRONG HIEU
HYDROMETEOROLOGICAL SERVICE OF THE
SOCIALIST REP OF VIET NAM
4 DANG THAI THAN STREET
HANOI
VIET NAM
TELEPHONE : 53467 TELEX : METEO HANOI FAX : 84 4 253 525
TRAVEL : Yes PER DIEM : Yes LUMP SUM : No
ATTENDANCE FROM : 03/05/93 TO : 07/05/93

Visa refused

July



INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



Edits at
WG-3 mtg
5-7 May, 1993

Edits
~~to be made~~
in Annex B
6 May 93, 11:00 AM

IPCC Working Group III
First Session
Geneva, 3-7 May 1993

WGIII/1st/Doc. 2, Rev. 1
(6.V.1993)
ENGLISH ONLY

Geneva
(1993)
Chap

REVISED

DRAFT WORKPLAN PROPOSED BY THE CO-CHAIRS OF IPCC WORKING GROUP III

Ram says: revised
workplan text
(Annex B) will
be
- retyped
- reviewed by
Jim Bruce +
Hoesung Lee
- mailed out
to countries
by 21 May 1993.

A PROPOSED PLAN FOR THE WORK PROGRAMME OF
IPCC WORKING GROUP III

Explanatory Notes

Scope of Work

It is proposed that the efforts of the newly reconstituted Working Group III of IPCC be carried out in the manner described in this work plan. Attached, and forming part of the work plan are the time line for completion of various phases of the work (Annex A) and a proposed outline of the themes to be considered in the Working Group III Second Assessment Report (Annex B).

The Working Group will, in accordance with its Terms of Reference, prepare a comprehensive technical assessment of the socio-economics of mitigation of climate change, the impacts of climate change and adaptation to climate change over both the short and long term and at the regional and global levels. This contrasts with the work of Working Group II, which will be assessing the economic impacts on particular economic sectors at a more local level. Nevertheless, considerable collaboration between the two working groups will be necessary.

As reflected in UNGA document A/AC.237/30 the chair of the Intergovernmental Negotiating Committee for the Framework Convention on Climate Change has requested that IPCC prepare, in time for the first meeting of the Conference of the Parties to the Convention (COP), "an evaluation of current scenarios of greenhouse gas emissions and removals by sinks". The proposed time line addresses this request and assumes that the first meeting of the COP will take place in the spring of 1995. If this turns out not to be the case, the timing of activities shown that relate to the evaluation of scenarios would be adjusted accordingly. This element of the work is expected to build heavily on the work of the original Working Group III on response strategies, which developed six greenhouse gas emissions scenarios. It is suggested that this work be carried out by examining the major assumptions made in developing the original scenarios and, based on whatever new information is available, assessing the validity and appropriateness of those assumptions and making recommendations on the need for updated or new scenarios. If it is agreed that new scenarios are needed, actions will have to be taken to develop them.

In evaluating scenarios and in developing its scientific and technical assessment, the Working Group proposes to undertake a number of specific activities, which are described in this work plan.

Principal
Considerations

The work of the Working Group will be carried out with the following considerations in mind:

- a) Institution and capacity building will be integrated into the work program.
- b) The work of the Working Group will not stand in isolation from other IPCC activities. Consultation and co-ordination with the activities of the other Working Groups will be carried out to the greatest extent possible.
- c) The work will, to the greatest extent possible, build on existing work, recognizing that the IPCC role is one of assessing existing knowledge.

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Page 1

as well as a technical input on criteria for the review of info submitted by developed countries and methodology for assessing the global results of measures.
[quoted from A/AC.237/30 [Netherlands]]

+ Tasks for IPCC from INC [Netherlands] (Sandia, Ojeda, Bolin concerns - leave for later)

Bruce: reflect this issue - need for clarification from INC and IPCC Plenary re whether WG-3 has additional tasks to undertake.

[US: Chair of IPCC shd. address this in answering his mail - letter from INC Chair.]

[UK: cite cross-cutting issues IPCC needs to address.]

* Secretariat will prepare a short summary of how WG 3 should carry out its work - so all countries (i.e. DCS) can participate
- timing
- languages

- d) The activities of the Working Group will take into account the special situations of developing countries and economies in transition and will be carried out at a pace and be of a type that allows for the full involvement of these countries.
- e) The work will be carried out in as cost-efficient a manner as possible, bearing in mind the limited resource capacity of IPCC and all member countries. This implies close co-operation with other bodies working in the same fields in order to avoid duplication of effort.

**Activities of the
Working
Group**

The Working Group will prepare a report comprising its contribution to the IPCC Second Assessment Report and containing a technical assessment of the state of knowledge of the socio-economics of climate change mitigation, adaptation and impacts, taking into account the factors described in part (a) of the Terms of Reference of the Working Group. It is proposed that the structure of this report follow the proposed outline of the table of contents shown in Annex B.

The Working Group will also prepare a report, in time for the first meeting of the Conference of the Parties to the Convention, on the validity, appropriateness and utility of existing net greenhouse gas emissions scenarios based on the factors described in part (b) of the Terms of Reference of the Working Group and containing updated or new scenarios as required.

The preparation of both reports would be carried out as follows, using the dates indicated in the time line in accordance with the procedures described in the IPCC proposal for procedures for preparation, review and adoption of IPCC reports:

- The Bureau of the Working Group will ask governments and participating organizations to identify experts in their countries who could be involved as part of teams of lead authors, contributors, and expert reviewers for each report. Governments will also be asked to identify IPCC contacts for the purpose of co-ordinating later review by their governments.
- The Bureau of the Working Group will ask governments to suggest themes, dates and locations for IPCC workshops that could be held to review the scenarios and the scientific and technical work that is being assessed, bearing in mind the principal considerations noted above and the IPCC workshop policy. For reasons of economy and to avoid overlap and duplication, the Bureau will co-ordinate with other IPCC Working Groups and international organizations in conducting these workshops.
- Based on the suggestions of governments, the Bureau will meet with the Chair of IPCC and possibly with some of the experts identified, to decide on the detailed contents of each section of the reports, assign teams of lead authors for each section, and decide on which workshops should be held. The Bureau will also decide, from the perspective of Working Group III, whether IPCC co-sponsorship should be extended to other workshops, seminars or meetings.
- Lead authors will undertake preparation of the first drafts of each section and submit them to the Co-chairs, bearing in mind the tasks and responsibilities identified for contributors and themselves.

- The first drafts will be circulated for peer review to the specialists. Referenced material will be made available by the Co-chairs, who will collect the comments of the reviewers and make them available to the lead authors. Lead authors will then revise the drafts and if time permits in the schedule indicated in the time line, Co-chairs will circulate the revised drafts again for review.
- The revised drafts will be sent to governments for review.
- The summary for policymakers will be approved at a meeting of the Working Group in Plenary session and adopted by the Panel.

ANNEX A

PROPOSED TIME LINE FOR THE WORK OF IPCC WORKING GROUP III

	<u>Second Assessment Report</u>	<u>Evaluation of Current Emissions Scenarios</u>
Feb 1993	11: Meeting of the WGIII Bureau to formulate agenda and identify speakers for the first workshop	
Mar - May 1993	Development of draft workplan for the Second Assessment Report (SAR) by the WGIII Bureau	
May 1993	3-7: First session, including a workshop on the socio-economics of climate change and scenario assumptions. WGIII Plenary adopts workplan	
May 1993	Bureau call to governments and participating organizations for identification of lead authors for SAR	Bureau call to governments and participating organizations for identification of experts on scenarios
Jun 1993	14-16: OECD conference on the economics of climate change 28: IPCC Bureau meets	
July 1993	29-30: IPCC Ninth session approves workplan <i>15: deadline for countries + organization to submit names of lead authors, contributing authors</i> 29-30: WGIII Bureau meets to agree on lead authors and to assign responsibilities to them authors and to agree on workshops, based on the recommendations of governments and organizations	
Sep 1993	Lead authors' meeting	
Sep 1993 - Jun 1994	Workshops are held and lead authors prepare first drafts of SAR chapters	
<i>subsequent to this</i> [Oct 1993]	IPCC Bureau meets to review collaborative mechanisms	<i>Oct. 93 or whenever it takes place:</i> WGIII participates in proposed joint meeting workshop

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	and to monitor progress of IPCC work	WGI and WGII on stabilization of atmospheric concentrations, regional climate change scenarios and implications for impacts assessments
Dec 1993	WGIII bureau participates in proposed WGI Bureau meeting to review progress of collaborative efforts	Experts meet to consider the full drafts of evaluation of current emissions scenarios for COP, which are then circulated for peer review to be completed by March 1994
Mar 1994		Peer review of draft of evaluation of current emissions scenarios completed. Experts prepare the first draft of material for the COP
Jun 1994		Final drafts of evaluation of current emissions scenarios for COP circulated for review by countries and organizations
Aug 1994	Co-Chairs distribute first draft of SAR chapters for peer review	(Including draft Exec. Sum. and material/contributions for Policy Makers' Summary)
Aug - Nov 1994	Lead authors revise draft of SAR based on peer review	
Oct 1994		WGIII meets to approve material for COP
Nov 1994	Revised draft of SAR circulated for review by countries and organizations	IPCC plenary approves evaluation of current emissions scenarios for COP
Feb 1995	Lead authors and WGIII Bureau prepare final draft of SAR and circulate to all IPCC countries and organizations	(Including Policy Makers' Summary)
Mar - Jun 1995	WGIII Bureau prepares summary for policymakers and executive summary which are reviewed by governments and organizations and revised	
	Lead authors prepare summaries of any new	

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material available since the last revision of the SAR chapters. The summaries are then peer reviewed and the SAR chapters revised if necessary based on these peer-reviewed author summaries

Jun 1995	WGIII Plenary considers SAR chapters and approves summary for policymakers
Aug 1995	IPCC Plenary adopts SAR
Aug - Oct 1995	SAR printed and distributed

Workshops not sponsored by IPCC but useful for the work of Working Group III

July 1993	18-30: Meeting on carbon cycle modelling and projections of future atmospheric concentrations, Boulder, Colorado - proceedings and findings available by August, 1994
September 1993	13-17: Fourth international conference on CO ₂ measurements and analysis, Carqueiranne, France
October 1993	18-20: IIASA international conference on economic instruments for air pollution control

May 6, 1993: Draft for consideration by the Working Group III Plenary

ANNEX B

PROPOSED OUTLINE OF THE THEMES TO BE CONSIDERED IN THE WORKING GROUP III SECOND ASSESSMENT REPORT

PREFACE

The preface will outline the mandate and terms of reference of the working group, describe how it went about producing the report, what the intended audience of the report is and the purposes for which the report should be used. The preface will note that none of the tasks shall involve the Working Group making policy judgements. It will also place the socio-economic perspectives of climate change in the context of sustainable development, the Rio declaration on environment and development, Agenda 21 and the Framework Convention on Climate Change.

EXECUTIVE SUMMARY

SUMMARY FOR POLICY MAKERS

THE SECOND ASSESSMENT REPORT

The SAR consists of three parts. The first part addresses the scope of the assessment, and the remaining two parts address the mandate of the Working Group.

PART I: SCOPE OF THE ASSESSMENT

This assessment will include, inter alia, the socio-economic perspectives of climate change, the nature of the interactions between economic activity and climate change, and emissions scenarios.

PART II: THE SOCIO-ECONOMICS OF IMPACTS, ADAPTATION AND MITIGATION OF CLIMATE CHANGE

The mandate of the Working Group states that it should undertake "Technical assessments of the socio-economics of impacts, adaptation and mitigation of climate change over both the short and long term and at the regional and global levels. The work plan should, inter alia, consider the following topics: top-down and bottom up economic modelling...; the evolution of technological change; methods for risk assessment; methods for the generic assessment of response instruments...". For each theme in this part, a key question to be answered that addresses this section of the mandate has been identified.

