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OA/ID Number: 9554
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Folder Title:
Environment - Climate Change [Folder 2] [3]

Stack:	Row:	Section:	Shelf:	Position:
S	20	5	6	3

BASIC MODELING TOOL: THE IDEAS* MODEL

Features:

- **Integrated framework relates U.S. energy demand, production and prices from 1950 - 2030;**
- **Structural simulation approach explicitly represents key energy market mechanisms: energy investments, production, conversion technologies, end-use service demand and conservation.**

Track Record:

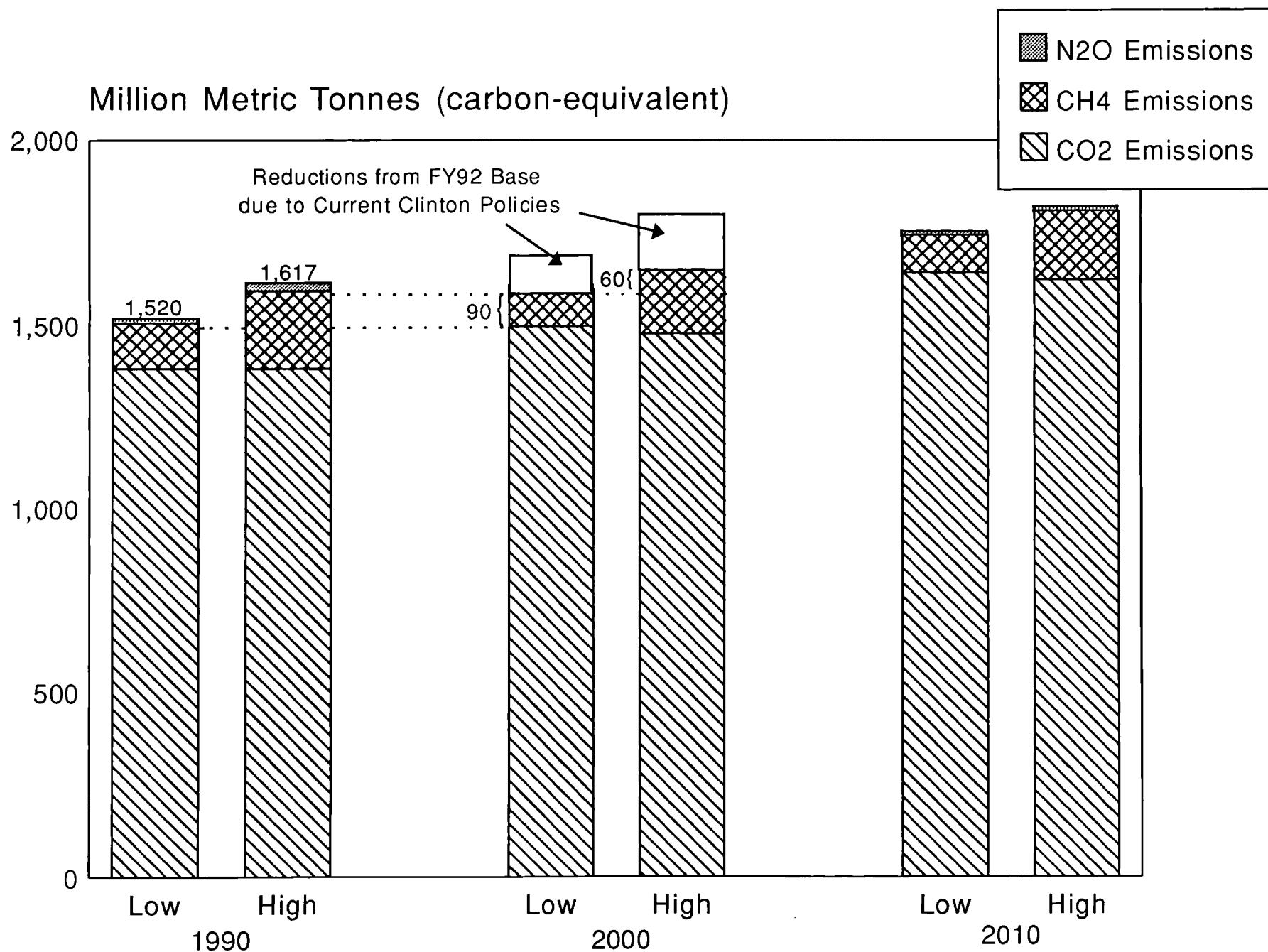
- **Subjected to extensive peer review;**
- **Used for the National Energy Plans since 1979;**
- **Integrating model for the 1991 National Energy Strategy;**
- **Used for numerous energy policy analyses.**

*** Integrated Dynamic Energy Analysis Simulation**

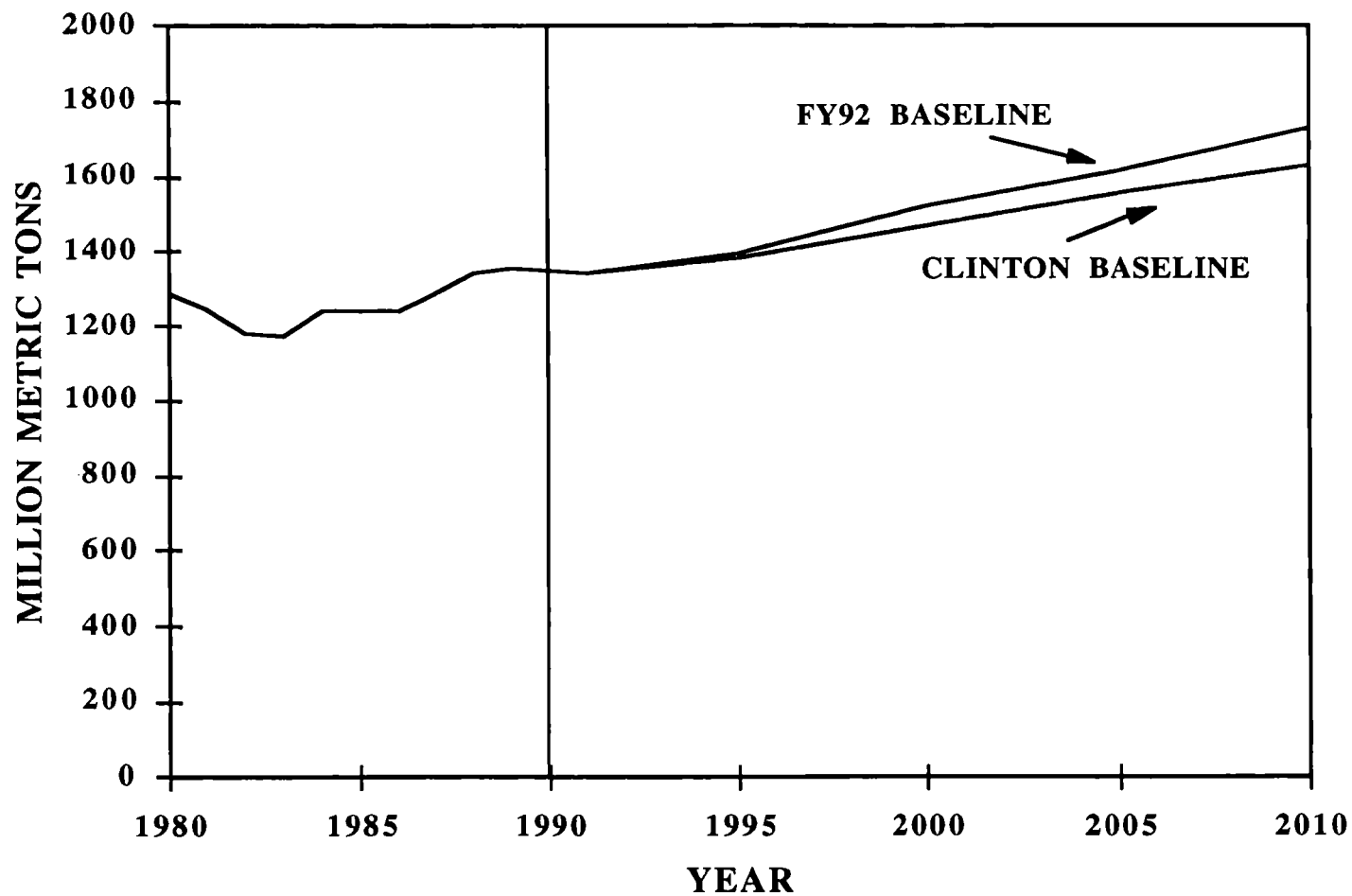
BASE CASE DEVELOPMENT

- **Two cases were created:**
 - one with policies through FY92;
 - one including implementation of the 1992 Energy Policy Act, the Btu tax and the Clinton economic package;
 - the second case is the starting point for the August plan development.
- **Purpose**
 - best point estimate of an uncertain future;
 - credible and consistent "point of departure" for option analysis.
- **Methodology**
 - calibration to EIA's 1993 Annual Energy Outlook;
 - the Energy Information Agency (EIA) is an independent statistical agency of DOE;
 - incorporation of assumptions from CEA, DOE, and EPA to reflect policies already planned.

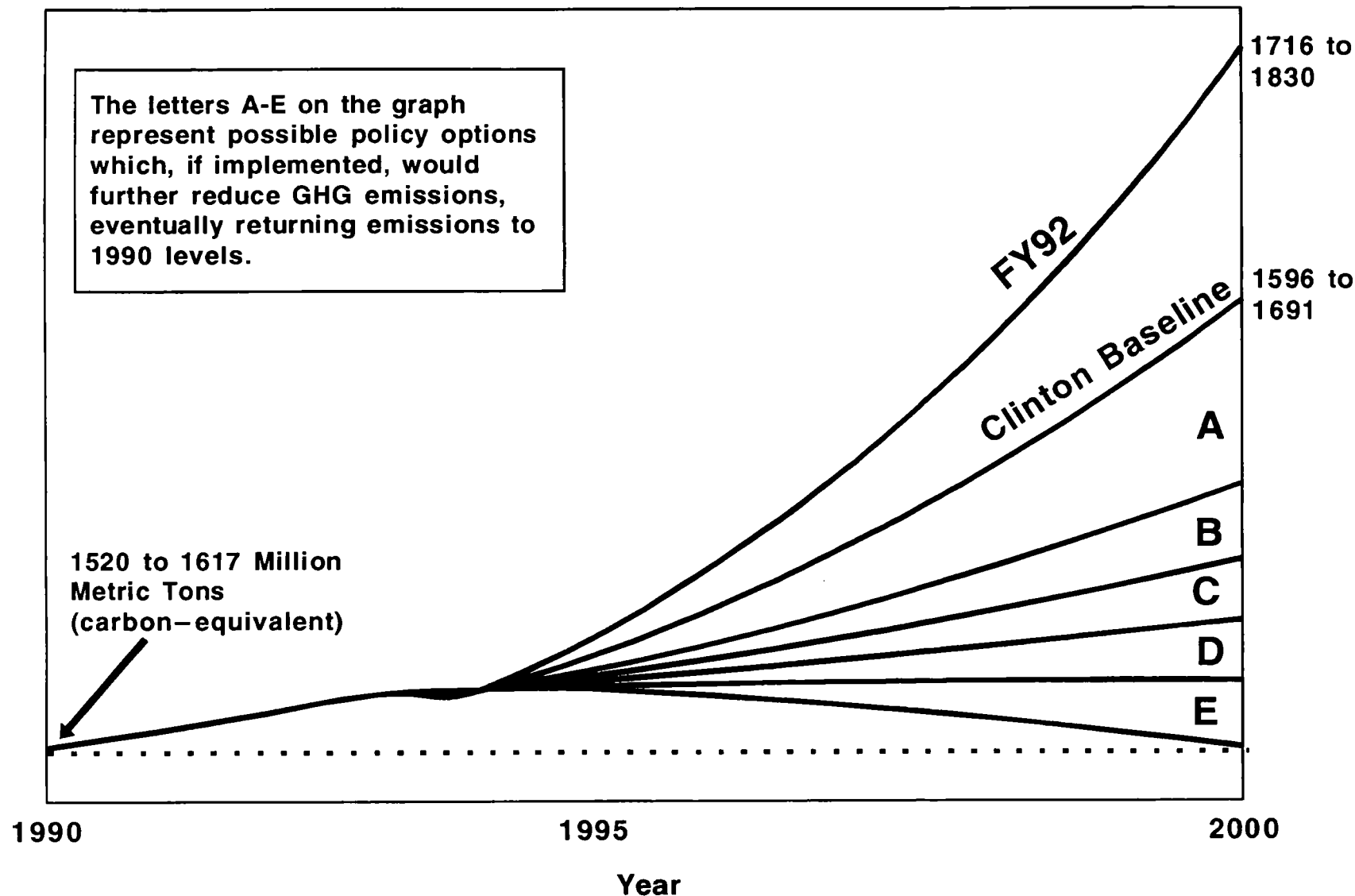
Base Case: Major Greenhouse Gas Emissions



U.S. CARBON EMISSIONS FROM THE ENERGY SECTOR



Illustrative Time Path of Major Greenhouse Gas Emissions

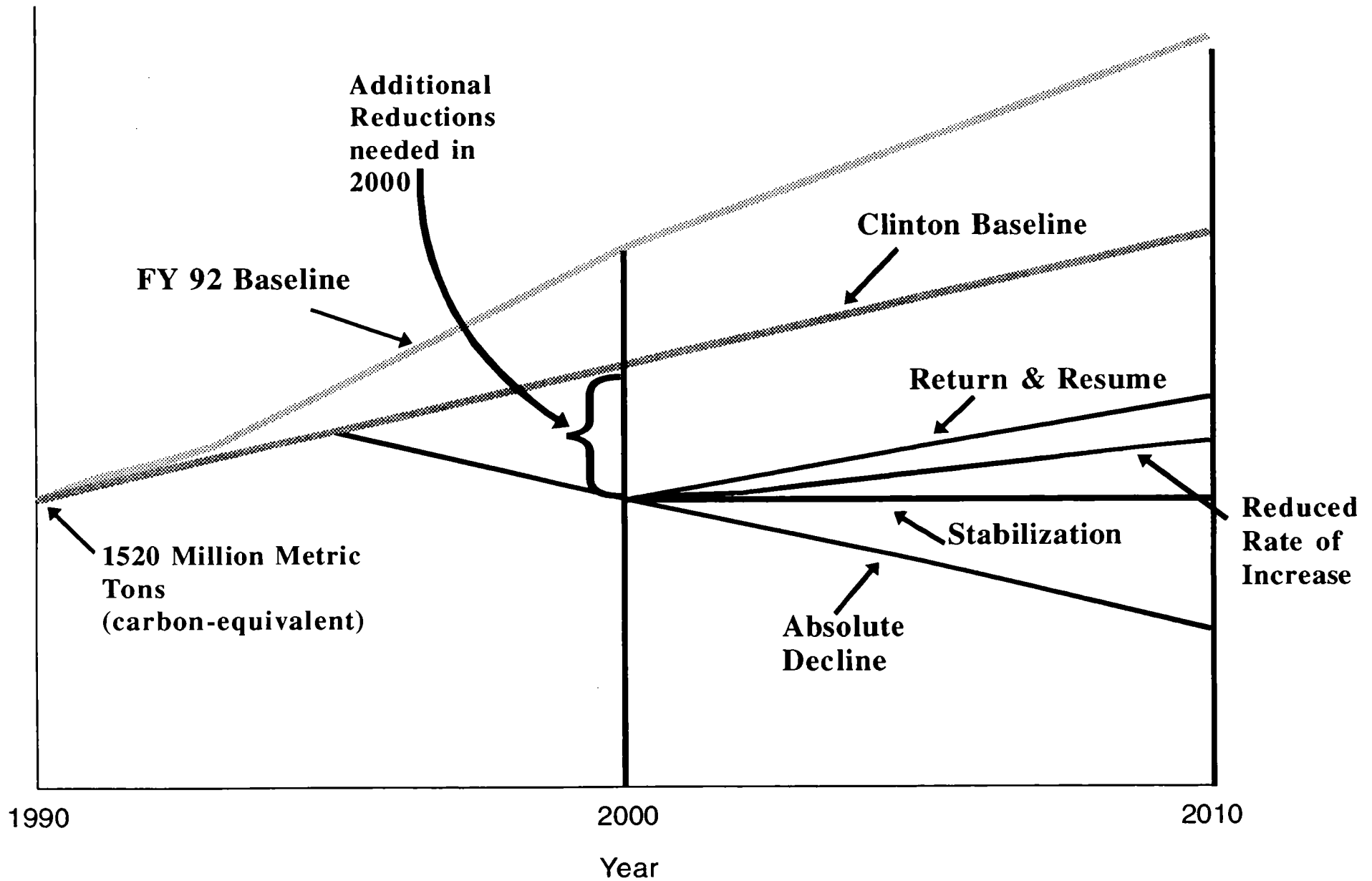


Sources of uncertainty in FY92 and Clinton baselines:

- Methane and nitrous oxide emissions in 1990 & 2000.
- Effectiveness of presently planned emissions reductions actions.
- Divergence in economic growth and energy price trends from projected values.

Administration emission projections reflect the first two types of uncertainty, but not the third.

Possible Major GHG Emissions Paths Beyond the Year 2000



BASE CASE UNCERTAINTY

- IDEAS projections of energy sector carbon emissions are comparable to those of other widely used models.
- All projections, however, depend heavily on assumptions made regarding economic growth and energy price trends. Differences between actual and assumed trends can have a major impact in emissions levels.
 - An earlier sensitivity analysis using IDEAS showed that projected carbon emissions in 2000 might be higher by:
 - 65 MMT (about a 50 percent increase in projected carbon emissions growth over the decade) if the annual economic growth projection is increased by 0.75 percent;
 - 18 MMT if oil prices decline 1 percent annually instead of increasing 4 percent annually.
 - Higher oil prices and lower growth would have the opposite effect.
- These uncertainties complicate the task of developing a plan that meets the President's pledge. Periodic review and updating will be needed over time.

GROUPING OPTIONS TO CAPTURE INTERACTIVE EFFECTS

Examples from earlier Energy Policy Act analyses of long range (year 2010) impacts.

- **Synergistic Options:** Options that produce a greater effect when implemented jointly.

- Integrated Resource Planning and R&D (i.e., ground source heat pumps) reduce carbon emissions by 2.0 percent and 1.6 percent, respectively.

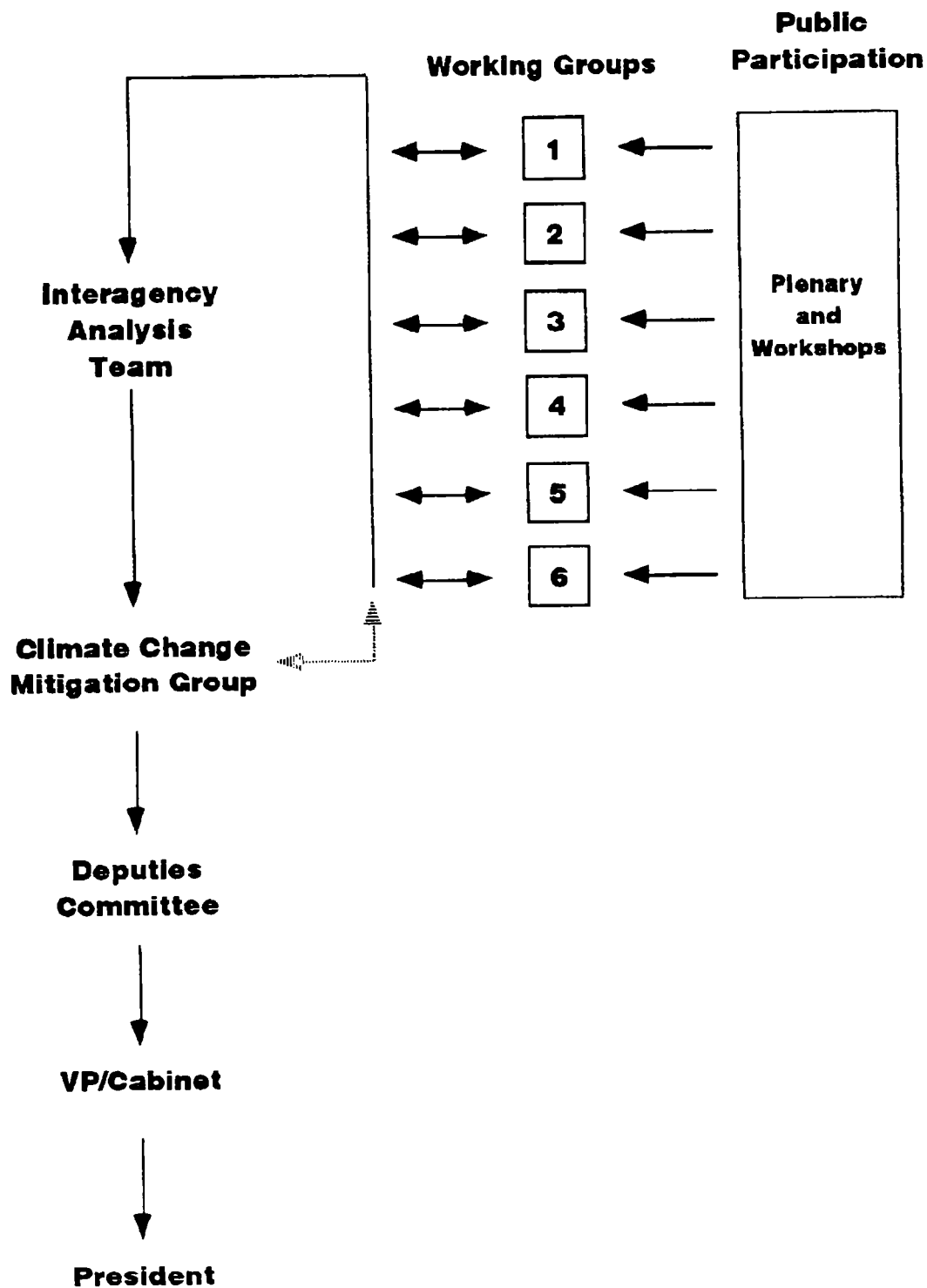
Together these options produced a 4.2 percent energy savings (rather than 3.6 percent) because utility IRP programs increase market penetration of energy efficient technologies whose cost is lowered by the R&D program.

- **Offsetting Options:** Options that cancel out each other when implemented jointly.

- Standards (i.e., commercial lighting) and Integrated Resource Planning reduce carbon emissions 1.4 percent and 3.8 percent, respectively.

Together these options reduce carbon emissions 4.2 percent (rather than 5.2 percent) because IRP promotes more efficient lighting at the same time that it is being required by law through the standard.

Action Plan Organizational Structure



ACTION PLAN TIMETABLE

Week of

June 7:	CCMG organizing meeting	6/8
	WG public plenary and workshops	6/10-11
June 14	WG/IAT work week	
June 21	WG progress reports/IAT synthesis	
	WG chairs regular meeting	Tuesday pm
	IAT regular meeting	Wednesday pm
	CCMG regular meeting	Thursday pm
June 28	WG public workshops	
	WG chairs/IAT meetings	
	CCMG meeting-synthesis/direction	
July 5	WG public workshops	
	WG chairs/IAT meetings	
	CCMG meeting—synthesis/direction	
July 12	WG draft reports	
	WG chairs/IAT meetings	
	CCMG meeting—synthesis/direction	
July 19	WG final reports	
	WG chairs/IAT meetings	
	CCMG meetings—consider/select options	
July 26	WG chairs/IAT meetings	
	CCMG meetings—review draft decision document	
August 2	Decision document to deputies, principals, and President	
	Deputies committee meeting	
August 9	President decisions	
	Draft Executive Summary	
	Brief Key external parties	
August 16	Public announcement	
	Presentation to SNC meeting	
	Media outreach	

Wed
Thurs

ccg Chair Tues 5:00
IAT Wed 9:30 am
CCMG Thu 4:00

NEXT STEPS

June 10-11 Public workshops
 Sheraton Washington Hotel
 Plenary Session 1:00 - 2:30 p.m. Thursday
 Workshops 3:00 - 6:00 p.m. Thursday
 9:00 - 1:00 p.m. Friday

Inform participants and public of policy objectives and receive information on innovative mitigation ideas.

June 24 1st regular CCMG meeting
 Rm. 324 OEOB, 3:00 p.m.

Review WG progress reports and IAT synthesis of ideas surfaced at public workshops. Give direction to WG chairs and IAT regarding structure and refinement of analysis, and use of 2nd round of public workshops.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
POLICY, PLANNING AND EVALUATION

June 1993

Dear Colleague:

I am pleased to provide you with a copy of the *Program Overview* for the Adaptation Branch of EPA's Climate Change Division (Office of Policy, Planning and Evaluation). This overview describes the work being done to assess the economic benefits of avoiding, or adapting to, climate change in the United States.

Please do not hesitate to call me if I can provide you with additional information about our program (202-260-4029).

Sincerely,

A handwritten signature in cursive script that reads "Joel Scheraga".

Joel D. Scheraga
Chief, Adaptation Branch
Climate Change Division

Attachment



Printed on Recycled Paper

**Adaptation Branch
Climate Change Division**



Program Overview

In 1989, the US EPA (OPPE) published a Report to Congress entitled, *The Potential Effects of Global Climate Change on the United States*. This report, which involved over 50 universities and interagency agreements, attempted to identify some of the sensitivities of ecosystems, national impacts, regional differences, and policy implications of global climate change. It examined several key systems that may be particularly affected by climate change. These systems include agriculture, forests, water resources, sea level rise, biodiversity and wildlife, energy demand, air pollution, and human health. The report also included four regional case studies: the Southeast, the Great Lakes, California, and the southern Great Plains.

Since the publication of the 1989 "Effects Report," the historic Framework Convention on Climate Change was signed by 154 countries at the United Nations Conference on the Environment and Development (UNCED) in June 1992. By signing the Convention, the signatory countries have answered in the affirmative the question, "Should we do something about climate change?" However, the Convention does not answer the equally important question, "How much should be done?" As countries prepare their national plans and consider committing significant resources to addressing the climate change problem, it will become increasingly likely that they will question the benefits of further actions. A better understanding of the *socioeconomic* impacts of climate change and the distribution of those impacts across different segments of society will enable policymakers to justify specific mitigation and adaptation policies, and ensure that they are both efficient and equitable.

A natural extension of the 1989 "Effects Report" is to conduct a policy-relevant assessment of the economic benefits of avoiding, or adapting to, climate change in the United States. This is the principal goal of the Adaptation Branch. Although this work is of particular interest to US policymakers, it is anticipated that the insights gained from this program will also be of interest to the international community. New tools and methodologies, which may be useful to analysts in other countries, are being developed to evaluate the socioeconomic impacts of climate change and to estimate the benefits of action. For this reason, the Adaptation Branch is also actively participating in the activities of the Intergovernmental Panel on Climate Change (IPCC), contributing to the new Working Group III ("Cross-cutting Socioeconomic Issues") and Working group II ("Impacts, Mitigation, and Adaptation").

The Benefits Assessment is a *policy assessment*. The program has been designed to be comprehensive, and will communicate to policymakers the best available information about the socioeconomic impacts of climate change, whether or not they can be monetized at this time. The program is looking across all impact categories and across all economic sectors. Market and non-market impacts are being evaluated, and both efficiency and equity considerations are being assessed.

Examples of key questions being addressed in the assessment are:

- What are the physical and economic systems that are vulnerable to climate change?
- What are the potential impacts of climate change on markets and macroeconomic activity? How is economic welfare likely to change?
- How may the structure of the US economy change?
- What are the likely distributional impacts of climate change across different segments of society?
- What are the potential sectoral impacts of climate change, including effects on human health, agriculture, forests, water resources, and sea level rise?
- What are the anticipated impacts of future climate change on species and ecosystems?
 - What scientific information exists that suggests the existence of critical thresholds, critical rates of change, and potential irreversibilities?
 - What are the sensitivities of different ecosystems to the *rate* of climate change and climate *variability*?
- How do the preferred levels of anticipatory adaptation investment and emission reductions change if impacts experience threshold effects, irreversibilities, or step changes in size?
- What are the preferred levels of "insurance" spending on emission reductions or adaptation investment? What is the value of the opportunity to invest in this insurance?
- What are the values of resolving key uncertainties at different points in time?
- What are the top priorities for research in the next decade? How do the preferred climate change strategies depend on research outcomes?

Major Program Areas

Benefits Assessment Program Major Program Areas

The activities of the Adaptation Branch fall into seven key categories. The focus of these activities is to provide policy-relevant information useful in the production of the Benefits Assessment, as well as the 1995 IPCC Assessment.

- Market Impacts of Climate Change
- Non-Market Impacts of Climate Change
- Ancillary Benefits
- Assessment of Adaptation Strategies
- Integrated Assessment
- Regional and Ecosystem Case Studies
- International Activities

The Adaptation Branch has designed a program that will produce over time a comprehensive assessment of the benefits associated with avoiding, or adapting to, climate change. The major program elements include:

- **Market Impacts.** These projects are intended to identify the sensitivity of the US economy to climate change, including macroeconomic impacts, sectoral impacts, and distributional effects. The focus is on *market manifestations* of the impacts of climate change. In contrast to other studies in this area, the Adaptation Branch is assessing the impacts on *economic welfare* (consumer and producer surplus), and not just on GNP.

The sectoral effects being considered include impacts on human health, agriculture, forestry, coastal expenditures to protect against sea level rise, and water resources. For example, one study is examining the simultaneous impacts of weather and air pollution on human mortality. This work is yielding results that may have significant implications for the setting of air pollution standards.

- **Non-market Impacts.** The goal of this effort is to identify and quantify the effects of climate change that lack a market manifestation, including impacts on household welfare, ecosystems, and biodiversity.

One example of the type of work being done in this area is a project that is attempting to properly define and characterize biodiversity, develop economic metrics for measuring

and valuing it (as well as the benefits derived from it), and derive optimal rates of conservation using optimization theory from natural resource economics.

- ***Ancillary Benefits.*** Ancillary "pollution benefits" derived from climate change policies, as well as the ancillary "climate benefits" derived from air pollution control programs, are being estimated. (This effort is focusing on evaluating the benefits derived, as opposed to the cost-effectiveness of emissions control programs.)
- ***Adaptation Strategies.*** A methodology for ranking adaptation strategies by their impacts on economic and social welfare is being developed and will be tested at the state level.
- ***Integrated Assessment.*** An integrated assessment framework is being developed that combines information from the natural sciences and the social sciences to attain a policy-relevant perspective and to gain insights about the degree to which global environmental effects of human activities result in changes in social welfare. The framework provides a flexible analytical tool that can be used to pull together and integrate information and uncertainties from all of the diverse factors that influence climate policy. The framework enables analysts and decision makers to explore the policy implications of different combinations of alternative assumptions or scenarios across the physical, biological, economic, and technological factors that can influence climate policies.
- ***Regional and Ecosystem Case Studies.*** Ecosystems that are of particular interest are the subject of several case studies. These include a study of the impact of climate change on: (1) recreational and commercial fishing in Minnesota; (2) the Chesapeake Bay; (3) Florida ecosystems; (4) California; (5) the Pacific Northwest; (6) the Colorado River Basin; and (7) the Boston water supply system.
- ***International Activities.*** The Adaptation Branch is actively participating in the activities of IPCC Working Groups II and III, and expects to contribute to the writing of the 1995 IPCC Assessment.

Preliminary Insights

Work on the Adaptation Branch's Economic Benefits Assessment was initiated one year ago. Many of the studies that were initiated at that time are now coming to fruition. New tools for benefits assessment (e.g., for ecosystem valuation) have been developed, and policy-relevant results have been derived. It is expected that a preliminary Benefits Assessment will be produced by December 1993.

Preliminary Assessment Results

- **Macroeconomic Impacts:** If climate change occurs, it may result in significant distributional effects. The burden of climate change may be distributed regressively across households.
- **Macroeconomic Impacts:** The combined effects of the impacts of climate change are projected to lead to price increases for *all* economic sectors of the U.S. economy. Further, they may lead to a decline in aggregate U.S. consumption below what it would be in the absence of climate change.
- **Macroeconomic Impacts:** Although the combined effects of climate impacts may not be large as a *percentage* of GNP, the *absolute* dollar decline may be significant.
- **Macroeconomic Impacts:** The structure of the U.S. economy could change. The economy could move away from agricultural and consumption-related activities and toward investment and capital-related industries.
- **Impacts of Climate Change on Ecological Services:** Given the current state of knowledge, forest-based recreation and recreational fishing have the most at risk ecologically and the most at stake economically.
- **Carbon Permit Trading:** Stabilization of CO₂ emissions using a permit trading system is more cost effective at the primary level of production than trading at the distribution to end-use level.
- **Energy Taxes:** CO₂ emissions are stabilized at the lowest social cost when a carbon tax is imposed at the level of primary production.

Contributors to the Assessment

A wide array of universities, non-profit research institutions, federal agencies, national labs, and contractors are contributing to this assessment. The Adaptation Branch is supporting over 40 projects being conducted by the following organizations:

- **Universities and Non-Profit Institutions:** Harvard University, Yale University, Stanford University, University of Maryland, Carnegie Mellon University, University of Delaware, University of Colorado, University of California at Davis, Cornell University, University of Texas, Oregon State University, Resources for the Future, National Institutes of Health, World Health Organization, World Meteorological Organization, IIASA, Climate Institute, Environmental Law Institute.

- **Government Agencies and National Labs:** NASA Goddard Institute of Space Studies, Battelle National Labs, Argonne National Labs, EPA Office of Air Quality Planning and Standards.
- **Contractors:** Abt Associates, Decision Focus Inc., ICF Incorporated.