CHAPTER 1: SOCIO-ECONOMIC FRAMEWORK FOR DECISION-MAKING

Key Question: How do we take socio-economic factors into account when making decisions about the climate change issue? The issues addressed under this theme will include, inter alia:

Socio-economics of climate change in relation to the need for sustainable development

Decision-making under uncertainty

The socio-economic factors to be considered when making decisions.

Risk assessment including, inter alia, discussion of the following questions:

What methods can be used to assess risk?
What are the perceptions of and responses to risk?
What are possible response measures?
What are the risks of inaction, of undertaking ^{various} economically attractive response measures and of taking more far reaching response measures?
(This section should take into account sequential decision-making, portfolio analysis, and benefits and costs of taking action early versus late.)

Methods and applications of cost-benefit analysis including, inter alia:

Concepts such as opportunity costs, trade-offs, marginal costs and marginal benefits and the value and importance of non-market factors such as biodiversity, long-term discounting, public perceptions, thresholds and irreversibilities.

Equity considerations including, inter alia:

Varying responsibilities among countries for past emissions, the "free rider" problem, inter-generational equity and the question of the time lags between the incurring of costs and the accruing of benefits.

The value of information including, inter alia, discussion of the following:

Significant efforts are being undertaken every year on global climate research in the area of natural sciences. Where are the highest potential payoffs for likely future decisions? What are the most critical uncertainties, including scientific uncertainties? How can research resolve them? What is the value of this scientific research in terms of its ability to describe the linkages between the natural sciences and socio-economics?

Sociological considerations

EVALUATING THE NET BENEFITS OF LIMITING CLIMATE CHANGE

Key Question: What ^{are economic contributions to understanding, both conceptually and empirically,} ~~methods exist for assessing the economic and social~~ benefits of action and inaction? The issues addressed under this theme will include, inter alia:

Methods for estimating benefits ^{estimates of avoided damages} through ~~damage avoided by adaptation~~

~~The status quo option?~~ What would be the socio-economic impacts in the absence of any action to deal with the problem of increasing concentrations in the atmosphere of GHGs and aerosols? ~~What would be the impacts of different degrees and timing of action to limit climate change?~~

- Methods based on market impacts - for example, adaptation through trade, market agents, migration of population and economic activity.
- Methods based on non-market impacts such as ecological and social impacts.

Methods for estimating the costs of human adaptation

Major issues in estimating benefits

An assessment of the state of knowledge related to issues involved in estimating benefits, including, inter alia, distinguishing between short-term and long-term impacts, techniques for valuing impacts on ecosystems, hard-to-define values such as aesthetics, impacts on land use, impacts on biological diversity, and modelling limits, i.e. dealing with thresholds and irreversibilities. + time horizons (per Saudi).

CHAPTER 3: EVALUATING THE ^{net} COSTS OF MITIGATION OF NET GHG EMISSIONS - LIMITING CLIMATE CHANGE

Key question: What are economic contributions to understanding, both conceptually and empirically, the costs of mitigation of GHG emissions? The issues addressed under this theme will include, inter alia:

Variables for measuring costs

A discussion of costs from ^{an intermediate} long-term perspective, including, inter alia, measures such as social welfare, real incomes, trade, productivity, and income transfers among regions. ^{health + other env'tl benefits}

Assumptions in empirical analysis including, inter alia:

- Modelling assumptions including uncertainties and ranges
- Technological change
- Macro-economic and demographic assumptions such as productivity growth, population and labour force change and structural change in economies
- ^{[raw material] input} ^[natural resource] ^[consistent] ^{across-model representations of renewable energy} Fuel supply schedules, demand and supply elasticities and exchange rates

Policy instruments including, inter alia:

- Economic instruments such as taxes, subsidies, tradeable permits, user charges and deposit-refund schemes ^{tradeable absorption obligations, [Pete Road]}
- Regulatory instruments, ^{including} ^{both} technology-based and performance-based
- Other instruments such as public awareness and education programs.
- ^{Practical experience?}

Modelling Methods

A description of various types of models (eg. "top down" and "bottom up") and a discussion of their relative strengths and weaknesses, including, inter alia, a discussion of data limitations, the reasons for differences in the predictions made by them and ways to evaluate those results and the integration of modeling techniques (eg. bottom up studies of new technologies). Possible other issues include dynamic vs. static models, econometric vs. parametric models, perfect vs. limited foresight in models, the treatment of international trade, model time horizons and how various modelling techniques could be integrated. + special concerns of developing countries.

Model Comparisons

Draft for consideration by the Working Group III Plenary

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Policy Instruments for Domestic or Regional Use

- should go after "Model Comparisons" subhead
- should only address costs; full comparison of instruments will be in Ch. 4.

A comparison of results including, inter alia, distributional impacts and reasons for differences, the impact of response measures by industrialized countries on developing countries and a survey of the degree of dependency of countries on the production, exportation and consumption of fossil fuel. A special effort will be made to incorporate developing country studies.

Major issues of cost estimation

Potential topics include, inter alia, unilateral versus multilateral responses, with trading allowed or not; the timing of policies and the amounts of reductions; and other matters such as reducing subsidies and recycling revenues.

Topics for future work

A discussion of the types of future research needed such as the integration of bottom up studies of new technologies into general equilibrium models, and research into the impacts of sustainable development practices.
+ examination of models for depiction of situation in DCs.

Bolli: "partnerships between ICS and DCs."

CHAPTER 4: GENERIC ASSESSMENT OF RESPONSE OPTIONS

Key question: What methods exist for assessing the net costs and effectiveness of different response options?

in a comprehensive manner [Kuwait]

net GHG sources + sinks [Kuwait]

The discussion of cost evaluation in each of these sections should incorporate a discussion of net costs and should include complementary socio-economic effects, both negative and positive, on such elements as GDP, employment levels, the balance of trade, economic structure, and the environment. The issues addressed under this theme will include, inter alia:

Adaptation options

A discussion of different options for developed countries, developing countries and those with special circumstances (e.g. low lying, arid, and countries in transition).

Mitigation options

A discussion of mitigation measures which should reflect, for example, the concept of comprehensiveness (all greenhouse gases and sinks, including, inter alia, reducing emissions by eliminating subsidies and barriers).

Methods for assessing the effectiveness of options including, inter alia, the use of models

Extent to which models incorporate full range of options and conditions
Comparison of response options + Social impact analysis [Greenpeace]

The comparison should include, inter alia, cost effectiveness, their influence on innovation and promoting environmentally sound technologies, their ease of administrative, monitoring and enforcement, their capacities to cope with uncertainties, their data requirements and equity considerations.

+ influence on other env'tl issues [Greenpeace]

- their role as part of a dynamic sequential strategy

- their role in sequential decision making

equity/equilibrium
equity and sust. devel.

Draft for consideration by the Working Group III Plenary

Page 10

Technological change uptake, transfer, barriers to diffusion

A discussion of the factors determining TC as a driving force for, as well as a way to control, net GtHG emis. For ex, renewable energy, carbon sequestration, etc., taking into account barriers to diffusion, transfer of new tech, and situation of DCs.

[Netherlands to draft]

Internationally-coordinated instruments

A discussion of mechanisms such as "joint implementation", carbon leakages (mitigation of carbon-intensive activities), linkages, population, and economic growth of industrialized and developing countries, assistance and trade aspects, and the advantages and disadvantages of harmonized instruments.

PART III: EMISSIONS SCENARIOS

CHAPTER 5: CONSIDERATIONS OF CONSISTENT SCENARIOS

The mandate of the Working Group states that it "should consider...a range of internally consistent scenarios for future emissions based on reasonable economic, demographic and technological projections." With this in mind, the key question to be answered is "Which issues and uncertainties about key variables may critically affect future net greenhouse gas emissions and aerosol concentrations?" The issues addressed under this theme will include, inter alia:

The relative importance of different variables in determining future emissions and sinks;

The assumptions made in developing existing scenarios;

A discussion of the key assumptions concerning, inter alia, economic growth, demographics, technological change, energy prices, international trade flows and political and social change.

The relationship among key variables;

The sensitivity of these variables, most notably to government actions;

The degree of uncertainty including, inter alia, a discussion of the following questions:

- What are the gaps and uncertainties in available knowledge about these factors and their influences on emissions?
- What does the extent of this uncertainty tell us about the validity of current scenarios? Are new scenarios required?
- What are likely to be the impacts of this uncertainty on short and long-term future emission scenarios?

Model structures for analysis of scenarios including, inter alia, a discussion of the following questions:

- How useful are current models in terms of their regional detail, solution algorithms and data?
- What are the characteristics of current models?

Non-modelling methods for scenario analysis; Qualitative evaluation of scenarios

The appropriate uses, capabilities and limitations of emissions scenarios in scientific assessment and policy-making.

Assess. of need for future scenarios for climate modelling + provision of info to COP of FCCC

Joe - 5/4/93
When are we
on the way?

L.

—

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

April 29, 1993

MEMORANDUM FOR TIM WIRTH

FROM: JOHN H. GIBBONS
LAURA D. TYSON

SUBJECT: US Leadership in the Intergovernmental Panel on Climate Change (IPCC)

On Earth Day 1993, President Clinton announced that the US would take the lead in addressing the challenge of global warming and, at the same time, he reaffirmed the nation's commitment to reducing our emissions of greenhouse gases. Accordingly, we would like to move ahead aggressively to put into place the US scientific and technical leadership for the Intergovernmental Panel on Climate Change (IPCC). As you know, these IPCC assessments are critical in providing the scientific and technical background for the activities and decisions of the Intergovernmental Negotiating Committee (INC).

In order to accomplish the most technically sound assessments of climate change, countries are meant to be represented at meetings of the IPCC by their best scientific and technical expertise on the science, economics, impacts, and response strategies for climate change. Ideally, the individuals should be internationally renowned in their fields.

We believe that it is essential to separate the functions of policy-formulation and negotiation from the international scientific/economic/technical assessment process. The reason for this is that US interests in the IPCC and the INC may both be compromised without this separation. If policy negotiators lead the US delegations to IPCC meetings, the IPCC process could be viewed as being policy-driven. Hence, the value of the IPCC assessments to State Department-lead delegations to the INC would be diminished. Therefore, while DOS must continue to lead the US negotiations at the INC and interagency process for the INC, it is crucial to change the heads of the US delegations to Working Groups #2, #3 and the Plenary Sessions as well as the US coordination mechanism for the IPCC and replace them with US leaders in the fields of science, technology, and economics.

Accordingly, our recommended choices are senior-level individuals in the current administration who have already demonstrated international leadership in the fields of science, technology, and economics. We would suggest that Deputy Heads of delegation could be senior officials from the Department of State with the appropriate technical backgrounds. Our recommendations are as follows:

*File
Environment
(Climate Change)*

(1) **Working Group #1: Science**

Historical Context

The US Government has coordinated its input and peer-review process through the FCCSET/CEES, which has an established assessment working group co-chaired by Dr. Robert Watson (formerly of NASA, now of OSTP) and Dr. Gary Evans (USDA). USG delegations at WG #1 plenary sessions have been chaired by Dr. Watson.

Future Approach

The CEES Assessment Working Group will continue to provide the head of the USG delegation for WG #1 (Dr. Watson and Dr. Dan Albritton, NOAA) as well as the secretariat and coordination functions for the US input to WG #1.

(2) **Working Group #2: Impacts, Adaptation and Mitigation**

Historical Context

On February 12, 1993, Dr. Robert Watson (OSTP) was named to succeed Mr. Robert Reinstein (DOS) as the US Co-Chairman of the IPCC WG #2. Until that time, DOS provided the US Co-Chairman, headed the US delegation and provided Secretariat and coordination support.

Future Approach

Dr. Watson will continue as US Co-Chair of IPCC WG #2. However, to insure that Dr. Watson is viewed as an impartial chair, Dr. Watson will not head the USG delegation; instead, Head of Delegation should be Dr. D. James Baker, Administrator-designee of NOAA. The CEES Assessment Working Group (chaired by Dr. Watson) will provide Secretariat support to Drs. Watson and Baker as well as the coordination function.