Sample Publications

The following list provides examples of articles, reports and publications from research sponsored by the Adaptation Branch:

Macroeconomic Impacts:

- Scheraga, Joel D., Neil A. Leary, Richard J. Goettle, Dale W. Jorgenson, and Peter J. Wilcoxon, "Macroeconomic Modeling and the Assessment of Climate Change Impacts," in "Costs, Impacts and Possible Benefits of CO₂ Mitigation," *IIASA Collaborative Paper Series*, Vol. CP-93-2, 1993, forthcoming.
- Titus, James G., "The Costs of Climate Change to the United States," in *Global Climate Change: Implications, Challenges and Mitigation Measures*, S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller, and L.M. Rosenfeld, eds., The Pennsylvania Academy of Science, Pennsylvania, 1992, 384-409.
- Scheraga, Joel D., Anne Grambsch, and Robert Shackleton, "Macroeconomic Modeling and the Assessment of Environmental Regulations: A Balanced Perspective," Essay in *AERE Newsletter*, Vol. 12, No. 2, November 1992, 13-18.

Ecosystem Valuation:

- Michaels, Greg, Keith Sappington, Lisa Akeson, Marlene Wojcik, Todd Aagaard, and Diane DeWitt, "Ecological Impacts from Climate Change: Scoping Study for an Economic Assessment," Abt Associates Inc., Report prepared for the Adaptation Branch, Climate Change Division, US EPA, forthcoming, Summer 1993.

Ecological Effects of Rapid Climate Change:

- Hinckley, Dexter, "Ecological Effects of Rapid Climate Change," in *Global Climate Change: Implications, Challenges and Mitigation Measures*, S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller, and L.M. Rosenfeld, eds., The Pennsylvania Academy of Science, Pennsylvania, 1992, 291-301.

Human Health Effects:

- Kalkstein, Laurence S., "A New Approach to Evaluate the Impact of Climate on Human Mortality," *Environmental Health Perspectives*, Vol. 96, 1991, 145-150.
- Kalkstein, Laurence S., "Impacts of Global Warming on Human Health: Heat Stress-Related Mortality," in *Global Climate Change: Implications, Challenges and Mitigation Measures*, S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller, and L.M. Rosenfeld, eds., The Pennsylvania Academy of Science, Pennsylvania, 1992, 371-383.

Agricultural Impacts:

- Rosenzweig, Cynthia, Martin L. Parry, and Thomas E. Downing, "Climate Change, World Food Supply, and Vulnerable Regions," in *As Climate Changes: International Impacts and Implications*, Strzepek, Kenneth M. and Joel B. Smith, eds., Cambridge University Press, New York, forthcoming, 1993.
- Rosenzweig, Cynthia, and Diana Liverman, "Predicted Effects of Climatic Change on Agriculture: A Comparison of Temperate and Tropical Regions," in *Global Climate Change: Implications, Challenges and Mitigation Measures*, S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller, and L.M. Rosenfeld, eds., The Pennsylvania Academy of Science, Pennsylvania, 1992, 346-363.

Sea Level Rise:

- Titus, James G., and Vijay Narayanan, "Probability Distribution of Future Sea Level Rise," Paper presented to the IPCC March 1992 Conference on Sea Level Rise at Margarita Island, Venezuela.

Water Resources:

- Dracup, John A., Susan D. Pelmulder, Richard Howitt, Gerald Horner, W. Michael Hanemann, Christopher F. Dumas, Richard McCann, John Loomis, and Sabrina Ise, "Integrated Modeling of Drought and Global Warming: Impacts on Selected California Resources," Report prepared for EPA by the National Institute for Global Environmental Change, University of California, Davis, March 1993.

Market Incentives:

- Leary, Neil A., and Joel D. Scheraga, "Lessons for the Implementation of Policies to Mitigate Carbon Dioxide Emissions," Forthcoming in *Reducing Carbon Emissions from the Energy Sector: Cost and Policy Options*, Darius Gaskins and John Weyant, eds., Stanford University Press, forthcoming, 1993.

- Leary, Neil A., and Joel D. Scheraga, "The Costs of Different Energy Taxes for Stabilizing U.S. Carbon Dioxide Emissions: An Application of the Gemini Model," Paper presented at *Global Warming - A Call for International Coordination*, Fourth International Conference on the Scientific and Policy Issues Facing all Governments, Chicago, IL, April 5-8, 1993.
- Smith, Anne E., Anders R. Gjerde, Lynn I. DeLain, Ray R. Zhang, *CO₂ Trading Issues* (Volumes 1-3), Decision Focus Incorporated, Report prepared for the Adaptation Branch, Climate Change Division, US EPA, May 1992.
- Scheraga, Joel D., and Neil A. Leary, "Improving the Efficiency of Policies to Reduce CO₂ Emissions," *Energy Policy*, May 1992, 394-404.
- Scheraga, Joel D., and Neil A. Leary, "Improving the Efficiency of Climate Change Policy," *Nature*, Vol. 354, No. 21, November 1991, 193.
- Scheraga, Joel D., and David Cohan, Steve Haas, and Anne Smith, "GEMINI: An Energy-Environmental Model of the United States," in D.O. Wood and Y. Kaya, eds., *Proceedings of the Workshop on Economic/Energy/Environmental Modeling for Climate Policy Analysis*, MIT Center for Energy Policy Research, 1990.

Inventory of Studies:

- Scheraga, Joel D., and Mary Beth Sigler, "Inventory of Studies on Climate Change Impacts and Adaptation Options," Report prepared as part of the US submission to IPCC Working Group II, December 1991.

Additional information about the program and requests for publications should be sent to Dr. Joel Scheraga, Chief, Adaptation Branch, US EPA, PM-221, 401 M Street SW, Washington, DC 20460.

Western Regional Council

June 29, 1993

BOARD OF TRUSTEES

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Chairman of the Board
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and Chief Executive Officer
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William A. Humphrey
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Gordon R. Parker
Chairman and
Chief Executive Officer
Newmont Mining Corporation

J. Steven Whisler
President
Phelps Dodge Mining Company

Don J. Leonard
Executive Director

Joseph Stiglitz
Council of Economic Advisors
Old Executive Office Building, Room 315
Washington, D.C. 20500

Dear Mr. Stiglitz:

I am writing on behalf of the Western Regional Council (WRC) to express concern about some specific elements of the Administration's plan to reduce U.S. emissions of greenhouse gases to 1990 levels by the year 2000.

The Western Regional Council is an organization of the chief executive officers of approximately forty companies with significant business activities in the Western United States, including financial, manufacturing, utility, construction, mining, transportation, oil and gas, forest product, agriculture, accounting and other enterprises.

At the recent White House Conference on Global Climate Change, the Administration solicited input from members of the public on possible policy options for achieving reductions of greenhouse gases. Those policies are intended to serve as the basis for the "national action plan" called for under the International Treaty on Global Climate Change.

WRC is concerned that in the effort to move quickly on this issue, the Administration could adopt policies that may be premature, inconsistent with the policies of the Clean Air Act Amendments of 1990 (CAAA), inefficient for energy producers and users, and have an unduly negative impact on the U.S. economy and our international competitiveness.

For example, one option raised by the Energy Supply Working Group would require New Source Performance Standards (NSPS) for sulfur dioxide (SO₂) emissions be applied to all coal-fired power plants over forty years of age. If adopted, this option would result in a cost of many billions of dollars to the U.S. economy and could be ineffective in reducing overall greenhouse gas emissions. Imposing NSPS would require the installation of scrubbers or other comparable technology-based equipment on all older, unscrubbed coal-fired power plants. The Clean Air Act Amendments of 1990 (CAAA) rejected mandatory scrubbing in favor of a two-phased, allowance-based, least-cost SO₂ emission reduction program with compliance flexibility to allow fuel switching, technology installation, or other compliance options. Requiring the installation of scrubbers now, before the CAAA has even been fully implemented, could add billions of dollars to the already enormous costs of complying with the

CAAA and jeopardize our international competitiveness. Moreover, since NSPS is designed for SO₂ emissions, not CO₂ emissions, it would have little, if any, impact on reducing greenhouse gas emissions.

We are concerned that some proponents of this policy to extend or expand NSPS may be motivated by objectives other than reducing greenhouse gases, such as a desire to force a significant number of existing coal-fired power plants into retirement. The expectation that this electric generating capacity could be readily replaced with renewable energy sources or conservation is unrealistic.

While WRC believes the Administration has moved in the right direction by agreeing to address emissions of all greenhouse gases rather than carbon dioxide only, we question the need to move so quickly. The global climate change phenomenon is extremely complex and the science remains uncertain. In order to avoid imposing billions of dollars in unnecessary costs on the U.S. economy, the Administration should, at present, base its "no regrets" policy on voluntary efforts that can be justified on their own merits. Anything more than that deserves a full and open public debate.

Sincerely,

A handwritten signature in cursive script, reading "Dan Berube".

Dan Berube, Chairman
Clean Air ad hoc Committee

THE Greenhouse ~~the~~ Gas COMMITMENT

Overview of Economics Issues

- Comprehensive scope
 - All major GTGs (CO_2 , CH_4 , N_2O)
 - All sectors (Energy, Transport, Agric., Forests, ~~Industry~~ Industry)
- Baseline forecast
 - to 2000, 2010
 - depends on economic growth, prices, technology
- "Return to 1990 level by 2000"
 - Options
 - Costs and effectiveness

6/7/93

Ally

Meeting
6/7/93
(11:00-12:00)

Basic Modeling tool : ①

THE IDEAS U.S. ENERGY MODEL

Features:

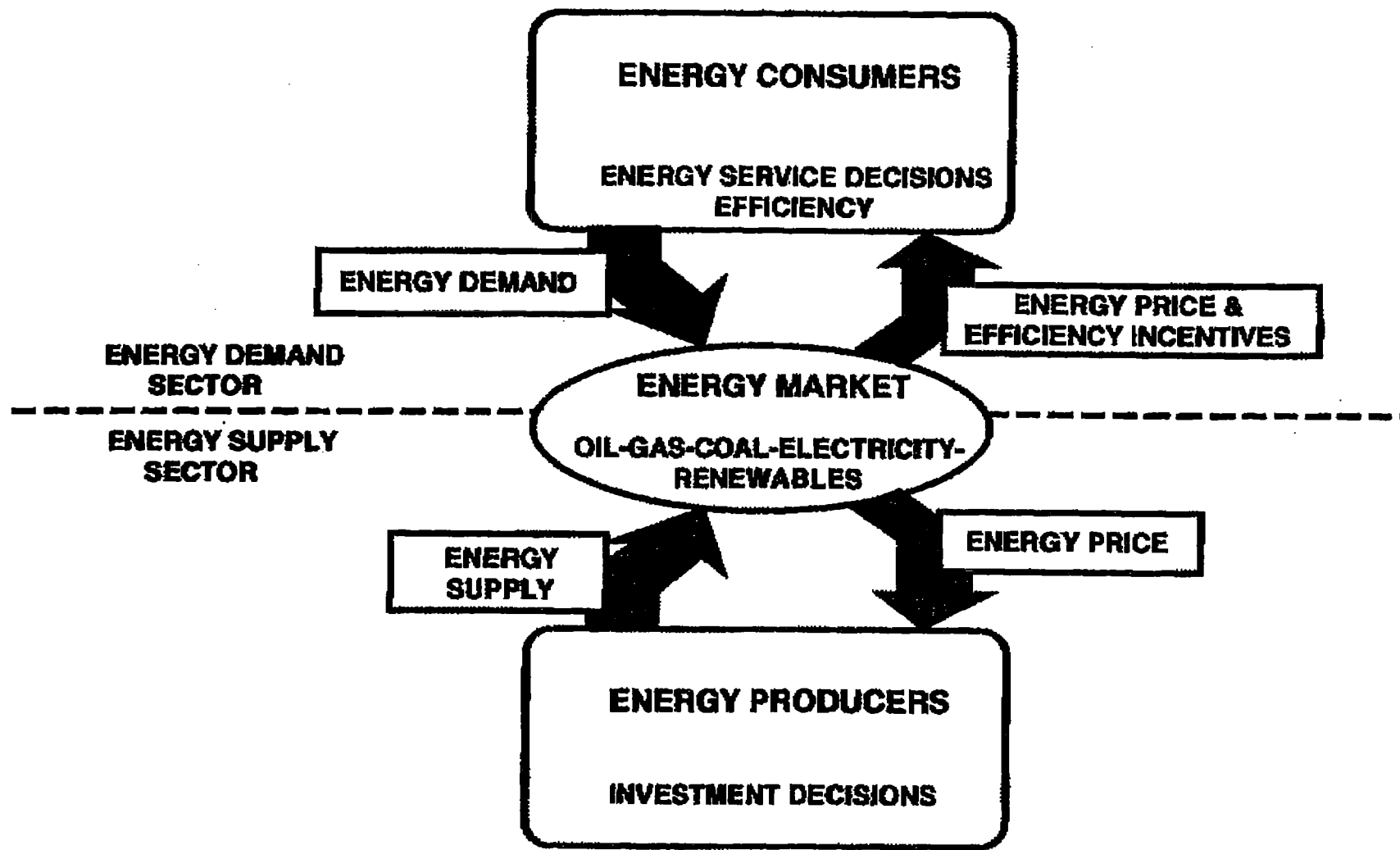
- Integrated framework relates U.S. energy demand, production and prices from 1950 - 2030;
- Structural simulation approach explicitly represents key energy market mechanisms: energy investments, production, conversion technologies, end-use service demand and conservation.

Track Record:

- Subjected to extensive peer review;
- Used for the National Energy Plans since 1979;
- Integrating model for the 1991 National Energy Strategy;
- Used for numerous energy policy analyses.

MARKET CLEARING MECHANISMS

- Energy markets "clear" through the dynamic interaction of supply and demand equilibrating to market clearing prices.





FACTORS DETERMINING ENERGY USE

- **Energy consumption** *is a function of energy prices and these factors:*

Energy Service Demands

- **Economic growth**
- **Appliance saturations (buildings)**
- **Product/process shifts (industry)**
- **Behavioral response**

Energy Efficiency

- **Conservation investments**
- **Capital stock turnover**

Fuel Choice

- **Market shares for new investments**
- **Short-term fuel switching (industrial boilers and flex-fueled vehicles)**

PRIMARY ENERGY SUPPLY

- **The model simulates the production of domestic oil, gas, and coal;**
 - **Resources, reserves exploration, and extraction costs are represented.**
- **Energy prices ~~are determined by the supply and demand~~**
 - **~~Except~~ oil is a globally traded commodity, so oil prices are primarily determined by the world oil price;**
 - **Coal prices are relatively insensitive to changes in demand because coal resources are plentiful;**
 - **Natural gas prices, reflecting the marginal costs of supply, are more sensitive to changes in gas demand.**

Components BASE CASE DEVELOPMENT

- Two cases were created:
 - one with ~~historical~~ policies; through FY 1992
 - one including implementation of the 1992 Energy Policy Act, Btu tax and Clinton economic package;
 - The second case is the starting point for the August plan development.
- Purpose
 - Best estimate ~~of~~ uncertain future
 - consistent "point of departure" for option analysis;
 - ~~credible starting point to focus attention on option analysis.~~
- Methodology
 - calibration to EIA's 1993 Annual Energy Outlook;
 - the Energy Information Agency (EIA) is an independent statistical agency of DOE;
 - incorporation of ~~alternative~~ assumptions from CEA, DOE, and EPA to reflect policies already planned.

full

Credible and

[These sound like the same thing; combine into one bullet]



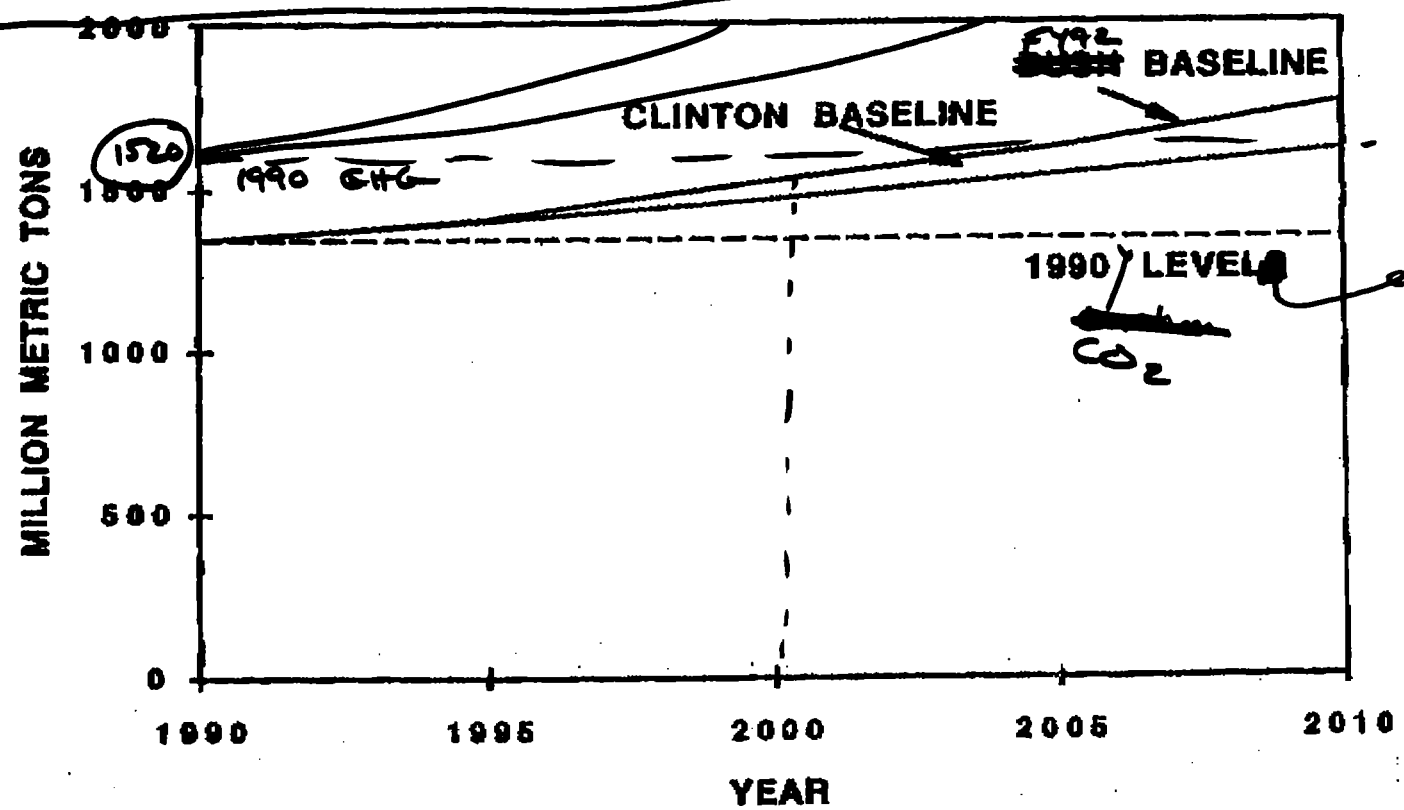
IDEAS

Base Case
~~U.S. CARBON~~ EMISSIONS

- In the Clinton Baseline, the starting point for the August Plan, ~~Carbon~~ ^{CO₂} emissions ~~in 2000~~ are projected to be 120 million metric tons (9 percent) above 1990 levels and 270 million tons (20 percent) higher than 1990 ~~by 2010~~.

Greenhouse Gas emissions are projected to be 2 above level in 2000 and in 2010.

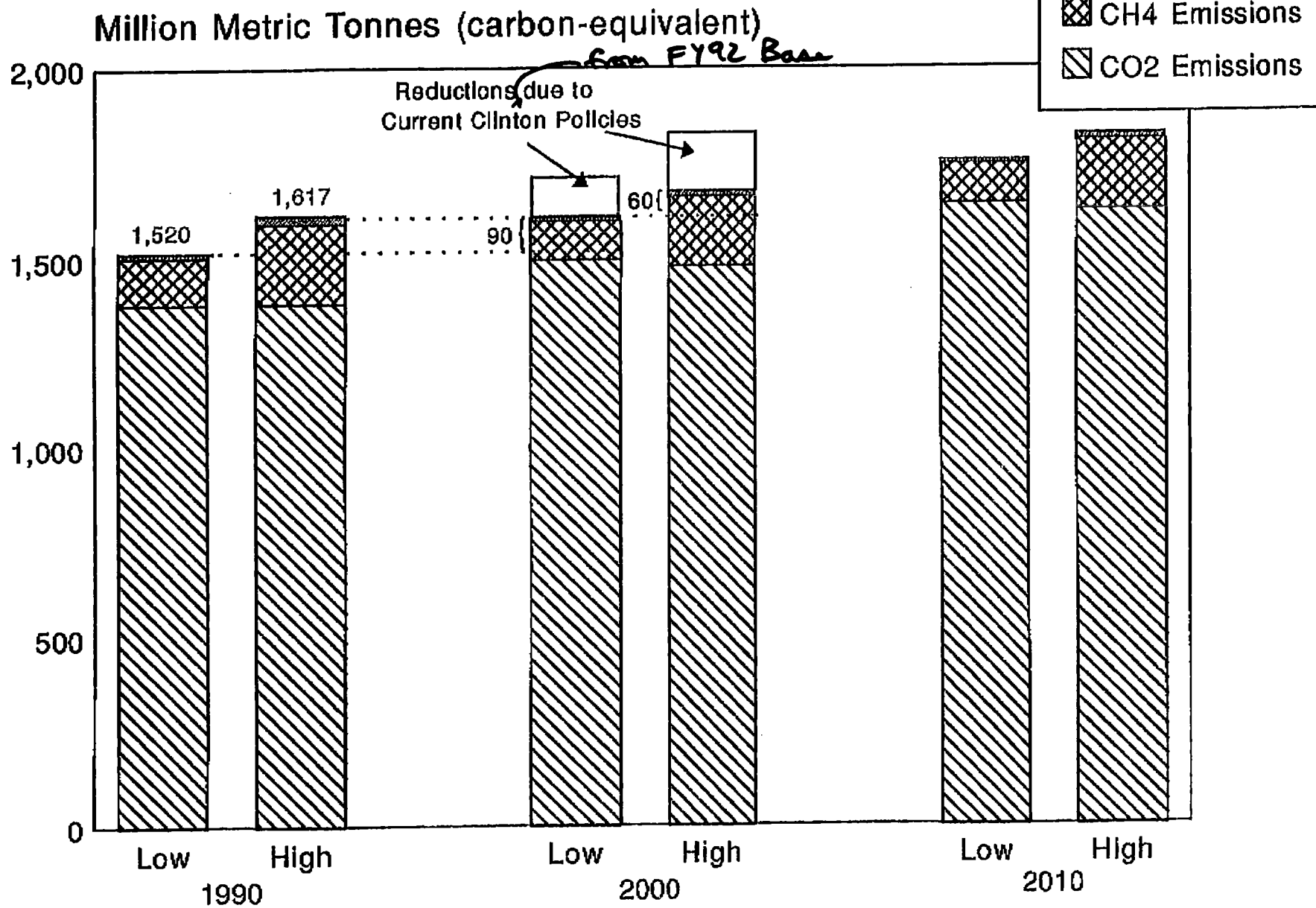
Show both
CO₂
and
GHGs



Base Case

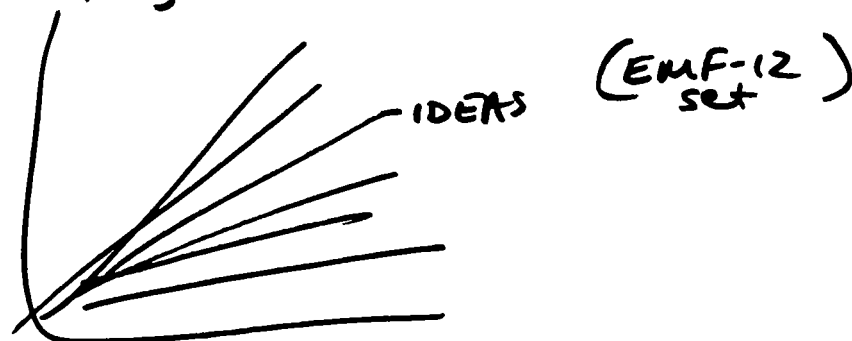
EMISSIONS

Greenhouse Gas ~~Estimates~~

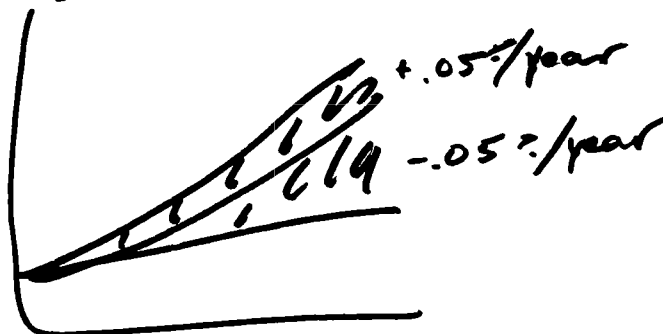


Base Case Uncertainty

- IDEAS projection of CO_2 emissions is a good best estimate. Other models predict varying futures.



- Put another way, a small change in an important variable like future GNP growth can powerfully effect future emissions projections

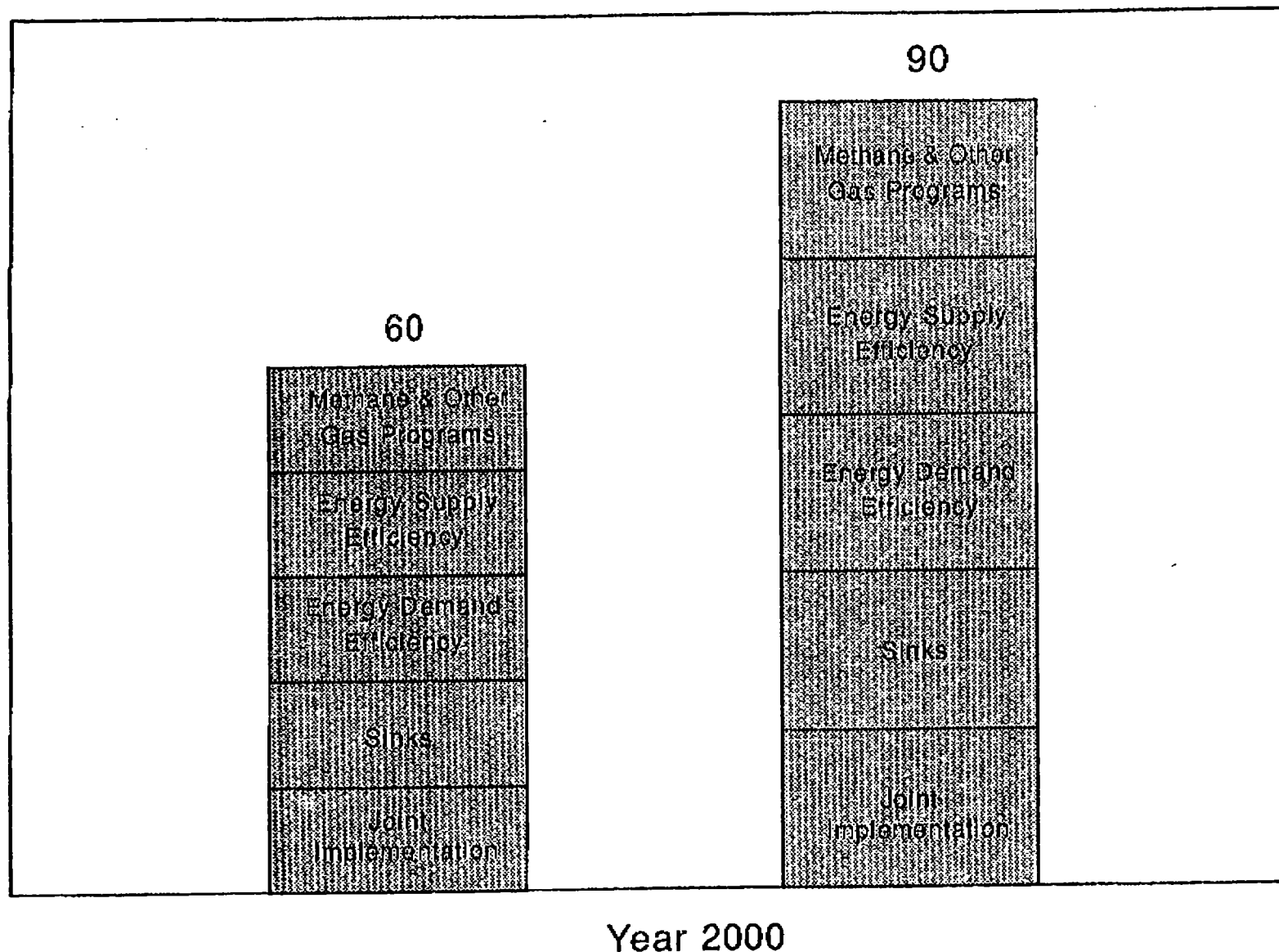


Or: HFCs
could = +40
(if CFCs = 0)

- Base case uncertainty complicates task of ~~meeting~~ meeting commitment to achieve 1990 level in 2000. Costs could be higher.

Emission Reduction Actions to meet President's Commitment

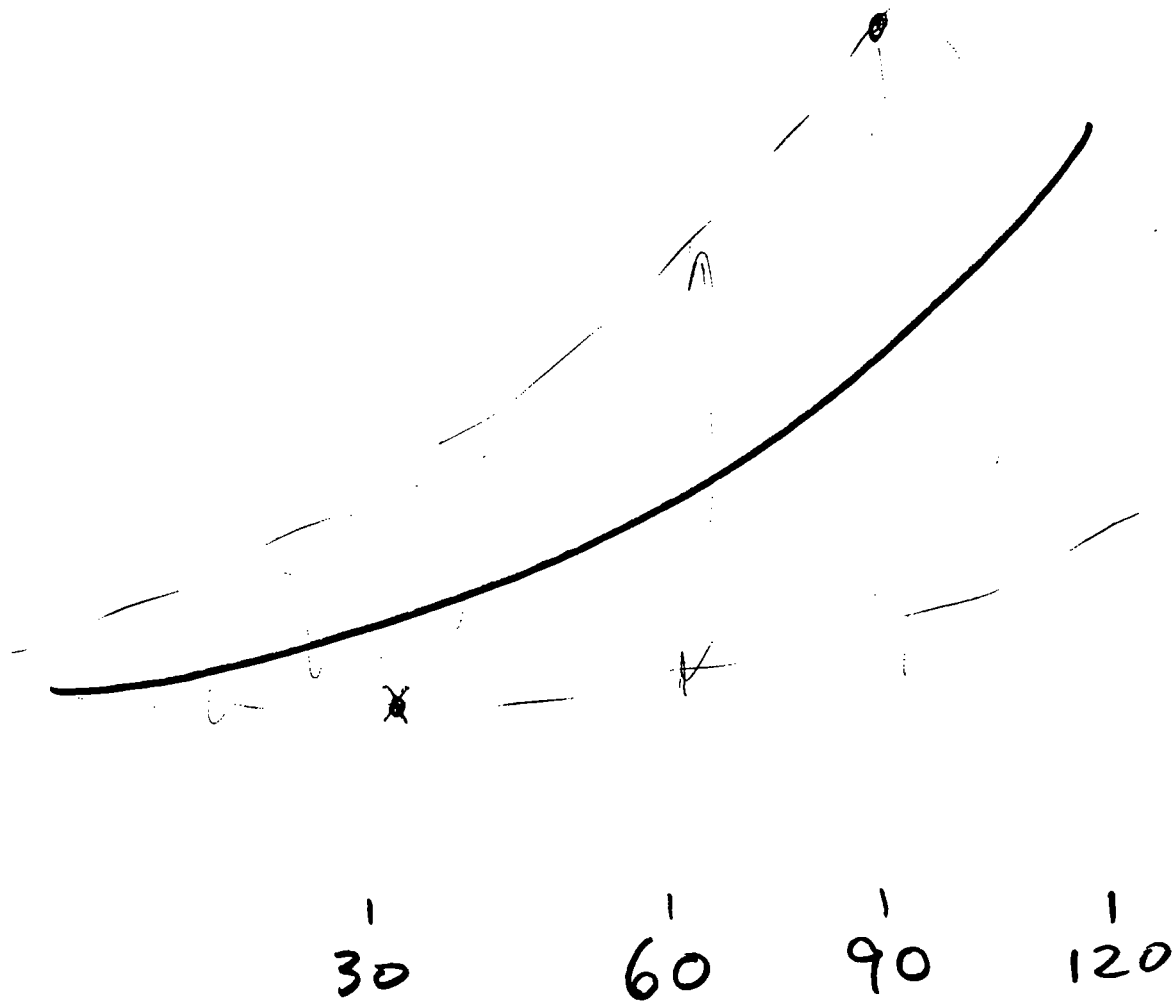
Million Metric Tonnes (carbon-equivalent)



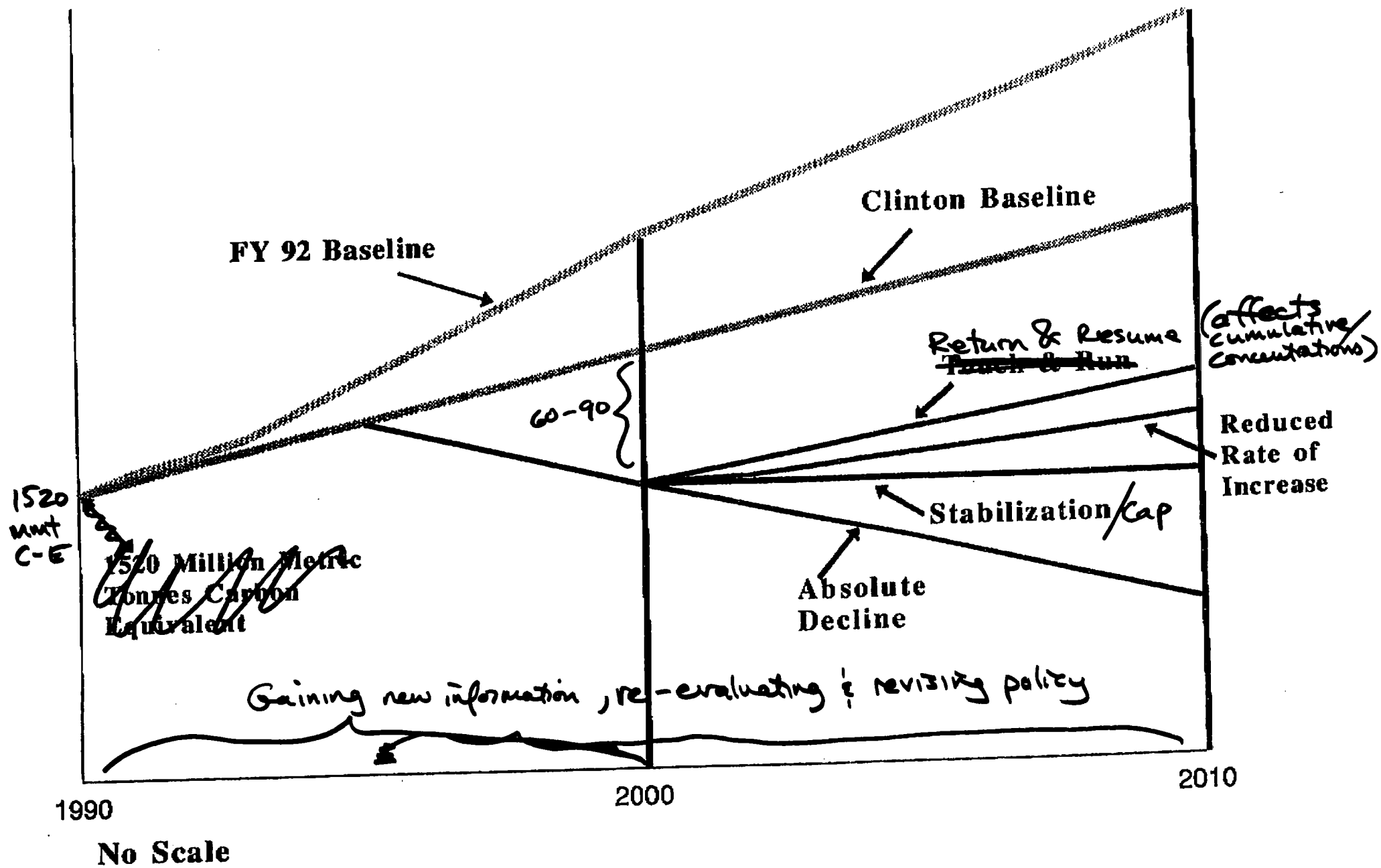
* Action reduction effects are not drawn to scale.

Illustrative
Cost
of
reductions

No
Scale



Possible GHG Emissions Paths Beyond the Year 2000



OFFICE ON ENVIRONMENTAL POLICY

KATIE MCGINTY,

DIRECTOR AND DEPUTY ASSISTANT TO THE PRESIDENT

TO:

JOSEPH STIGLITZ

FROM:

MARC CHURCH

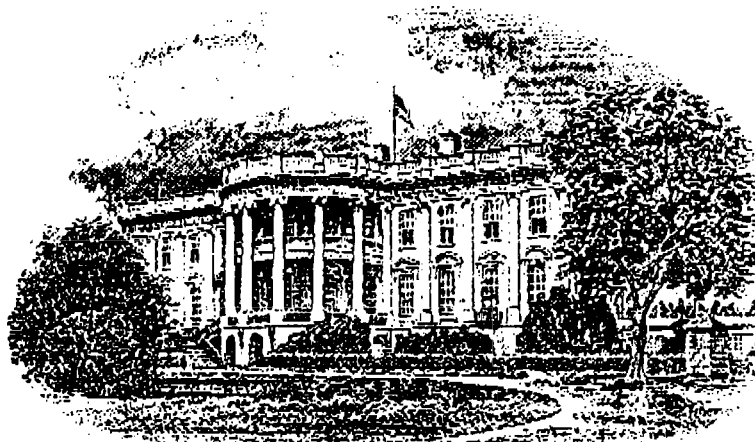
DATE:

5/16

number of pages including cover: 2

COMMENTS:

WE SHOULD DISCUSS THIS at
OUR 1:30 Meeting on Monday (I scheduled)
Room 354. Call if this is a
problem - Marc



AGENDA AND TIMELINE FOR INTERAGENCY ANALYSIS TEAM

OBJECTIVE: By Week of June 7:

- o Agreement on Basecase CO₂ emissions 1990 - 2000, maybe 2010
 - Include EPAct (assume what funding levels?)
 - Include existing voluntary programs
 - Assume Btu Tax
 - Other policies - e.g. ISTEA?
- o Breakdown of activity trends and emissions growth from each major sector
- o Probability bands for 2000, 2010 emissions - based on optimistic vs. pessimistic assumptions regarding economic growth, technology penetration, current programs
- o Identify measurement and accounting issues that will influence analysis and provide justifications for choosing specific methodologies. For example, the Total Equivalent Warming Impact (TEWI) measurement for CFC substitutes has been recommended by the HVAC and refrigeration industry. What do we think?
- o Description of capital stock turnover and technology performance and penetration assumptions.
- o Characterization of broad opportunities and constraints -- indicate cost-effectiveness criteria and the degree to which some of the constraints are binding during the period 1990-2000.
- o Consensus on strengths and weaknesses of IDEAS to
 - forecast basecase emission growth
 - simulate specific policy options
 - integrate and evaluate the impact of packages of policy options
- o Articulate the aspects of uncertainty in policy evaluation and in meeting the objectives of the commitment. How much certainty do we need in order to satisfy the commitment? Will it be a median point estimate of year 2000 emissions?
- o Begin to consider monitoring and adjusting the policy through time in order to maintain commitment in light of emerging trends between 1993 and 2000.
- o Prepare a presentation for Plenary Meeting outlining the existing situation, anticipated trends, the policy objective, and (broadly) the opportunities for cost-effective reductions.

Summary

marginal
Free atus
Soil conservation
Non-climate impact

Various policies →
this → { sequential
lead time for policy
MDW → marginal impact → compare costs
respect benefit

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

May 28, 1993

Handwritten:
F
M...
(Climate
Change)

MEMORANDUM

TO: Climate Change Working Group Chairs

FROM: Joseph Stiglitz, CEA *JS*
Marc Chupka, OEP
Co-Chairs, Interagency Analysis Team (IAT) for the
Climate Change Mitigation Group

SUBJECT: Guidance on Analyzing Options for Climate Change
Mitigation

Attached is guidance titled "Framework for Analyzing Climate Change Mitigation Options: Information the Interagency Analysis Team (IAT) Needs from the six Working Groups." This guidance document has been prepared by the IAT with interagency comment. It should be used by your Working Groups over the coming weeks to analyze and submit well-characterized options to the IAT.

In order for options to be considered by the CCMG and senior Administration officials for inclusion in the August action plan, it is very important that options be analyzed on a consistent basis across Working Groups and be accompanied by certain vital information. This guidance document has been written to make clear the information that is needed from the Working Groups, and what information the IAT will generate.

As the work progresses, please let us know of any questions you have about fulfilling the information request in this guidance. We will be holding frequent meetings of the IAT in parallel with your Working Group schedules, and including representatives from your offices, so that there will be a high degree of coordination and communication between the Working Groups and the IAT.

May 28, 1993

Official Use Only

FRAMEWORK FOR ANALYZING CLIMATE CHANGE MITIGATION OPTIONS

Information the Interagency Analysis Team (IAT) Needs from the six Working Groups

I. INTRODUCTION

This guidance document explains what information will be needed from the six Climate Change Working Groups (Energy Supply, Energy Demand, Transportation, Methane & Other Gases, Sinks, and Joint Implementation) in order to assemble diverse policy options into a coherent Climate Change Mitigation Plan.

- *The six Working Groups will identify promising options for reducing net greenhouse emissions, analyze their cost-effectiveness, and forward information on each option to the Interagency Analysis Team (IAT). Using common baseline projections provided by the IAT, the Working Groups will analyze individual options in the six areas (with occasional cases of cross-Working Group collaborations). Each option will be evaluated for its costs, effectiveness, and other attributes in isolation from other potential options.*
- *The Interagency Analysis Team (IAT) will use the information from the Working Groups on each option to evaluate the combined effect of multiple options on total U.S. net greenhouse gas emissions and costs. The IAT will undertake integrated analysis of multiple options in concert, considering the effects of option interaction. (Due to overlaps, synergies, and other complicating factors, the combined effect of several policies will not be equal to the sum of their individual effects.) The IAT will use the Integrated Dynamic Energy Analysis Simulation (IDEAS) model maintained by the U.S. Department of Energy to model the effects of options.*
- *The Climate Change Mitigation Group (CCMG) will use the information provided by the IAT to recommend a cost-effective set of policies to return net greenhouse gas emissions to the 1990 level by the year 2000. The CCMG will need to fashion this set of policies considering, inter alia, their effect on net emissions, costs, flexibility over time, and distribution of benefits and costs.*

Note on Completeness: The Working Groups should attempt to provide the information requested in this document as completely as possible, to facilitate consistent integrated analysis by the IAT. If certain information is unobtainable for a given option, the Working Group may forward that option to the IAT with a notation regarding the missing information. The IAT will attempt

to give such an option full consideration, but may need to return to the Working Group to request the information, or to qualify or limit its analysis of the option where vital information is lacking.

II. BASELINE PROJECTIONS TO BE PROVIDED BY THE IAT

To begin the process, the IAT will provide the Working Groups with a comprehensive set of information related to baseline greenhouse gas emissions. Projections of baseline energy-related carbon emissions, energy usage, and energy prices will be drawn from the IDEAS model. (The baseline IDEAS projection is similar, but not identical, to the Energy Information Administration (EIA) "Annual Energy Outlook 1993" (AEO93) energy projection; the projections diverge because in several cases the Administration is now using different input assumptions than were used for the AEO93. The Working Groups will therefore be provided a copy of EIA's "Assumptions for the Annual Energy Outlook 1993," along with an addendum specifying how the IDEAS baseline modeling assumptions differ from those used in the AEO93.) The IAT will also provide non-energy baseline projections and discount rates for use in present value calculations.

III. INFORMATION TO BE PROVIDED BY THE WORKING GROUPS

The Working Groups should assess each option as a "stand alone" option, analyzing the effects of adopting that option as a first increment to the baseline projection and assuming no other options are adopted. This will simplify the Working Groups' analysis; Working Groups should not be paralyzed by the task of imagining all possible combinations of options.

The IAT will then integrate the options identified by the six Working Groups, considering the effects of ordering and option interaction during its integrated modeling.

For each option, the Working Groups should provide the IAT with the following information:

A. Costs

Show the cost to society of implementing the option, at varying levels of scale. Costs should be reported as follows:

- Compliance/Implementation Costs, by year to 2000
 - Private Sector
 - Capital expenditures
 - Operating and maintenance expenses
 - Revenues or savings (if any)
 - Asset transfers
 - Tax payments or user fees
 - Federal and State Government
 - Capital expenditures
 - Operating and maintenance expenses
 - Revenues (if any) from taxes or user fees
 - Savings (if any) from outlays
 - Asset transfers
 - Transfer payments to the private sector or to state and local governments
 - Other social costs or savings not captured above
 - Full social costs will be estimated by the IAT, by year to 2000 -- including but broadening beyond the Compliance/Implementation costs identified above
 - General equilibrium effects (effects on related sectors)
 - Changes in consumer and producer welfare (such as those arising from changes in price, quantity and quality)
 - Effects over time (e.g. on innovation, substitutes)
 - Macroeconomic effects
- Incremental costs according to scale of the option (i.e., marginal costs). Estimate the costs according to scale of stringency, implementation, etc. of the option (e.g., level of regulatory standard, size of government funding program, etc.). Typically, incremental costs rise with increasing scale.
- Distribution of costs across sectors, income groups, regions.
- Option interaction. Include at least a qualitative statement of how the cost of this option depends on whether other options are adopted. If the Working Group is considering several related options, the Working Group

should also attempt to prepare an estimate of their combined or bundled costs.

- An estimate or qualitative statement of costs post-2000. Some options may have significantly changing cost profiles over time (e.g., an emissions cap might impose rapidly increasing costs after 2000; investment in R&D might mean high initial costs that drop off after 2000).

B. Effectiveness: Effect of Option on Net Greenhouse Gas Emissions

Show the effect of implementing the option on net greenhouse gas emissions, at varying levels of scale. Effectiveness should be reported as follows:

- Change in activity level/resource use, by year to 2000
 - E.g., fuel consumption, cement production, forest area.
 - For options affecting energy usage, show change in consumption by fuel by year
 - For options affecting sinks, show expected additional storage by year
 - For demand-side options, show elasticity of consumption of services with respect to price of services (e.g., vehicle miles traveled as affected by the price per mile of travel)
- Change in emissions by year, with coefficients or factors used for calculating emissions from activity/resource levels (e.g., units of emissions per unit of fuel or fertilizer used, or units of storage per unit of forest added).
- Incremental effectiveness according to scale of option (marginal effectiveness). Estimate the effect according to scale of stringency, implementation, etc. of the option (e.g., level of regulatory standard, size of government funding program, etc.). Typically, incremental effects diminish with increasing scale.
- Option interaction. Include at least a qualitative statement of how the effect of this option depends on whether other options are adopted. If the Working Group is considering several related options, the Working Group should also attempt to prepare an estimate of their combined or bundled effects.
- An estimate or qualitative statement of effects post-2000. Some options may have significantly changing effectiveness profiles over time (e.g., new energy technology might have rapidly increasing effects as it comes into use after 2000;

some forest management options might have decreasing effects after 2000).

Technological Change

Special information is needed for options affecting the rate of market penetration of new technologies. It is critical to show market penetration assumptions and the reasons why a change in market penetration occurs.

- For each technology, show the implied baseline market penetration assumptions and the policy option market penetration assumptions.
- Show technological changes, if any, affecting market penetration. For example:
 - Energy supply: e.g., changes in heat rates (Btus/kwh), capital costs, O&M costs
 - End-use: e.g., changes in incremental cost per unit of energy saved over time
- Show other factors affecting market penetration, such as market barriers, regulatory constraints, information, etc., and how the policy option would change these factors.

Other Considerations

Each option could create other benefits, or impose other costs, beyond those directly associated with implementing the option.

For example:

- energy conservation options could affect local air pollutants
- fuel switching might limit one kind of emissions or risk but increase others
- transportation options could affect congestion
- sink enhancement options could affect biodiversity

If these or similar implications have not been explicitly identified in the above sections, they should be considered here.

Sensitivity and Uncertainties

- Timing of options: Options may have different costs and effectiveness depending on lead times, sequencing, phase-ins, etc. For example, both the cost and the effect on year 2000 emissions may vary depending on whether an option is adopted in 1993 or 1999. Working Groups should attempt to assess the sensitivity of their cost and effectiveness calculations to the timing of adopting the option. This may be handled as a feature of the incremental costs and effectiveness associated with faster or slower implementation.

The IAT will then attempt to assess the sensitivity of costs and effectiveness to the timing and ordering of multiple options (e.g., whether option A is adopted before or after option B, and with what scientific and economic information base).

- Sensitivity to alternative baselines: The IAT will assess the sensitivity of the costs, effectiveness and other attributes of policy options to changes in key baseline variables.
 - For example, the cost of acquiring fuel or land may depend on market price paths for that resource; the effect of a tax on emissions may depend on relative prices and elasticities.
 - For the purposes of integrated modeling, all Working Groups should use the same assumptions, but in certain unusual cases Working Groups may be unable to use the baseline assumptions provided by the IAT. If it becomes necessary to deviate from the baseline assumptions, the Working Group should consult with the IAT, and then include a clear explanation of any agreed deviation in its report on the option to the IAT.

Timeline for Working Group Reports to IAT

Working Groups should report options and the analysis of each option in a timely manner, as soon as possible after each Working Group meeting. Frequent reporting will enable the IAT to perform simultaneous integration analysis, with time available to go back to the Working Groups for further analysis as needed, in advance of the CCMG's need for this information.

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

LOT Climate Change
cc AB
SS
JW
F

April 30, 1993

MEMORANDUM TO KATIE MCGINTY

FROM: JOHN GIBBONS *John Gibbons*
SUBJECT: Climate Change Action Plan

I look forward to working with you on the Plan, and offer the following comments:

(1) My experiences in similar past studies (NAS-CONAES study of energy to 2100; various OTA analyses) tell me that a critical element for success is to organize the work to be done on an internally consistent basis. Otherwise, the results of the separate working groups won't be able to be merged.

In other words, at the outset we must settle on common assumptions in order to be able to compare and integrate the separate pieces into a coherent whole. This will require some careful analysis and, indeed, must be the underpinnings of the whole analysis design. In doing this, we should try to fix it so that fullest advantage can be taken of studies that have already been completed (see next comment).

(2) One of the first steps to take is to get information and briefings from key completed studies (e.g., OTA, NAS), including current capability to use their database and models. We need to focus on models that have sufficient specificity to be helpful in examining specific policy options.

(3) Our biggest challenge will be to make more explicit the costs and savings estimates, resource transfers implied, bottlenecks to implementation, and political/social feasibility.

(4) I encourage you to invite Legislative Branch participation. Specifically, OTA knows a lot about sources, savings, and sinks, and is well-along on a successor study to "Changing by Degrees" which will include adaptation options.

cc: **Rahm Emanuel**
Alexis Herman
Anthony Lake
Thomas McLarty
Regina Montoya
Roy Neel
Howard Paster

Leon Panetta
Carol Rasco
Marla Romash
Robert Rubin
George Stephanopolous
Laura Tyson



DEPARTMENT OF THE TREASURY
WASHINGTON

F
C. ...
D. ...
J. ...

**PRESIDENTIAL REVIEW DIRECTIVE NSC-12:
ITEM 4B: THE GLOBAL ENVIRONMENT FACILITY**

INTRODUCTION

Participants in the GEF have begun the process of negotiating the restructuring and replenishment of the GEF. These negotiations are scheduled to conclude in December 1993. U.S. views on the GEF are linked to a number of factors, including the output of the Conventions on Climate Change and Biodiversity, which are themselves in flux. Accordingly, this review does not attempt to provide an exhaustive treatment of all of the complex issues surrounding the GEF. Rather, this review sets out in a concise format the history and current status of the GEF, and identifies key options for U.S. action at this stage in the process.

The review begins with an executive summary which contains a broad policy recommendation that inter-agency consensus holds as the soundest strategy for advancing the United States' international environmental and financial policy interests. The paper then presents a brief summary of the history and current status of the GEF, including a review of U.S. policies on the GEF as of December 1992, and the current international situation. The paper continues with a more detailed discussion of possible options for future U.S. actions. The recommendations given in the first section of the paper can be cross-referenced with the full description of the pros and cons of each option considered.

Note that there are two fundamental issues for decision. The first is whether the United States will continue to support the Global Environment Facility as a key vehicle for delivering financial assistance and fulfilling U.S. financial assistance obligations under the Climate Change and Biodiversity Conventions, and other obligations, including those falling within the four focal areas of the GEF: biodiversity, climate change, ozone depletion and international waters. The second issue is, assuming U.S. support for the GEF, whether the U.S. wishes to be a leading player in the restructuring and future operation of the GEF, with a financial commitment commensurate with that role. Subsidiary issues for decision are all dependent on the resolution of these fundamental questions.

May 5, 1993

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FREQUENTLY USED TERMS AND ACRONYMS

Conventions	Refers to the recently concluded agreements on Climate Change and Biodiversity
CoP	Conference of the Parties
G-7	Group of 7, the largest industrial economies
G-77	Group of 77, a broad coalition of developing countries
GEF	Global Environment Facility
GET	Global Environment Trust Fund, the main multilateral core fund of the Facility
IFI	International Financial Institution
MDB	Multilateral Development Bank (also refers to the multilateral concessional funds)
NGO	Non-Governmental Organization, sometimes known as Private Voluntary Organizations
OECD	Organization for Economic Cooperation and Development, a group of 23 industrialized states who are likely donors to the GEF
OPTF	Ozone Projects Trust Fund, a fund under the umbrella of the GEF that finances the World Bank's investments under the aegis of the Montreal Protocol
PA	Participants' Assembly
Participants	Member-Countries of the GEF
SDR	Special Drawing Right, a composite of five major currencies: ≈\$1.40 = SDR 1.00
STAP	The Scientific and Technical Advisory Panel of the GEF
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

EXECUTIVE SUMMARY AND RECOMMENDED OPTIONS FOR POLICY

As directed by Presidential Review Directive NSC-12 on U.S. Policy Toward Global Environmental Affairs, the Treasury has coordinated an inter-agency review to develop a paper assessing current U.S. policy towards the Global Environment Facility (GEF) and options for new policy initiatives. The policy options laid out, and the assessment of the pros and cons of these options, represent a diverse range of opinion on the subject, including views from non-governmental organizations. Discussion of an option in this review does not constitute endorsement by Treasury or any other agency, unless so stated.

Background

The approximately \$1.2 billion Global Environment Facility was established in March 1991 as a three-year pilot facility implemented jointly by the World Bank, the United Nations Development Program and the United Nations Environment Program, known collectively as the "Implementing Agencies." The pilot GEF has provided grants to developing countries for projects that address the loss of biodiversity, global warming, ozone depletion and the pollution of international waters. In general, given low financial returns or non-market barriers in the domestic economy and/or low priority in national budgets, these types of projects would not otherwise be undertaken by developing countries. Conceptually, the GEF finances only the incremental costs of those activities that benefit the global environment; environmental or financial returns to national economies are to be financed by the developing countries themselves, or through ordinary development assistance.

The Conventions on Climate Change and Biodiversity (hereafter referred to as "Conventions") designated the GEF as the operating entity of their financial mechanisms on an interim basis. International negotiations, which are planned to conclude in December 1993, are underway with the goal of establishing a permanent (as opposed to pilot) GEF that can help developing countries achieve global environmental benefits, including the fulfillment of Parties' obligations under the Conventions, and activities consistent with these obligations. If negotiations are successful, current expectations are for donors to contribute to a three-year replenishment of the GEF beginning in 1994.

U.S. Participation in the Pilot GEF

During the period from 1989 to late 1990, the United States was opposed to the creation of the Global Environment Facility. When the United States agreed to support

the pilot GEF, it did not contribute directly to the multilateral Core Fund of the Facility, as had most other donors. Instead, the U.S. pledged to contribute \$150 million in the form of USAID projects to combat the loss of biodiversity, climate change and the pollution of international waters. No additional funds were requested by the Administration, or appropriated by Congress, to USAID for this purpose. Consequently, the U.S. was criticized by other donors and recipients for not really contributing "new and additional" resources to the GEF.

Congress independently appropriated \$30 million to Treasury's FY 1993 budget for contribution to the GEF Core Fund contingent upon the Secretary of the Treasury's determination by September 30, 1993, that the GEF has developed procedures to ensure public access to information, public participation in project preparation and government oversight over projects. As of early April 1993, the GEF has not met these requirements, and Treasury is continuing to press GEF management and other Participants on these issues.

During negotiations for the Climate Change Convention and UNCED, the United States pledged to contribute \$50 million to the restructured GEF Core Fund, and the United States' FY 1994 budget requests \$31 million for that purpose. If this figure is appropriated by Congress, and if the legislative requirements conditioning the \$30 million FY 1993 contribution are met by the GEF by September 30, 1993, the U.S. will have contributed \$30 million to the pilot phase (or, if possible, to the restructured GEF) and \$31 million to the replenishment of the GEF.

Performance of the Pilot GEF

X. The GEF projects that have been developed thus far have steadily improved in quality and balance among the four subject areas. Nevertheless, there are a number of concerns that continue to be raised. A fundamental criticism of the GEF by some NGOs is that the Facility is merely a scientifically and technically oriented "band-aid" that does not address the deeper social and economic causes of environmental degradation. The U.S. has also criticized the pilot GEF for, among other things, the paucity of projects focused on the transport sector and for under-representation of alternative energy and energy-efficiency projects (although this is improving). The U.S. had also urged that projects be more innovative and demonstrational, particularly with respect to biodiversity conservation.

It should be noted, however, that by nature pilot phases are experimental and limited in scope, designed to help identify problems. The GEF, in its pilot phase, was never intended to "solve" environmental problems but rather was, among other things, to

leverage World Bank funds and thereby promote greater environmental consideration within the Bank.

The experience of the pilot GEF demonstrates that, while the concept of the institution remains promising, serious attention needs to be given to the institutional and project-related weaknesses that have thus far prevented the GEF from realizing its potential to address global environmental problems. At a minimum, major reforms in transparency and public participation are needed to satisfy legislative requirements for U.S. contribution. These reforms may not be achieved without greater international support.

Replenishment of the Restructured GEF

The size of the first replenishment of the permanent GEF has not yet been determined. Based on preliminary G-7 positions, the estimates of funding levels for a three year replenishment beginning in 1994 (U.S. FY 1995) imply an annual U.S. appropriation of somewhere between \$80 and \$150 million during FY 1995-1997; other estimates suggest that the figure could exceed \$200 million per year. This range greatly exceeds the \$50 million annual estimates for a U.S. contribution included in the Administration's current budget forecasts.

It is important to note that, at this stage, any figure settled on will be essentially a political judgement. The funding requirements of developing country Parties to the Conventions may not be known for another year or two, when convention-specific needs-assessments for many countries should be completed. However, what is known is that the estimated need for GEF resources, both in the short- and long-term, will far exceed anything that the donors will be able to contribute. In this context, for the GEF's first replenishment, the United States should determine the amount of its contribution based on its own budgetary constraints, the influence over the GEF's restructuring and operations that different levels of contributions will afford, and the political ramifications (both domestically and internationally) related to the contribution level. Key operational factors such as the recipients' assimilative capacity, the GEF's track record, and the conformance of the GEF to the United States' own priorities and policies should also be considered.

Independent Evaluation and Preliminary Needs-Assessments: The GEF is currently undergoing an evaluation of its operations during the pilot phase. The United States is engaged in dialogue with other Participants and the GEF to ensure that the evaluation is thorough, comprehensive in scope, and appropriately independent. The U.S. will be able to use the results of the evaluation to decide on a much more informed contribution level. In addition, the Participants will discuss preliminary funding requirements at their next meeting at the end of May. These discussions should further

clarify the requisite information for determining the U.S. contribution to the first replenishment.

Current International Negotiating Dynamic

The OECD countries are generally supportive of a substantial increase in the GEF's resources over the next three-year replenishment period. The OECD countries also favor the creation of a decision-making mechanism in the GEF that gives greater voting power to larger donors and rewards contributions. There seems to be a general G-7 consensus that there should be strong links between the GEF and the World Bank, and although the exact relationship between the entities has yet to be determined, the G-7 appears to favor locating the GEF's Secretariat in Washington, D.C.

A single G-77 position has not yet emerged. Most developing countries have called for a stronger role in decision making in the Participants' Assembly through a variant of the double-majority voting structure. It is not clear how adamant the developing countries' will be on this issue. In addition, many in the G-77 have called for a reduced role for the World Bank in the operation of the GEF. Some developing countries would prefer that the policies and projects of the GEF be formulated and approved within the Conventions, leaving the GEF to function more as a fund administrator.

Among the U.S.-based environmental advocacy groups, the general sentiment is that although important progress has been made on such issues as NGO participation and transparency, the GEF not lived up to its potential, and in their view this failure seriously jeopardizes the rationale for supporting the GEF. Many NGOs argue that the GEF should adopt a voting system that guarantees the ability of the donors to block projects to ensure project quality. Others call for decision-making to be taken away from the GEF altogether and be lodged in the Conventions.

Linkages with Other Environmental Issues

Policy-making toward the GEF is sensitive to a number of external factors which are linked either directly or indirectly to the operation of the Facility. Key linkages are to the Conventions on Biodiversity and Climate Change, which will have specific expectations and requirements that will be submitted to the GEF after negotiation by the respective CoPs.

The GEF may also become linked to other international environmental agreements that may arise, including the Desertification Convention and follow-up to the Forest Principles. The GEF is also linked to the Montreal Protocol, in that the GEF's

Global Environment Trust Fund finances activities to phase out ozone depleting substances in countries (such as the Czech Republic and Slovakia) that qualify for GEF assistance but are not eligible for funding under the Montreal Protocol Fund. The GEF is also the umbrella for the Ozone Projects Trust Fund, which funds World Bank investment projects under the aegis of the Montreal Protocol.

The United Nations Commission on Sustainable Development will probably request that a link be established with the GEF under its mandate for overseeing the implementation of Agenda 21. The role of the GEF could become a source of OECD/G-77 tension as some developing countries may call for GEF funds to be made available for the implementation of more regional, national or local Agenda 21-related activities.

The GEF is also linked to the issue of strengthened environmental performance in the MDBs and the United Nations system. The U.S. can use the lessons learned in the GEF in areas such as transparency and NGO participation as examples to aid U.S. efforts to reform the larger institutions. In addition, the United States' goals for UNCED's Agenda 21, Climate Change, Forests and Biodiversity are not likely to be achieved unless the MDBs \$40 billion annual lending programs are leveraged.

Recommendations

There is a wide range of policy issues related to the GEF which need to be determined. Many issues for decision are closely bound up with the subjects of separate chapters of NSC-12, as well as the Presidential Review Directive NSC-20 on International Programs and Resources. As indicated in this paper, several policy issues require immediate resolution, while other issues remain on the horizon. Within the range of options presented, there is considerable flexibility for designing a U.S. approach. At the same time, it is important to note that altering a U.S. position in one option-area may have impacts on other GEF issues, as well as on other areas covered under NSC-12 and NSC-20.

Accordingly, Treasury and other U.S. government agencies¹ jointly propose the following recommendations to the National Security Council, which track with separate options papers included in Part II of this review. For each recommendation, the page number of the corresponding option paper is given for reference. These recommendations could set the direction of U.S. policy during the ongoing international negotiations on the restructuring and replenishment of the GEF.

1. Basic Commitment to the GEF (p.30): *The United States should commit itself to a strong and appropriately restructured Global Environment Facility and provide leadership to the restructuring process.* The GEF has the potential to become an effective, as well as cost-effective, vehicle for addressing environmental problems with truly global impact. However, the GEF should be a complement to, not a substitute for, environmental action by the World Bank and other international organizations.

The inter-agency consensus held that the alternative option of supporting separate funding bureaucracies for each Convention would be much less cost-effective than the GEF toward realizing the U.S. objective of dealing with global environmental problems. In addition, non-Convention issues, such as international waters, would not be covered by separate funds. It was also felt that separate funds would become more politicized fora where the U.S. voice would be relatively diminished. It should also be stressed that no other alternative institutions to the GEF are available, and there are no guarantees that other newly designed institutions would provide a superior alternative to the GEF.

¹ In addition to Treasury, agencies taking an active role in the formulation of this paper include the White House/OEP, AID/POL, CEQ, DoC, DoS/OES, EPA/OIA, OMB and USED (IBRD).

An additional option of a single GEF with separate "windows" for each issue area was discounted because, among other things, it was felt that rigid earmarks would reduce the GEF's flexibility to reallocate priorities and funding levels across issue-areas as needs change, and could hinder the allocation of funds to cross-sectoral projects and innovative activities that are outside the scope of treaty obligations.

- o Timing of the Full GEF Replenishment (p.35): The U.S. should continue to press for full replenishment of the GEF in December 1993, but should also be prepared to agree to a delay if key issues are not resolved by that time. The U.S. should not take the lead in calling for such a postponement, however.

Inter-agency consensus held that a rigid insistence on concluding replenishment negotiations by December 1993 might be counter-productive, as several key issues, including the needs of the Conventions and the results of the independent GEF evaluation, may not be sufficiently resolved by that time. At the same time, a U.S.-led push for a postponement might be seen as an attempt to avoid a financial pledge, and could weaken the momentum of the GEF to become the permanent operating entity of the Conventions' financial mechanisms.

2. Level and Modality of Support for the GEF (p.37): *The United States should send a clear and early signal that, if the GEF is appropriately restructured, it intends to make a financial commitment to the GEF Core Fund that would be commensurate with its leadership position and related to the needs of potential GEF recipients.* Although it is too soon to determine the funding needs of the first replenishment, the U.S. should plan for a financial contribution on the order of 15-20% total contributions to the GEF. Conservative estimates suggest the dollar value of this recommended level of effort to be in the range of \$80 to \$150 million per year during FY 1995-1997; other estimates suggest that the figure could exceed \$200 million per year. In this connection, the United States should call for comprehensive and timely needs-assessments to be carried out under the Conventions. Failing that, the United States might consider conducting its own needs-assessments for the Conventions.

In addition, the inter-agency consensus is that the U.S. should reaffirm and meet its \$150 million commitment to the pilot GEF (see page 44). Commitments to the replenishment or for the fulfillment of the U.S. pledge to the pilot GEF will require offsets from other domestic or international activities.

The inter-agency consensus is that, having committed to the GEF, the U.S. cannot offer less than substantial financial support to the institution. On a political level, to do less would be seen as an attempt to back away from supporting the objectives of the GEF, and counter to the positive image that the U.S. wishes to put forward. On a practical level, U.S. influence over the restructuring will be largely linked to the level of resources put on the table. Offering less than substantial support to the GEF would reduce the United States' ability to shape the Facility to maximize U.S. interests. Contributions should be made directly to the Core Fund, as opposed to parallel or co-financing, because direct contributions will afford much greater influence over the restructuring process and through the voting structure, and will be much more popular politically with other donors and recipients.

3. *The United States should articulate a clear vision for the restructured GEF as a cutting-edge environmental institution, and should work to build international support for this vision.* The GEF must be attractive to both developed and developing countries in order to be acceptable to the Climate Change and Biodiversity Conventions, to achieve lasting results and to sustain donor funding. Given that the costs of dealing with global environmental problems are immense and donor resources are limited, the GEF must be cost-effective, leverage other resources, and support sustainable, high-quality projects. A GEF that achieves these goals could be built on the following recommendations:

- The Scope and Operating Principles of the GEF (p.48): The U.S. should maintain its position that the GEF will continue to fund the agreed incremental costs of measures that achieve agreed global environmental benefits. Measures which produce local benefits, including adaptation to climate change, should be funded from regular development assistance channels and from recipients' national budgets. The U.S. should also agree that GEF funds may continue to be used to support national climate change or biodiversity country studies, and agree in principle that capacity building could be part of this effort, while insisting on clear and limited parameters.