(3) **Working Group #3: Economics and Cross-Cutting Issues**

Historical Context

This is a new Working Group

Future Approach

The Head of the USG Delegation, will be Dr. Joe Stiglitz, Member-Designate of the Council of Economic Advisors, and Chairman of the FCCSET/CEES Subcommittee on Economics Research on Natural Resources and the Environment (ERNRE). The ERNRE will provide the coordination and Secretariat function for US technical information and input.

(4) Plenary Sessions IPCC

Historical Context

Until February 12, 1993, Mr. Robert Reinstein, of the Department of State headed the US delegation to the IPCC and DOS/OES coordinated the overall US representation to the IPCC.

Future Approach

Dr. Watson, as Head of WG #1, US CoChair of WG #2, and member of ERNRE, should head the US delegation to the Plenary Sessions of IPCC. The CEES Assessment Working Group, which he chairs, will provide Secretariat support as well as the coordination function for US activities in WG #1, WG #2, and Plenary Sessions.

Idea: Just make it a think piece - substance, not a glove tossed at his feet.

July
Clinton
Change

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

April 29, 1993

MEMORANDUM FOR TIM WIRTH

FROM: JOHN H. GIBBONS
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The IPCC is a technical and scientific body, separate from the INC. In order to accomplish the most technically sound assessments of climate change, countries are meant to be represented at meetings of the IPCC by their best scientific and technical expertise on the science, economics, impacts, and response strategies for climate change. Ideally, the individuals should be internationally renowned in their fields. WG I has been a success - both for the IPCC and for the US - because it is run by the best US and foreign scientists. The same should be true of WG2, 2+3. We believe that it is essential to separate the functions of policy-formulation and negotiation from the international scientific/economic/technical assessment process. The reason for this is that US interests in the IPCC and the INC may both be compromised without this separation. If policy negotiators lead the US delegations to IPCC meetings, the IPCC process could be viewed as being policy-driven. Hence, the value of the IPCC assessments to State Department-lead delegations to the INC would be diminished. Therefore, while DOS must continue to lead the US negotiations at the INC and interagency process for the INC, it is crucial to change the heads of the US delegations to Working Groups #2, #3 and the Plenary Sessions as well as the US coordination mechanism for the IPCC and replace them with US leaders in the fields of science, technology, and economics.

This approach will be good for

Accordingly, our recommended choices are senior-level individuals in the current administration who have already demonstrated international leadership in the fields of science, technology, and economics. We would suggest that Deputy Heads of delegation could be senior officials from the Department of State with the appropriate technical backgrounds. Our recommendations are as follows:

the US overall, including beneficial for the State Dept, because it would expand US influence in the IPCC rather than let it decline. (over)

Many developing countries fear economics is politics;

U.S. input

reducing US clout in the IPCC and impairing the IPCC's credibility.

Cont'd



If the US goes to the IPCC with a policy face, other countries will mistrust US participation, and US influence will shrink. State will be in charge of a business losing market share. But if the US goes to the IPCC with a scientific expert face — and includes State as deputy head of delegation and in key coordinating roles ~~and~~ internationally — US influence will grow, both ~~with~~ with other IPCC countries and by bringing ~~the~~ esteemed non-government experts (e.g. top US economists) into the IPCC process. State will then be a member of the management team of a growing business, building market share — better for all concerned.

(1) Working Group #1: Science

Historical Context

The US Government has coordinated its input and peer-review process through the FCCSET/CEES, which has an established assessment working group co-chaired by Dr. Robert Watson (formerly of NASA, now of OSTP) and Dr. Gary Evans (USDA). USG delegations at WG #1 plenary sessions have been chaired by Dr. Watson.

Future Approach

The CEES Assessment Working Group will continue to provide the head of the USG delegation for WG #1 (Dr. Watson and Dr. Dan Albritton, NOAA) as well as the secretariat and coordination functions for the US input to WG #1.

(2) Working Group #2: Impacts, Adaptation and Mitigation

Historical Context

On February 12, 1993, Dr. Robert Watson (OSTP) was named to succeed Mr. Robert Reinstein (DOS) as the US Co-Chairman of the IPCC WG #2. Until that time, ^{both} DOS provided the US Co-Chairman, headed the US delegation and provided Secretariat and coordination support.

Future Approach

Dr. Watson will continue as US Co-Chair of IPCC WG #2. However, to insure that Dr. Watson is viewed as an impartial chair, Dr. Watson will not head the USG delegation; instead, Head of Delegation should be Dr. D. James Baker, Administrator-designee of NOAA. The ~~CEES Assessment Working Group~~ (Stet) (chaired by Dr. Watson) will provide Secretariat support to Drs. Watson and Baker as well as the coordination function. State/OES would serve as Deputy Head of Delegation.

(3) Working Group #3: Economics and Cross-Cutting Issues

Historical Context

This is a new Working Group

Future Approach

The Head of the USG Delegation, will be Dr. Joe Stiglitz, Member-Designate of the Council of Economic Advisors, and Chairman of the FCCSET/CEES Subcommittee on Economics Research on Natural Resources and the Environment (ERNRE). The ERNRE will provide the coordination and Secretariat function for US technical information and input.

State/OES or State/EB would serve as Deputy Head of Delegation.

(4) Plenary Sessions IPCC

Historical Context

Until February 12, 1993, Mr. Robert Reinstein, of the Department of State headed the US delegation to the IPCC and DOS/OES coordinated the overall US representation to the IPCC.

Future Approach

OSTP will coordinate the scientific + technical input to IPCC, Dr. Watson, as Head of WG #1, US CoChair of WG #2, and member of ERNRE, should head the US delegation to the Plenary Sessions of IPCC. The CEEs Assessment Working Group, which he chairs, will provide Secretariat support as well as the coordination function for US activities in WG #1, WG #2, and Plenary Sessions.

OSTP
and
State/OES

with
assistance
from State

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

April 20, 1993

Handwritten notes:
Thomson
Glen
James

MEMORANDUM FOR SAMUEL BERGER
DEPUTY ASSISTANT TO THE PRESIDENT
FOR NATIONAL SECURITY AFFAIRS

FROM: JOSEPH E. STIGLITZ *JS*
SUBJECT: Climate Change Options Paper and Announcement

We are most concerned about the Options Paper and the Climate Change announcement. The commitments which the President is being asked to consider could have quite significant effects on the economy. Yet he is not being presented with the information required to make an assessment of these costs, either of the basic commitment, nor of the various alternative options being considered. Nor is he being provided with any information concerning the magnitude of the uncertainties associated with what is entailed by these commitments -- not even a serious indication that there is considerable uncertainty. Moreover, the Options Paper does not adequately reflect the consensus of yesterday's meeting as summarized by Katie McGinty.

We believe that if the commitment is to be undertaken, it must be undertaken in the way which is most cost effective, and which most effectively addresses the fundamental environmental concern -- the global level of net (sources and sinks) emissions of all major greenhouse gases.

Our recommended approach for tomorrow's announcement is thus summarized on the bottom of the last page of the attached marked-up copy: reaffirm the commitment to limit emissions; define this reaffirmed commitment in terms of cost-effective inclusion of all gases, sinks and sources, and global action; and pledge to unveil a specific target with a set of specific implementing actions by the Rio anniversary in June.

Our comments on the Options Paper are shown on the attached marked-up copy. We also have the following further comments on each of the sections:

1. Background

While the sentence, "Some analyses suggest that this can be accomplished at no or low net cost to society..." is accurate, it is incomplete and probably misleading. It would be better to say,

"While there remains considerable controversy over the costs of these additional policy measures, some analyses suggest...."

2. Issue 1

Add to first CON:

"There is uncertainty both about the magnitude of the reduction in emissions that will be required and the costs of obtaining those reductions. A brief postponement would enable us both to obtain an estimate of the likely costs, as well as the costs in a "worse case scenario." Without knowing those costs, we do not know how best to design our commitment."

3. Issue 2

We believe that you have omitted one the most important arguments for an all greenhouse emission policy: its environmental benefits. Add:

"It is all greenhouse gasses collectively which contribute to global warming. Ignoring or deferring action on gases other than CO₂ treats them erroneously as though they had zero impact on climate. And a CO₂-only policy not only does not address the underlying problem, but it risks the danger of increases in other more potent greenhouse gases as we put pressure on the reduction of CO₂. This is a real danger, especially in Europe; if the US ignores other gases, Europe may do likewise, with adverse consequences for the earth's climate."

4. Issue 3

We think that the way the issue is posed in the issues paper does not adequately reflect the discussion at the meeting. The President should be given a set of options:

A. No commitment beyond 2000

B. A commitment to take strong measures to control the level of emissions beyond the year 2000

C. A commitment to keep the level of emissions at the 1990 level forever into the future.

Our reading of the meeting was that there was much more support for the first or second option. The second option has the advantages that you cite as PROs, of recognizing that climate change is a long-term problem and providing strong signals in favor of investment in new energy efficiency technologies and alternative energy sources. Focusing only on the year 2000 poses the risk of focusing on policies which have only short term returns.

But saying that the cost of the third option are "expected to be significant" does not adequately stress the potential magnitudes involved. These costs could be quite substantial.

5. Issue 4.

Again, in listing the arguments for including sinks, the basic environmental issue is omitted. Add:

"What the environment is concerned with is net emissions. From an economic or ecological perspective, it makes no sense to focus on only one part of the equation. Net emissions = gross emissions minus sinks. The only sensible commitment is to a level of net emissions."

You should also add to the list of arguments the following:

"There are better ways of dealing with the measurement problems than simply ignoring sinks (effectively treating them as if they were constant). Including sinks will provide incentives for improved measurement."

6. Issue 5.

Again, in listing the arguments for joint implementation, the basic environmental issue is omitted:

"Greenhouse gases and global warming are global problems; what is of concern is the global level of emissions. What is required is a national commitment to do our share in the reduction of the net emission of greenhouse gases, a commitment which can be fully honored through joint implementation."

Rather than saying, "Joint implementation projects are likely to be cheaper than many domestic strategies," it would be more accurate to say:

"Joint implementation strategies provide the opportunity for reducing greenhouse emissions in the most cost-effective way."

cc: John Podesta
Katie McGinty

Background

Human activities are increasing atmospheric concentrations of "greenhouse" gases (especially carbon dioxide, methane, and nitrous oxide). While there are uncertainties in the precise magnitude, timing, and regional patterns of effects, the best scientific predictions are that the rate of climate change in the next century will far exceed any natural changes in climate that have occurred in the last 10,000 years. If climate change does occur, it cannot be reversed for decades to centuries because of the long atmospheric lifetime of the greenhouse gases. The U.S. is the world's largest emitter of these gases, emitting about 20% of global emissions.

More than 150 nations signed the Framework Convention on Climate Change in June 1990. The Convention includes a goal of returning greenhouse emissions to 1990 levels by the year 2000. The Bush Administration refused to join with the European Community and Japan to make this goal into a binding commitment.

All agencies involved in the review of climate policy have agreed that a U.S. policy objective should be to ~~limit~~^{return} our emissions of either carbon dioxide or all greenhouse gases to 1990 levels by the year 2000. You also made this commitment during the campaign. The agencies have also agreed that a U.S. National Action Plan, as called for by the Climate Convention, should detail how the U.S. will achieve this commitment.

Current Administration policies will help meet this commitment (e.g., the energy efficiency programs of the Energy Policy Act). However, our analyses show a "gap" of either about 7% of total carbon dioxide emissions, or 5% of all greenhouse gas emissions, which must be closed by additional policy measures. Some analyses suggest this can be accomplished at no or low net cost to society, although significant investments and adjustments may be needed. To put this in perspective, the BTU tax you proposed in February will achieve a 25 million ton reduction in 2000, so closing the "gap" is not a small task. Three major issues, and two subsidiary design issues, remain to be decided.

(100 million tons)
(70 million tons)

others suggest the cost would be large

Issue 1: Should this commitment should be made on Earth Day, or postponed to a later date? such as the Earth Summit anniversary in June?

PROS

-- An Earth Day announcement would be strongly supported by the public and the environmental community, and would be viewed as a visible and positive reversal of Bush administration policies

{ Begs the question; not known }

-- Because the Administration's preparations have been reported in the press, there is a high expectation both here and abroad that this announcement will be made on Earth Day. If it is not made this week, reaction will be negative.

{ Begs the question }

-- Announcing the commitment now would set clear objectives for developing the Action Plan in August

- Making a commitment on Earth Day is favored by the Office of the Vice President, the Office of Environmental Policy, the Environmental Protection Agency, the Department of Energy, the Department of State and others; ?!

CONS

- The Administration has not yet identified a ~~complete~~ set of policies to achieve the commitment, and has not made an assessment of the economic and budgetary impact of those policies.
- The Administration ^W could be criticized for making a major commitment in the absence of this analysis any plan or waiting to announce based on better analysis of costs and a plan of specific actions
- ~~This option is favored by the Department of the Treasury, OMB, the NEC, and others~~ CEA, OSTP?

Issue 2: Should the commitment to meet 1990 levels by 2000 apply to all greenhouse gases, and not carbon dioxide only?

- PROS → The climate is affected by all greenhouse gases. Ignoring or delaying action on methane (more potent than CO₂) will not make it go away.
- ~~The commitment is an all greenhouse gas commitment~~ An all greenhouse gas commitment spreads the cost of reductions across emitters of all contributing gases, not just burdening the energy sector and coal industry.
 - An all greenhouse gas commitment is cheaper and provides more flexibility in the long term since more sources are available for all gases less costly -- perhaps 50% lower marginal costs -- because it
 - ~~The Climate Convention's goal is expressed in terms of all greenhouse gases~~ to choose the most cost-effective reduction options. Also narrows the "gap" in 2000 from 100 to 70 million tons to be reduced. The Climate Convention's goal is expressed in terms of all greenhouse gases is environmentally preferable because it
 - ~~An all greenhouse gas commitment ensures full accounting of all emissions. It prevents countries from reducing CO₂ and increasing methane.~~
 - This option is favored by the Departments of State and Energy, CEA and the Office of Environmental Policy. (CEA will not agree to an announcement unless it includes all major greenhouse gases.) at not harm to the climate methane is 20 times more potent than CO₂.

CONS

- Carbon dioxide, mostly from energy consumption, is the largest source of emissions and the easiest to monitor
- ~~Most~~ ^{Some} environmental groups see a carbon dioxide commitment as the strongest and most reliable at least in the short term, but others propose addressing all gases.
- Most of our OECD partners (the EC and Japan) have adopted carbon dioxide targets
- The Office of the Vice President, EPA and Interior favor a carbon dioxide commitment in the short term until measurement difficulties are resolved

Issue 3: Should the commitment extend beyond the year 2000?

- Options are no commitment beyond 2000; a commitment to take aggressive actions to limit emissions after 2000; or a commitment to a permanent cap on emissions at 1990 levels after 2000.

PROS to action after 2000: 3

- Committing to maintain 1990 levels after the year 2000 recognizes that climate change is a long-term problem; allowing emissions to turn upward after 2000 would ~~be environmentally irresponsible~~ *undercut the decisiveness of the Administration's policy commitment.*
- A continuing commitment will give stronger signals in favor of investment in new energy efficiency technologies and alternative energy sources
- Commitment beyond year 2000 is the single most important issue to the environmental community
- The Office of the Vice President, the Departments of State and Interior, and the Environmental Protection Agency support extending the commitment beyond 2000.

CONS to a permanent cap after 2000:

- Emissions are expected to keep growing after the year 2000, *especially if your Economic Plan stimulates substantial economic growth, making it harder to keep emissions at 1990 levels.*
- No measures have yet been identified to deal with post-2000 emissions; the costs of post-2000 measures have not been analyzed, although they are expected to be significant—*perhaps over 1% of GDP foregone.*
- Most other agencies are willing to commit to a process to deal with post-2000 emissions, although they do not support a specific *quantitative* commitment at this time

Issue 4: Should the commitment apply to emission sources *and sinks* ~~only, include emission sinks~~ (e.g. carbon sequestration strategies such as planting trees)? *or exclude sinks?*

~~PROS~~
CONS

- Data on sources are more readily available and reductions would be easier to quantify, implement and monitor
- ~~There are no accepted Methodologies, either in the U.S. or abroad, for quantifying the carbon dioxide equivalents from sink protection strategies need to be refined~~
- ~~The environmental community believes that uncertainties in quantification methodologies should preclude counting sinks in the near term;~~

PROS ~~CONS~~

- The environmental issue is not emissions affecting the climate.
- Including sinks, such as tree planting initiatives, give additional flexibility in meeting targets, lowering marginal costs up to 90%.
- Including sinks would promote efforts to protect and *environmental* enhance forests, which are important for other reasons, ~~and might be cheaper over the long term~~ such as biodiversity conservation.
- Including sinks in the US commitment would force other countries to pay attention to conserving their forests

[Not true—
e.g. EDF,
TNC,
Rainforest
Alliance,
AES]

4
- The Climate Convention includes sinks in its goal.

- Electric utility sources strongly favor including sinks as offsets for power plant emissions; they

This is not necessarily an either/or option. The Office of the Vice President, the Office of Environmental Policy, the Departments of State, Interior and Agriculture favor making the commitment with ~~sinks~~ ^{which} working aggressively in the international arena to establish guidelines for including sinks in country commitments.

(CEA will not agree to an announcement unless it is based on net emissions.)

[as originally written, this begs the question - excluding sinks will leave them out.]

Issue 5: Should the commitment be met through domestic implementation only, ~~or joint implementation~~ ^{Another option might be to include joint implementation} (credit towards our commitment for actions taken by the U.S. to limit emissions in foreign countries)?

CEA [if modified as shown]
The better way is to include them and work on methodologies.

- ~~The environmental issue is global emissions; reductions achieved anywhere help protect the climate.~~
- ~~There are no accepted methodologies for how joint implementation should be credited need to be developed; the U.S. will offer such methodologies in August 1993.~~
- ~~Some Environmentalists are concerned that allowing joint implementation will diminish efforts domestically to move toward greater energy efficiency; industrial sources favor greater flexibility to invest abroad.~~
- ~~cons. joint implementation~~
- ~~The Climate Convention specially allows joint implementation.~~
- ~~Joint implementation projects are likely to be less costly cheaper than many domestic strategies.~~
- ~~Joint implementation will mean assistance to developing countries.~~
- ~~Allowing joint implementation adds additional flexibility in meeting the commitment~~ [redundant]
- ~~Several U.S. electric utilities are eager to pursue innovative projects abroad.~~

Like issue 4, this issue can be pursued by not counting joint implementation actions initially, but by working internationally to develop and implement appropriate guidelines

incentive to pursue overseas actions, the private sector will

Guidelines are to be offered in Aug. '93 - no reason to exclude from major policy announcement in April/June '93 !!

(CEA will not agree to an announcement unless there is some flexibility for joint actions.)

Recommendation:

1. On Wednesday 4/21, reaffirm your pledge to limit US emissions causing global warming. Announce that the US will unveil its strategy, with specific actions and quantitative target, on the first anniversary of the Rio Summit (June 1993).
2. Define the US commitment to address the problem comprehensively, including all greenhouse gases, their sources and sinks, and encouraging the diversity of cost-effective actions by progressive American industry, both at home and abroad. Set a target ~~of 1990 levels~~ of 1990 levels in 2000, and commit to aggressive policy development to limit net emissions after 2000. Invite pro-active US industry members - e.g. electric utilities - to endorse the plan because it includes all gases, sinks, and joint actions.

Joe -

Here is the current version.
We would appreciate your
input

Marc Chupka
OEP

F
Climate
Change

Development of the
Climate Change Action Plan

Structure and Functions
April 28, 1993

Critical Factors to Keep in Mind:

- o The Presidential commitment requires us to succeed, and is crucial for success.
- o The timing is very tight - we are facing a mid-August deadline.
- o We need affected interests to have a stake in the process in order to both formulate and implement the plan.
- o The Administration must maintain firm control over the process while not retarding the beneficial input and advice from affected interests. Non-constructive input or obstruction must be avoided.
- o The integrity of the process requires that stakeholders not use other channels to influence Administration decisions.

I. STRUCTURE

Establish Climate Change Action Plan Committee

- o Mission: Committee makes recommendations to Administration Senior Steering Group (composed of Principals from key agencies and White House) on meeting the President's commitment; Committee chaired by White House Office on Environmental Policy.
- o Membership on the Committee: government, industry, labor, environmental organizations, universities. [QUESTION: ROLE OF CONGRESS?]
- o Initially set Committee at 30 members -- but will probably have to take close to 50 to accomodate important stakeholders.
- o Committee to meet at least three times in public forum.

Committee to have nine Working Groups

- o Mission: Working groups to develop recommendations on actions to take within their subject areas.
- o Each Working Group will have two co-chairs -- one governmental (Deputy or Assistant Secretary level) and one non-governmental (CEO/Sr. VP/Commissioner level) Co-Chairs

will undertake an enormous responsibility -- the government co-chair will be faced with full time involvement.

- o Working Groups composed of Committee members in their areas of expertise plus additional working group members **as necessary**.
- o Working Groups to meet as often as needed (weekly or semi-monthly).
- o Working Group Chairs to coordinate with each other through periodic meetings (public?) and through the full Committee meetings.
- o Suggested Working Groups:
 - * Analytical/Modeling
 - * Energy: Supply-side (includes efficiency improvements in generation, transmission and distribution, renewable resources, and other reduced-CO2 generation options)
 - * Energy: Demand-side (includes residential, commercial, and industrial sectors)
 - * Energy: Transportation
 - * Methane
 - * Other Gases (HFCs, Nitrous Oxide)
 - * Sinks
 - * Cross-cutting regulatory/legal/institutional reforms
 - * Joint Implementation

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Interagency consultation.
- o Week of May 3 -- Interagency concurrence. Advisory
Committee authorization; solicit
recommendations for Committee membership
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for meeting arrangements. Set Committee
Meeting Schedule.
- o Week of May 17 -- Invite/inform Committee members and
working group members.
Meet with Working Group Chairs.
- o Week of May 24 -- First Meeting - Full Committee
President stops by to reaffirm
commitment.
- o Week of May 31 -- Working Groups meet (as necessary).

- o Week of June 7 -- Working Groups meet (as necessary).
Working Group Chairs Meeting to assess first round.
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- o Week of June 21 -- Working Groups meet (as necessary).
Working Group Chairs Meeting to assess progress and draft progress report.
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Progress Reports and Recommendations for
Working Group Direction.
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Working Group Chairs Meeting to draft final Working Group report and recommendations.
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Chair and Governmental Steering Group
President and/or VP there to receive recommendations. Final decisions.
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- o Week of August 23 -- Presentation of U.S. Action Plan to INC in New York.

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

F
J
Chap

April 30, 1993

MEMORANDUM FOR KATIE MCGINTY

FROM: JOSEPH E. STIGLITZ *JES*
SUBJECT: Climate Change Action Plan Process

Thank you for recirculating the draft outline on the "Development of the Climate Change Action Plan." We agree that opening the process to public participants is important and will be an example of good government in operation. Public participation in the Action Plan development will be especially useful in eliciting creative suggestions that we can evaluate and incorporate into our government deliberations.

As you point out, there will also need to be "internal review and deliberation" within the government, as part of which we will need to generate "real-time analysis" of options for the Action Plan. Although the public working groups can contribute good ideas, the decision on the contents of the Action Plan must ultimately be made by government officials. Moreover, it is highly likely that the public working groups made up of diverse members will generate many good ideas, but will not settle on a single slate of consensus actions. We therefore have the following comments.