Inter-agency consensus held that the alternative of broadening the GEF's scope to cover more general environmental issues or to soften the GEF's focus on funding incremental costs would, among other things, make it less effective at dealing with any one particular issue and might reduce the pressure on the larger development institutions to incorporate environmental concerns into their regular operations. There is also inter-agency recognition, however, that a definition of incremental costs needs to be developed, especially for biodiversity and international waters projects.

- The GEF's Links to the Conventions (p.52): The restructured GEF should work in partnership with the Climate Change and Biodiversity Conventions. The Conferences of the Parties (CoPs) to these Conventions should determine policies, program priorities and eligibility criteria related to their respective Conventions. The participating countries in the GEF should be responsible for implementing this guidance through the operational policies and projects of the GEF. At a minimum, the GEF needs to have the authority to conduct fundraising and approve projects.

Inter-agency consensus held that the GEF should be a partner with, rather than a servant to, the Conventions. Rejection of a master-servant role is based on essentially the same rationale as the rejection of separate funds and "windows" as described above. Note that the ability of a Convention to be a "master" entails the creation of a substantial Convention-specific bureaucracy.

Inter-agency consensus also held that countries with economies-in-transition (specifically enumerated in Annex I to the Framework Convention on Climate Change) should continue to be eligible for GEF funding. In the case of a Convention that does not provide funding under that Convention to countries with economies-in-transition, agencies agreed that GEF Participants should, in funding projects submitted by such countries, seek to base their decisions in the relevant focal areas on the policies, program priorities and eligibility criteria established by the CoP of the relevant Convention, adapted as appropriate for such countries. In addition, agencies agreed that, in funding projects, as opposed to country studies, GEF Participants should give highest priority initially to countries that have ratified a Convention related to the focal area, and ultimately, that have both ratified the Convention and developed national implementation plans identifying and prioritizing projects.

- The Role of the Participants' Assembly (p.56): In order to facilitate efficient oversight of the Facility, the Participants should delegate day-to-day management responsibilities to an Executive Committee, which could meet as often as needed to approve projects and operational policies, and to conduct other administrative business. The full Participants' Assembly, which would have universal membership, could meet annually or biennially to receive and respond to the input from the Conventions' Conferences of Parties, approve a work programs and provide broad guidance to the GEF Executive Committee and the Implementing Agencies.

The inter-agency consensus rejected the alternative of leaving the management of the GEF largely up to the Implementing Agencies (as is currently the case). It was felt that this option was politically unacceptable to the international community, and would not satisfy the requirements of

the Conventions. The alternative of abdicating management responsibilities to the Conventions' CoPs was rejected on the same rationale taken for rejecting separate funds and a "master-servant" GEF-CoP relationship as described above. Although it was agreed that the Participants' Assembly should be vested with management responsibilities, delegation of day-to-day work to an Executive Committee would avoid unwieldy, ineffective and costly administration.

- o Decision-Making in the GEF (p.59): The voting structure should be able to attract continuing donor contributions and recipient support. Accordingly, although voting systems could differ in the Participants' Assembly and the proposed Executive Board, voting on projects and policies should be based on a combination of membership and contribution-weighted shares. Developing countries should hold considerable voting strength in order to foster the spirit of international cooperation needed to combat global environmental problems. Project approval must require a special majority of votes to ensure that only sustainable, high-quality projects are developed and approved.

Inter-agency consensus rejected the option of one-country one-vote as completely unresponsive to donor interests. The double majority-system was rejected because of the difficulty in accommodating economies-in-transition, the addition of new members, developing countries that are also GEF donors, or mixed constituencies of developed and developing countries. Concerns about policy gridlock, as well as the knowledge that many OECD parliaments are reluctant to contribute to an institution where their voice was largely unrelated to their vote, also provided a rationale for rejecting double-majority systems for voting on projects and policies. Although a more relaxed double-majority system, where countries are not separated according to their status as developed or developing, would ameliorate most of these issues, this type of system was passed over because (depending on the agreed majority levels required for passage) the donors could be placed at a weaker position than in the more rigid double-majority system. As discussed on page 72, agencies felt that greater STAP involvement in project appraisal could strengthen project quality.

- o The GEF Secretariat and Implementing Agencies (p.64): Administrative and operational policies, including appropriate staff incentive systems, must provide an environment in which high-quality projects can be identified, designed, implemented and monitored. Therefore, the GEF Secretariat should be affiliated with the World Bank Group, but should have the freedom at the behest of the Participants' Assembly to establish its own administrative and operational policies. The Secretariat should be

staffed by seconded individuals from the Implementing Agencies, as well as from Participating governments and Convention bodies as appropriate. Note that there are no legal prohibitions

Inter-agency consensus rejected the status quo alternative of a Secretariat lodged formally within the World Bank on the grounds that many developing countries and NGOs would be opposed to such an arrangement, that Bank staff could be distracted from pressing environmental reform in the Bank proper, and that the Bank's more restrictive administrative and operational policies would restrain the adoption of more progressive GEF-specific policies. Agencies also believed that a more independent Secretariat would be better able to award GEF funds to executing agencies on a more open and competitive basis, which would lead to better projects. At the same time, it was recognized that a fully independent Secretariat might create difficulties for some countries' appropriations processes, although this problem might be diminished if the Bank continues to act as Trustee. In addition, it was feared that lessons learned in the GEF would not be easily transferrable back to the Bank, the administrative and financial discipline of the World Bank Group would be lost, and the rationale for keeping the GEF in Washington would be weakened if the Secretariat were completely independent of the Bank.

- o The Office of the GEF Chairman (p.70): No firm recommendation is offered on whether the GEF Chairman should be elected by the Participants or appointed by the Implementing Agencies.
- o The Role of the Scientific and Technical Advisory Panel (STAP) (p.72): Inter-agency consensus holds that a strengthened STAP with broad scientific, technical and policy expertise should ensure that project proposals are high priority and technically sound. To accomplish this, the STAP should be able to ensure first-rate peer review of GEF projects. It should also have an appropriate advisory role with respect to operational policies. No firm recommendation is offered on the structure of the STAP that would best achieve these goals.
- o NGO Participation in the GEF (p.76): The GEF should actively involve local communities and non-governmental organizations in all phases of the project cycle, from identification through ex-post evaluation. NGOs should be granted Observer Status at Participants' Assemblies and Executive Committee meetings, as appropriate.

Inter-agency consensus held that NGOs should not be excluded from the GEF, as they can play an important role in introducing new views and methodologies. NGOs can also help execute projects, especially in the area of small-scale biodiversity efforts. Excluding NGOs from participation in the GEF would also be contrary to U.S. legislation.

Implementation Plan

The recommended implementation plan is roughly the same for any option. As these policy issues are currently the subject of international negotiation, the United States will increase its negotiating profile. Close coordination with other G-7 and OECD countries, as well as consultation with key developing countries, will be initiated to present the United States' approach and to garner international support. Extensive communication with environmental advocacy groups and NGOs will also be undertaken. Specific fora for diplomatic efforts are discussed on page 80.

As a possible Presidential or Vice-Presidential initiative, when (and if) the United States decides to commit substantial resources to the GEF, the White House could announce this initiative and use the opportunity to express the U.S. vision of the restructured GEF.

Constituencies and Public Reaction

International

There has been a dichotomy in international opinion on U.S. conduct in the area of international environmental policy. The United States' participation in the United Nations Conference on Environment and Development and the negotiations on the Climate Change and Biodiversity Conventions conveyed the impression to many that the United States was not seriously committed to the maintenance of the global environment. As is indicated in other sections of NSC-12, the refusal of the United States to make large financial or political commitments to environmental issues was viewed with displeasure by many countries, both developed and developing.

In the area of development assistance, however, the United States has long been a leader in advocating the implementation of environmentally sound policies and projects. Contrary to the political impression that was promoted at UNCED and other fora, the U.S. has generally met with resistance from developing countries (and many developed countries) to its attempts to reform the lending policies of the multilateral development banks to reflect concerns about the environment and public participation. Although the

UNCED process has focused renewed attention on this subject, developing countries have generally been more concerned with accessing maximum resource levels with minimal environmental and financial conditionality.

Favorable international reaction to U.S. policy will accordingly be directly correlated with the amount of U.S. resources made available. Developing country support, however, will be inversely related to the amount of conditionality, whether included in individual projects or established through donor control over resource allocation, that the United States insists upon. To achieve our environmental objectives, strong oversight and careful conditionality will need to be attached to funding; this is at odds with the developing country agenda.

Domestic

A dichotomy in domestic opinion on U.S. international environmental policy also exists. The U.S. stance during the UNCED process was seen by many as not befitting the international leadership role and responsibilities that the United States should assume. Others believed that strong U.S. involvement in these issues would be either inappropriate or ineffective. At present, a sizeable domestic constituency would probably approve renewed U.S. leadership in this area. Opinion will not be unanimous, as others will probably argue that U.S. financial priorities should be focused domestically.

Within the section of the U.S. environmental community that is focused on these issues, reaction may be mixed, and will depend in large part on the extent to which provision is made for their participation in the GEF. Another factor of importance will be the relation of the World Bank to the GEF. Although most members of the environmental community would agree that international environmental activities should be promoted and well-funded, many are displeased with the vehicles for delivering large scale assistance, including the World Bank. On the other hand, the level of additional resources for the GEF, by any measure, will be relatively low. The objectives of Agenda 21 are unlikely to be achieved without leveraging the financial and technical resources of the World Bank and other financial institutions.

PART I: ASSESSMENT

HISTORY OF THE GEF

Background

In 1989, France and Germany proposed the creation of a fund to help developing countries address global environmental problems. The proposal grew out of these countries' assessment that the 1992 United Nations Conference on Environment and Development (UNCED) would produce calls from developing countries for increased donor funding for environmental and developmental activities. The Franco-German proposal for a fund which focused narrowly on global environmental problems was intended to counter the demand for a much larger "Green Fund" to finance a broad range of national environment and development activities, such as those later incorporated in UNCED's "Agenda 21."

The approximately \$1.2 billion Global Environment Facility was established in March 1991 as a three-year pilot facility implemented jointly by the World Bank, the United Nations Development Program (UNDP) and the United Nations Environment Program (UNEP), known collectively as the "Implementing Agencies." The pilot GEF has provided grants to developing countries for projects that address the loss of biodiversity, global warming, ozone depletion and the pollution of international waters. In general, given low financial returns or non-market barriers in the domestic economy and/or low priority in national budgets, these types of projects would not be undertaken by developing countries. Conceptually, the GEF finances only those activities that benefit the global environment; environmental or financial returns to national economies are to be paid for by the developing countries themselves. This concept is the first GEF "principle":

The GEF would provide additional grant and concessional funding of the agreed incremental costs for achieving agreed global environmental benefits.²

In contrast to a multilateral development bank (MDB), there is little day-to-day country oversight over the management and operation of the pilot GEF. Countries contributing at least \$4 million dollars (known as "Participants") to the GEF meet twice a year to approve a tranche of proposals. The Participants are only charged with

² The GEF's principles for the restructuring of the Facility were agreed to by the Participants of the GEF in April 1992. The full list of principles can be found in the GEF document entitled The Pilot Phase and Beyond. The principles are excerpted in Annex I of this document on page 81.

approval of the tranche as a whole, and only review preliminary proposals. The Implementing Agencies decide which project concepts are included in a tranche, and are responsible for subsequent project development and implementation. The World Bank prepares and implements GEF investment projects, administers the trust fund, and provides administrative support. The UNDP provides technical assistance and pre-investment studies, and manages a Small Grants Program. UNEP ensures consistency with international environmental agreements and oversees the secretariat for the GEF's Scientific and Technical Advisory Panel (STAP).

The Conventions have accepted the GEF as the operating entity of their financial mechanisms on an interim basis. The Biodiversity Convention specifies that designation of the GEF as the permanent operating entity would require that it be "fully restructured" to ensure universal membership, a transparent system of governance, and a balanced and equitable decision-making structure for country involvement in project and policy approval. The Biodiversity Convention further states that its financial mechanism "shall function under the authority and guidance of, and be accountable to, the CoP." The Climate Convention states that its Convention's financial mechanism "shall function under the guidance of, and be accountable to, the CoP." Note that the nuanced difference in the texts of the Conventions has important ramifications on the future institutional links between the GEF and the Conventions, which will need to be further negotiated.

International negotiations are underway on the restructuring and eventual replenishment of the GEF. The goal of the negotiations, which are planned to conclude in December 1993, is to establish a permanent (as opposed to pilot) GEF that can help developing countries achieve global environmental benefits, including the fulfillment of Parties' obligations under the Conventions, and activities consistent with these obligations. If the restructuring and replenishment negotiations are successful, current expectations are for donors to contribute to a three-year replenishment of the GEF beginning in 1994.

U.S. Participation in the Pilot GEF

During the period from 1989 to late 1990, the United States was opposed to the creation of the Global Environment Facility. In the U.S. view at the time, the threat of global warming had not been established scientifically, and the approaches and funding requirements needed to combat the possible impacts were not well-defined. The U.S. also had concerns about the World Bank's mixed environmental track record.

The United States eventually agreed to support the pilot GEF in late 1990, when it became clear that European governments were prepared to establish the organization

even without U.S. support. However, the U.S. did not agree to contribute directly to the multilateral Core Fund of the Facility (also known as the "Global Environment Trust Fund," or "GET"), as had most other donors. Instead, the U.S. pledged to contribute \$150 million in untied "parallel financing"³ in the form of USAID projects to combat the loss of biodiversity, climate change and the pollution of international waters.

Although the U.S. pledged \$150 million in parallel financing to GEF-like projects, no additional funds were requested by the Administration, or appropriated by Congress, for USAID to program parallel financing activities. Without additional resources, USAID has concentrated on its own environmental programs, and has been slow to develop suitable GEF-related projects. In addition, because the USAID pledge was not backed by an appropriation, the U.S. was criticized by other donors and recipients for not really contributing "new and additional" resources to the GEF.

Although, as detailed above, the Administration did not request a contribution to the pilot GET, Congress independently appropriated \$30 million to Treasury's FY 1993 budget for contribution to the GEF Core Fund. The contribution is contingent, however, upon the Secretary of the Treasury's determination by September 30, 1993, that the GEF has developed procedures to ensure public access to information, public participation in project preparation and donor government oversight over projects. If these requirements are not met, the \$30 million is to be transferred to USAID for GEF related activities.

The GEF has not yet met these requirements, although Treasury is continuing to press GEF management and other Participants on these issues. While Treasury remains optimistic that it will be able to contribute the \$30 million, several key obstacles remain. Treasury is particularly concerned that, although the Implementing Agencies operate the GEF under the presumption of transparency and open access to information, none have actually written this presumption into formal policy. Treasury is also concerned that, although the treatment of stand-alone GEF projects and the GEF components of larger MDB projects might possibly meet the legislative standard, the associated larger projects of the World Bank and other MDBs may still remain under the more restrictive information disclosure policies of the MDBs.

During negotiations for the Climate Change Convention and UNCED, the United States pledged to contribute \$50 million to the permanent GEF Core Fund following its restructuring. The United States' FY 1994 budget requests \$31 million for direct contribution to the GEF Core Fund. If this figure is appropriated by Congress, and if the legislative requirements conditioning the \$30 million FY 1993 contribution are met

³ In the context of the GEF, "parallel financing" refers to an arrangement whereby a donor allocates its resources to projects similar to, but independent of, GEF projects. Upon Participant approval, the cost of the independent project is deducted from the pledge that the donor makes to the GEF.

by the GEF by September 30, 1993, the U.S. will have contributed \$30 million to the pilot phase (or, if possible, to the restructured GEF) and \$31 million to the replenishment of the GEF. Regardless of the eventual contribution, U.S. leverage has been hampered by the growing resentment by other countries, particularly in Europe, about the lack of a direct U.S. contribution to the Core Fund. However, the U.S. has managed during the pilot phase to maintain political influence because other governments view a future U.S. contribution to the restructured GEF's Core Fund as highly desirable.

Performance of the Pilot GEF

The GEF projects that have been developed thus far have steadily improved in quality and balance among the four subject areas. The U.S. has also applauded the GEF's public outreach programs, and recognizes that many World Bank/GEF projects include direct non-governmental organization (NGO) involvement in project development and implementation. A recent World Wildlife Fund report commended the pilot phase for its innovative projects, open information procedures and consistent effort to tap the expertise and experience of parties outside normal development channels. However, the report also pointed out a number of significant problems experienced by the pilot: (a) projects are not designed in relation to overall country environmental and development needs; (b) projects do not address underlying policy failures; (c) the association of many GEF projects with larger world Bank projects may reduce the incentive for environmental components to be incorporated into bank projects; and (d) GEF projects have not been used to improve the methods for improving the integration of environmental costs into resource accounting methods.

Other NGOs concur with this assessment, raising the fundamental criticism that the Facility is merely a scientifically and technically oriented "band-aid" that does not address the deeper social and economic causes of environmental degradation. More specific criticisms are directed at the GEF's perceived top-down approach to identifying and developing projects; failure to live up to its own claim of transparency, especially with regard to on-the-ground consultation with local NGOs and affected communities; lack of integration of GEF projects into national environmental and developmental strategies; too much emphasis on large capital projects with inadequate attention to local capacity building or small investment activities; and lack of donor government oversight of individual projects.

The U.S. has also criticized the pilot GEF for the inadequate attention it has given to exploring the concepts of incremental costs and global benefits, for the paucity of projects focused on the transport sector, and for under-representation of alternative energy and efficiency projects (although this is improving). The U.S. has also urged that

projects be more innovative and demonstrational, particularly with respect to biodiversity conservation.

It should be noted, however, that by nature pilot phases are experimental and limited in scope, designed to help identify problems. The GEF, in its pilot phase, was never intended to "solve" all environmental problems but rather was, among other things, to leverage World Bank resources and thereby promote greater environmental consideration within the Bank.

The experience of the pilot GEF demonstrates that, while the concept of the institution remains promising, serious attention needs to be given to the institutional and project-related weaknesses that have thus far prevented the GEF from realizing its potential to address global environmental problems. At a minimum, major reforms in transparency and public participation are needed to satisfy legislative requirements for U.S. contribution. These reforms will not be achieved without greater international support.

In the context of restructuring and replenishment, the GEF is to commission an independent evaluation that will be critical to deepening the Participants' understanding of the merits of the GEF, as well as its shortcomings and possible solutions to these shortcomings. A first draft of the evaluation is to be released to the Participants ahead of their meeting in September, 1993. Given the short time period and the early stage of GEF project implementation, the evaluation will only provide preliminary findings. The independence and objectivity of the evaluation will be essential to its value as a decision-making tool, and the U.S. may need to work with other countries to apply pressure on GEF management to ensure such independence.

Financial Resources of the Pilot GEF

Of the approximately \$1.2 billion pledged to the pilot GEF by the end of 1993, some \$912 million has been pledged to its multilateral Core Fund. France and Germany, the two largest contributors to the GEF Core Fund, pledged \$170 million and \$165 million, respectively. Approximately \$315 million has been pledged in co-financing, including \$150 million in U.S. parallel financing. At the December 1992 GEF Participants Meeting, Japan was applauded for its announcement that it would convert \$24 million of its \$140 million co-financing pledge into a direct contribution to the GEF Core Fund.

Most of the Core Fund resources have already been committed to GEF projects and administrative expenses. According to GEF management, only roughly \$20 million remains available for GEF project commitments during the remaining year of the pilot Facility, although more resources may be freed up as a result of reprogramming the

funds committed for stalled projects. This figure does not include a \$20 million request that will be submitted to the Participants in May, however. From prior commitments, approximately \$100 million has actually been disbursed. Of the \$150 million pledged by the U.S. for parallel financing, portions of previously planned USAID projects totaling \$44 million have been accepted as GEF projects.

CURRENT STATUS

Replenishment of the Restructured GEF

The size of the first replenishment of the permanent GEF has not yet been determined. Canada and France have privately come out in support of doubling the GEF's current resource levels, Germany has proposed a SDR 3 billion replenishment (tripling the current level of 1.2 billion SDR) of the GEF, and the EC has called for a "substantial increase" in resources. Based on preliminary G-7 positions, the estimates of funding levels for a three year replenishment beginning in 1994 (U.S. FY 1995) imply an annual U.S. appropriation of somewhere between \$80 and \$150 million during FY 1995-1997; other estimates suggest that the figure could exceed \$200 million per year. This calculation is arbitrarily based on a U.S. share of approximately 15 percent and assumes a constant level of contributions. This range exceeds the estimates for a U.S. contribution included in the Administration's current budget, which assumes that the U.S. contribution during FY 1995-1997 will continue at the level of our current parallel financing pledge, namely \$50 million per year. According to OMB, all MDBs are being budgeted at current levels over the FY 1995-1998 budget horizon.

It is important to note that, at this stage, any figure settled on will be essentially a political judgement. The funding requirements of developing country Parties to the Conventions may not be known for another year or two, when convention-specific needs-assessments for many countries should be completed. In addition, important definitional issues for the GEF, such as "incremental costs" and "global environmental benefit" have yet to be finalized.

What is known is that the estimated need for GEF resources will far exceed anything that the donors will be able to contribute. For example, the State Department estimates that at least \$100 million will be required in the near-term just to finance climate change country-studies. In this context, for the GEF's first replenishment, the United States should determine the amount of its contribution based on its own budgetary constraints, the influence over the GEF's restructuring and operations that different levels of contributions will afford, and the political ramifications (both domestically and internationally) related to the contribution level. Key factors such as the recipients' assimilative capacity, the GEF's own track record, the projected effectiveness, and integration into national development strategies, of projects during the period of replenishment, and the conformance of the GEF to the United States' own priorities and policies should also be considered.

Independent Evaluation and Preliminary Needs-Assessments: The GEF is currently undergoing an evaluation of its operations during the pilot phase. At the

moment, however, the United States is not convinced that the proposed structure for the evaluation is sufficiently independent from the institutions being evaluated. Accordingly, the United States is engaged in dialogue with other Participants and the GEF to ensure that the evaluation is thorough, comprehensive in scope, and appropriately independent. The U.S. will be able to use the results of this evaluation, additional external evaluations provided by NGOs, and its own (and other Participants') independent analyses to determine a much more informed contribution level.

In addition, the Participants are to discuss the anticipated funding requirements of the first replenishment at their next meeting at the end of May. A few preliminary needs-assessments may be presented at that time, and the GEF may submit its own analysis of resource requirements. The May discussions should further clarify the requisite information for determining the U.S. contribution to the GEF's replenishment.

Description of U.S. Policy as of December, 1992

The following section describes the key U.S. positions, and the principles underlying those positions, advanced at the meeting of the Participants in Abidjan, Côte d'Ivoire in December 1992. Although a special meeting on restructuring was held in Rome in March 1993, the U.S. did not offer any new policy initiatives. Consequently, the following represents the last official U.S. position on items relevant to the restructuring of the GEF.

Principles

- The GEF should contribute to the improvement of the existing development institutions' environmental performance. The GEF should also seek to leverage the larger resources, expertise and research capabilities of the regular development institutions toward environmental objectives. To accomplish this, the GEF should closely coordinate GEF projects and procedures with regular lending and technical assistance programs in the Implementing Agencies.
- The GEF should use existing institutions and resources as much as possible, and should ensure cost effectiveness and discipline in its operations and administrative procedures.
- The GEF should establish linkages to the Conventions such that it could be available to operate the funding mechanism for environmental Conventions, should the Parties to those Conventions and the GEF Participants so desire.

- The GEF should guarantee transparency, including public availability of information, on all GEF and associated projects.
- The GEF should provide for strong scientific and technical input, advice and review.
- The GEF should be accountable to its Participants through measures including contributor country oversight of individual projects.
- The GEF should actively pursue local participation in its projects, including consultation with affected peoples during all stages of the project cycle.
- The GEF should also seek NGO participation in all phases of the project cycle, and should provide for official NGO Observer Status during Participants' Assemblies.
- The GEF should support a meaningful role for regional development banks, the private sector and other interested groups.

Positions

- Scope: The restructured GEF should continue to fund "the agreed incremental costs of achieving agreed global environmental benefits" in the four programmatic areas of the pilot Facility. Other areas should be added only after full discussion and agreement on the significance of the possible global benefits of addressing the new issues and the amount of resources available.
- Structure: The GEF should operate as a single "unitary fund", using broad nominal or indicative allocations for each of the four programmatic areas. The creation of separate windows for individual programmatic areas and/or the practice of explicit earmarking should be avoided.
- Governance:
 - *Role of the Participants' Assembly*: The Participants' Assembly (PA) should provide policy guidance and priority judgments to the Implementing Agencies. The PA should approve the work program but not individual projects.
 - *Decision-making in the Participants' Assembly*: Decisions should be made by consensus whenever feasible. When necessary, voting should be based on a combination of membership and contribution-weighted shares.

- *Project Approval:* The Implementing Agencies should continue the current practice of screening and approving projects. The World Bank's Board of Directors should approve World Bank GEF projects; the mechanism for approval of UNDP and UNEP projects required further discussion.
- Linkages to Conventions: The GEF should establish linkages to the Conventions to allow for the CoPs to provide strategic guidance and oversight of the GEF with regard to Convention-related activities. At the same time, CoP micromanagement or duplication of the Participants' mandate and responsibilities should be discouraged.
- Integration: The GEF should seek to leverage the financial and technical resources of the regular development institutions, including the World Bank, by integrating the lessons learned and the new procedures developed under the GEF into mainstream lending programs and country-assistance strategies.
- Secretariat: The GEF should maintain the secretariat function in the GEF Administrator's Office at the World Bank. Relocating the secretariat would entail the creation of a new institution and bureaucracy, and the reorientation of the work program. Further, this would limit the GEF's ability to influence and shape the regular operations of the World Bank.
- Chairmanship: The restructured GEF should continue the existing arrangement, under which the GEF Chairman is appointed by the World Bank in consultation with UNDP and UNEP, bearing in mind that an elected Chairman could politicize the Participants' Assembly and work of the GEF.
- Legal Issues: The permanent GEF should be established via resolution of the World Bank's Executive Board.
- Pilot Phase Assessment: The Administrator's proposal to undertake an assessment of the pilot phase should be supported. This assessment should be independent and comprehensive, and the findings should be an important consideration in selecting the governance and operational arrangements of the future GEF.
- Scientific and Technical Advisory Panel (STAP): The STAP should continue to review projects, provide advice to the GEF and establish a link with the scientific panels of the Conventions.
- Inclusiveness: The GEF should encourage expanded links with NGOs, regional development banks, multilateral and bilateral institutions, and the private sector.

The GEF should not, however, earmark funds for specific institutions such as regional development banks.

Current International Negotiating Dynamic

There has been considerable flux in the international dialogue on GEF restructuring and replenishment. The following information is derived from the public statements of the GEF Participants inclusive of the latest Rome meeting (in March 1993), as well as informal corridor talk and communications.

OECD Countries Opinion

The OECD countries continue to support a strong GEF as the appropriate fund for agreed incremental costs needed to achieve global environmental benefits in the four GEF focal areas. An agreed principle is that other programmatic areas may be added in the future, subject to the approval of the Participants.

The OECD countries are also generally supportive of a substantial increase in the GEF's resources over the next three-year replenishment period. The OECD countries favor the creation of a decision-making mechanism in the GEF that gives greater voting power to larger donors and rewards contributions. While efficient linkages to the Conventions are called for, the creation of new institutions or Convention micromanagement of the GEF is disapproved of. Although OECD countries joined the April 1992 consensus that the GEF shall be a "unitary fund," and have publicly supported this position in a recent meeting, the consideration of separate "windows" or earmarks in the GEF has not been entirely foreclosed in the view of a number of OECD countries.

There is a general G-7 consensus that the strong links between the GEF and the World Bank should be maintained, and although the exact relationship between the entities has yet to be determined, the G-7 appears to favor locating the Secretariat in Washington, D.C.

Developing Countries' Opinion

Although the developing countries would prefer to increase their leverage as much as possible, a single G-77 position has not yet emerged. Most developing countries have called for a stronger role in decision making in the Participants' Assembly through a variant of the double-majority voting structure. However, at least one developed country has stated publicly that it understands that developed countries may have difficulty in funding GEF with this type of voting system. It is not clear how adamant the developing countries' will be on this issue.

In addition, many in the G-77 have called for a reduced role for the World Bank in the operation of the GEF. This is due, in part, to the mistrust and dislike that many developing countries feel towards the World Bank as a result of the conditionality applied to many Bank loans. Some developing countries would prefer that the policies and projects of the GEF be formulated and approved within the Conventions, leaving the GEF to function more as a fund administrator; it is perceived that such a relationship would also increase the leverage of the developing countries.

Non-Governmental Organizations' Opinion

Many of the U.S.-based environmental advocacy groups have criticized the GEF for failing to address what they consider to be the root causes of environmental destruction. Many are convinced that the GEF, rather than catalyzing the existing development agencies to undertake new priorities and practices to implement sustainable development, has been largely adopting the existing methods employed by the larger agencies. Although the GEF has made progress on such issues as NGO participation and transparency, the general sentiment is that the GEF has not lived up to its potential, and in their view this failure seriously jeopardizes the rationale for the GEF's continued existence.

Many NGOs also share a mistrust of the World Bank as an institution, and criticize its projects. For these and other reasons, many NGOs argue that the GEF should adopt a voting system that guarantees the ability of the donors to block projects. Others call for decision-making to be lodged in the Conventions.

Linkages with Other Environmental Issues

Policy-making toward the GEF is sensitive to a number of external factors which are linked either directly or indirectly to the operation of the Facility.

- The GEF is closely linked to the Conventions. Each of these Conventions will agree on individual modalities with the GEF, and each will have its expectations and requirements which will be submitted to the GEF, after negotiation by the respective CoPs.
 - The GEF may also become linked to other international environmental agreements that may arise including the Desertification Convention and follow-up to the Forest Principles.
- Although the GEF is not specified as an implementing agency for any particular agreement on international waters protection, the GEF is closely linked with this

issue through the number of regional seas agreements and other international agreements such as the Convention on Conservation of Wetlands of International Importance (RAMSAR), the International Convention for the Prevention of Pollution from Ships (MARPOL) and UNEP's Regional Seas Program.

- An recommendation presented in the PRD document on oceans and fresh water is for the U.S. to take a leadership role in developing an internationally-agreed program related to land-based sources which could be used as guidance for the international waters portion of the GEF.
- The GEF is linked to the Montreal Protocol, in that the GEF's Global Environment Trust Fund finances activities to phase out ozone depleting substances in countries (such as the Czech Republic and Slovakia) that qualify for GEF assistance but are not eligible for funding under the Montreal Protocol Fund. The GEF is also the umbrella for the Ozone Projects Trust Fund, which funds Bank investment projects under the aegis of the Montreal Protocol.
- The United Nations Commission on Sustainable Development will probably request that a link be established with the GEF under its mandate for overseeing the implementation of Agenda 21. The role of the GEF could become a source of OECD/G-77 tension as some developing countries may call for GEF funds to be made available for the implementation of more regional, national or local Agenda 21-related activities. Developing countries naturally assign such activities a higher priority than activities strictly related to the GEF's four focal areas.
 - Developing countries pressed for Agenda 21 to call for an "Earth Increment" to IDA to finance these types of activities, but donors (including the U.S.) rejected the idea. It was feared that a delineated Earth Increment would contribute to conception of environment as a "sector" or a special agenda, rather than leading to the desired environmental reform throughout the regular IDA portfolio. The Earth Increment was also seen as an IDA fundraising exercise, as IDA was unable to identify how implementation of the Earth Increment would differ from ordinary IDA activities.
- The GEF is linked to the issue of environmental reforms in the MDBs and the United Nations system. The U.S. can use the lessons learned in the GEF in areas such as transparency and NGO participation as examples to aid U.S. efforts to reform the larger institutions. The GEF (in innovative small scale biodiversity projects, for example) can demonstrate what works, or where improvement is needed, and can also show what the development institutions should, or should not, attempt to do on a larger scale.

- The GEF is also linked to the United States' goals for UNCED's Agenda 21, Climate Change, Forests and Biodiversity. U.S. policy objectives in these areas are not likely to be achieved unless the MDB's \$40 billion annual lending programs are leveraged to in support of these areas.
- The GEF is linked to U.S. bilateral environmental assistance for global, regional and national problems. USAID has by far the largest bilateral environment program, and has been the world leader in assistance for biodiversity conservation. In many recipient countries, the same government agencies and NGOs will be involved in USAID and GEF activities, making coordination essential.
- The GEF is linked to U.S. domestic actions to reduce emissions of greenhouse gasses and ozone depleting substances, as well as national efforts to protect U.S. resident biodiversity. A U.S. campaign to encourage appropriate environmental reforms in developing countries without commensurate domestic programs will probably elicit international criticism in the fora of the Conventions and the GEF.

Part II: OPTIONS FOR POLICY

Assuming that the U.S. retains at least an interim commitment to participation in the restructuring of the Global Environment Facility, a number of key policy issues must be resolved. The general context for consideration of these subjects is largely contained in the preceding sections on the history and current status of the GEF. Where additional specific background information is necessary, it is provided prior to the presented options. A recommended strategy which incorporates many of the following issues for decision is given at the beginning of this document.

The following section sets out the key policy areas related to the GEF, beginning with consideration of the most fundamental decisions that the United States must make: 1) whether or not to remain engaged in the GEF, and 2) the level of resource to commit to the Facility. Secondary questions on specific policy details follow.

In all cases, the recommended implementation plan is roughly the same. As these policy issues are currently the subject of international negotiation, the United States will increase its negotiating profile. Close coordination with other G-7 and OECD countries, as well as consultation with key developing countries, will be initiated to present our approach and seek to garner international support. Specific fora for such efforts are presented on page 80, following the presentation of options.

Basic Commitment to the GEF

Issue for Decision:

The United States must decide whether it will continue to support the Global Environment Facility as a key vehicle for delivering financial assistance to achieve global environmental benefits and to fulfill U.S. obligations under international conventions in the area of the global environment.

- *Timing of Decision:* This decision could be made now, based on the considerations summarized below, or deferred until more information is available, as discussed on page 35.

Additional Background:

This issue is central to U.S. international environmental policy, and is the most fundamental decision the U.S. must make regarding the GEF. If support for the GEF is maintained, the U.S. will remain engaged in the GEF restructuring process and continue to negotiate for a transparent, accountable and cost-effective GEF. If support for the GEF is withdrawn, the U.S. will need to develop a new strategy for negotiating appropriately transparent, accountable and cost-effective bureaucracies and funds for each of the international environmental conventions.

- Political Considerations: U.S. withdrawal of support from the GEF would constitute a major destabilization of the international dynamic for dealing with global environmental problems. The GEF is a cornerstone of OECD international environmental policy. It has also been designated, on an interim basis, as the operating entity of the Conventions' financial mechanisms. Although many developing countries would prefer to see the Conventions' authority for project and policy selection supersede the GEF, developing countries assume that the GEF, at a minimum, will implement the wishes of the CoPs.

- Budgetary Implications: The issue of a single GEF charged with financing a range of activities to combat global environmental problems, as opposed to a number of separate funds and bureaucracies, has important impacts on both domestic and international resource mobilization.

- *Cost-effectiveness:* Maintaining a single administrative bureaucracy for the GEF will be significantly cheaper than funding several fully-staffed Convention-specific bureaucracies.

- *Single Appropriation:* A single large annual contribution to the GEF may be easier to work through OECD parliaments, (especially with respect to Japan), and may be more immune to political detractors attempting to curtail funding for certain issue-areas.
 - *Resource Limitations:* A single fund may lead to greater recognition of resource limitations and the need for priorities among issue areas than would separate funds.
 - *U.S. Contribution Levels:* By precedent set in the MDBs, the U.S. would be likely to contribute 15%-20% of GEF resources. By contrast, by precedent set in the U.N. and the Montreal Protocol, the U.S. might be expected to contribute 25% of each separate Convention's resources. Consequently, a single GEF may allow greater leveraging of U.S. dollars, especially with respect to Japan.
- Programmatic Considerations: The problems and financing needs in the four focal areas of the GEF are quite different. This may pose difficulties for a single fund if over-arching criteria are too limiting and strictly applied to each issue area. A single fund, however, would be better able to promote cross-sectoral projects such as a forest project with biodiversity and global warming implications. Such projects are likely to be more cost-effective and more likely to avoid duplication.
- In addition, there is not likely to be a single convention on international waters in the near future. It is not clear whether there would be clearly identifiable multilateral financial support for international waters protection in the absence of the GEF. It is also not clear how ozone projects in Eastern Europe and the former Soviet Union, which are not covered under the Montreal Protocol but are responsible for nearly 50% of non-OECD production of ozone-depleting substances, would be financed in the absence of the GEF.
- U.S. Influence: The U.S. voice in policy making and project selection may also be relatively diminished in the fora of the different Conventions, which are likely to be highly politicized. While some developing countries may prefer separate governance systems in the Conventions which will increase their influence, the U.S. may have greater difficulty ensuring that its own environmental policy agenda is advanced.
- Locational Considerations: Although no decisions have been taken, it is likely that the GEF would be based in Washington, D.C. Separate Convention bureaucracies are likely to be located in Geneva, Nairobi or elsewhere. The United States' relationships with the World Bank, Inter-American Development Bank and the pilot GEF have benefitted tangibly from their location in Washington, as frequent staff level

communication, access to documents and close monitoring is inexpensive and easily facilitated. The GEF's residence in Washington will also facilitate the U.S. effort to review GEF operations in the context of the Bank's overall country assistance strategies and lending programs.

○ Institutional Considerations: If separate funds are established under the Conventions, it is possible that several of the funds would be administered by UNEP. Although the U.S. has been generally pleased with UNEP's management of the Montreal Protocol Fund, experience with funds administered by UNEP has often been disappointing, and UNEP generally administers smaller funds than are envisaged under the Conventions. New institutions, on the other hand, have no track record to inspire donor confidence, and would need to undergo a lengthy and expensive start-up phase.

- Although problems do exist, the U.S. is relatively satisfied with the financial discipline and managerial experience of the World Bank/GEF staff.

Options:

○ Option 1: Reverse current policy and support separate funds for each of the conventions.

Pro This option would be supported by many developing countries, who might be able to increase their control over resource allocation in the fora of the Conventions.

This option may be supported by some NGOs, who distrust international financial institutions (IFIs) such as the World Bank and International Monetary Fund and who would favor greater recipient control over donor resources.

Con As discussed above, this option is not at present being seriously considered by the international community which, at least in the interim, is focused on the construction of an international regime for dealing with global environmental problems inclusive of a restructured GEF.

This option would antagonize other OECD nations committed to the GEF and entail a major disruption of the international dynamic for dealing with international environmental problems.

This option may lead to greater difficulty in raising money and increasingly onerous demands for resources.

- Option 2: Continue the current U.S. policy of supporting the GEF as the "unitary" funding mechanism for global environmental issues, including obligations under the Climate Change and Biodiversity Conventions.

Pro This option would commit the U.S. to advancing the debate on the restructuring of the GEF. United States' negotiators would renew the dialogue to promote U.S. international environmental policy through constructive steps to reform the GEF in order to address global environmental problems.

This option would allow for the U.S. to build on the precedent and experience gained from the pilot GEF.

This option would be supportive of the United States' OECD allies.

Con This option would be opposed by some NGOs and developing countries.

- Option 2A: Continue the current U.S. policy of supporting the GEF funding mechanism for global environmental issues, including obligations under the Climate Change and Biodiversity Conventions, but urge that the GEF be restructured to have rigid "windows" for each focal area.

Pro The polarity of the single GEF/separate funds issue might be reduced through the establishment of "windows," or specific earmarks for focal areas. As currently defined, the GEF is to be a "unitary fund" with a single account to be allocated at notional levels to the different focal areas. Windows might assuage some developing countries' concerns about resource allocation.

This option would allow the U.S. to exercise international environmental policy by directing funds through one or more windows (e.g., if the U.S. were not party to the Biodiversity Convention and therefore wished to control the amount of its funds allocated to the Convention.)

Con Such a structure would lend itself to more active involvement of the Conventions in the management of the GEF, bringing up many of the issues related to separate funds and eliminating some of the important benefits of the GEF.

Windows may reduce the operational flexibility to reallocate priorities and funding levels across issue-areas as needs change, and may hinder the allocation of funds to cross-sectoral projects and innovative activities that are outside the scope of treaty obligations.

Windows may also lead to a situation where non-Party GEF donors are excluded from funding decisions relevant to Conventions, although this might also occur under the present system.

The Participants have already agreed, in April 1992, that the GEF should be a unitary fund.

Recommendation:

Option 2. The GEF has the potential to become an effective, as well as cost-effective, vehicle for addressing environmental problems with truly global impact. However, the GEF should be a complement to, not a substitute for, environmental action by the World Bank and other international organizations.

The inter-agency consensus held that the alternative option of supporting separate funding bureaucracies for each Convention (Option 1) would be much less cost-effective than the GEF toward realizing the U.S. objective of dealing with global environmental problems. In addition, non-Convention issues, such as international waters, would not be covered by separate funds. It was also felt that separate funds would become more politicized fora where the U.S. voice would be relatively diminished. It should also be stressed that no other alternative institutions to the GEF are available, and there are no guarantees that other newly designed institutions would provide a superior alternative to the GEF.

Option 2A, a single GEF with separate "windows" for each issue area, was discounted because, among other things, it was felt that rigid earmarks would reduce the GEF's flexibility to reallocate priorities and funding levels across issue-areas as needs change, and could hinder the allocation of funds to cross-sectoral projects and innovative activities that are outside the scope of treaty obligations.

Timing of the Full GEF Replenishment

Issue for Decision:

As discussed on page 30, given the considerable uncertainties surrounding the GEF, including issues such as scope, relationship to Conventions, and financing needs, the United States needs to decide whether a postponement of the full replenishment would be an acceptable, or even sought after, outcome.

Additional Background:

As indicated throughout this paper, there is a considerable amount of work to be done to prepare the restructured GEF to operate effectively and according to the wishes of the Participants. The Participants have agreed to an artificial timetable established by the GEF Administrator to conclude negotiations by December 1993. There is considerable doubt as to whether the outstanding issues will have been resolved, at least to a point on par with normal conditions for IFI replenishment, by that time.

Option:

o **Option:** Defer the final decision on restructuring and long-term replenishment of the GEF until the completion of an independent evaluation and provision of further guidance from the Conventions. This would require interim donor contributions to allow the GEF to continue to operate for an additional year or so at its approximate current funding level. The U.S. could take the lead in calling for such a deferment, or could agree to a deferment if suggested by other countries.

Pro The interim period could allow for the planned independent evaluation of GEF to be more thorough and to be given correspondingly greater weight by Participants. Extra time would also permit an expanded evaluation that goes further into GEF project implementation.

The interim period could provide more time for the Conventions to assess financing needs, develop appropriate linkages and address other relevant issues.

An interim period would allow the GEF to gain further experience, and interim contributions would allow the GEF restructuring negotiations to be carried out at a slower pace without fear that the Facility will run short of funds.

An interim GEF might allow for extra time for USAID to fulfill its \$150 million pledge to the pilot GEF, a pledge which will not likely be fulfilled before the planned expiration of the pilot phase.

Con A danger of an interim GEF is that it could weaken the Facility's momentum and reduce the chances that the GEF will become the Conventions' permanent funding entity.

Some OECD countries, especially France and Germany, would probably express strong opposition to such a deferment.

If the U.S. takes the lead in proposing a delay in creation of the permanent GEF there are additional cons:

Some developing countries and NGOs may accuse the U.S. of backing away from commitments made at UNCED, and the U.S. could be highly embarrassed if, having suggested an interim GEF, we are then unable to contribute because of legislative restrictions on GEF contributions to the Core Fund.

Extending the pilot GEF through another fiscal year might create expectation of further U.S. pledges through parallel financing. The issue of USAID parallel financing is controversial, both among U.S. agencies as well as the international community (see page 37 for additional information).

Recommendation:

The U.S. should continue to press for full replenishment of the GEF in December 1993, but should also be prepared to agree to a delay if key issues are not resolved by that time. The U.S. should not take the lead in calling for such a postponement, however. Inter-agency consensus held that a rigid insistence on concluding replenishment negotiations by December 1993 might be counter-productive, as several key issues, including the needs of the Conventions and the results of the independent GEF evaluation, may not be sufficiently resolved by that time. At the same time, a U.S.-led push for a postponement might be seen as an attempt to avoid a financial pledge, and could weaken the momentum of the GEF to become the permanent operating entity of the Conventions' financial mechanisms.

Level and Modality of Support for the GEF

Issue for Decision:

The United States must decide the approximate level of resources that it will contribute to an appropriately restructured GEF.

Additional Background:

Although the United State need not come to a final decision on its level of contribution to the restructured GEF at this point, and perhaps should not, it does need to begin internal consideration of the issue. In addition to beginning the budget and planning process for OMB purposes, U.S. policy makers should become cognizant of the level and budgetary source of impending contributions.

In addition, several parties, including Germany, France, Canada and the European Community, have already announced publicly their desire to see a significant increase in the GEF's resources over the next three-year replenishment process. Specifically, German called for a tripling of resources (in SDRs), France and Canada called for a doubling of real resources, and the European Community indicated support for a "substantial increase." Many countries, both developed and developing, are clearly looking to the United States to join in this increase. In order to help shape the debate and prepare for the announcement of the U.S. contribution, U.S. negotiators should be given a general policy signal on a ballpark figure for expected resources.

Traditionally, Treasury negotiators avoid any commitments regarding U.S. contributions to IFI replenishments until the negotiations on the policy framework of the agreement are successfully concluded. For example, in the latest IDA-10 negotiations, although negotiations were initiated in December 1991, the U.S. delayed a discussing specific levels of funding until the concluding session in December 1992.

o **Modality of Contribution:** In the pilot GEF, direct endowment of the multilateral Core Fund was not the only way for a country to contribute. The United States chose to make its contribution to the GEF through the device of "parallel financing." "Parallel financing," refers to an arrangement whereby a donor designs and implements projects that are consistent with the objectives of the GEF, but are paid for and implemented by the country. Upon Participant approval, the cost of the independent project is deducted from the pledge that the donor makes to the GEF.

Although the U.S. experience, and the Participants' reaction to, parallel financing has been problematic (see page 17), parallel financing offers a donor the opportunity to

Reynolds finger

unilaterally determine the projects its resources will support. There will be difficulties, however, with this vehicle of contribution in the restructured GEF. Most nations have already stated their opposition to allowing parallel financing to increase a donor's influence over Core Fund allocations. In a shares-based voting system,⁴ parallel financing is unlikely to be allowed to count towards the purchase of shares, while under a "double-majority" system parallel-financiers may find it difficult to hold a seat on an Executive Committee.

- *The Outstanding U.S. parallel commitment:* Note that the U.S. has a policy determination to make relevant to its pledge of \$150 million to the pilot GEF in parallel projects through USAID. For an explanation of the issue and a presentation of options, see page 44.

o Level of Contribution: The United States has traditionally had considerable influence over those institutions where decision-making power is tied to contributions. This power comes not from the formal strength of the U.S. vote, but rather from an institution's sensitivity to the interests of its important contributors. Clearly, U.S. influence has been derived from its level of contribution, but there are several crucial factors to consider in planning an appropriation level to the GEF.

- *U.S. Leadership:* The United States may wish to send a strong signal through a large contribution that it intends to be a leader in the area of addressing global environmental problems. A large U.S. contribution may ratchet up the contributions of other donors as these countries negotiate the share of GEF resources that they will be responsible for contributing.
- *U.S. Budgetary Constraints and Arrearages:* Given the domestic budget deficit, the demands on U.S. resources may not allow for a large contribution, regardless of the desire to do so. In addition, it should be noted that the U.S. is currently in arrears \$374 million to the MDBs.
- *Voting Structure:* The restructured GEF may adopt a voting structure in which the extent of donor influence is largely divorced from its level of contribution.
- *Strategic Contribution:* A cost-effective contribution strategy would not necessarily dictate a large contribution. For example, if a voting system is constructed where the four largest donors can join together to block

⁴ For an explanation of potential voting systems in the restructured GEF, see Decision-Making in the GEF, beginning on page 59.

passage of a measure, it is cost-effective only to be one of the four largest donors, not necessarily the largest donor.

o **Programmatic Considerations:** In gauging the appropriate level of support for the GEF, the U.S. should examine the programmatic needs and advantages of the GEF, as well as the political calculus for contribution. Questions that will need to be asked include:

- Will major borrowing countries have completed National Environmental Action Plans?
- Will the Conventions be sufficiently operational to warrant an increase in resources rather than a continuation of existing levels?
- Will the GEF Core Fund continue the pattern, demonstrated during the pilot phase, of slow disbursement?
- What comparative advantage does the GEF have in terms of efficiency, resource mobilization and project quality, among other factors, relative to existing bilateral and multilateral efforts?
- Has the GEF received sufficient and timely indications from the Conventions on the respective levels of funds that will be required to meet the needs of the Conventions?

Independent Evaluation and Preliminary Needs-Assessments: The GEF is currently undergoing an evaluation of its operations during the pilot phase. This evaluation should hopefully provide the answers to key questions related to the level of U.S. contribution to the replenishment, including those questions above. At the moment, however, the United States is not convinced that the proposed structure for the evaluation is sufficiently independent from the institutions being evaluated. Accordingly, the United States is engaged in dialogue with other Participants, and the GEF itself, to ensure that the evaluation is thorough, comprehensive in scope, and appropriately independent. The U.S. will be able to use the results of this evaluation, additional external evaluations provided by NGOs, and its own (and other Participants') independent analyses to determine a much more informed contribution level.

In addition, the Participants are to discuss the anticipated funding requirements of the first replenishment at their next meeting at the end of May. The GEF is to submit its own analysis of resource requirements, using several countries as examples, at that time. The May discussions should further clarify the requisite information for determining the U.S. contribution to the GEF's replenishment.

○ Budgetary Sources of Resource Transfer: Should the Administration decide to increase above the current planning level (\$150 million over three years) the United States contribution to the restructured GEF, the U.S. will need to determine where the budgetary resources will be taken from. Potential sources fall in three categories, all of which have financial and programmatic implications Taking money from--

- *Existing Treasury Accounts* would allow reallocation of U.S. contributions from MDBs that do not support U.S. environmental initiatives or are a lower priority for U.S. support. However, this could have the impact of lowering, rather than increasing, U.S. leverage in the other MDBs. In addition, it would not provide funding that is "new and additional" to existing aid flows.
- *Other 150 Function (State or USAID) Resources* would increase the overall resources targeted toward the environment since bilateral environmental programs do not have the same leverage as multilateral programs. Transferring resources away from bilateral non-environmental assistance, whether general development or security assistance, would also increase the resources targeted toward the environment. However, this would limit the resources available for the United States' own bilateral programs for environment as well as other foreign priorities such as aid to the former Soviet Union and contributions to U.N. peacekeeping. It would probably be resisted by those agencies and offices which suffer budget cuts. Although resources could be transferred from either multilateral or bilateral programs in the non-Treasury function 150 resources, USAID specifically opposes contributions to multilateral agencies from the bilateral portion of the function 150 resources. This approach also would not provide resources that are new and additional to existing aid flows.
- *Non-150 Function Resources* would have the same implications as above. In addition, however, such a move might be politically sensitive if it were perceived as taking away from U.S. actions to support the domestic environment. This would provide resources that are new and additional to existing aid flows.

○ Timing of Decision: In addition to the level, form and source of a possible U.S. contribution to the GEF, the United States should also consider a strategy for announcing its decision which will maximize U.S. policy objectives. For example, announcing that the U.S. intends to make a substantial contribution to the GEF at the next Participants Meeting in May 1993, would send a strong signal of support for

international efforts to protect the global environment and dramatically indicate the change in U.S. policy. It would also provide an opportunity for a Presidential Initiative to push our objectives for the GEF. A similar announcement on the first anniversary of the Earth Summit in early June might also accomplish this effect. Conversely, an early pledge might weaken U.S. leverage in the restructuring process; uncertainty over U.S. intentions could force more comprehensive reform efforts which are necessary for domestic support of the U.S. contribution.

Options:

With these factors in mind, there are two sets of options relevant to a U.S. GEF contribution that must be determined in the short-term:

On the modality of contribution

- Option 1: Contribute directly to the GEF Core Fund.

Pro This option will be welcomed by the Participants.

This option will afford the U.S. leverage and influence in the GEF such that U.S. priorities may be advocated for the institution as a whole, although factors such as the design of the GEF's voting system will effect the level of that influence.

Con Direct contribution gives up U.S. unilateral decision-making authority over the use of its resources.

This option may be prevented by Congressional restrictions on contribution to the Core Fund.

- Option 2: Contribute all or part of the total U.S. contribution to the GEF through parallel financing.

Pro This option affords the U.S. unilateral control over its resources while advancing the objectives of the GEF.

Con This option may not be permitted, and will not be appreciated, by the vast majority of Participants. It is probably not viable politically.

This option may not afford the U.S. influence over the GEF commensurate with its level of commitment.

On the level of contribution

- o Option 3: Maintain the current planning of funding (\$150 million U.S. pledge over the next three year period).

Pro Avoids making a premature decision on the need to increase resources because the Conventions' needs-assessments and the planned evaluation of the pilot phase may not have been completed by the time the Participants complete the first replenishment. One possible option may be to suggest an interim period before agreeing to a full replenishment (see page 35 for additional information).

Con Could be perceived by other Participants as a lack of support for the GEF and the Conventions.

- o Option 4: Commitment to a contribution level sufficient to guarantee that the U.S. will be a major player in the restructuring and operation of the GEF. Note that it is premature at this time to determine the level of contribution necessary to obtain this result, but current intelligence suggests the range for a three year replenishment beginning in 1994 (U.S. FY 1995) could imply an annual U.S. contribution of somewhere between \$80 and \$200 million during FY 1995-1997.

Pro Would demonstrate U.S. support for the GEF and could give the U.S. more leverage as a player in the effort to restructure the Facility and negotiate more strongly for our environmental objectives.

Con It is not clear at this time that a substantial increase in GEF resources is required over the three-year replenishment horizon.

The \$80 - \$150 million estimated annual contributions for FY 95-97 greatly exceed the \$50 million annual contributions for FY 95-97 included in the President's budget.

Recommendation:

Options 1 and 4. The United States should send a clear and early signal that, if the GEF is appropriately restructured, it intends to make a financial commitment to the GEF Core Fund that would be commensurate with its leadership position and related to the needs of potential GEF recipients.

The inter-agency consensus is that, having committed to the GEF, the U.S. cannot offer less than substantial financial support to the institution. On a political level, to do

less would be seen as an attempt to back away from supporting the objectives of the GEF, and counter to the positive image that the U.S. wishes to put forward. On a practical level, U.S. influence over the restructuring will be largely linked to the level of resources put on the table. Offering less than substantial support to the GEF would reduce the United States' ability to shape the Facility to maximize U.S. interests. Contributions should be made directly to the Core Fund, as opposed to parallel or co-financing, because direct contributions will afford much greater influence over the restructuring process and through the voting structure, and will be much more popular politically with other donors and recipients.

The Outstanding U.S. Parallel Pledge

Issue for Decision:

The United States must decide what to do about the remaining balance of its pledge to the pilot GEF through parallel financing.

Additional Background:

In March 1991, the United States pledged \$150 million over three years in untied, parallel financing through USAID as our contribution to the pilot GEF. USAID agreed to meet this commitment through environmental projects begun in FY 92-FY 94. The Agency was not given additional funds for GEF projects, and therefore attempted to attribute already planned USAID environment projects to the GEF. To date, the U.S. has submitted six projects in the first four tranches totalling \$42.7 million, and has directly co-financed \$4.5 million in GEF Core-Financed Investment Activities. No U.S. projects are scheduled to be included in the fifth tranche, to be considered by Participants in May 1993. It does not appear that the U.S. will fulfill its pledge by the conclusion of the pilot phase of the GEF, in December 1993.

Options:

- Option 1: Meet our parallel financing commitment as stated. This would require that USAID submit projects approaching \$103 million for the sixth and last tranche, which will be considered by the Participants in December 1993. To meet this deadline, USAID projects would have to be approved by USAID and submitted to the GEF STAP for review by August 1993. USAID is currently reviewing \$14 million in GEF project proposals which could be ready by that time.

Pro This would fulfill a Presidential commitment and demonstrate U.S. support for the GEF.

This option would give the U.S. the further opportunity to "demonstrate" the types of projects it feels are appropriate for GEF financing. (The GEF has been criticized for projects that are too large, lack adequate capacity building, and do not work closely enough with local NGOs and community groups. USAID has a comparative advantage in these areas).

This option may be the only available option if contributions to the Core Fund are precluded by U.S. legislation, although USAID may need additional appropriations from Congress.

Con Given the project cycle, it will be nearly impossible for USAID to identify and submit untied GEF-eligible projects in amounts beyond the \$14 million currently being processed.

GEF projects must have untied procurement, contradicting Congressional directives to USAID to ensure "Buy America" goals.⁵

Unless new projects are designed (as opposed to the past attempts to attribute projects planned for other purposes), USAID projects will continue to have an imperfect fit to the GEF criteria, may face difficulty in gaining STAP approval, and face criticism from other countries for "double counting" existing development projects. Host countries might turn down existing projects for GEF attribution, something that has already happened to a USAID project in the Philippines.

o Sub-Option 1A: Prepare a list of expected new GEF projects by the December meeting, then extend the period for contribution to the Pilot GEF and seek additional appropriations.

Pro Would signal the U.S. commitment to meet our obligation, including that the funds be additional, thereby deflecting criticism.

This option allows for the maximum flexibility in design of GEF projects. It would result in the highest quality GEF projects.

Con If USAID requests additional resources in FY 1994, the Administration will need to send up a budget amendment to its current FY 1994 budget before final appropriations action. This would require offsets from the current FY 1994 budget. If USAID requests the funds after FY 1994 resources are appropriated (after October 1, 1993) then the Administration would need to ask for a supplemental appropriation, which could be difficult unless there were no better way to address the resource needs and could also require offsets.

GEF projects must have untied procurement, which contradicts Congressional directives to USAID and is opposed by important USAID contractors.

USAID would need an additional appropriation totalling up to \$90 million in FY 94. It may be too late for FY 94, and FY 95 would represent a significant break in U.S. funding. Costs in FY 94 would be less than for Option 3 if there was assurance of funding for these projects in succeeding years.

⁵ While a waiver for the "buy American" provision may have its political difficulties, it will probably be easier to obtain than an additional appropriation.

- o Sub-Option 1B: Prepare a list of expected projects by the December meeting, then extend the period for contribution to the Pilot GEF but do not seek additional appropriations.

Pro Same as Option 1, but would allow more time to assure that the best projects were designed and implemented.

con: *Con* GEF projects must have untied procurement, which contradicts Congressional directives to USAID and is opposed by important USAID contractors.

This option would not represent new and additional resources, risking additional criticism from other countries, particularly if the projects were not new projects designed specifically for the GEF.

- o Option 2: Renege on the commitment and focus instead on contributing to the future GEF.

Pro This option would ease institutional pressures. (Other donors that have made co-financing pledges are also having problems fulfilling their pledges).

Con Would be inconsistent with the U.S. policy of meeting international commitments. This would be used as an opportunity to criticize the U.S., even by those that do not expect the commitment to be made.

This would likely preclude the use of bilateral parallel financing as a vehicle for leveraging resources in support of global conventions. It might also hamper our ability to meet obligations under the conventions that are not deemed eligible for GEF funding.

- o Option 3: Convert all or part of the remaining \$90 - \$103 million into a pledge for the Core Fund, conditional upon meeting our legislative requirements. The \$30 million appropriated by Congress, although meant to be in addition to the \$150 million commitment, could probably be attributed to the original commitment.

Pro This would be welcomed by other Participants and GEF management, and would make us more welcome in the replenishment meetings.

This could increase our leverage to secure changes, such as in public participation. (We would not make the contribution unless the conditions were made.)

Con If Treasury requests additional resources in FY 1994, the Administration will need to send up a budget amendment to its current FY 1994 budget before final

appropriations action. This would require offsets from the current FY 1994 budget. If Treasury requests the funds after FY 1994 resources are appropriated (after October 1, 1993) then the Administration would need to ask for a supplemental appropriation, which could be difficult unless there were no better way to address the resource needs and could also require offsets.

Would be opposed by NGOs unless legislative requirements for transparency and public participation are strictly adhered to.

It would have to be clear that the \$103 million was not coming out of future U.S. contribution to the GEF, or it would be seen as double-counting.

Recommendation:

The US should reaffirm its commitment to honor the \$150 million U.S. parallel financing pledge to the Pilot GEF.

There was inter-agency consensus on the importance of meeting our pledge, but no consensus on which option would best meet this goal. USAID recommends Option 1A or Option 3. Agencies recognize the difficulties that USAID has had in identifying suitable projects. At the same time, agencies are cognizant of budgetary realities which would prevent a conversion of the remaining \$103 million parallel pledge to a direct contribution to the GEF Core Fund.

P/a

The Scope and Operating Principles of the GEF

Issue for Decision:

The United States needs to clarify several of the key issues that define the special mandate of the GEF. These include: 1) the importance of cost-effectiveness in the selection of GEF projects; 2) the current focus on projects that provide global environmental benefits; and 3) a working definition of the term "incremental costs".

Additional Background:

These issues are technically complex and politically sensitive. The principles for the restructured GEF include an explicit and limited mandate of providing "additional grant and concessional funding of the agreed incremental costs for achieving agreed global environmental benefits." These terms of reference reflect the bargain struck between developed and developing countries in the international agreements on Climate Change, Biodiversity and Ozone Depletion whereby the wealthier countries agreed to fund activities in the poorer countries that benefit the global environment. Financing activities which benefit the local economy or local environment, however, are the responsibility of the developing countries with assistance from existing multilateral and bilateral funding agencies, as the potential bill for such activities is orders of magnitude higher than the already huge costs for protecting the global environment.

- Incremental Costs: Although the developed/developing country bargain is conceptually easy to understand, the technical implications of putting into practice the concept of "incremental costs" and "global environmental benefits" have proven to be difficult. A U.S. inter-agency working group has been established to study the issue of incremental costs and its relation to the other two issues. Discussion of detailed options on this subject at this time is premature.

- Cost-Effectiveness: Intuitively, the donor community should seek to ensure that its resources for combatting global environmental problems are allocated on strict cost-effectiveness criteria in order to leverage the greatest "bang for the buck." The issue of cost-effectiveness is challenging, however, because strict application of the cost-effectiveness criterion would direct the vast majority of GEF resources to projects in a small number of countries where the greatest global environmental benefits can be achieved with the least cost. This might be politically unpopular with other developing countries which expect to receive a share of financing in return for joining a Convention. It would also indirectly penalize countries that have unilaterally acted in support of a Convention's objectives, as they may have eliminated the most cost-effective projects prior to GEF intervention. This is likely to be a politically contentious issue during GEF

restructuring negotiations and meetings of the CoPs. Although this issue is under study in the inter-agency process, it is premature to offer a set of options for U.S. policy at this time.

o Global Environmental Benefits: Regardless of the original intent of the GEF, many developing countries are now placing considerable pressure on the OECD countries to expand the scope of the GEF to cover local, national or regional environmental costs or additional focal areas, such as desertification.⁶ Many developing countries, particularly the small island states, are also urging that the GEF fund the costs of their adaptation to climate change. The current U.S. position is that funding for local, national and regional environmental problems should come from existing sources, including ordinary MDB lending and bilateral assistance, and it should be noted that the estimate for additional concessional financing needed for environmental objectives presented at UNCED was \$125 billion; this figure does not include the costs of adaptation to climate change. We have called for the MDBs to increase support for these activities. In diverse fora such as the United Nations Committee on Sustainable Development, in the Desertification Convention negotiations, and in the Participants' Meetings themselves, the issue will be a source of friction between the developed and developing countries. United States' policy on this issue will be crucial for the eventual resolution of the problem.

Options:

o Option 1: Continue to support the scope of the GEF as currently defined.

Pro This option will preserve the separation between combatting global environmental problems and the much more costly environmental issues with local or transnational ramifications.

This option will enable the GEF to concentrate its efforts on developing strategies and projects for addressing the factors which are contributing to the degradation of the planetary system as a whole.

This option may make it easier to guarantee continuing appropriations for the GEF, as contributions would be in the U.S. self interest, rather than "development assistance."

⁶ The section of NSC-12 dealing with desertification contains the recommendation that the GEF not fund desertification activities unless these activities can be justified in terms of their benefit to the main GEF focal areas.

This option would preserve the rationale for the GEF as a separate source of financing.

Con This option will not be welcomed by many developing countries, who are seeking increased aid flows for nationally based clean-up and environmental protection activities.

Pursuit of this option may reopen the debate over the "Earth Increment," (see page 27) as developing countries continue to search for additional sources of funding for their local environmental needs.

The concept of global benefit is not explicitly stated in either Convention and is thus viewed by developing countries as another element of conditionality.

o Option 2: Broaden the scope of the GEF to include environmental issues outside of its current focal areas. A possible suggestion might be to support funding of such activities at a lower priority than activities with "global environmental benefits."

Pro This option would allow the GEF to support activities related to the Conventions that do not have direct global benefits, or potential obligations under a Desertification Convention.

This option would allow the GEF to support environmental activities that have more direct benefits for human health and well-being in developing countries.

This option would be welcomed by many developing countries.

Con This option might take pressure off the MDBs and bilateral agencies to incorporate environmental concerns into their regular operations. Regular MDB operations total about \$40 billion annually, far beyond what the GEF is ever likely to achieve.

Broadening the scope of the GEF may make it less effective in dealing with any particular issue.

Projects having global environmental benefits are those which have the most direct environmental impact on the U.S.; the U.S. may wish to assign a higher priority to these activities than to activities which provide no direct benefits to the U.S.

The OECD countries do not appear to support a broadening of the GEF's scope at this time.

The GEF will be small in relation to the demand for its resources under its existing terms of reference.

Recommendation:

Option 1. The U.S. should maintain its position that the GEF will continue to fund the agreed incremental costs of measures that achieve agreed global environmental benefits. The U.S. should also agree that GEF funds may continue to be used to support national climate change or biodiversity country studies, and agree in principle that capacity building could be part of this effort, while insisting on clear and limited parameters.

Inter-agency consensus held that the alternative of broadening the GEF's scope to cover more general environmental issues or to soften the GEF's focus on funding incremental costs would, among other things, make it less effective at dealing with any one particular issue and might reduce the pressure on the larger development institutions to incorporate environmental concerns into their regular operations. There is also inter-agency recognition, however, that a definition of incremental costs needs to be developed, especially for biodiversity projects.

How can we deal with the deficit

The GEF's Links to the Conventions

Issue for Decision:

The United States needs to define an appropriate relationship between the GEF and the Conventions. This issue should be considered in the context of the background and options presented in Basic Commitment to the GEF (see page 30). The definition of this relationship will significantly affect the role of the Participants' Assembly, which is discussed on page 56.

Additional Background:

The GEF is closely linked to the Conventions. Each of these Conventions has or will establish individual modalities with the GEF, and each will have its expectations and requirements which will be transmitted to the GEF, after negotiations within the respective Conference of Parties.

The Climate Convention accepted the GEF as the operating entity of the financial mechanism on an interim basis. The Biodiversity Convention identified the GEF as the operating entity of the financial mechanism on an interim basis provided that it is appropriately restructured. Neither Convention accepts the GEF as the permanent operating entity, leaving that decision to the CoP of each Convention.