1. Internal analytic work

A crucial and indispensable part of our internal real-time analysis will be *serious evaluation of the economic and environmental costs and benefits of each option proposed for inclusion in the Action Plan.* This analysis should also examine the issue of the best sequencing for actions, reviews and new actions, in light of our limited but growing information about various scientific and economic variables and systems. These efforts are prerequisites to succeeding at the President's charge: to design an Action Plan that will limit greenhouse gas emissions to their 1990 level by 2000 in the most cost-effective manner, and to setting goals and commitments beyond 2000.

This internal analysis should be spelled out explicitly in the "Development of the Climate Change Action Plan" outline. It should proceed on a timeline and structure parallel to the activities of the public working groups. It should evaluate proposed options from the public groups as well as from relevant literature and agency suggestions. In order to avoid the tyranny

of preliminary numbers, this internal analytic work would remain internal until the government agrees on an Action Plan and publishes its analyses. CEA would be happy to work with your office to coordinate this internal analysis, bringing together the key agencies.

2. Time to decide

Given such an internal analytic effort made explicit in the timeline, the timeline would also need to leave more time at the end for the government to evaluate the public working group's recommendations and decide upon and draft a coherent, agreed Action Plan for publication. The current draft leaves only two weeks for that effort, which will be far too short; the public working groups' brainstorming will not be susceptible to immediate turnaround into a government action plan without analysis of costs and benefits, and careful selection of the best and mutually supportive set of actions.

3. Functions of the working groups

The outline lists a good set of working groups, but does not say what their functions or tasks will be. We suggest their function be to identify creative options for analysis, and sketch the pros and cons of each option. Otherwise, the groups will debate the legitimacy of their function, and will deliver recommendations without analyses or rationales.

Then these working groups' suggestions would feed into the internal analytic work, and the ultimate government decision, both described above.

THE WHITE HOUSE
WASHINGTON

LD
cc: JS
AG
JW

April 28, 1993

MEMORANDUM

TO: Rahm Emanuel
John Gibbons
Alexis Herman
Anthony Lake
Thomas McLarty
Regina Montoya
Roy Neel
Howard Paster
Leon Panetta
Carol Rasco
Marla Romash
Robert Rubin
George Stephanopolous
Laura Tyson

FROM: Katie McGinty

SUBJECT: Climate Change Action Plan Process

I want to thank you all for attending or sending a designate to the meeting today. I will summarize where we are in our thinking, respond to feedback that we received today, and solicit additional comments from the group before we take this program to the interagency level. Attached is a revised and expanded version of the development document that we reviewed today. Because time is short on this, I would ask that you submit your comments to my office no later than 6:00 pm on Friday, April 30.

Our intent is to link a public participation process with interagency deliberation. We believe that this will (1) improve the quality of ideas; (2) give stakeholders in the policy a voice in the planning; (3) increase the amount of effort brought to bear on the issues; (4) allow the public and Congress a view into the kinds of policies we are considering and to limit anxiety about the final plan; and (5) help us maintain the integrity of the process by providing a single channel through which stakeholders can bring their ideas and air their concerns. While these objectives are important, we also understand that the plan has some risks, especially in terms of controlling the process and maintaining the confidentiality of our internal review and deliberation.

We have adapted our original proposal to reflect some of the comments given during today's meeting. Several commentators expressed a preference to limit public participation to a few well-timed workshops that could contribute periodically to what would otherwise be an Administration process. We still believe that more active and direct involvement will induce participants to invest more work and creative energy into policy design. However, we understand the concerns about losing control of the process. It must be stressed at all times to all non-government participants that the Administration is seeking advice only, and that we reserve the right to make the ultimate decisions.

We agree that we need real-time analysis capability in order to (1) inform the process from the initial stages; (2) help integrate interim policy options into an emerging coherent plan; and (3) so that we can "keep score" as to meeting our commitment. We will have to consider the issue of whether or not the analyses can or should remain strictly confidential or be made available for the full Committee in public. It was also suggested that a subgroup of the Administration Senior Steering Group (who are not active on the Committee or directing a working group) meet regularly to track progress and provide political advice or commentary to the Advisory Committee. This could be valuable if properly structured.

The question of Congressional staff participation needs consideration. We believe that they should be encouraged to attend the meetings as observers. We would appreciate your comments regarding the advantages and risks of allowing Congressional staff to sit on the Committee or the working groups.

We have allotted more time to initial selection of Committee members and structuring the process. This will squeeze us at the end, but is probably worth the investment up front. The August 16 deadline could be moved back one week since the International Negotiating Committee will meet during the last two weeks in August in New York City.

Thanks again for your input. We're off to a good start.

Development of the
Climate Change Action Plan

Structure and Functions
April 28, 1993

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

April 20, 1993

file
Chen
Chen

MEMORANDUM FOR SAMUEL BERGER
DEPUTY ASSISTANT TO THE PRESIDENT
FOR NATIONAL SECURITY AFFAIRS

FROM: JOSEPH E. STIGLITZ *JS*
SUBJECT: Climate Change Options Paper and Announcement

We are most concerned about the Options Paper and the Climate Change announcement. The commitments which the President is being asked to consider could have quite significant effects on the economy. Yet he is not being presented with the information required to make an assessment of these costs, either of the basic commitment, nor of the various alternative options being considered. Nor is he being provided with any information concerning the magnitude of the uncertainties associated with what is entailed by these commitments -- not even a serious indication that there is considerable uncertainty. Moreover, the Options Paper does not adequately reflect the consensus of yesterday's meeting as summarized by Katie McGinty.

We believe that if the commitment is to be undertaken, it must be undertaken in the way which is most cost effective, and which most effectively addresses the fundamental environmental concern -- the global level of net (sources and sinks) emissions of all major greenhouse gases.

Our recommended approach for tomorrow's announcement is thus summarized on the bottom of the last page of the attached marked-up copy: reaffirm the commitment to limit emissions; define this reaffirmed commitment in terms of cost-effective inclusion of all gases, sinks and sources, and global action; and pledge to unveil a specific target with a set of specific implementing actions by the Rio anniversary in June.

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Rather than saying, "Joint implementation projects are likely to be cheaper than many domestic strategies," it would be more accurate to say:

"Joint implementation strategies provide the opportunity for reducing greenhouse emissions in the most cost-effective way."

cc: John Podesta
Katie McGinty

Background

Human activities are increasing atmospheric concentrations of "greenhouse" gases (especially carbon dioxide, methane, and nitrous oxide). While there are uncertainties in the precise magnitude, timing, and regional patterns of effects, the best scientific predictions are that the rate of climate change in the next century will far exceed any natural changes in climate that have occurred in the last 10,000 years. If climate change does occur, it cannot be reversed for decades to centuries because of the long atmospheric lifetime of the greenhouse gases. The U.S. is the world's largest emitter of these gases, emitting about 20% of global emissions.

More than 150 nations signed the Framework Convention on Climate Change in June 1990. The Convention includes a goal of returning greenhouse emissions to 1990 levels by the year 2000. The Bush Administration refused to join with the European Community and Japan to make this goal into a binding commitment.

All agencies involved in the review of climate policy have agreed that a U.S. policy objective should be to ~~limit~~^{return} our emissions of either carbon dioxide or all greenhouse gases to 1990 levels by the year 2000. You also made this commitment during the campaign. The agencies have also agreed that a U.S. National Action Plan, as called for by the Climate Convention, should detail how the U.S. will achieve this commitment.

Current Administration policies will help meet this commitment (e.g. the energy efficiency programs of the Energy Policy Act). However, our analyses show a "gap" of either about 7% of total carbon dioxide emissions, or 5% of all greenhouse gas emissions, which must be closed by additional policy measures. Some analyses suggest this can be accomplished at no or low net cost to society, although significant investments and adjustments may be needed. To put this in perspective, the BTU tax you proposed in February will achieve a 25 million ton reduction in 2000, so closing the "gap" is not a small task. Three major issues, and two subsidiary design issues, remain to be decided.

Others suggest the cost would be large

(100 million tons)
(70 million tons)

Issue 1: Should this commitment should be made on Earth Day, or postponed to a later date? such as the Earth Summit anniversary in June?

PROS

- An Earth Day announcement would be strongly supported by the public and the environmental community, and would be viewed as a visible and positive reversal of Bush administration policies

← [Begs the question, not known.]

- Because the Administration's preparations have been reported in the press, There is a high expectation both here and abroad that this announcement will be made on Earth Day. If it is not made this week, reaction will be negative.

← [Begs the question]

- Announcing the commitment now would set clear objectives for developing the Action Plan in August

- Making a commitment on Earth Day is favored by the Office of the Vice President, the Office of Environmental Policy, the Environmental Protection Agency, the Department of Energy, the Department of State and others;

CONS

- The Administration has not yet identified a complete set of policies to achieve the commitment, and has not made an assessment of the economic and budgetary impact of those policies.
- The Administration ^Would be criticized for making a major commitment in the absence of this analysis ^{any plan or} ^{Waiting to announce based on better analysis of costs and a plan of specific actions}
- This option is favored by the Department of the Treasury, OMB, the NEC, and others ^{CEA, OSTP?}

Issue 2: Should the commitment to meet 1990 levels by 2000 apply to all greenhouse gases, and not carbon dioxide only?

- PROS** → The climate is affected by all greenhouse gases. Ignoring ~~the environmental impact of all greenhouse gases~~ or delaying action on methane (more potent than CO₂) will not make it go away.
- An all greenhouse gas commitment spreads the cost of reductions across emitters of all contributing gases, not just burdening the energy sector and coal industries.
- An all greenhouse gas commitment is ^{less costly -- perhaps 50% lower} ~~cheaper~~ and provides more flexibility in the long term since ^{marginally} ~~more sources are available for all gases~~ ^{lets -- because it} to choose the most cost-effective reduction options. Also narrows the "gap" in 2000 from 100 to 70 million tons to be reduced.
- The Climate Convention's goal is expressed in terms of all greenhouse gases ^{is environmentally preferable because it}
- An all greenhouse gas commitment ensures full accounting of all emissions. It prevents countries from reducing CO₂ and increasing methane, at not harm to the climate.
- This option is favored by the Departments of State and Energy, CEA and the Office of Environmental Policy. (CEA will not agree to an announcement unless it includes all major greenhouse gases.) ^{methane is 20 times more potent than CO₂.}

CONS

- Carbon dioxide, mostly from energy consumption, is the largest source of emissions and the easiest to monitor
- ^{Some} ~~Most~~ environmental groups see a carbon dioxide commitment as the strongest and most reliable at least in the short term, but others propose addressing all gases.
- Most of our OECD partners (the EC and Japan) have adopted carbon dioxide targets
- The Office of the Vice President, EPA and Interior favor a carbon dioxide commitment in the short term until measurement difficulties are resolved

Issue 3: Should the commitment extend beyond the year 2000?
Options are no commitment beyond 2000; a commitment to take aggressive actions to limit emissions after 2000; ^{WAS} or a commitment to a permanent cap on emissions at 1990 levels after 2000.

PROS to action after 2000: 3

- Committing to maintain 1990 levels after the year 2000 recognizes that climate change is a long-term problem; allowing emissions to turn upward after 2000 would ~~be environmentally irresponsible~~ *undercut the decisiveness of the Administration's policy commitment.*
- A continuing commitment will give stronger signals in favor of investment in new energy efficiency technologies and alternative energy sources
- Commitment beyond year 2000 is the single most important issue to the environmental community
- The Office of the Vice President, the Departments of State and Interior, and the Environmental Protection Agency support extending the commitment beyond 2000.

CONS to a permanent cap after 2000:

- Emissions are expected to keep growing after the year 2000, *especially if your Economic Plan stimulates substantial economic growth, making it harder to keep emissions at 1990 levels.*
- No measures have yet been identified to deal with post-2000 emissions; the costs of post-2000 measures have not been analyzed, although they are expected to be significant—*perhaps over 1% of GDP foregone.*
- Most other agencies are willing to commit to a process to deal with post-2000 emissions, although they do not support a specific *quantitative* commitment at this time

Issue 4: Should the commitment apply to emission sources *and sinks* ~~only, include emission sinks~~ (e.g. carbon sequestration strategies such as planting trees)? *or exclude sinks?*

PROS
CONS

- Data on sources are more readily available and reductions would be easier to quantify, implement and monitor
- ~~There are no accepted methodologies, either in the U.S. or abroad, for quantifying the carbon dioxide equivalents from sink protection strategies~~ *need to be refined*
- ~~The environmental community believes that uncertainties in quantification methodologies should preclude counting sinks in the near term;~~

[Not true—
e.g. EDF,
TNC
Rainforest
Alliance,
AES]

PROS ~~CONS~~

- ~~The environmental issue is not emissions affecting the climate.~~
- Including sinks, such as tree planting initiatives, give additional flexibility in meeting targets, lowering marginal costs up to 90%.
- Including sinks would promote efforts to protect and *enhance* environmental forests, which are important for other reasons, ~~and might be cheaper over the long term~~ such as biodiversity conservation.
- Including sinks in the US commitment would force other countries to pay attention to conserving their forests

4
— The Climate Convention includes sinks in its goal.

-- Electric utility sources strongly favor including sinks as offsets for power plant emissions; they

(e.g. in the Pacific Northwest)
This is not necessarily an either/or option. The Office of the Vice President, the Office of Environmental Policy, the Departments of State, Interior and Agriculture favor making the commitment with sinks, ~~while~~ working aggressively in the international arena to establish guidelines for including sinks in country commitments.

(CEA will not agree to an announcement unless it is based on net emissions.)

[as originally written, this begs the question - excluding sinks will leave them out.]

Issue 5: Should the commitment be met through domestic implementation only, ~~or allow~~ Another option might be to include joint implementation (credit towards our commitment for actions taken by the U.S. to limit emissions in foreign countries)?

CEA [if modified as shown]
The better way is to include them and work on methodologies.

- ~~The environmental issue~~ *is global emissions; reductions achieved anywhere help protect the climate.*
- ~~There are no accepted methodologies for how joint implementation should be credited~~ *need to be developed; the U.S. will offer such methodologies in August 1993.*
- ~~Some~~ Environmentalists are concerned that allowing joint implementation will diminish efforts domestically to move toward greater energy efficiency; industrial sources favor greater flexibility to invest abroad. *other environmental groups, and*
- ~~CEA joint implementation~~
- The Climate Convention specially allows joint implementation.
- Joint implementation projects are likely to be less costly ~~cheaper~~ than many domestic strategies.
- Joint implementation will mean assistance to developing countries.
- ~~Allowing joint implementation adds additional flexibility in meeting the commitment~~ *[redundant]*
- Several U.S. electric utilities are eager to pursue innovative projects abroad.

Like issue 4, this issue can be pursued by not counting joint implementation actions initially, but by working internationally to develop and implement appropriate guidelines *[No - without an incentive to pursue overseas actions, the private sector won't.]*

Guidelines are to be offered in Aug. '93 - no reason to exclude from major policy announcement in April/June '93 !!

(CEA will not agree to an announcement unless there is some flexibility for joint actions.)

Recommendation:

1. On Wednesday 4/21, reaffirm your pledge to limit US emissions causing global warming. Announce that the US will unveil its strategy, with specific actions and quantitative target, on the first anniversary of the Rio Summit (June 1993).
2. Define the US commitment to address the problem comprehensively, including all greenhouse gases, their sources and sinks, and encouraging the diversity of cost-effective actions by progressive American industry, both at home and abroad. Set a target ~~of 1990 level~~ *of 1990 level* in 2000, and commit to aggressive policy development to limit net emissions after 2000. *Invite pro-active US industry members - e.g. electric utilities - to endorse the plan because it includes all gases, sinks, and joint actions.*

File: Climate
Change

4/16/93
5:00 pm

To: Joe S.

Fr: Jonathan W.

Re: Climate Change

- ① Major meeting Monday 4/19, 6:00 pm
"NSC Deputies" - "Principal plus one" from each agency
CEA attendees: Stiglitz + Wiener

To decide: what the President will announce
as US policy on climate change
on Wednesday 4/21 (Earth Day speech).

- ② A new version of the Decision/Options
memo will be distributed from State Dept. tonight, ~~on~~ Friday. to you
We should discuss 1st thing Monday
(you might read it over the
weekend - and save me a copy!)
It will incorporate - agency comments of 4/16 on
4/15 draft
- Bob Watson's attempted redraft
in 3 pages.

- ③ Results of today's meeting at State:
- building support for waiting after
4/21 to announce a policy, once
costs can be considered;
e.g. announce in June instead.
- straw poll on key options: see attached.

4/16 Straw poll on key Climate Policy options

Option:

Announce on Earth Day,
without agreement on
actions that would be
taken to fulfill commitment

-vs.-

Wait for further
analysis of actions
and costs,
announce in June
(Rio anniversary)

Agency news:

— indecision —

Option:

Commit to return to 1990
levels in 2000

-vs.-

Commit to stabilize
at 1990 levels
from 2000 and beyond

Agencies
supporting:

All other agencies
(CEA: consider "close projected
gap" instead of "1990 levels")

Office of Envt'l Policy
(David Doniger
for Katy McIntyre)

Option:

CO₂ - only
OEP (Doniger)

-vs.-

All Greenhouse Gases

Agencies
supporting:

All other agencies
(including NEC,
EPA, DOE, OSTP,
CEA, USDA, etc.)

Option:

Sources only
OEP
EPA (!)

-vs.-

Sources + Sinks ("net")

Agencies
supporting:

All other agencies
USDA: will not sign
on unless sinks
are included

Option:

Domestic only

-vs.-

Joint Implementation
Now

Agencies
supporting:

none

CEA
DOE
possibly
others

After methods
agreed internationally
OEP
EPA

Climate

5:15
PM
4/20

Joe -

My draft edits.

I've also given copies
to Laura, Tom,
cc: to Alan.

Jonathan

File
J. G. White
et al.

Background

Human activities are increasing atmospheric concentrations of "greenhouse" gases (especially carbon dioxide, methane, and nitrous oxide). While there are uncertainties in the precise magnitude, timing, and regional patterns of effects, the best scientific predictions are that the rate of climate change in the next century will far exceed any natural changes in climate that have occurred in the last 10,000 years. If climate change does occur, it cannot be reversed for decades to centuries because of the long atmospheric lifetime of the greenhouse gases. The U.S. is the world's largest emitter of these gases, emitting about 20% of global emissions.

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Current ^{the BTU tax,} Administration policies will help meet this commitment (e.g., the energy efficiency programs of the Energy Policy Act). However, our analyses show a "gap" of either about 7% of total carbon dioxide emissions, or 5% of all greenhouse gas emissions, which must be closed by additional policy measures. Some analyses suggest this can be accomplished at no or low net cost to society, although significant investments and adjustments may be needed. To put this in perspective, the BTU tax you proposed in February will achieve a 25 million ton reduction in 2000, so closing the "gap" is not a small task. Three major issues, and two subsidiary design issues, remain to be decided.

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[Not true -
e.g. EDF,
TNC
Rainforest
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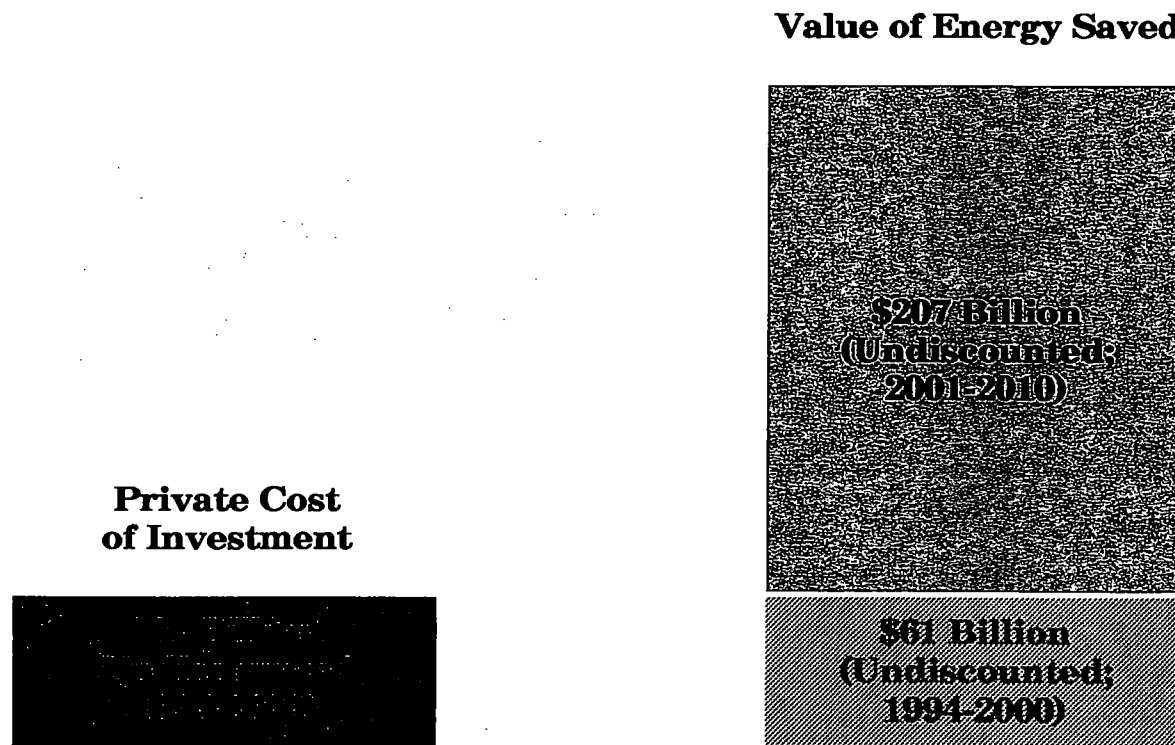
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CLIMATE CHANGE ACTION PLAN