The Biodiversity Convention specifies that designation of the GEF as the permanent operating entity would require that it be "fully restructured" to ensure universal membership, a transparent system of governance, and a balanced and equitable decision-making structure for country involvement in project and policy approval. The Biodiversity Convention further states that its financial mechanism shall function "under the authority and guidance of, and be accountable to, the CoP." The Climate Change Convention states that the Convention's financial mechanism shall, "function under the guidance of, and be accountable to, the CoP." The GEF Participants and the CoPs have both agreed that the Conventions will determine Convention-specific policies, programs priorities and eligibility criteria to the GEF.

The issue of the relationship between the GEF and the Conventions can be analyzed on two levels. The first is a more general policy statement on how this relationship should be defined. The second is a more functional analysis of what the specific role of the Participants' Assembly of the restructured GEF should be. Options for these two levels of analysis follow.

Options:

The essential question is whether the U.S. sees the GEF interacting with the Conventions in a "master-servant" relationship (the GEF being the servant), or whether a "partnership" arrangement would be more appropriate.

- o Option 1: The CoP to a particular Convention should dictate the terms of all GEF funding related to that Convention, with the GEF acting merely as fund administrator.

Pro This option would be widely supported by many developing countries, who could perhaps exercise greater control over the financing mechanism through the CoP than through the GEF.

This option would be supported by many NGOs, who are distrustful of the World Bank and who would favor greater recipient control over donor resources.

This option would meet Convention requirements on accountability, reconsideration of decision-making and, possibly, the provision of funds in a predictable and identifiable manner.

This option may encourage more widespread ratification of Conventions as nations seek to exercise greater control of the financing mechanism through the CoP.

Con This option would be opposed by most OECD nations, who would fear losing control over assessment and allocation of funds through the CoP.

Differing requirements among Conventions would cause administrative problems and project cycle delays for GEF Implementing Agencies.

This option would restrict the possibility for joint projects across two or more GEF focal areas, and it is not clear whether non-Convention activities such as international waters projects would be programmed if there were strong Convention micromanagement of the GEF.

This option assumes that a Convention-specific bureaucracy exists to direct the GEF. Having several fully-staffed Convention-specific bureaucracies would not be as cost-effective as a single GEF administration.

This option may introduce difficulties with respect to funding for Convention-related projects by non-Parties.

o Option 2: The CoP to a particular Convention and the Participants' Assembly should act in a partnership agreement, with the CoP setting broad policies, program priorities, and eligibility criteria related to the individual Convention and the Participants' Assembly being responsible for oversight and implementation.

Pro This option would be supported by most OECD countries, who presumably can exercise greater control over the raising and allocation of funds through the Participants' Assembly.

This option would allow for trade-offs, promote integration of funding across the GEF's four focal issue-areas, and encourage the development of cost-effective projects with joint benefits.

This option would simplify administrative processes for Implementing Agencies and accelerate the project cycle.

Con This option would be opposed by many developing countries, who are distrustful of the international financial institutions and who prefer funding without conditions attached.

This option would decrease the likelihood that the GEF would be Convention-oriented.

Recommendation:

Option 2. The restructured GEF should work in partnership with the Climate Change and Biodiversity Conventions. The Conferences of the Parties (CoPs) to these Conventions should determine policies, program priorities and eligibility criteria related to their respective Conventions. The participating countries in the GEF should be responsible for implementing this guidance through the operational policies and projects of the GEF. At a minimum, the GEF needs to have the authority to conduct fundraising and approve projects.

Inter-agency consensus rejected a master-servant role based on essentially the same rationale as the rejection of separate funds and "windows." Note that the ability of a Convention to be a "master" entails the creation of a substantial Convention-specific bureaucracy.

Inter-agency consensus also held that countries with economies-in-transition (specifically enumerated in Annex I to the Framework Convention on Climate Change) should continue to be eligible for GEF funding. In the case of a Convention that does

not provide funding under that Convention to countries with economies-in-transition, agencies agreed that GEF Participants should, in funding projects submitted by such countries, seek to base their decisions in the relevant focal areas on the policies, program priorities and eligibility criteria established by the CoP of the relevant Convention, adapted as appropriate for such countries. In addition, agencies agreed that, in funding projects, as opposed to country studies, GEF Participants should give highest priority initially to countries that have ratified a Convention related to the focal area, and ultimately, that have both ratified the Convention and developed national implementation plans identifying and prioritizing projects.

The Role of the Participants' Assembly

Issue for Decision:

Operationally, as one of the fundamental issues of GEF governance, the U.S. must determine where it would like the locus of authority over GEF projects and policies to lie. Currently, the GEF Participants' Assembly, which includes 50+ members and is still growing, is the principal mechanism for government oversight of the GEF. The range of options varies from minimal country oversight of a management-driven structure, a system of country oversight over the institution similar to a MDB, and a CoP directed/management implemented relationship.

Additional Background:

The issue of the role of the Participants' Assembly is closely linked to the policy determination on the GEF's links to the Conventions. For additional information on this subject, see page 52.

Options:

- o Option 1: Limit the Participants' Assembly to the role of providing broad policy guidance to the Implementing Agencies, approving annual or semi-annual work programs, and acting as the link to the Conventions' Conferences of Parties.

This scenario is the current (as of December 1992) U.S. policy, and is largely reflective of the status quo in place in the pilot GEF. Individual project selection would be delegated to the Implementing Agencies as in the pilot GEF. For project approval, the World Bank Board of Directors would approve Bank GEF projects. There is no similar procedure for Board approval of UNDP and UNEP projects, and this is a matter which would require subsequent resolution.

Pro This option would minimize the extent of restructuring needed to establish the permanent GEF.

Con This option is increasingly politically unacceptable to both developed and developing countries. In particular, this option would not address the requirements of the Conventions for country oversight over project approval.

○ Option 2: Limit the role of the Participants by giving the authority for project and policy approval to the Conventions' CoPs. The restructured Facility would function under the guidance and authority of the CoPs, acting merely as the implementing arm of the individual Conventions and a general fundraising tool for global environmental activities.

Pro This option would accommodate country oversight of the GEF. It would also be politically popular with the G-77 and some NGOs.

Con Such an arrangement would likely introduce the problems that would be encountered by establishing separate funds for each Convention (see page 30). The function of the GEF Participants would be marginal. The OECD donors would lose power relative to the CoPs in determining funding levels and other issues such as scope, and non-Convention activities such as combatting the pollution of international waters might be reduced or abandoned.

○ Option 3: Give the Participants' Assembly authority to approve GEF projects consistent with the policies, program priorities and eligibility criteria adopted by the Conventions, and to approve projects in areas not related to the Conventions.

Pro This option would accommodate donor country oversight of the GEF and allow for the Participants to approve projects.

Con The resolution of the details of this proposal will require time and effort. Potentially contentious issues may arise in relation to the role of the Participants versus the role of the Parties. In addition, the PA as a whole has done a poor job of project oversight, and the PA would be an unwieldy structure for ongoing management of the GEF.

○ Option 4: Option 3, as above. In addition, in order to facilitate efficient oversight of the Facility, the Participants' Assembly would delegate day-to-day management responsibilities to an Executive Committee, which could meet as often as needed to make project funding decisions, operational policies, and other administrative matters. The full Participants' Assembly could meet periodically⁷ to approve an annual work program and provide broad guidance to the GEF Executive Committee and the Implementing Agencies.

⁷ Some Participants have suggested that if a standing Executive Committee were in place, the full PA might only need to meet on a biennial basis.

Pro The designation of a GEF Executive Committee analogous to an MDB's Board of Directors would allow countries to exercise quality control and policy direction in an effective and tested format.

Administrative overhead for GEF management would be lessened, as a smaller standing body could supplant the oversight function of the PA. By corollary, the PA could meet much less frequently.

A standing Executive Committee would also eliminate the need for bunching projects into semi-annual tranches, as is the practice in the pilot GEF. This would permit a GEF project cycle that is driven by country needs, priorities and overall development strategies, and one which could track closely with the project cycles of GEF-associated projects in the MDBs.

At least one NGO has called for the GEF to have a standing body similar to an Executive Board.

Con Issues would need to be resolved concerning the role of the GEF Executive Committee in relation to the Participants' Assembly. Issues include membership, rule of procedure, and location.

Recommendation:

Option 4. In order to facilitate efficient oversight of the Facility, the Participants should delegate day-to-day management responsibilities to an Executive Committee, which could meet as often as needed to approve projects and operational policies, and to conduct other administrative business. The full Participants' Assembly, which would have universal membership, could meet annually or biennially to receive and respond to the input from the Conventions' Conferences of Parties, approve a work programs and provide broad guidance to the GEF Executive Committee and the Implementing Agencies.

The inter-agency consensus rejected the alternative of leaving the management of the GEF largely up to the Implementing Agencies (as is currently the case). It was felt that this option was politically unacceptable to the international community, and would not satisfy the requirements of the Conventions. The alternative of abdicating management responsibilities to the Conventions' CoPs was rejected on the same rationale taken for rejecting separate funds and a "master-servant" GEF-CoP relationship. Although it was agreed that the Participants' Assembly should be vested with management responsibilities, delegation of day-to-day work to an Executive Committee would avoid unwieldy, ineffective and costly administration.

Decision-Making in the GEF

Issue for Decision:

The United States needs to decide what form of voting system should be used in decision-making. Different decision-making systems could be employed by the Participants' Assembly or an Executive Committee, should one be established (see Option 4, page 57). Options range from heavily contribution-weighted voting as in MDBs, to variants of double-majority systems similar to the Montreal Protocol, to one-country one-vote systems as found in the U.N. General Assembly.

Additional Background:

It is expected that decisions in the GEF will normally be taken by consensus. In cases where consensus is not possible, voting will be needed. The issue of relative power between donors and recipients has become a sensitive issue, and considerable attention will be given by all Participants to the distribution of authority in the GEF.

A series of scenarios under different voting systems is given below. The scenarios assume that there will be 180 Participants (near universal membership), and the traditional major donors⁸ will also contribute to the GEF. The scenarios also assume that, although polarization between developed and developing countries will not be the rule, the dynamic in the GEF will best reflect that found in the MDBs, where developed and developing countries often have separate agendas.⁹

o Option 1: One-Country One-Vote. Under this option, each Participant would cast one vote, regardless of its level of contribution. Even if all the major donors were to vote as a block, they would only cast 10% of the vote.

Pro This option would be extremely popular with developing countries, and promote the appearance of international democracy among governments.

⁸ There are 18 major donors, namely: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

⁹ In the MDBs the developing countries are much more concerned with accessing unconditional financial assistance than ensuring their projects are financially and environmentally sustainable. Individual developing countries rarely, if ever, criticize each other's projects, and progressive policy reform has always been generally resisted by the G-77. Note that not a single developing country broke ranks to vote with the United States, France, the Nordics, Japan, Australia and Canada in urging a World Bank suspension of the Narmada Dam project.

Con This option will be extremely unpopular with OECD countries. Experience has shown that donor countries' parliaments do not contribute large financial resources in cases where donors lose effective control over their resources.

This option is not on the table at present.

o Option 2: Variants of a double-majority system, where countries are divided according to their status as either developed and developing. The essential concept of this system is that passage of a measure requires a majority from both groups.¹⁰ Although such a system might facilitate the ability of donors to block poor projects (only 4 donors are needed), it would also facilitate recipient blocking of aggressive environmental policies and key loan conditionalities which may accompany GEF grants, especially when paired with larger MDB-projects.

Pro This option would be popular with developing countries because it gives them a more visible role in decision making.

This option would allow a small number of countries (perhaps four developed or four developing if modeled on the Montreal Protocol Fund) to block a decision. It would protect the vital interests of both developed and developing countries to prevent approval of unfavorable projects or policies.

Many NGOs would support this option as a system that provides balanced representation for developing countries but also allows a small number of concerned governments to stop bad projects.

Con This option segregates the international community into formal blocks of developed and developing countries. Most OECD countries have voiced a preference for increased cooperation in the post-UNCED era, and many countries have requested the formation of "mixed constituencies" where developed and developing countries could be part of the same voting block.

This system does not easily accommodate countries with economies-in-transition, the addition of new members, or developing countries which are also GEF donors.

¹⁰ This structure is used in the Montreal Protocol, where seven developed and seven developing countries serve on an Executive Committee. In that forum, a two-thirds majority of all Executive Directors and a simple majority of both developed and developing country Directors is needed for passage of a measure.

This option could negatively impact U.S. environmental policy initiatives and lead to policy gridlock, as developing countries may easily veto progressive environmental policies suggested by the U.S. and other developed countries. Although experience in the Montreal Protocol Fund for phasing out ozone-depleting substances has not borne this fear out, experience in the MDBs suggests a more negative expectation.

Many OECD countries would oppose this structure as their influence in the institution is unrelated to the level of their contributions. Many OECD countries believe this system will make parliamentary appropriations more difficult and less sustainable. At the latest GEF restructuring meeting in Rome in March 1993, Canada and a few of the Nordics stated that they believe this is already happening to the Montreal Protocol Fund.

Option 2A: A relaxed variant of the double-majority, where countries are not separated into blocks, but passage of a measure requires both a certain percentage of Participants and total contributions. Without knowledge of the determined percentages of Participants and contributions needed to pass a measure, it is not possible to detail a voting scenario.

Pro This option would be popular with developing countries because it gives them a more visible role in decision making.

This option surmounts the obstacle of integrating countries with economies-in-transition or recipient/donor countries encountered in the more rigid double-majority system.

This option would provide an incentive for countries to contribute to the GEF.

Con Although judgement would need to be reserved until the final structure was determined, this option could hold the same negatives for the U.S. as option 2 in terms of policy gridlock. Depending on the percentage of contributions needed to block a measure (in other words, the number of donors needed to oppose), this system could actually improve the ability of recipients to steamroll their priorities through the GEF.

Option 3: Voting based on a combination of membership and contribution-weighted voting shares similar to a MDB model but adjusted to increase the relative power of recipients. This system assigns each Participant a set number of shares, allowing Participants to purchase additional shares to increase their vote. It is impossible to calculate voting strength under this scenario without knowing the exact details of how many Participants there are, the relative weight of contribution and membership shares,

or the majority level needed for passage. As an example, however, the GEF has made rough calculations that a 50/50 weight and a 75% special majority with 180 Participants would allow 3 of the largest donors, or 90 Participants, to block a measure.

Pro OECD countries would support a system based on membership and contribution-weighted voting that provides direct incentives for contributions. At least one developing country supports this system on the principle that it will provide an incentive for donors to contribute more to the GEF.

This system has the flexibility to adjust voting power by increasing the weight given to membership shares in relation to purchased shares. The number of countries (or purchased shares) required to block a vote can also be adjusted by raising the majority level from 50% to higher "special majority" levels.

This option allows member countries to form mixed constituencies rather than separating them into "developed" and "developing" blocs, and every country has a vote. The structure is also flexible enough to accommodate countries with economies-in-transition, the addition of new members, or developing countries which are also GEF donors.

This option can result in developing countries having power similar to what they have in the Montreal Protocol Fund, and this system can be constructed to satisfy NGO concerns for balanced representation with blocking power over poor projects.

Should a GEF Executive Committee be established, (see Option 4, page 57) the developing countries could be given a majority of seats on the Executive Committee to help balance the advantage donors may have in voting power. This physical presence is important in a system that will largely operate on consensus.

The GEF Administrator has advocated this option as the system best reflective of the Participants' desire to have a voting structure that would ensure balance between developed and developing countries as well as give due weight to the value of contributions.

Con This voting system appears on its face to resemble a standard MDB arrangement. As such, it may be politically unpopular with some developing countries and NGOs.

If voting power is skewed heavily in favor of the developing countries, there may be little functional difference between this structure and a double-majority system. In this event, many of the OECD countries' problems with the double-majority

system may be applicable, while the maximum political benefits of satisfying the developing countries may not be attained.

If this system is approved without a requirement for special majorities for project approval, it could be virtually impossible for the Executive Committee to stop a bad project, which could turn the Executive Committee into little more than a rubber stamp.

Recommendation:

Option 3. The voting structure should be able to command continuing donor contributions and recipient support. Accordingly, although voting systems could differ in the Participants' Assembly and the proposed Executive Board, voting on projects and policies should be based on a combination of membership and contribution-weighted shares. Developing countries should hold considerable voting strength in order to foster the spirit of international cooperation needed to combat global environmental problems. Project approval must require a special majority of votes to ensure that only sustainable, high-quality projects are developed and approved.

Inter-agency consensus rejected the option of one-country one-vote as completely unresponsive to donor interests. The double majority-system was rejected because of the difficulty in accommodating economies-in-transition, the addition of new members, developing countries that are also GEF donors, or mixed constituencies of developed and developing countries. Even if these concerns are addressed, as in Option 2A, concerns about policy gridlock or diminished donor influence also provided a rationale for rejecting double-majority systems for voting on projects and policies. As discussed on page 72, agencies felt that greater STAP involvement in project appraisal could strengthen project quality.

The GEF Secretariat and the Implementing Agencies

Issue for Decision:

The United States needs to develop a view on the relationship of the restructured GEF Secretariat to the World Bank, UNDP and UNEP and, if independent from the Bank, the location of the Secretariat and the linkages with the other Implementing Agencies.

Additional Background:

The Administrator's Office of the pilot GEF is housed in the World Bank's Environment Department and is formally part of the World Bank. The U.S. has supported this arrangement to date on the argument that it is a cost-effective way of servicing the GEF Participants and it gives the U.S. more control over the GEF's administrative operations than if it were located elsewhere. Furthermore, it is consistent with our principle of seeking to maximize the integration of the GEF with existing institutions.

○ Access to Information: Many NGOs have called for the Secretariat to be made independent of the World Bank as a result of the limited access to information that the Bank affords outsiders. The World Bank has said that GEF project information will be subject to special standards to insure greater transparency, but these standards have not been finalized. The Bank-wide policy on information access derives from the principle that if documents are prepared by borrowing countries, they are proprietary information to be kept confidential, unless the recipient government explicitly authorizes them to be released. The United States believes that this policy conflicts with the principle of transparency and openness in the GEF. Other G-7 countries have mixed views on the issue, and the same countries that have resisted greater disclosure of information by the Bank are likely to resist it in the GEF, regardless of whether the Secretariat remains within the World Bank. The U.S. contribution to the pilot GEF is being held up pending resolution of this and other issues, as required by the 1992 Foreign Operations Appropriation Act.

○ Objective Project Analysis: Many NGOs have questioned whether a Secretariat which is part of an Implementing Agency could objectively assess the quality of that organization's GEF proposals. Lack of objectivity was identified by the Bank's Wapenhans Report as a key ongoing problem related to project quality.

○ The World Bank's Reputation: Much of the argument surrounding the identity of the restructured Secretariat comes from the varying perceptions of the World Bank, and the administrative and legal policies which the Bank follows. While the Bank is praised

by many OECD countries for its financial discipline and administrative management, many developing countries dislike the Bank because of its perceived heavy-handedness and emphasis on loan conditionality. NGOs dislike the Bank because of its mixed record on the environment.

- o The Reputation of the UNDP and UNEP: Although the World Bank has numerous detractors, there are few existing institutions that could manage the GEF as effectively. UNEP has had experience as the Secretariat of the Montreal Protocol Fund, CITES, and the Biodiversity Convention. The scale of the GEF's projected resources dwarfs anything that UNEP has done in the past, however, and although UNEP has managed the Montreal Protocol Fund adequately, U.S. experience with UNEP has not been generally favorable. UNEP's Nairobi location also contributes to this negative appraisal, even though a UNEP supported Secretariat could be located anywhere. UNEP management of the GEF may also lead to a conflict of interest; UNEP is the Biodiversity Convention Interim Secretariat, but also proposes projects of its own to the GEF.

The UNDP as an institution is preferred over the World Bank by many developing countries because it is seen as being more responsive to the political needs of developing country governments. At the same time, at least one developing country has privately stated that it views the operational capacity and competence of the Bank as greatly superior. The general U.S. inter-agency consensus is that the UNDP, while it has its merits, is administratively unwieldy and would be unable to shoulder a larger responsibility for GEF management than it currently holds.

- o Secondment: Whether the Secretariat is linked to the World Bank or is independent, many countries have called for the GEF Secretariat to include staff from all three Implementing Agencies. This staff could also be expanded to include seconded individuals from the Participants' Finance, Aid or Environment ministries. Conversely, the GEF Secretariat might also hire its own staff to ensure greater independence from implementing agencies; clearly, the more independence from existing institutions and budgets, the greater the financial burden on the Participants.

- o Location: Calling for removal of the Secretariat from the World Bank increases the risk that it will be moved out of Washington altogether, although at the present time the G-7 all seem to favor housing the Secretariat in Washington, even those that favor greater independence from the Bank. The United States' relationships with the World Bank, the Inter-American Development Bank and the pilot GEF have benefitted tangibly from their location in Washington, as frequent staff level communication and close monitoring are inexpensive and easily facilitated.

o Legal Issues: The degree of independence of the GEF Secretariat from existing institutions, including the World Bank, carries some legal ramifications. Several OECD countries have indicated a strong preference for the Secretariat to remain affiliated with the World Bank on the grounds that many OECD countries' parliamentary or budget processes would make it difficult for them to support the establishment of a new institution, although this issue could possibly be avoided if the Bank remains the Trustee of the GEF's Core Fund.¹¹ By contrast, these same countries could increase the budget for the World Bank Group inclusive of the GEF with relative ease.

Another set of legal issues related to the independence of the GEF Secretariat involves the relatively minor, but nonetheless important, institutional and personnel details that come with the creation of new international institutions. For example, GEF Administrator staff currently enjoy World Bank privileges and immunities (including tax immunity), have access to the Bank's health insurance and retirement plans, and are able to rely on Bank staff rules and procedures for resolving personnel issues such as discrimination based on gender. The creation of a new institution would require negotiation of these arrangements.

Options:

o Option 1: Support the current administrative arrangement, with the GEF Secretariat housed in the World Bank's Environment Department.

Pro This would require very little modification to convert from the pilot phase.

Such a structure would promote maximum integration of the GEF staff with World Bank staff, which in theory should help to raise awareness at the Bank of GEF objectives, projects and strategies.

Many OECD countries may support this arrangement as requiring the least fundraising effort in their parliaments.

Con This option would be opposed by many developing countries and NGOs.

Given the high level of administrative support that the GEF has needed and will continue to require in the foreseeable future, the staff of the Bank's Environment Department may be distracted from concentrating on environmental reform and

¹¹ There is precedent for this in the Bank's Trusteeship of the Montreal Protocol's Ozone Projects Trust Fund, for which UNEP is the Secretariat.

programming in the Bank proper. There is some concern that this has been occurring during the pilot phase.

This option would pose the greatest difficulty for implementing policies in the GEF which are distinct from World Bank policies, particularly in the areas of transparency and access to information. At present, the Bank is resistant to the adoption of GEF policies that are sufficiently open and transparent.

- Option 2: Subject to negotiation with the World Bank to assure Secretariat autonomy on such issues as operational policies and the hiring and firing of staff, locate the Secretariat within the World Bank Group as a quasi-independent entity. Incorporate the administration, management and quality control of the Bank while establishing independence from Bank policies that are considered restrictive. Second personnel from the other Implementing Agencies and/or Participant governments as appropriate.

Pro This option would allow for quality control and administrative efficiency while allowing progressive administrative policy implementation.

This option would allow for the successful implementation of progressive policies to be used as an example for Bank-wide reform along similar lines.

Such a structure would allow for cross-fertilization of organizational culture and administrative experience among the seconded staff.

OECD countries with parliamentary appropriation issues could still fund the GEF without undergoing special legislative hurdles.

- Con* The Bank may be reluctant to agree to the establishment of a "quasi-independent" entity within the World Bank Group that is not subject to Bank-wide administrative and operational policies.

This may be perceived by many developing countries and NGOs as not establishing adequate independence from the Bank.

- Option 3: Establish an independent Secretariat. Second personnel from all Implementing Agencies and/or Participant governments as appropriate.

Pro This option would allow for the implementation of policies determined exclusively by the Participants.

An independent Secretariat would be welcomed by many developing countries and NGOs.

An independent Secretariat would be impartial in terms of a project's agency affiliation.

Con The GEF Secretariat might lose the administrative and financial discipline of the World Bank's quality control.

This option may make it more difficult to easily generalize lessons learned in the GEF back into the World Bank.

This option would open the possibility of having the Secretariat moved out of Washington, D.C.

As an entity distinct from an MDB, this structure would create problems in many OECD countries' legislative and executive branches related to oversight and appropriations unless the GET remained under Bank management. Compared to affiliation with the World Bank, it could also mean less protection for staff and a greater financial burden on the participants.

An independent Secretariat would entail the creation of a new international organization, a process that will take time, require legislative approvals and run counter to traditional U.S. opposition to the creation of new international organizations.

Recommendation:

Option 2. Administrative and operational policies, including appropriate staff incentive systems, must provide an environment in which high-quality projects can be identified, designed, implemented and monitored. Therefore, subject to a further exploration of the relevant legal and practical issues, the GEF Secretariat should be affiliated with the World Bank Group, but should have the freedom at the behest of the Participants' Assembly to establish its own administrative and operational policies. The Secretariat should be staffed by seconded individuals from the Implementing Agencies, as well as from Participating governments and Convention bodies as appropriate.

Note that there are no legal reasons why the recommended option of a quasi-independent entity within the World Bank Group cannot be realized. This option, however, which is intended to take the strengths of the World Bank while maximizing

the influence of the Participants, will require the acceptance of World Bank management.

Inter-agency consensus rejected the status quo alternative of a Secretariat lodged formally within the World Bank on the grounds that many developing countries and NGOs would be opposed to such an arrangement, that Bank staff could be distracted from pressing environmental reform in the Bank proper, and that the Bank's more restrictive administrative and operational policies would restrain the adoption of more progressive GEF-specific policies. Agencies also believed that a more independent Secretariat would be better able to award GEF funds to executing agencies on a more open and competitive basis, which would lead to better projects.

At the same time, it was recognized that a fully independent Secretariat might create difficulties for some countries' appropriations processes, although this problem might be diminished if the Bank continues to act as Trustee. In addition, it was feared that lessons learned in the GEF would not be easily transferrable back to the Bank, the administrative and financial discipline of the World Bank Group would be lost, and the rationale for keeping the GEF in Washington would be weakened if the Secretariat were completely independent of the Bank.

The Office of the GEF Chairman

Issue for Decision:

The United States must decide on the means for selecting the GEF Chairman.

Additional Background:

The current Chairman of the pilot GEF is the Director of the World Bank's Environment Department. His role is distinct from the GEF Administrator, who is also a World Bank staff member who serves under the Chairman. Although both individuals have been widely praised for their performance, many countries and NGOs have called for the Chairman of the restructured GEF to be elected by the Participants.

Note that this issue may be related to the question of the Secretariat's independence from the World Bank (see page 64).

Options:

Option 1: Continue the existing arrangement.

Pro This option requires minimal restructuring of existing arrangements, and rewards the performance of the current GEF Officers.

Con This option will be politically unpopular with some countries, and reduces Participant influence in selecting the current Officers' replacements.

Option 2: Urge that the Chairman be elected by the Participants.

Pro This will comport with the political wishes of many Participants and NGOs. The current Officers would not necessarily be disqualified from future service.

An elected Chairman would be another way of increasing government oversight of the GEF.

An elected Chair from the developing countries may increase the developing countries' feeling of ownership in the GEF. A precedent for this is the Development Committee.

Con Elections may politicize the office of the Chair and provoke acrimony in the future election/appointment of Officers.

Recommendation:

No firm recommendation is offered on whether the GEF Chairman should be elected by the Participants or appointed by the Implementing Agencies.

The Role of the STAP

Issue for Decision: The United States must decide what role the pilot GEF's Scientific and Technical Advisory Panel should play in the restructured GEF. The U.S. must also decide on questions related to the STAP's composition, independence and relationship with the Conventions' scientific advisory panels.

Additional Background:

- **Description:** The STAP is an independent group of scientists, appointed by the Executive Director of UNEP, which has been given the mandate to review the projects and policies of the pilot GEF from a technical perspective. The STAP meets several times during the year to review GEF proposals. An evaluation and assignment of priority is then forwarded with the proposal to the Participants for their review at semi-annual Participants' Meetings. This function is perceived to have significantly improved the quality of the pilot GEF's projects.
- **Perceptions of the STAP:** Developing countries are wary of the STAP as a non-political forum that could impose conditionality on GEF assistance to developing countries. They tend to favor project approval within the Convention structure through the Conventions' scientific bodies and meetings of the Parties, or at a minimum that STAP's role be limited to quality-control and not priority setting. NGOs, on the other hand, are strongly supportive of the work of the STAP, and urge that it remain independent and active in project screening. OECD countries, while calling for reform of some elements of the STAP (particularly its budget), are generally supportive of its work.
- **Composition:** There is general inter-agency agreement that the composition of the STAP needs to be broadened to include more social science, policy and legal experts, and to include more biodiversity and oceans experts.
 - **Independence:** It would be desirable for STAP panelists to commit a significant portion of their time to STAP activities. This demand, however, coupled with the high volume of projected GEF projects, may require the STAP panelists to become appropriately compensated for their efforts by the GEF. This would have to be done in such a way that it would not undermine the independence of the STAP, an attribute which is widely praised.

- o Potential Under the Restructured GEF: The STAP could be modified fairly easily to become a first-class peer review mechanism by creating STAP working groups to handle each of the GEF areas of focus, and by calling on outside experts as needed. Working groups might also be used to coordinate between the STAP and the conventions' scientific bodies and could include members of those bodies.

In the Montreal Protocol, the Executive Committee relies on a strong and independent Secretariat to evaluate the projects before it. The Executive Committee generally follows the advice of the Secretariat, which can afford individual Committee members the political cover to stop a project.

- o Ensuring Project Quality: It may be possible to use STAP to help stop bad projects, assuming the STAP is given a role in reviewing projects. For example, the U.S. could call for a provision to the effect that projects that are not rated as "high priority" by the STAP could be required to have a significantly higher special majority for approval, making it easier for a small number of concerned governments to stop such projects. This would be in keeping with the wishes of Participants that the STAP not have a direct role in project approval, yet would allow the STAP to provide cover for the U.S. and other governments that may need to oppose a bad project. There is a risk, however, that this responsibility would politicize the STAP. In addition, with respect to the Conventions, the GEF will take its guidance with respect to priorities and strategy from the Conventions and thus, with respect to the Conventions, it may be inappropriate for the STAP to rank the priority of projects.

Options:

- o Option 1: The STAP would be strengthened as necessary to continue to set criteria and to review the policies and projects of the GEF.

Pro The independence of the STAP as an objective project review filter would be maintained.

Con The anticipated workload may overwhelm an independent and voluntary body.

The administrative cost of supporting a group of scientists located around the world may be prohibitive.

Many developing countries would continue to oppose non-political project screening.

- o Option 1A: In addition, the STAP's influence could be increased by calling for a provision that projects not rated as high priority by the STAP would be required to have a significantly higher special majority for approval.

Pro This would make it easier for a small number of concerned governments to stop such projects.

This would be in keeping with the wishes of Participants that the STAP not have a direct role in project approval, yet would allow the STAP to provide cover for the U.S. and other governments that may need to oppose a bad project.

This option would be strongly supported by NGOs, who have asked that the STAP be given project approval authority.

Con This option could politicize the STAP.

This option may be opposed by developing countries.

- o Option 2: Dissolve the fully independent STAP, lodging the responsibility for technical and scientific review of projects with a Secretariat paid, in-house staff. Alternatively, several Secretariat-paid in-house technicians could be hired to handle basic review responsibilities for projects and could coordinate a large roster of independent experts who could be called upon to peer review projects on an ad hoc basis in their area of expertise.

Pro In-house project review would be cost-effective

This would encourage administrative efficiency while promoting top notch and independent project review.

The alternative arrangement has been successfully tested by the U.S. National Science Foundation.

Con In-house technical reviews would lose the independence, and the presumption of objectivity, of the STAP. This independence is considered a vital trait of the group.

Relying on in-house expertise may sacrifice some of the skills-mix and experience that can be drawn from individual and independent scientists and technicians.

This option would be opposed by many developing countries as a non-political project screening filter.

Recommendation:

Interagency consensus holds that a strengthened STAP with broad scientific, technical and policy expertise should ensure that project proposals are high priority and technically sound. To accomplish this, the STAP should be able to ensure first-rate peer review of GEF projects. It should also have an appropriate advisory role with respect to operational policies. Although we recommend the existence of a STAP, we offer no firm recommendation on its structure.

NGO Participation in the GEF

Issue for Decision:

The United States needs to determine its policy on NGO participation in the restructuring and operation of the GEF.

Additional Background:

One of the fundamental shifts in thinking on development strategies that has occurred in the context of exploring the concept of sustainable development is that local participation at the community and non-governmental level has been recognized as an effective asset in ensuring the sound planning and sustainability of development efforts. This principle, although generally accepted in spirit by aid providers today, was in stark contrast to the past policies of many of the development organizations and recipient governments, who often saw local participation as a hindrance to efficient project implementation or a threat to political stability.

However, although the principle of explicit local and NGO participation in projects has now been widely accepted, implementation of related policies has been slow. The World Bank, even though it has progressed to a higher stage than the other MDBs in this area, is still singled out for criticism. The United States has been active for some time in encouraging reform in this area.

The GEF provides a new opportunity to institutionalize these types of policies in the mandate and charter of a development institution. It is hoped that the successful implementation of these policies by the GEF will give added impetus to the larger Implementing Agencies to fully implement progressive policies.

o **Public Participation in the GEF:** The FY 1993 Appropriations Act for the GEF explicitly states that the U.S. must ensure that the GEF has developed procedures to ensure public access to information, public participation in project preparation and government oversight over projects. However, the law does not specify the modalities of how NGO participation should be structured. Therefore, although pressing for public involvement in the GEF is a requirement and not an option, the U.S. needs to determine a policy to implement the intent of the law.