COST-EFFECTIVE

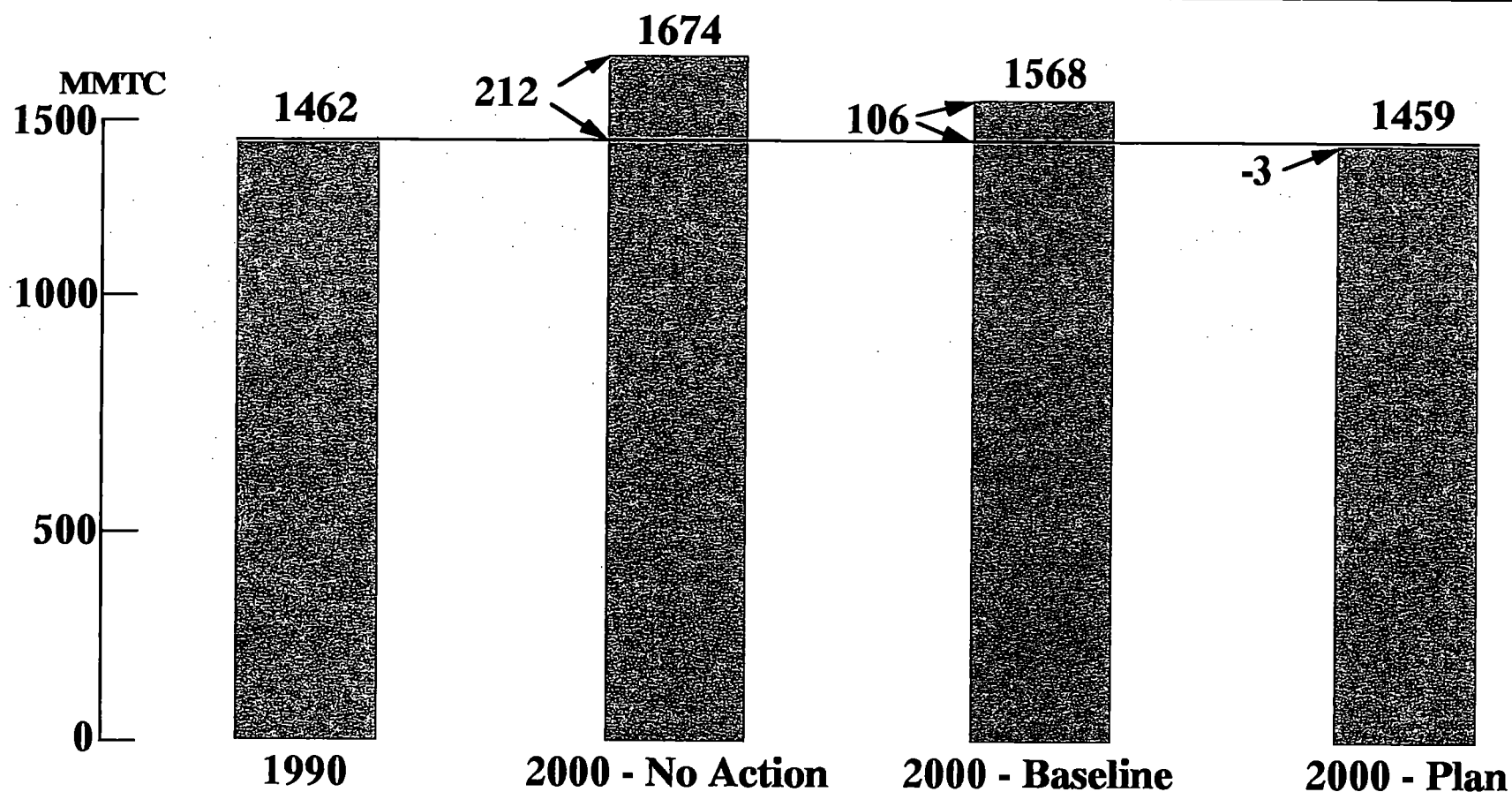


**Value of Energy Saved is Greater
than the Private Investment Cost**

DATA SOURCE: Climate Change Action Plan, 10/19/93

CLIMATE CHANGE ACTION PLAN

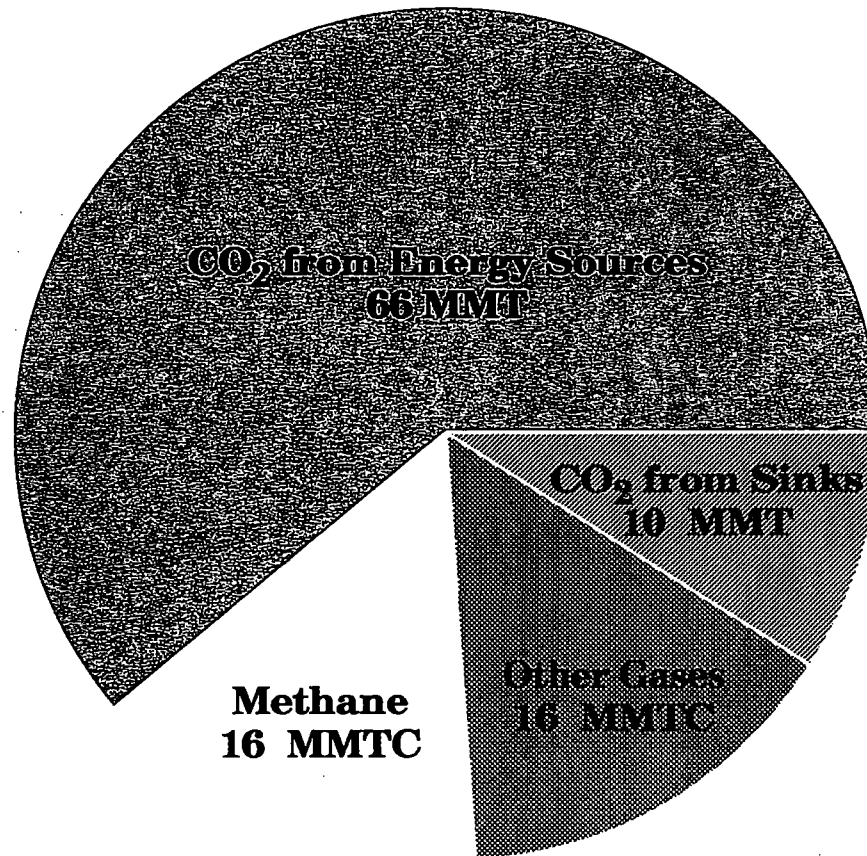
GREENHOUSE GAS EMISSIONS RETURN TO 1990 LEVELS



DATA SOURCE: Climate Change Action Plan, 10/19/93

CLIMATE CHANGE ACTION PLAN

GREENHOUSE GASES REDUCED BY 109 MMTC



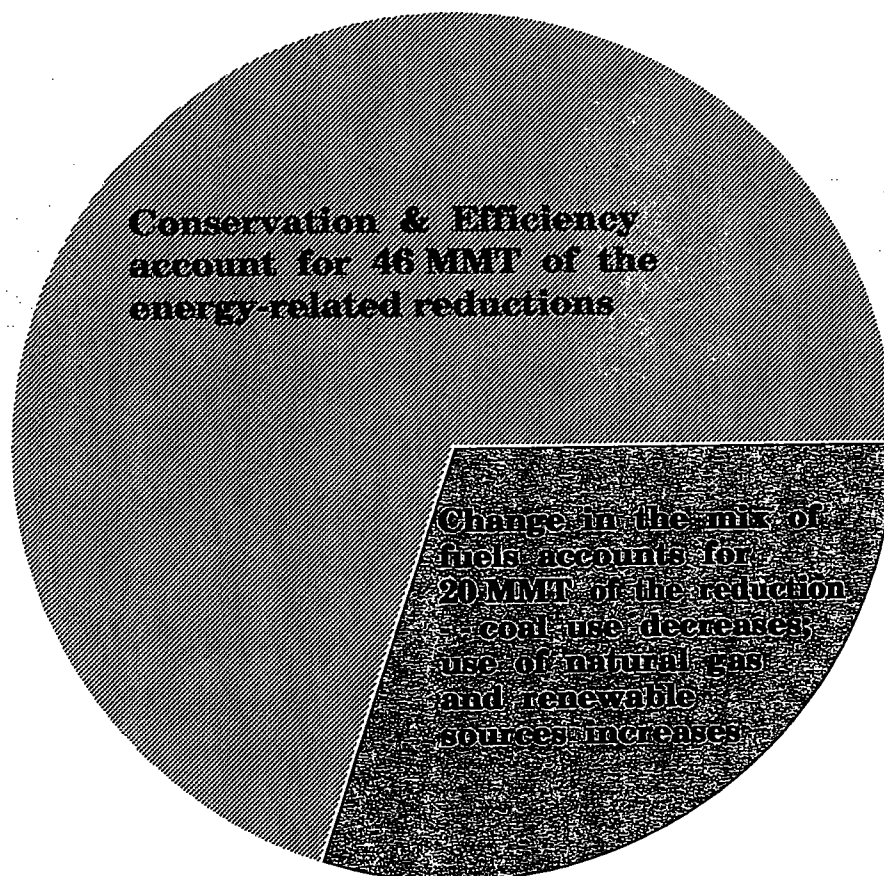
62 Percent Comes from the Energy Sector

DATA SOURCE: Climate Change Action Plan, 10/19/93

CLIMATE CHANGE ACTION PLAN

CONSERVATION & EFFICIENCY

70% →



DATA SOURCE: Climate Change Action Plan, 10/19/93

CLIMATE CHANGE ACTION PLAN

BUDGET DEFICIT REDUCED

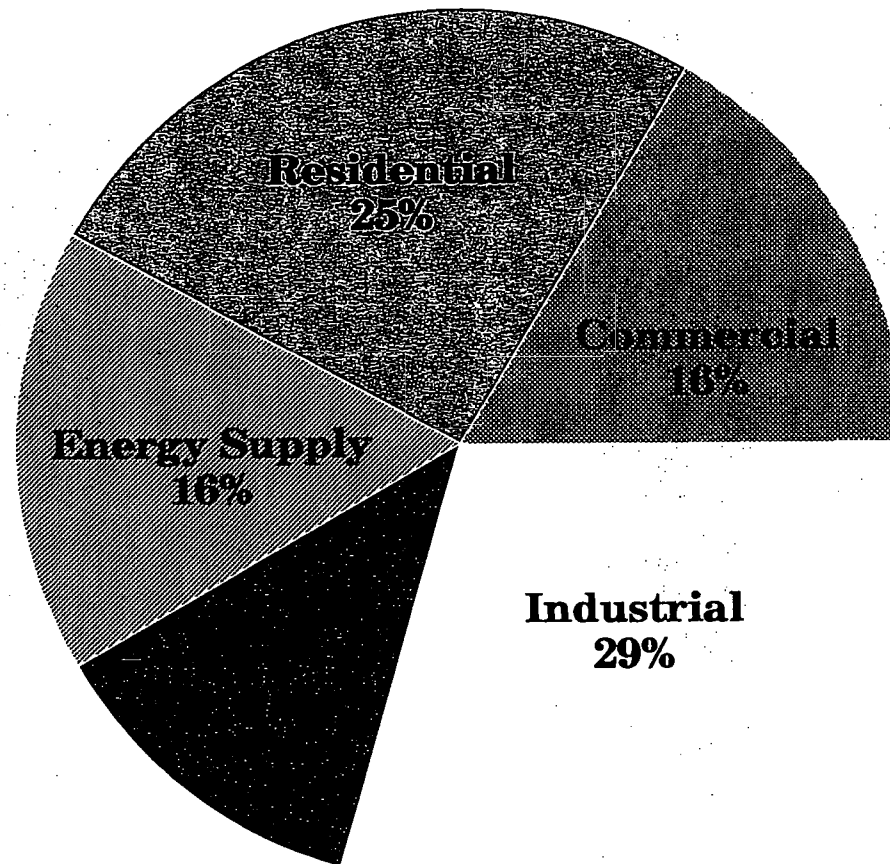
**Increase in
Federal Receipts
\$2.7 Billion
(1994-2000)**

**Federal
Federal
Expenditures
\$1.3 Billion
(1994-2000)**

DATA SOURCE: Climate Change Action Plan, 10/19/93

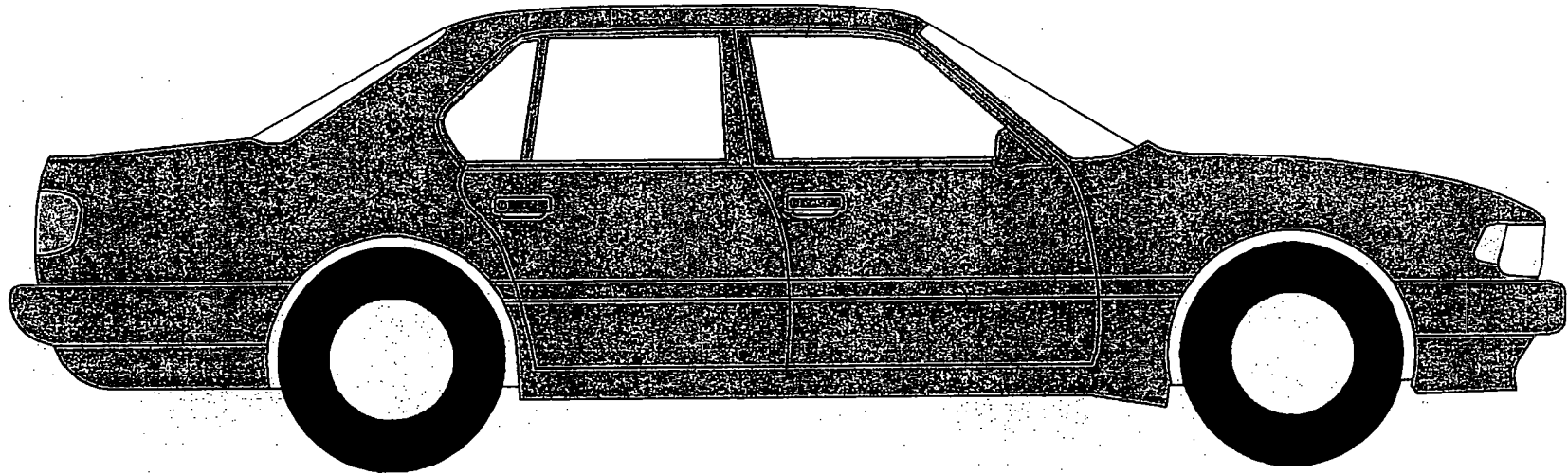
CLIMATE CHANGE ACTION PLAN

ALL ENERGY SECTORS CONTRIBUTE TO 66 MMT REDUCTION



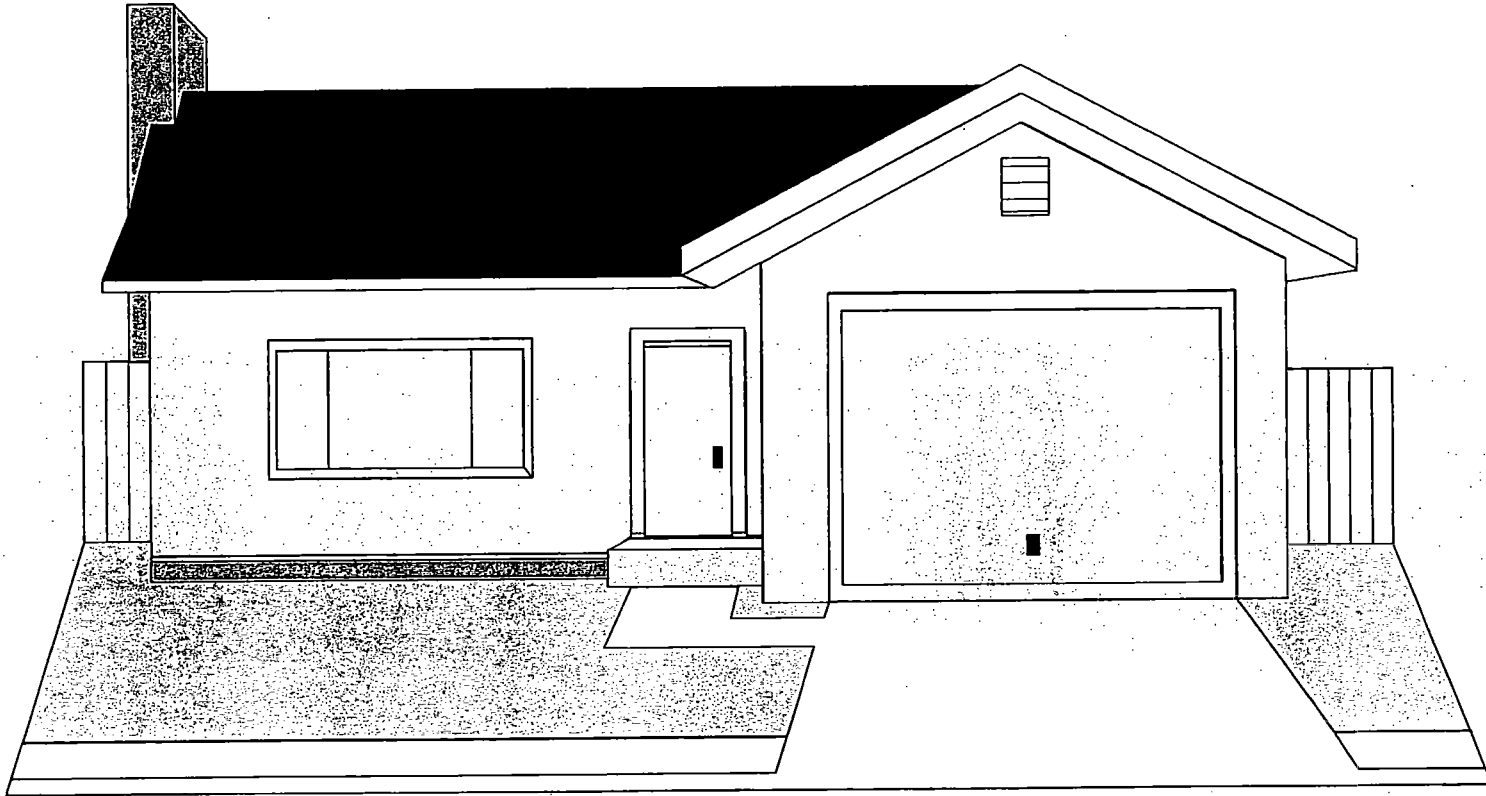
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1 Million Metric Tons of Carbon is:



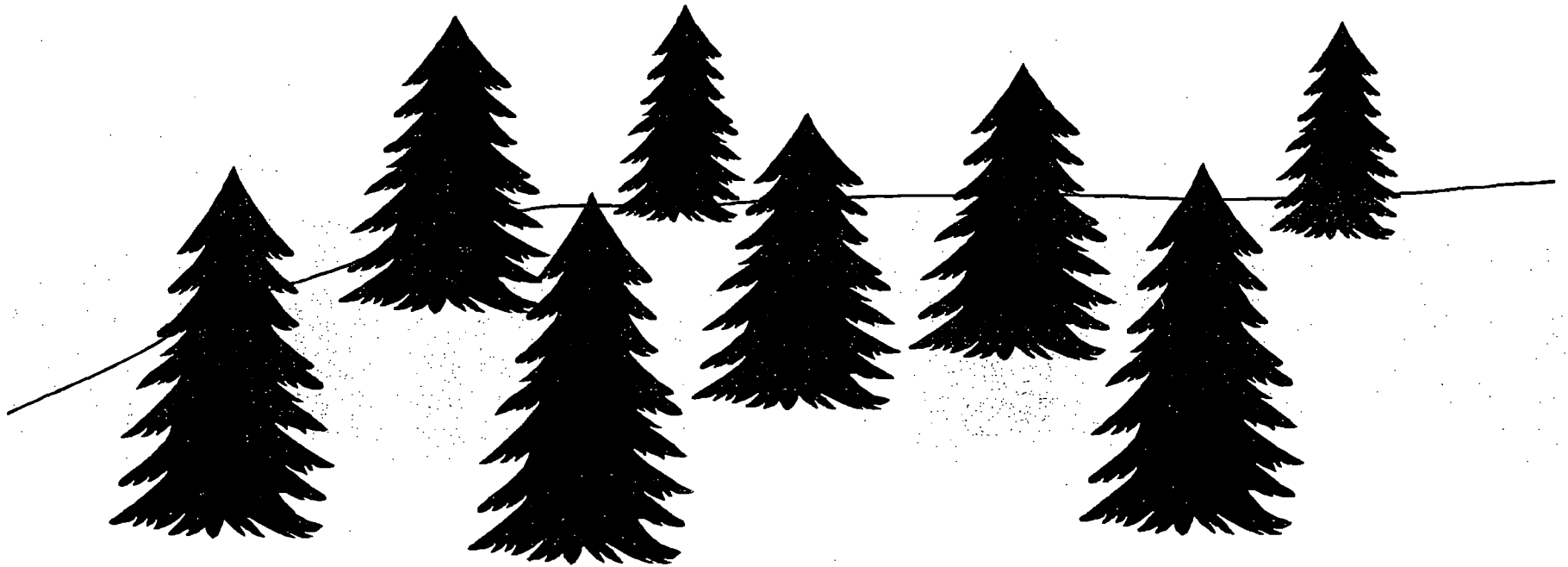
**Emissions from 750,000 Cars,
Each Traveling 11,000 Miles at
20 Miles Per Gallon.**

1 Million Metric Tons of Carbon is:



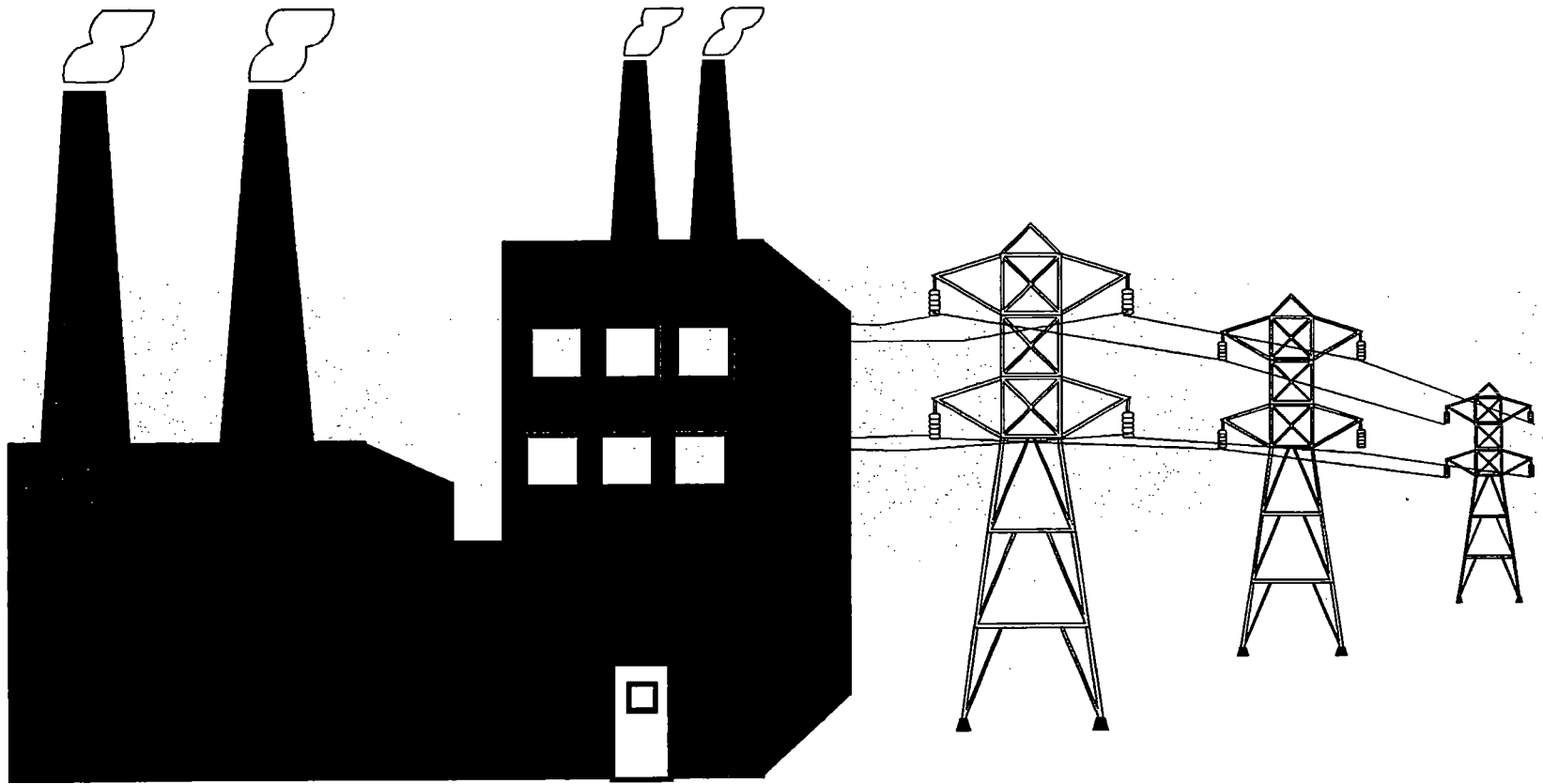
**Average Annual Emissions from
the Electricity Consumption of
About 600,000 Households.**

1 Million Metric Tons of Carbon is:



**Added Annual Carbon Storage on 1 Million
Acres of a Well-Established, Rapidly-Growing
Stand of Mixed Species.**

1 Million Metric Tons of Carbon is:



**Annual Emissions from a 625 Megawatt
Coal-Fired Power Plant Serving 425,000
Households.**