In addition, there is the separate but related issue of U.S. policy on NGO participation in the GEF restructuring exercise itself. Currently, NGOs are barred from

Participants' Meetings and restructuring/replenishment meetings, although the GEF has arranged for NGO consultations on the day preceding Participants' Meetings.

Options:

o Option 1: Advocate official NGO Observer Status during restructuring negotiations and Participants' Assemblies in the restructured GEF. If the U.S. decides to call for establishment of a GEF Executive Committee (see page 57), we could also call for NGOs to be given observer status there, as they are at the Montreal Protocol Executive Committee. The presumption of the GEF is that its business shall be conducted transparently, although Executive Session may be called to discuss confidential information.

Pro NGO Observer Status will be strongly supported by NGOs.

NGO Observer Status would help to guarantee transparency of operations in the GEF.

NGO Observer Status provides for the incorporation of NGO input into the process. It would also systematize the relationship of the GEF and NGOs, and would govern the rule of procedure for NGO involvement.

Representatives from NGOs would be able to interact with representatives of the Participating governments and Implementing Agencies in the name of their own organizations. The NGOs and the U.S. often, but not always, share the same priorities and environmental agenda.

NGO participation in other fora, such as ECOSOC and UNCED, helped to catalyze the NGO community into better organization and information-sharing.

Con NGO Observer Status will be opposed by many countries, both developed and developing, who believe that multilateral deliberations should be confined to governments.

NGO presence at international meetings can lead to administrative inefficiencies. Admitting the oral or written submission of NGOs detracts from the time left for inter-governmental consultations. In addition, countries may decline to discuss subjects candidly during open session out of fear of negative publicity.

Especially with regard to developing country NGO representatives, this option may be budgetary impacts on the GEF or U.S. agencies, should the cost of NGO travel need to be provided.

o Option 2: Include NGOs as part of the official U.S. delegation. Several U.S. agencies have already included NGOs on delegations to fora such as UNCED and Climate Change. Treasury has never included an NGO in one of its delegations to International Financial Institution negotiations.

Pro If independent Observer Status cannot be provided, this option would be strongly supported by NGOs.

The necessary self-selection that must take place among the environmental NGOs has served to increase that community's internal coordination.

Precedent for this option exists in the GEF context, as Canada and Bangladesh have already included NGOs on their delegations.

Con Many countries may dislike the presence of NGOs on delegations, although it was suggested by France as a possible compromise to the issue of allowing NGOs in the meeting room under their own identification.

The U.S. delegation may be faced with the prospect of having to choose between several applications for membership, and could be forced to accept a range of constituencies' groups to avoid charges of favoritism (i.e. private sector groups and environmental groups).

Certain aspects of the GEF negotiations are quite sensitive, especially the replenishment levels, which are tightly held by governments. To date, no country has consented to allowing non-government personnel to listen to negotiations on financial matters of this importance.

The implications of including non-government personnel on U.S. delegations to other international financial negotiations on subjects including other MDBs, the IMF and G-7 Economic Summits would need to be considered.

Recommendation:

These options are not mutually exclusive, although Option 1 is strongly recommended. In the course of project design, the GEF should actively involve local communities and non-governmental organizations in all phases of the project cycle, from identification through ex-post evaluation. NGOs should be granted Observer Status at Participants' Assemblies and Executive Committee meetings, as appropriate.

Inter-agency consensus held that NGOs should not be excluded from the GEF, as they can play an important role in introducing new views and methodologies. NGOs can also help execute projects, especially in the area of small-scale biodiversity efforts. Excluding NGOs from participation in the GEF would also be contrary to U.S. legislation.

POSSIBLE DIPLOMATIC EFFORTS TO ADVANCE U.S. POLICIES

- Seek to establish an appropriate linkage between the United Nations Committee on Sustainable Development and the GEF in the context of the next meeting of the Committee in June. (For additional information on the U.N. Committee on Sustainable Development and options for developing linkages, please see the State Department's paper on this subject included as part of NSC-12).

Pro This forum would be politically popular with developing countries.

International coordination of the implementation of sustainable development is the explicit function of this body.

Con Given the history of developing country opposition to U.S. attempts to achieve environmental reform in the MDBs, this forum may not be friendly to U.S. views and could backfire.

This could open the door for broader CSD involvement in GEF operations, which would run counter to the proposed U.S. position that the Participants should determine GEF policies and projects.

- Bilateral discussions with key players.

Pro This is an essential first step in any program of action that might be taken. Bilateral discussions at an appropriately high level would signal our seriousness about these issues.

Con Few, if any, drawbacks.

Possible Presidential Initiative:

If and when the United States decides to contribute substantial resources to the GEF, the White House could announce this initiative and outline the U.S. vision of the restructured GEF. The first anniversary of the Earth Summit, in early June, might provide an opportunity to make such a public initiative.

Pro This would give the U.S. initiative very high visibility, and (depending on the amount of resources committed) would be well received by developed and developing countries.

Con This initiative could be seized upon by domestic opponents of foreign assistance.

ANNEX I: GEF PRINCIPLES

Please see the following pages for an attached xerox of the GEF's Principles for the restructuring exercise. These pages are excerpted from a document entitled "The Pilot Phase and Beyond" published by the GEF in Working Paper Series Number I, May 1992.

PART ONE: PRINCIPLES

1.01 The operational experience of the GEF's first year¹ has helped to crystalize certain principles which would serve as building blocks for the future. These principles are:

1.02 **Principle I: The GEF would provide additional grant and concessional funding of the agreed incremental costs for achieving agreed global environmental benefits.**

The ability to raise additional funds is linked to the focus on incremental cost² financing. This could be achieved through a periodic replenishment of a single fund. The GEF should not replace other funds; it should be additional and complement multilateral and bilateral development assistance.

1.03 **Principle II: The GEF would finance activities which benefit the global environment. It would continue to support its current four focal areas. Land degradation issues, primarily desertification and deforestation, as they relate to the focal areas of the Facility, would be eligible for financing.**

It should, however, be noted that within these four areas -- global warming, biodiversity, international waters and ozone depletion -- there are many instances where it is difficult to distinguish global and national environmental benefits, and therefore some degree of flexibility in interpreting such benefits is required.

1.04 **Principle III: The GEF is available to function as the funding mechanism for agreed global environmental conventions, should the parties to those conventions so desire.**

The primacy of the parties to an individual convention would be maintained with respect to policy and program priorities, guidelines for project formulation, and eligibility criteria. The GEF would focus on programming and implementation and ensure that convention-specific priorities and criteria are fully respected.

¹ For a more detailed discussion of developments since December 1991, see the April 1992 Chairman's Report, Volume I.

² "Incremental costs" are defined as the extra costs incurred in the process of redesigning an activity vis a vis a baseline plan -- which is focussed on achieving national benefits -- in order to address global environmental concerns. GEF funding thus covers that part of the expenditures that is not offset by nationally appropriated benefits. Alternative assumptions -- each reasonable -- about baseline expenditures have been shown to result in a wide range of incremental costs. It follows that since applying this principle unambiguously in practice is difficult, some flexibility in its interpretation may be called for. As part of its Policy and Strategy Work Program, GEF staff, in cooperation with STAP, intend to review operational definitions of incremental costs.

1.05 Principle IV: The GEF would assure the cost effectiveness of its activities in addressing the targeted global environmental issues.

One important feature of adhering to the principle of cost effectiveness is that the least cost means of meeting many global environmental objectives lie in a judicious combination of investment, technical assistance, and policy actions at the national and regional level. Thus, in assessing specific project interventions, the range of possible policy and investment options will need to be carefully reviewed, including their sustainability.

1.06 Principle V: The GEF would fund programs and projects which are country driven and consistent with national priorities designed to support sustainable development.

The costs of incremental action needed to attain global environmental benefits are strongly influenced by existing national policies. In a distorted economy, these costs could be very high. Hence, GEF financing will need to be coordinated with the implementation of appropriate national policies, as well as with development financing.

1.07 Principle VI: The GEF would build on proven institutional structures, such as the partnership among UNDP, UNEP, and the World Bank, thus avoiding the creation of new institutions.

The management of the Facility must be cost-effective, its staffing levels prudent, and its operating modalities efficient.

1.08 Principle VII: The GEF must be transparent and accountable to contributors and beneficiaries alike.

The goal of the GEF is universal membership. The GEF would ensure a broad and equitable representation of developing and developed countries in the governance and guidance of the Facility.

1.09 Principle VIII: The GEF would have sufficient flexibility to introduce modifications as the need arises.

The Participants have communicated to the members of the International Negotiating Committees for the Climate and Biodiversity Conventions that the GEF would be available as the funding mechanism for these conventions, should the Parties so desire. In addition, funding for other existing or prospective global environmental conventions could be assigned to the GEF, where the agreed global environmental benefits and available resources make such coverage appropriate. Consequently, the governance of the GEF would have sufficient internal flexibility to permit a smooth transition towards a GEF with a broader scope of work, if and when needed. Flexibility may also be important for strengthening the involvement of the private sector in the GEF.

ANNEX II: RELEVANT CONVENTION AND AGENDA 21 LANGUAGE

Excerpts From the Biodiversity Convention

Article 20. Financial Resources

1. Each Contracting Party undertakes to provide, in accordance with its capabilities, financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes.
2. The developed country Parties shall provide new and additional financial resources to enable developing country Parties to meet the agreed full incremental costs to them of implementing measures which fulfil the obligations of this Convention and to benefit from its provisions and which costs are agreed between a developing country Party and the institutional structure referred to in Article 21, in accordance with policy, strategy, programme priorities and eligibility criteria and an indicative list of incremental costs established by the Conference of the Parties. Other Parties, including countries undergoing the process of transition to a market economy, may voluntarily assume the obligations of the developed country Parties. For the purpose of this Article, the Conference of the Parties, shall at its first meeting establish a list of developed country Parties and other Parties which voluntarily assume the obligations of the developed country Parties. The Conference of the Parties shall periodically review and if necessary amend the list. Contributions from other countries and sources on a voluntary basis would also be encouraged. The implementation of these commitments shall take into account the need for adequacy, predictability and timely flow of funds and the importance of burden-sharing among the contributing Parties included in the list.
3. The developed country Parties may also provide, and developing country Parties avail themselves of, financial resources related to the implementation of this Convention through bilateral, regional and other multilateral channels.
4. The extent to which developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention related to financial resources and transfer of technology and will take fully into account the fact that economic and social development and eradication of poverty are the first and overriding priorities of the developing country Parties.
5. The Parties shall take full account of the specific needs and special situation of least developed countries in their actions with regard to funding and transfer of technology.
6. The Contracting Parties shall also take into consideration the special conditions resulting from the dependence on, distribution and location of, biological diversity within developing country Parties, in particular small island States.
7. Consideration shall also be given to the special situation of developing countries, including those that are most environmentally vulnerable, such as those with arid and semi-arid zones, coastal and mountainous areas.

Article 21. Financial Mechanism

{NSC-12, Item 4B: The Global Environment Facility}

1. There shall be a mechanism for the provision of financial resources to developing country Parties for purposes of this Convention on a grant or concessional basis the essential elements of which are described in this Article. The mechanism shall function under the authority and guidance of, and be accountable to, the Conference of the Parties for purposes of this Convention. The operations of the mechanism shall be carried out by such institutional structure as may be decided upon by the Conference of the Parties at its first meeting. For purposes of this Convention, the Conference of the Parties shall determine the policy, strategy, programme priorities and eligibility criteria relating to the access to and utilization of such resources. The contributions shall be such as to take into account the need for predictability, adequacy and timely flow of funds referred to in Article 20 in accordance with the amount of resources needed to be decided periodically by the Conference of the Parties and the importance of burden-sharing among the contributing Parties included in the list referred to in Article 20, paragraph 2. Voluntary contributions may also be made by the developed country Parties and by other countries and sources. The mechanism shall operate within a democratic and transparent system of governance.
2. Pursuant to the objectives of this Convention, the Conference of the Parties shall at its first meeting determine the policy, strategy and programme priorities, as well as detailed criteria and guidelines for eligibility for access to and utilization of the financial resources including monitoring and evaluation on a regular basis of such utilization. The Conference of the Parties shall decide on the arrangements to give effect to paragraph 1 above after consultation with the institutional structure entrusted with the operation of the financial mechanism.
3. The Conference of the Parties shall review the effectiveness of the mechanism established under this Article, including the criteria and guidelines referred to in paragraph 2 above, not less than two years after the entry into force of this Convention and thereafter on a regular basis. Based on such review, it shall take appropriate action to improve the effectiveness of the mechanism if necessary.
4. The Contracting Parties shall consider strengthening existing financial institutions to provide financial resources for the conservation and sustainable use of biological diversity.

Article 39. Financial Interim Arrangements

Provided that it has been fully restructured in accordance with the requirements of Article 21, the Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall be the institutional structure referred to in Article 21 on an interim basis, for the period between the entry into force of this Convention and the first meeting of the Conference of the Parties or until the Conference of the Parties decides which institutional structure will be designated in accordance with Article 21.

Excerpts From the Climate Change Convention

ARTICLE 11 FINANCIAL MECHANISM

1. A mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities

{NSC-12, Item 4B: The Global Environment Facility}

and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more existing international entities.

2. The financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governance.

3. The Conference of the Parties and the entity or entities entrusted with the operation of the financial mechanism shall agree upon arrangements to give effect to the above paragraphs, which shall include the following:

- (a) Modalities to ensure that the funded projects to address climate change are in conformity with the policies, programme priorities and eligibility criteria established by the Conference of the Parties;
- (b) Modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria;
- (c) Provision by the entity or entities of regular reports to the Conference of the Parties on its funding operations, which is consistent with the requirement for accountability set out in paragraph 1 above; and
- (d) Determination in a predictable and identifiable manner of the amount of funding necessary and available for the implementation of this Convention and the conditions under which that amount shall be periodically reviewed.

4. The Conference of the Parties shall make arrangements to implement the above mentioned provisions at its first session, reviewing and taking into account the interim arrangements referred to in Article 21, paragraph 3, and shall decide whether these interim arrangements shall be maintained. Within four years thereafter, the Conference of the Parties shall review the financial mechanism and take appropriate measures.

5. The developed country Parties may also provide and developing country Parties avail themselves of, financial resources related to the implementation of the Convention through bilateral, regional and other multilateral channels.

ARTICLE 21 INTERIM ARRANGEMENTS

1. The secretariat functions referred to in Article 8 will be carried out on an interim basis by the secretariat established by the General Assembly of the United Nations in its resolution 45/212 of 21 December 1990, until the completion of the first session of the Conference of the Parties.

2. The head of the interim secretariat referred to in paragraph 1 above will cooperate closely with the Intergovernmental Panel on Climate Change to ensure that the Panel can respond to the need for objective scientific and technical advice. Other relevant scientific bodies could also be consulted.

3. The Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall

{NSC-12, Item 4B: The Global Environment Facility}

be the international entity entrusted with the operation of the financial mechanism referred to in Article 11 on an interim basis. In this connection, the Global Environment Facility should be appropriately restructured and its membership made universal to enable it to fulfil the requirements of Article 11.

Excerpts From Agenda 21

CHAPTER 33

FINANCIAL RESOURCES AND MECHANISMS

33.1. The General Assembly, in resolution 44/228 of 22 December 1989, inter alia, decided that the Conference on Environment and Development should:

Identify ways and means of providing new and additional financial resources, particularly to developing countries, for environmentally sound development programmes and projects in accordance with national development objectives, priorities and plans and to consider ways of effectively monitoring the provision of such new and additional financial resources, particularly to developing countries, so as to enable the international community to take further appropriate action on the basis of accurate and reliable data;

Identify ways and means of providing additional financial resources for measures directed towards solving major environmental problems of global concern and especially of supporting those countries, in particular developing countries, for which the implementation of such measures would entail a special or abnormal burden, owing, in particular, to their lack of financial resources, expertise or technical capacity;

Consider various funding mechanisms, including voluntary ones, and to examine the possibility of a special international fund and other innovative approaches, with a view to ensuring, on a favorable basis, the most effective and expeditious transfer of environmentally sound technologies to developing countries;

Quantify the financial requirements for the successful implementation of Conference decisions and recommendations and identify possible sources, including innovative ones, of additional resources.

33.16. Funding for Agenda 21 and other outcomes of the Conference should be provided in a way which maximizes the availability of new and additional resources and which uses all available funding sources and mechanisms. These include, among others:

- (a) The multilateral development banks and funds:
- (i) International Development Association (IDA). Among various issues and options that IDA Deputies will examine in the forthcoming 10th Replenishment, special consideration should be given to the statement made by the President of the International Bank for Reconstruction and

Development at the Conference in plenary meeting in order to help the poorest countries meet their sustainable development objectives as contained in Agenda 21.

- (ii) Regional and sub-regional development banks. The regional and sub-regional development banks and funds should play an increased and more effective role in providing resources on concessional or other favorable terms needed to implement Agenda 21.
- (iii) The Global Environment Facility, managed jointly by the World Bank, UNDP and UNEP, whose additional grant and concessional funding is designed to achieve global environmental benefits should cover the agreed incremental costs of relevant activities under Agenda 21, in particular for developing countries. Therefore, it should be restructured so as to inter alia:

Encourage universal participation;

Have sufficient flexibility to expand its scope and coverage to relevant programme areas of Agenda 21, with global environmental benefits, as agreed;

Ensure a governance that is transparent and democratic in nature, including in terms of decision-making and operations, by guaranteeing a balanced and equitable representation of the interests of developing countries, as well as giving due weight to the funding efforts of donor countries;

Ensure new and additional financial resources on grant and concessional terms, in particular to developing countries;

Ensure predictability in the flow of funds by contributions from developed countries, taking into account the importance of equitable burden-sharing;

Ensure access to and disbursement of the funds under mutually agreed criteria without introducing new forms of conditionality;

- (b) The relevant specialized agencies, other United Nations bodies and other international organizations, which have designated roles to play in supporting national Governments in implementing Agenda 21;

- (c) Multilateral institutions for capacity-building and technical cooperation. Necessary financial resources should be provided to UNDP to use its network of field offices and its broad mandate and experience in the field of technical cooperation for facilitating capacity-building at the country level, making full use of the expertise of the specialized agencies and other United Nations bodies within their respective areas of competence, in particular UNEP and including the multilateral and regional development banks;

- (d) Bilateral assistance programmes. These will need to be strengthened in order to promote sustainable development;

- (e) Debt relief. It is important to achieve durable solutions to the debt problems of low- and middle-income developing countries in order to provide them with the needed means for sustainable development. Measures to address the continuing debt problems of low- and middle-income countries should be kept under review. All creditors in the Paris Club should promptly implement the agreement

of December 1991 to provide debt relief for the poorest heavily indebted countries pursuing structural adjustment; debt relief measures should be kept under review so as to address the continuing difficulties of those countries;

(f) Private funding. Voluntary contributions through non-governmental channels, which have been running at about 10 per cent of ODA, might be increased.

33.20. The secretariat of the Conference has estimated the average annual costs (1993-2000) of implementing in developing countries the activities in Agenda 21 to be over \$600 billion, including about \$125 billion on grant or concessional terms from the international community. These are indicative and order of magnitude estimates only, and have not been reviewed by Governments. Actual costs will depend upon, inter alia, the specific strategies and programmes Governments decide upon for implementation.

*Environment
Climate Change - background paper*

Draft

CO2 Hedging Strategies -- the Impact of Uncertainty
Upon Emissions

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April 1993

Prepared for the OECD/IEA Conference on the Economics of Climate Change, Paris, June 14-16, 1993. This research was funded by the Electric Power Research Institute (EPRI). The views presented here are solely those of the individual authors, and do not necessarily represent the views of EPRI or its members. We are indebted to Timothy Olsen for research assistance.

1. Introduction

In the greenhouse debate, a central role is often played by a "baseline" or business-as-usual scenario. This describes how emissions might evolve in the absence of carbon constraints. By indicating how much carbon will be deposited in the atmosphere if emissions continue unabated, the baseline provides a point of reference for evaluating the efficacy of strategies to limit emissions.

The Energy Modeling Forum (1993) recently compared baseline projections from several prominent energy models. Although the models differ in a number of aspects they share one important feature. They all employ deterministic approaches. That is, the analyses proceed as if all uncertainty is resolved prior to decision making. To the extent that uncertainty is addressed, it is through sensitivity analysis.

When applying a deterministic approach to calculating the business-as-usual scenario, one assumes that technology choices are made without consideration of the ongoing greenhouse debate. It is as if decision makers know, once and for all, that carbon emissions will remain unconstrained.

This may have been a reasonable view a decade ago when the greenhouse effect was a purely scientific issue. The situation, however, is quite different today. Investors are well aware of the possibility of a carbon constraint. Given the long-lived nature of energy investments, the threat of emission limits can impact their choice of technologies.

Today, business as usual means developing an effective hedging strategy in the face of climate-related uncertainties. In the absence of assurances that no constraint will be imposed, investors are likely to opt for a less carbon-intensive supply and demand-side mix. The degree of precautionary action will depend on the likelihood they assign to future emission limits. The higher the probability of a constraint, the greater will be the incentive to invest in less carbon-intensive alternatives.

In this paper, we examine the extent to which current approaches to estimating the baseline may overestimate emissions – at least for those periods in which there is still uncertainty concerning the imposition of a carbon constraint. We present an alternative approach which accounts for anticipatory behavior on the part of energy investors. Decision making is modeled as a sequential process with opportunities for hedging, learning and midcourse adjustments. The approach is used to examine the impact of uncertainty on near-term emissions.

The proposed framework is also useful for exploring an important issue related to the credibility of long-term economic models in general. The greenhouse debate often encompasses exceptionally long time horizons. This is certainly the case when it comes to the costs and benefits of alternative avoidance, mitigation and adaptation strategies. Some have questioned the usefulness of quantitative models for such analyses given the difficulty of modeling economic activity beyond a decade or two.

This concern may be less troublesome than it appears at first. Decision makers are not being called upon to make decisions today for the next century. Decision making is an ongoing process of act - then learn. If we find that we are off course, there will be an opportunity for adjustments. The real issue is the sensitivity of today's decisions to the long-term uncertainties. The approach put forward in this paper provides a useful framework for examining this question. By incorporating the opportunity for learning, we can examine the impact of uncertainty on current and future investment decisions.

2. A Framework for Dealing with Uncertainty

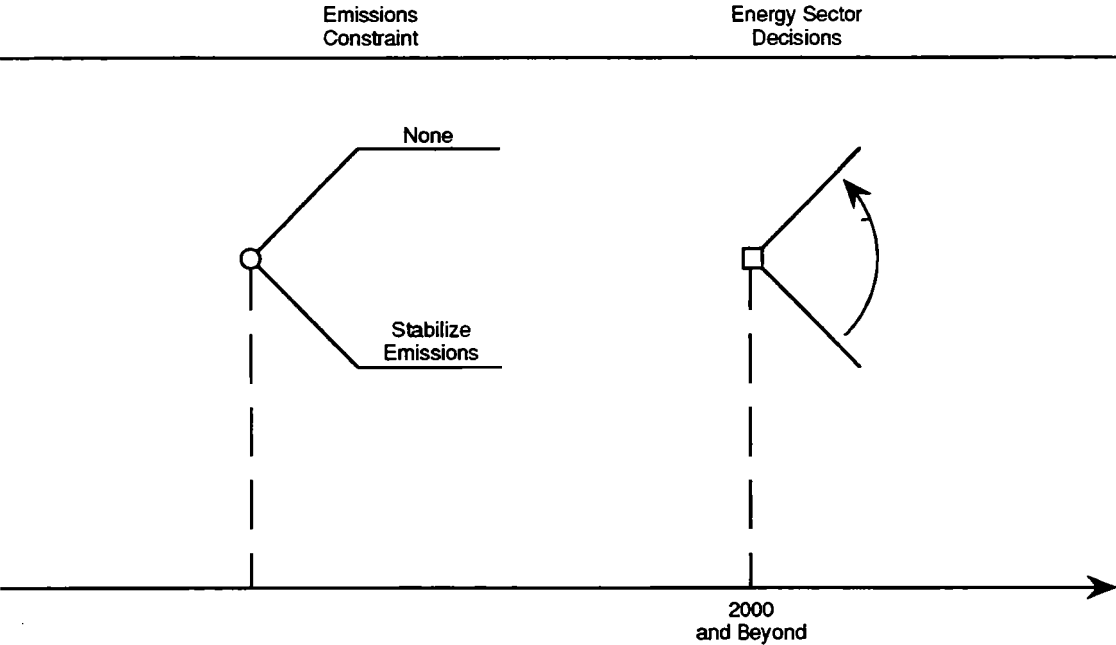
The analysis is based on two alternative formulations of the Global 2100 model. In the one case, uncertainty is treated only indirectly through sensitivity analysis. In the other, it is incorporated explicitly into the model formulation. In both cases, the model employs a "look ahead" rather than a recursive methodology. For a description of the model and its underlying database, see Manne and Richels (1992).

Deterministic models assume that all uncertainties are resolved prior to decision making. The analysis proceeds as if we had the opportunity to learn the state of the world *before* taking action. Figure 1a shows the decision tree for this "learn - then act" characterization of the decision problem. A circle denotes a chance node -- a point at which uncertainty is resolved. A square denotes a decision node -- a point at which actions are required.

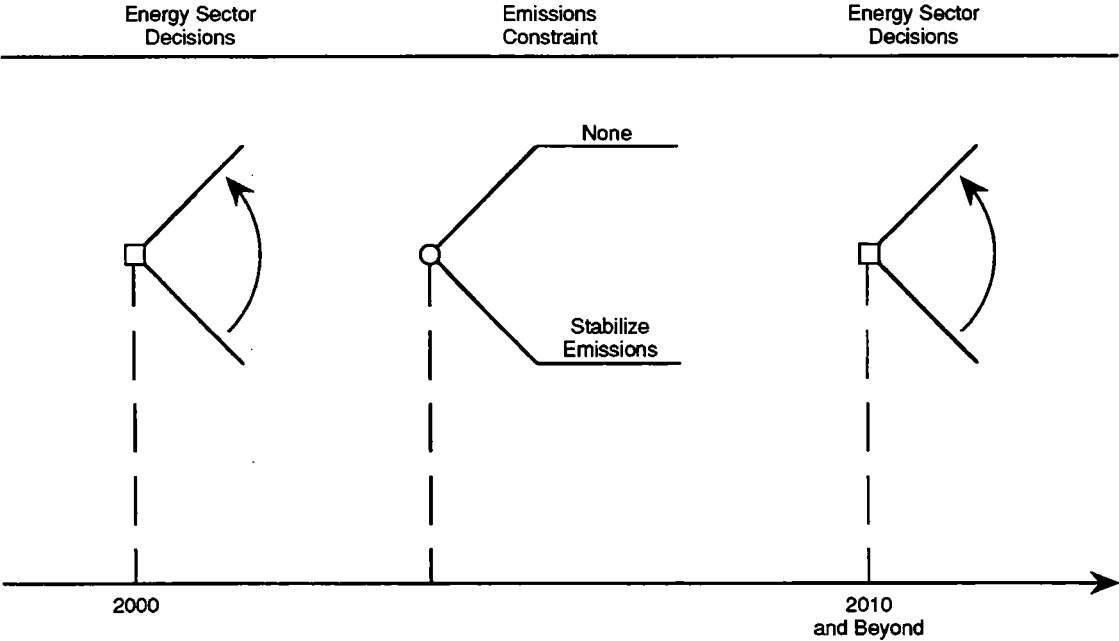
Some studies have attempted to characterize the uncertainty surrounding future emissions by placing likelihoods on scenarios and constructing probability distributions for future emissions (Nordhaus and Yohe 1983, Edmonds and Reilly 1986, and Manne and Richels 1993). Although these studies characterize the uncertainty across scenarios, they ignore the uncertainty *within* scenarios. Each scenario is evaluated as if all uncertainty were resolved prior to decision making. In this sense, these studies are still deterministic.

Figure 1b indicates the basic structure that underlies the introduction of uncertainty into Global 2100. It is characterized by the phrase "act - then learn." Decisions are taken at discrete points in time separated by intervals of one decade. Prior to 2010, the energy sector's supply and demand decisions must be made under uncertainty about the imposition of a carbon constraint. From 2010 onward, decisions will be made *after* the resolution of uncertainty.

Figure 1. Alternative Characterizations of Decision Problem



a) Learn - Then Act



b) Act - Then Learn

In order to introduce uncertainty into the model, a state-of-world (SOW) subscript is attached to each of the original decision variables and constraints. During the initial period (2000), the decision variables must take on identical values for both SOW, but during the subsequent periods (from 2010 on), they may take on different values, depending on the magnitude of the carbon constraint.

Figure 1 shows two long-term possibilities regarding a carbon constraint: emissions will remain unconstrained, or they are to be stabilized at 1990 levels beginning in 2010. Under learn - then act, we know the true state-of-world prior to having to make energy sector investment decisions. Under act - then learn, we make the decisions for 2000 without knowing which of these two states will occur. We must therefore select an optimal hedging policy for the near-term emissions level. This policy will depend on the probabilities assigned to alternative outcomes.

Clearly, the imposition of a carbon constraint is not the sole uncertainty facing energy sector decision makers. There are a number of other highly uncertain parameters. These include economic growth, the rate of price induced and non-price conservation, technical progress, etc. We begin, by assuming that the values for these parameters are known with certainty and adopt the 50th percentile values from a recent expert survey (Manne and Richels 1993). Later on, we will explore the sensitivity of the hedging strategy to the longer-term uncertainties.

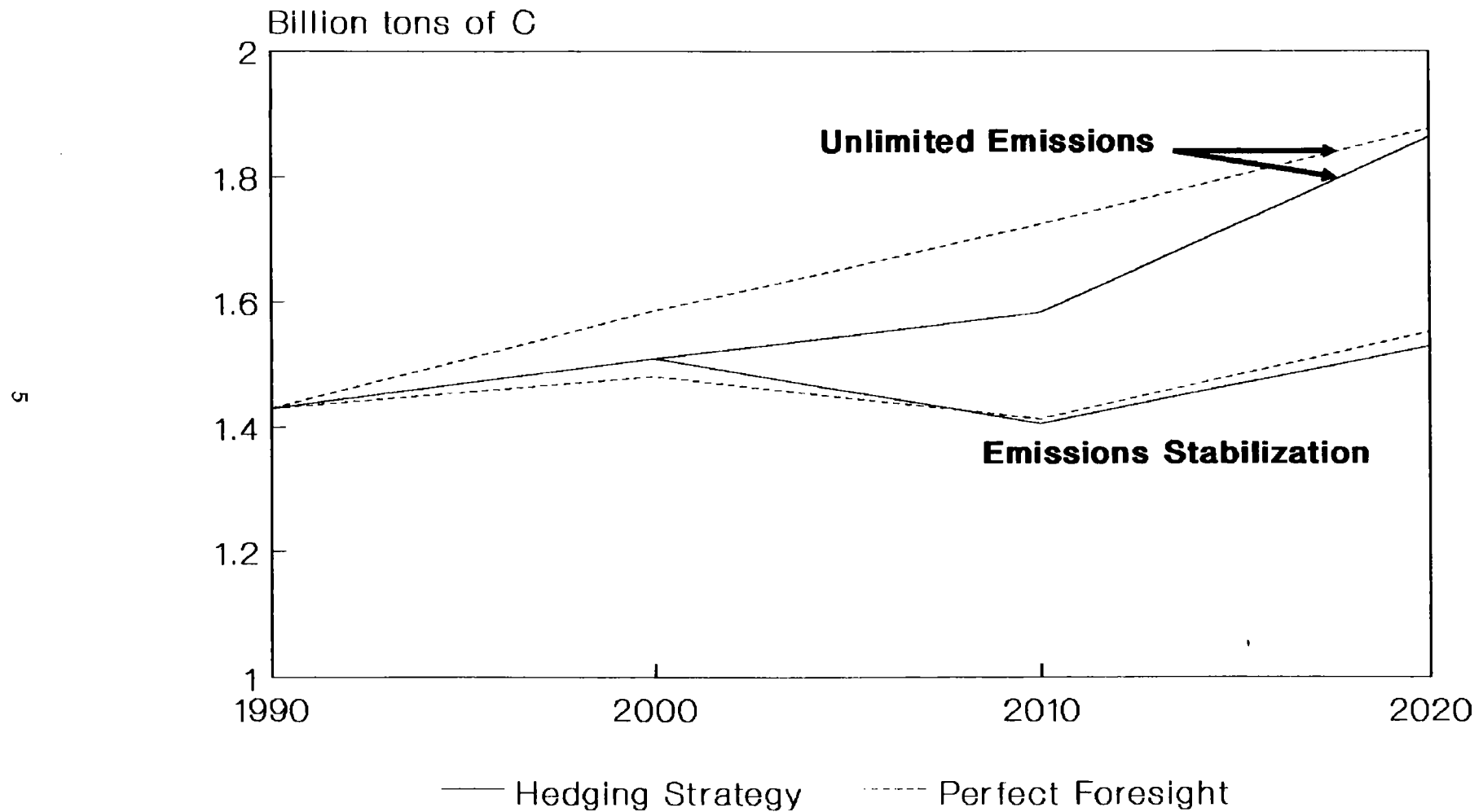
3. Alternative Emission Projections for the U.S.

Figure 2 compares U.S. carbon emissions under the two approaches: learn - then act versus act - then learn. Along the dashed lines, we make decisions for 2000 in full knowledge of whether or not the emissions constraint will be imposed. The upper dashed line shows the path commonly termed the business-as-usual or baseline emissions path. It is the path that would be selected if we were certain that emissions will remain unconstrained.

The lower dashed line shows the optimal path when we are told today that it will be necessary to stabilize emissions at 1990 levels by 2010. Interestingly, we choose to reduce emissions in 2000 even though the constraint does not take effect until 2010. This happens for two reasons. First, we allow for the possibility that carbon emission rights may remain unused during one period, but may be carried over for use at a later date. Hence, energy suppliers receive credit for voluntary reductions in 2000. To the extent that emission rights are more valuable in subsequent periods, there is an incentive to reduce emissions early on.

It should be noted that the two dashed lines would differ in 2000 even in the absence of intertemporal trading of emissions rights. If investors are certain that a carbon constraint will be imposed, they will opt for a less carbon-intensive energy system.

Figure 2. U.S. Carbon Emissions



Given the long-lived nature of energy supply and conservation investments, they will begin moving well in advance of the date that the constraint is actually scheduled to take effect.

For this illustration, we have assumed that there is a fifty-fifty chance that there will be a political consensus on stabilizing emissions. The solid lines show what happens when the outcome remains unknown through 2000. In this case, the carbon emissions paths do not diverge until after the turn of the century. The hedging strategy consists of adopting an emissions level that lies between the two extreme cases shown along the dashed lines.

It is not surprising that the hedging strategy results in lower near-term emissions than would occur if we were certain that emissions will remain unconstrained. If decision makers are uncertain as to whether or not a carbon constraint will be imposed, they are likely to hedge their bets and select a mix of supply and demand-side options that is somewhat less carbon intensive.

Figure 3 compares the composition of the electric sector in 2000 for the upper dashed line and the solid line. At the margin, the tradeoffs are between investments in new coal-fired power plants and in conservation through demand-side management (DSM). The hedging strategy entails more DSM than would be economically justifiable if we were certain that emissions will continue to be unconstrained. Figure 4 provides the corresponding comparison for the nonelectric sector. The tradeoff here is between imported oil and renewables.

As a result of the hedging strategy, emissions for the year 2000 are only 5.5% higher than they were in 1990. This compares to an 11% increase for the baseline scenario (upper dashed line). Hence, ignoring the possible impact of uncertainty on investment decisions can lead to an upward bias in estimating the growth in emissions -- at least during the next few decades. Once uncertainty is resolved, however, the paths converge.

It should be noted that this emissions reduction comes at a cost. The hedging strategy entails investments that make sense only because of the threat of a carbon constraint. According to our calculations, the incremental costs could be of the order of several billions of dollars annually.

There is another characteristic of the hedging strategy that should be noted. Regardless of the outcome, we will find ourselves somewhat off course. If it turns out that emissions remain unconstrained, we will have invested too heavily in carbon-free alternatives. On the other hand, if stabilization is eventually deemed necessary, we will wish that we had spent more on conservation and renewables. The solid line represents the appropriate investment strategy in the face of 50-50 uncertainty. It minimizes the expected costs of being off course.

Figure 3. U.S. Electric Sector Comparison for the Year 2000

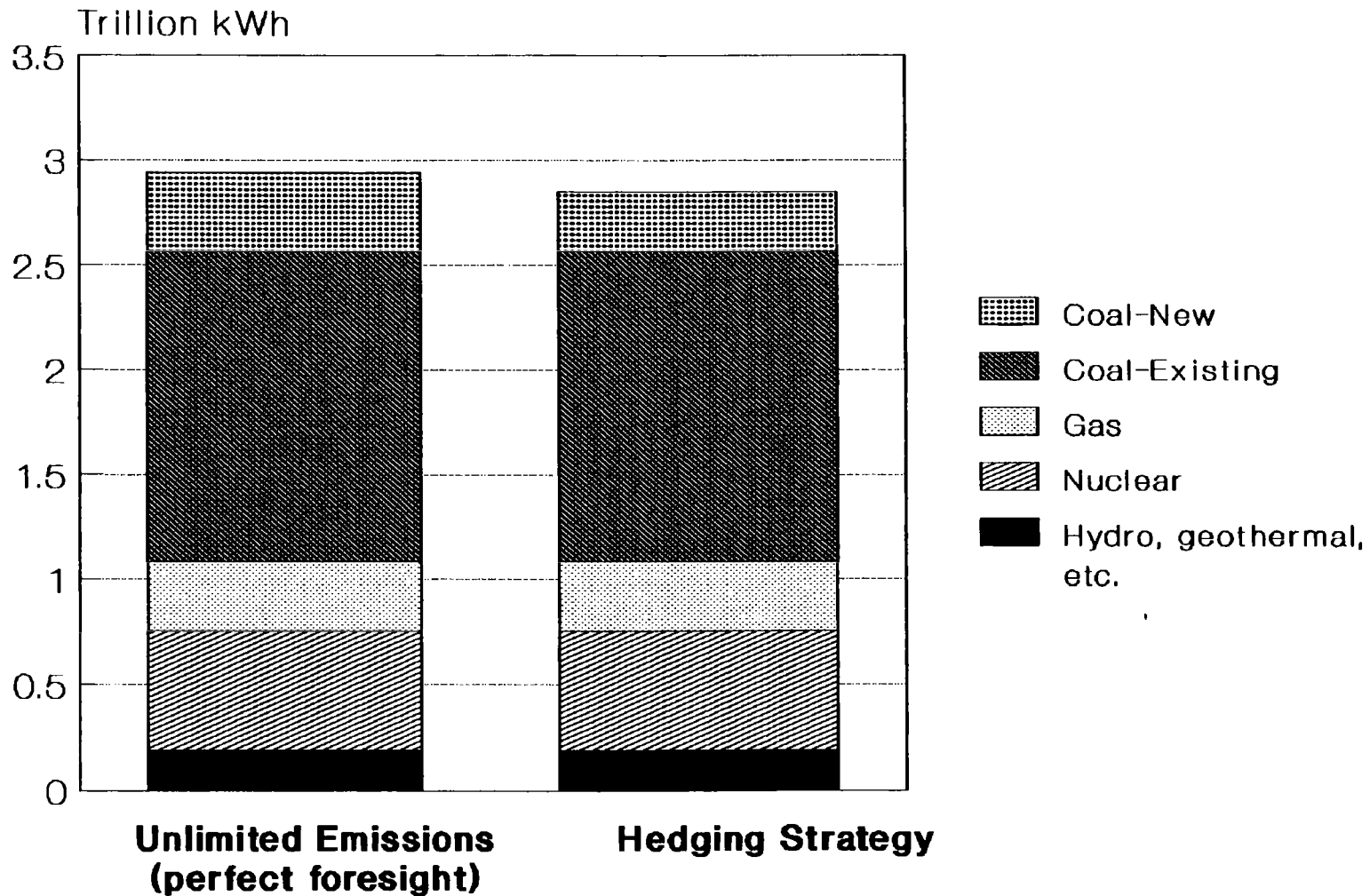
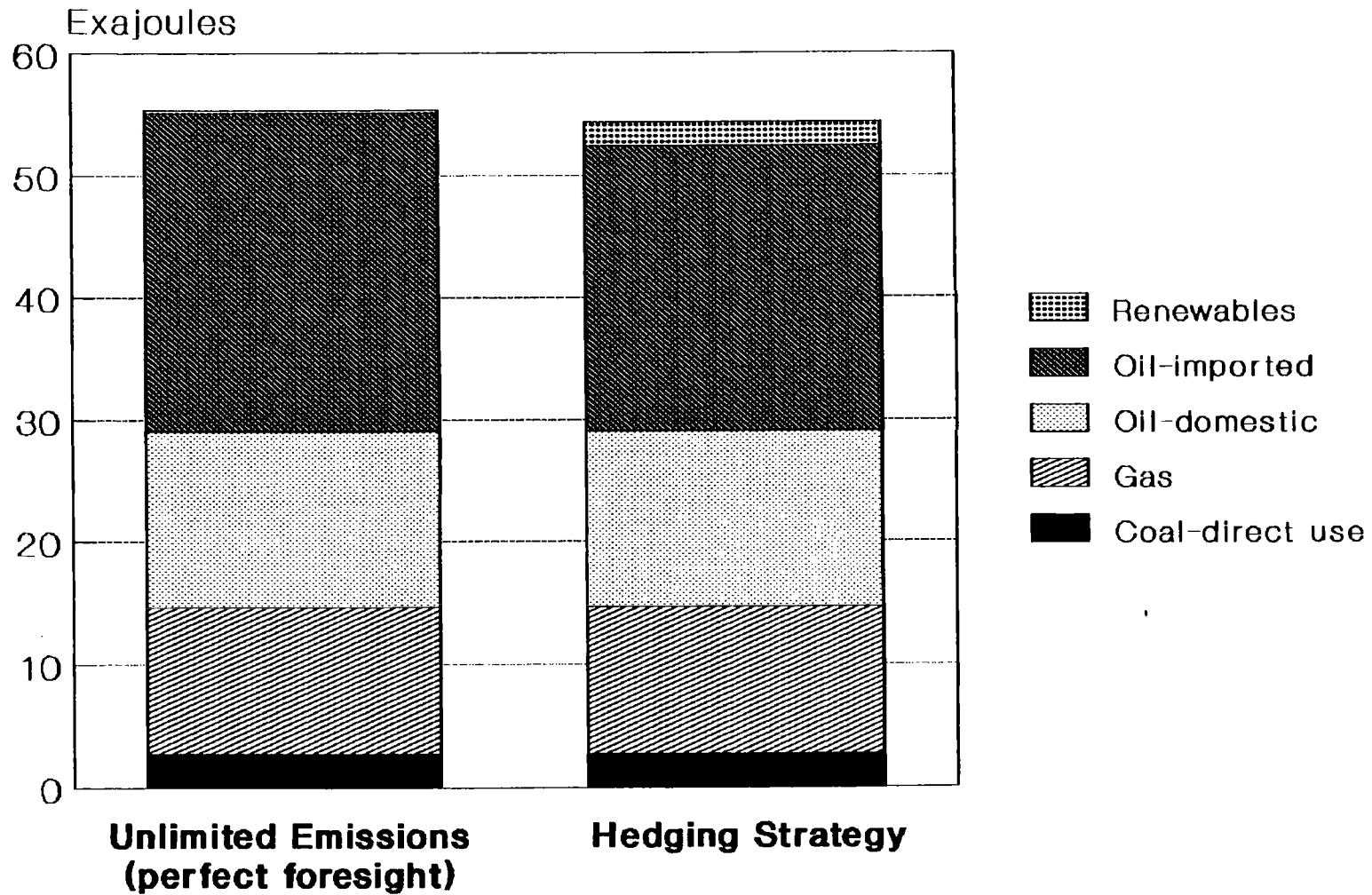


Figure 4. U.S. Nonelectric Sector Comparison for the Year 2000



Deterministic models ignore the possibility of hedging behavior on the part of energy sector investors. They assume that we will be able to chart the right course of action from the outset. To the extent that uncertainty results in the need for midcourse adjustments, deterministic models are apt to underestimate the costs of meeting a particular target.

The analysis also has some implications for the debate over carbon taxes. The purpose of such taxes is to raise the price of carbon-intensive fuels sufficiently to achieve the desired emissions target. The higher the tax, the greater the investment in price-induced conservation and the more fuel switching towards less carbon-intensive fuels. Figures 3 and 4 suggest that uncertainty regarding the future imposition of a carbon constraint leads to similar behavior in the electric and nonelectric sectors. That is, it induces increased investment in conservation and renewables.

This implies that technology choice decisions are being made as if there were an implicit tax on carbon. According to our calculations, in this example, energy sector decision makers are acting as though a carbon tax of \$17.50 per ton were already in place.

4. Some Sensitivity Analyses

For the previous calculations, we assumed that there is a fifty-fifty chance that we will be required to stabilize emissions by 2010. Otherwise, emissions continue unconstrained. Figure 5 shows the level of precautionary reductions in 2000 as a function of the likelihood of stabilization.

The extreme points on the horizontal axis (0 and 1) correspond to the two learn - then act scenarios. When the probability is zero, we are certain that emissions will remain unconstrained. Conversely, when the probability is one, we are certain that a constraint will be imposed. As we would expect, the degree of precautionary action increases with the likelihood that stabilization will be required.

Figure 6 shows the corresponding analysis for the implicit tax on carbon. If the likelihood of stabilization is zero, there will be no precautionary actions. In this case, decision makers behave as if the tax on carbon-based fuels is zero. The higher the degree of precautionary action, the higher the implicit tax.

It is also instructive to look at the uncertainty regarding eventual goals for reduction. So far, we have assumed that the target will be completely determined by 2010. Figure 7 may provide a more realistic representation of the decision problem. Here, uncertainty about the nature of the carbon constraint is resolved in two stages.

The decision tree in figure 7 describes the sequence of decisions and resolution of uncertainty. As before, the energy sector's initial supply and demand decisions must be made under uncertainty about the imposition of a carbon constraint. But now

**Figure 5. Reduction Below
U.S. "Business As Usual" in 2000**

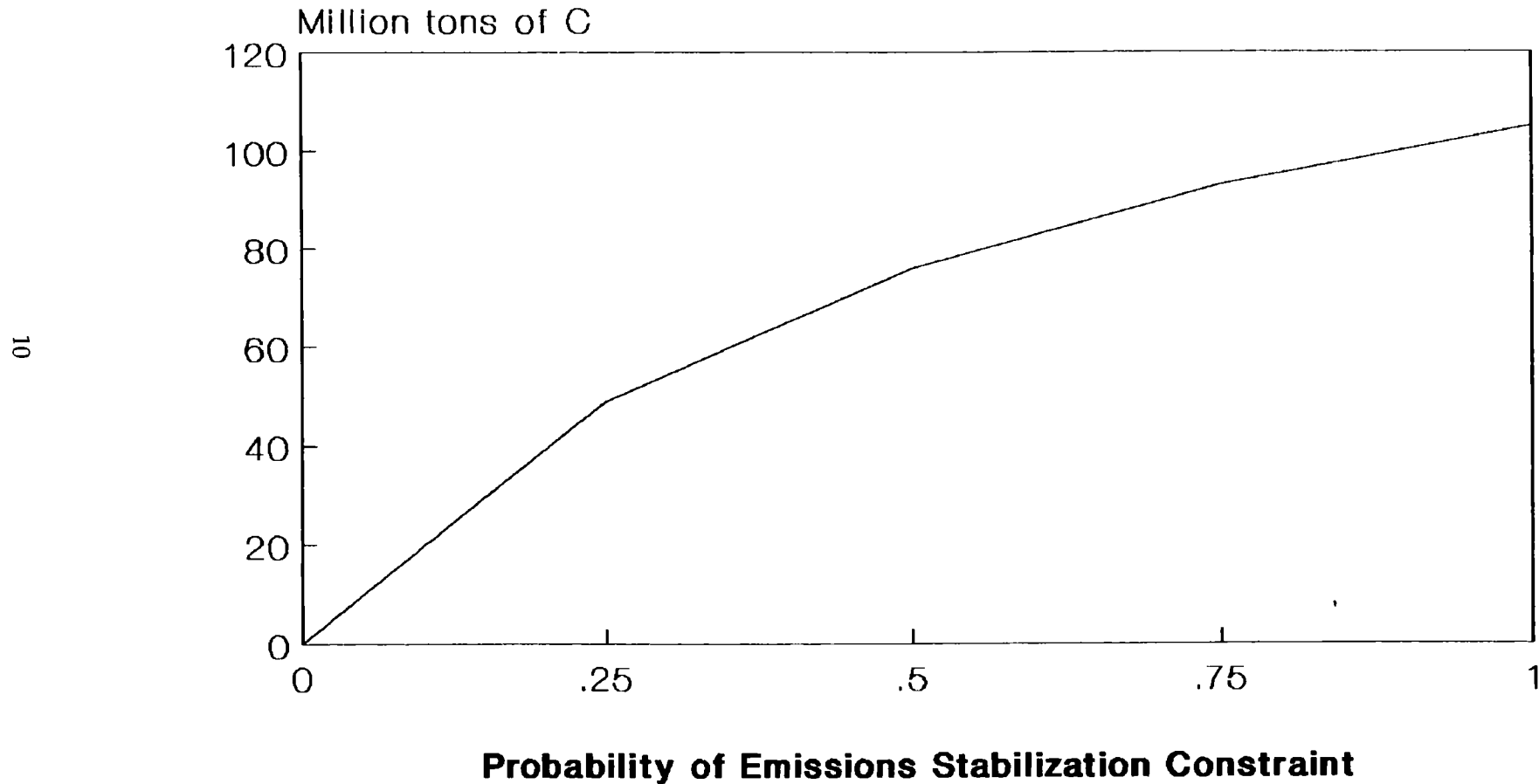


Figure 6. Implicit Tax on Carbon in 2000

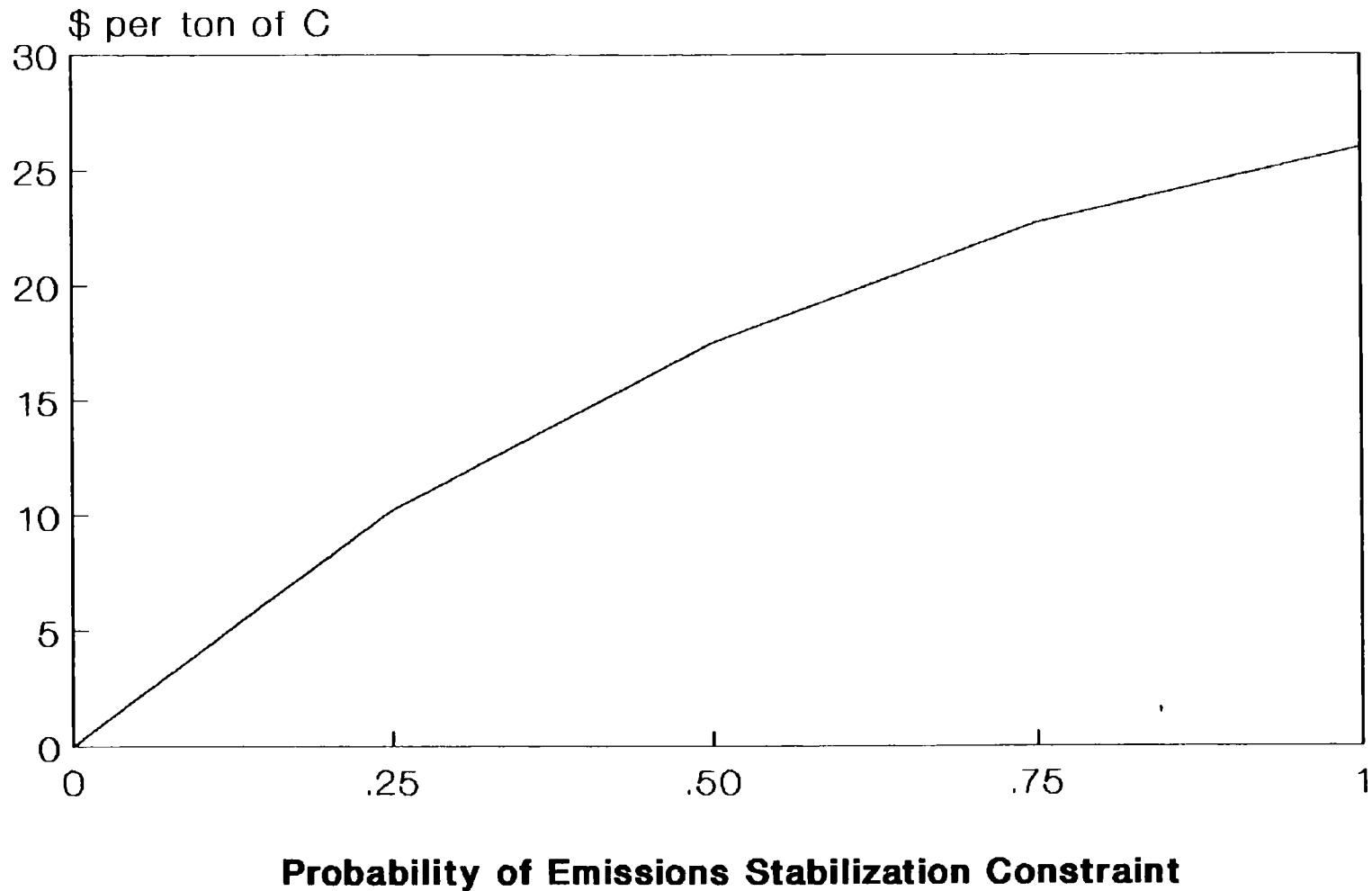


Figure 7. Decision Tree for Two-Stage Resolution of Uncertainty

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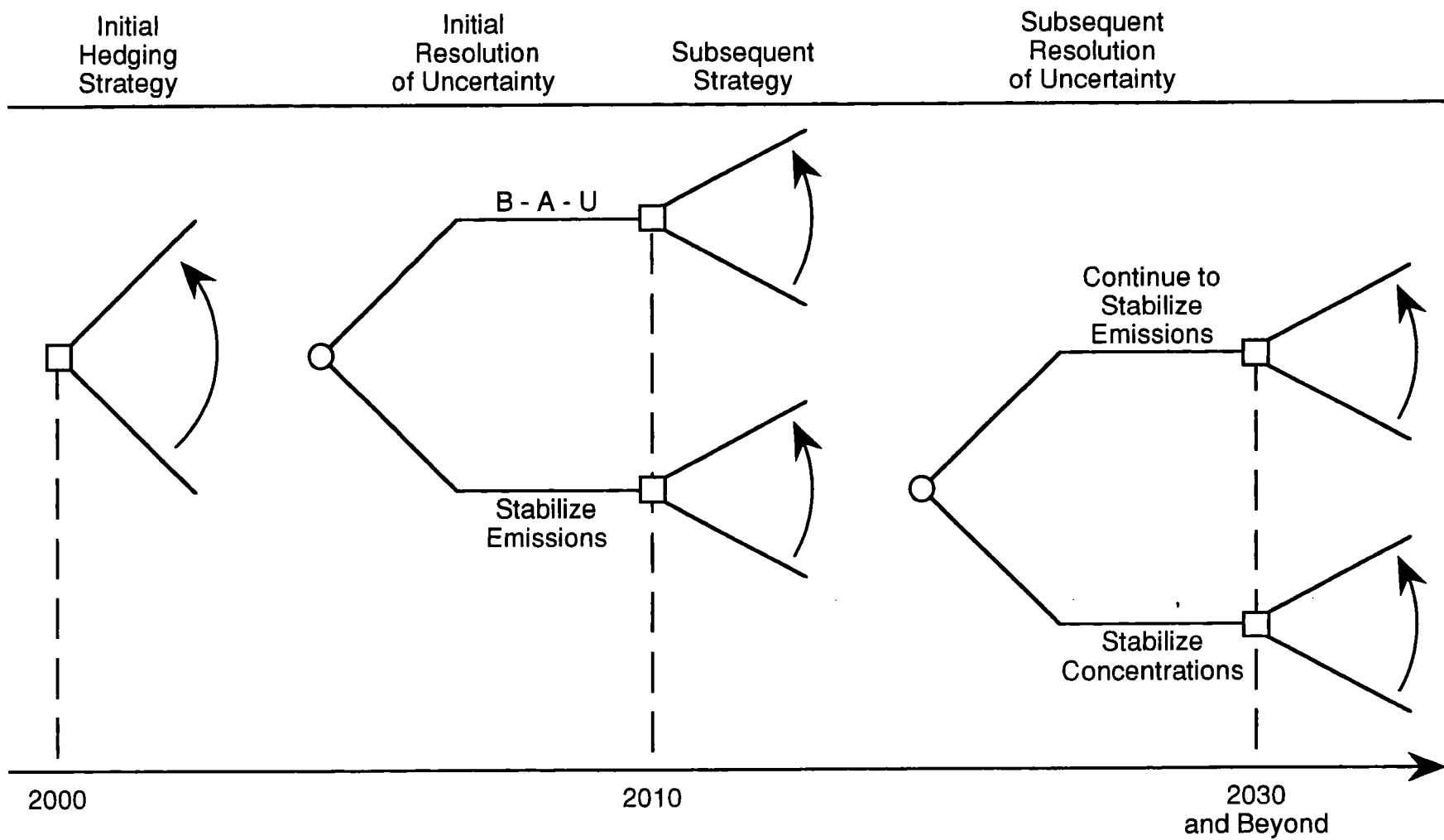
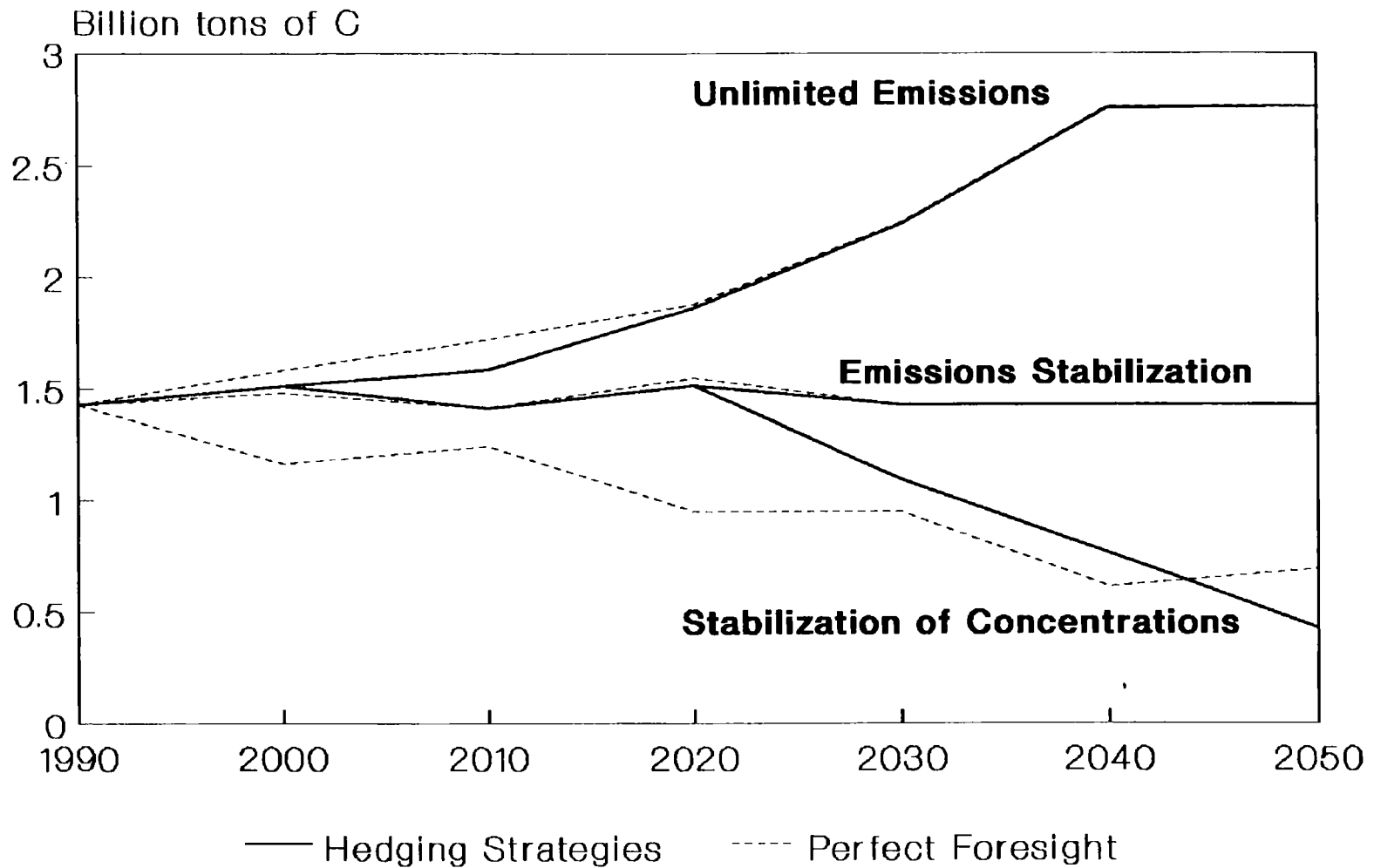


Figure 8. U.S. Carbon Emissions



investors may have to contend with a second uncertainty -- the ultimate goal. If a constraint is imposed, they must wait until 2030 to find out whether the final target is stabilizing *emissions* or the more ambitious goal of stabilizing atmospheric *concentrations*. In the latter case, U.S. emissions are gradually tightened to 30 percent of 1990 emissions by 2050. According to Houghton et al (1992), a reduction of this magnitude would be required to stabilize atmospheric concentrations of CO₂.

For example, suppose that there is a fifty-fifty change of a carbon constraint. Further suppose that if a constraint is imposed, there is only one chance in five that the ultimate target will be stabilizing concentrations. Otherwise, we will continue to stabilize emissions. Figure 8 provides a comparison between the optimal emissions paths under learn - then act and act - then learn.

Among the dashed lines, we make decisions for 2000 in full knowledge of whether an emissions constraint will be imposed and, if so, the ultimate target. The upper and middle dashed lines are identical to those reported earlier. The lower dashed line is for the case in which emissions are initially reduced to 1990 levels by 2010 and further reduced to 30 percent of 1990 levels by 2050.

The solid lines, in effect, show two hedging strategies. The first is through 2000. During this period, it is unclear as to whether any carbon constraint will be imposed. If we learn that emissions are to be constrained, we launch into a second hedging strategy. Once we learn the final target, emissions either remain stabilized or are reduced an additional 70 percent.

Interestingly, the initial hedging strategy is almost identical to that reported earlier in this paper. That is, the long-term uncertainty regarding the ultimate target has little effect on near-term decisions. We see a similar result when the conditional probability of having to stabilize concentrations is raised to .50. This is because we assume that the timetable for achieving the long-term target is 2050. Hence, there is ample time for the transition.

5. Sensitivity of Today's Decisions to Long-Term Uncertainties

This discussion raises an important issue. Just how sensitive are today's decisions to the future character of the energy system? Much of the economic analysis needed for the greenhouse debate encompasses exceptionally long time horizons -- often a century or longer. Assumptions are required about a number of factors that are inherently uncertain, e.g., economic growth, energy intensity, technical progress, etc. Critics point to the difficulty of projecting economic activity into the next decade and question the credibility of the longer-term analyses.

This concern may not be as troublesome as it seems initially. Decision makers are not being called upon to make decisions for the next one hundred years. Decision making is a sequential process, with many opportunities for learning. The real issue is the sensitivity of today's decisions to these longer-term uncertainties. The approach put forward in this paper provides a conceptual framework for addressing this question.

We have already seen that the initial hedging strategy is sensitive to the possibility of a carbon constraint in 2010. The higher the likelihood of having to stabilize emissions, the higher the degree of precautionary action. Near-term emissions, however, do not seem highly sensitive to the level of the carbon constraint beyond 2020.

But what about other long-term uncertainties? How important is it to know what energy demands will be in thirty years? Or to identify the technologies that will be in place to meet those demands? An exhaustive analysis of these questions is beyond the scope of this paper, but considerable insight can be gleaned from a few examples.

We begin with a highly controversial demand-side parameter: the rate of *Autonomous* energy efficiency improvements (AEEI). Non-price efficiency improvements may be brought about by deliberate changes in public policy, e.g., speed limits for automobiles. Energy consumption may also decline as a result of shifts in the basic economic mix away from manufactured goods and toward more services. Thus, the AEEI summarizes all sources of reductions in the economy-wide energy intensity per unit of output. Based on our expert elicitation, the previous calculations employ an AEEI of .70.

To explore the impact of the long-term AEEI value on today's decisions, we focused on the AEEI for the year 2020 and beyond. The sensitivity analysis explored values which were 50% lower and 100% higher than those employed in the earlier analysis. As it turns out, the optimal hedging strategy for 2000 is insensitive to assumptions about the long-term rate of autonomous energy efficiency improvements -- at least within the range considered here.

We see the same phenomenon with regard to the supply side. A great deal of discussion has been devoted to the cost of the nonelectric backstop. This represents the cost of a long-term carbon-free alternative to conventional oil and coal-based synthetic fuels. For the previous calculations, we assumed that the nonelectric backstop becomes available in 2020 at a cost of approximately \$80 per barrel. The hedging strategy for 2000 turns out to be insensitive to assumptions about the cost of the nonelectric backstop. Emissions for 2000 are essentially the same for a backstop costing anything between \$40 and \$120 per barrel.

This is not to say that information regarding these two parameters will be unimportant to *future* decisions. It obviously will. But such information is of little value to *today's* decisions.

These results have important implications for long-term energy system modeling. We need not be overly concerned with our inability to predict the detailed character of the energy system several decades into the future. Uncertainty is important only to the extent that it confounds near-term decision making. Today's decisions appear to be relatively insensitive to some of the more controversial longer-term uncertainties in the greenhouse debate.

6. Conclusions

This paper examines how deterministic approaches to modeling the emissions baseline are apt to overestimate carbon emissions -- at least in those periods in which there is still uncertainty over the imposition of a carbon constraint. The problem lies with the definition of business as usual. When calculating the baseline, deterministic models assume that investors know, once and for all, that emissions will continue unconstrained.

This may have been an appropriate definition of business as usual in the past when investors assigned negligible probability to a carbon constraint. Today the situation is quite different. The need to reduce emissions is being hotly debated both domestically and internationally. Until this issue is resolved, investors are apt to hedge their bets and opt for a less carbon-intensive mix of supply and demand-side alternatives.

The approach put forward in this paper takes account of anticipatory behavior on the part of energy sector decision makers. We show how even the threat of a carbon constraint can reduce the rate of growth in emissions. The higher the probability one assigns to a constraint, the greater the optimal degree of precautionary action.

The analysis also shows that the emission reductions will be costly. The hedging strategy entails investments that make sense only because of the risk of a carbon constraint. In particular, we are likely to see more investment in conservation and renewables than would otherwise be warranted.

Whereas deterministic approaches may overstate emissions, they may also understate costs. The perfect foresight assumption implies that we are able to chart the ideal course of action for the energy sector from the start. This is not the case. Greenhouse decision making is apt to be a sequential process with learning and with midcourse corrections. Analyses which ignore the "act - then learn" nature of the decision process are likely to underestimate the costs of meeting a particular target.

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Figure 2. U.S. Carbon Emissions

