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Folder Title:
Environment: Climate Change Vol. II [1]

Stack:	Row:	Section:	Shelf:	Position:
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Vtg w/ Don Tanello, 11/13/96
by Kay Prince

MATRIX SCENARIO

EMISSIONS TARGETS/EFFECTS

(Per ton carbon tax, changes in GDP and prices
of gasoline and electricity by 2010)

10% ABOVE 1990 LEVELS	1990 LEVELS	10% BELOW 1990 LEVELS
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PERMIT TRADING

No Intl trading

Estimates which do not account for international leakages

US target only	1- Gaskins	2- Gaskins, DRI and Shakelton	3- Gaskins
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Estimates which do account for international leakages

Annex I targets only	4-	5- Walker	6- Walker
Targets for all nations	7-	8- Bagnoli	9- Whalley and Wigle

Annex I trading

Annex I targets only	10-	11-	12-
Targets for all nations	13-	14-	15-

World trading

Targets for all nations	16-	17-	18- Whalley and Wigle
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RANGE OF ESTIMATES FOR SCENARIOS

Estimates which do not account for international leakages

(1)	(2)	(3)
\$15-125 carbon tax	\$25-150 carbon tax	\$40-200 carbon tax
0.075-0.25% GDP decline	0.50-0.75% GDP decline	0.60-1.20% GDP decline
gasoline up 6-46 cents/gal*	gasoline up 9-56 cents/gal*	gasoline up 15-74 cents/gal*
electricity up 1-8 cents/kwh	electricity up 2-10 cents/kwh*	electricity up 3-14 cents/kwh*

Estimates which do account for international leakages

(4)	(5)	(6)
	\$90 carbon tax	\$225 carbon tax
	0.80% decline in GDP	1.1% decline in GDP
	gasoline up 20%	gasoline up 100%
	electricity up 6 cents/kwh*	electricity up 15 cents/kwh*

(7)	(8)	(9)
	\$45 carbon tax	\$90 carbon tax
	GDP growth 2.2% per annum (no baseline GDP provided)	0.9% decline in GDP
	gasoline up 17 cents/gal*	gasoline up 33 cents/gal*
	electricity up 3 cents/kwh*	electricity up 6 cents/kwh*

(10)	(11)	(12)
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(13)	(14)	(15)
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(16)	(17)	(18)
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\$88 carbon tax
0.4% decline in GDP
gasoline up 15 cents/gal*
electricity up 3 cents/kwh*

=====

Note: Gaskins reports results from the CRTM, OECD, FOSSIL 12, ERM, DWC, DGEM, Goulder, Global 2100 models

Shakelton reports results from the DRI, LINK, Jorgenson and Goulder models

Walker used the Oxford model

Bagnoli use the G-cubed model

Whalley and Wigle used their own CGE model

* CEA estimate

Year 1994

	Y log of total energy consumption	X1 log of price of elec households pg.331	X2 log of price of gasoline	X3 Land area per capita (IN SQ. KM)	X4 log of gdp
U.S.	7.2264	6.8842	-1.22418	0.0377	8.802342
Japan	5.8188	7.9729	0.1441	0.0030	8.431635
Germany	5.4903	7.6363	-0.0141	0.0044	7.623642
France	5.0656	7.4642	0.01094	0.0094	7.191429
UK	5.0606	7.2640	-0.13811	0.0041	6.927068
Italy	4.7879	7.5533	0.04879	0.0053	6.925399
Canada	5.1516	6.5396	-0.95711	0.3448	6.298949
Australia	4.1625	6.8075	-0.70928	0.4348	5.775793
Austria	3.1398	7.5677	-0.13926	0.0104	5.288772
Belgium	3.6270	7.6224	0.019803	0.0030	5.428907
Denmark	2.7187	7.6488	-0.14272	0.0083	4.98839
Greece	2.7466	7.0510	-0.18874	0.0127	4.560173
Ireland	2.1138	7.2667	-0.11541	0.0192	3.951244
Luxembour	1.2782	7.2446	-0.27839	0.0064	2.639057
Mexico	4.6001	6.6692	-0.93649	0.0211	5.916741
Netherlands	4.0070	7.2027	0.123986	0.0022	5.812039
New Zealan	2.4397	6.6561	-0.60148	0.0752	3.93574
Norway	2.9226	6.6648	0.157004	0.0746	4.81462
Portugal	2.6462	7.5483	-0.0715	0.0093	4.465908
Spain	4.2081	7.6122	-0.20702	0.0128	6.178774
Sweden	3.5633	6.8917	0.016857	0.0510	5.281171
Switzerland	2.9786	7.3304	-0.09321	0.0059	5.550243
Turkey	3.8002	6.7832	-0.60331	0.0126	4.872905

Regression Output:

Constant	1.52521			
Std Err of Y Est	0.235675			
R Squared	0.976238			
No. of Observations	23			
Degrees of Freedom	18			
X Coefficient(s)	-0.41908022098	-0.47622	-0.22107	0.922373
Std Err of Coef.	0.188170759417	0.185633	0.552774	0.038213

NOTES ON CLIMATE CHANGE PAPERS FOR EILEEN CLAUSSEN GROUP

mjm 11/15/96

Compliance Paper

- The paper should stress the importance of the compliance/enforcement issue because this is the foundation on which any effective agreement to reduce greenhouse gas (e.g., carbon dioxide) emissions will rest. This is especially true because the activities to reduce emissions are likely to be costly (perhaps very costly), providing an incentive for Parties to not comply (or even to evade requirements).
- I would argue that this point is so central to the issue that it should be the first paragraph in the paper.
- The material on binding dispute resolution and penalties needs to be thought through carefully. The U.S. probably does not want to be placed in a situation where some countries flout the agreement with little penalty (such as when European allies do not support sanctions against oil-producing nations). And the U.S. does not want to be put in a situation where penalties are imposed on it and the Congress refuses to pay (similar to the case with UN dues).

Emissions Trading and Joint Implementation

- This paper needs to be substantially rewritten. It starts with the premise that the US seeks to implement international emissions trading and joint implementation (JI). The Deputies have not agreed to this. The July statement by Tim Wirth only said that the U.S. sought flexibility using whatever tools are appropriate, including trading and JI.
- The bottom of Page 1 states that the ideal system is global emissions trading where overall greenhouse gas emissions are capped on a country by country basis, allowing borrowing and banking, allowed trades between gases, and included all Parties to the Convention. While this may be true, I have seen no demonstration that this is indeed the case and have some concerns about the underlying assumptions needed to show that this is the optimal system. (I think it relies on things like perfect capital markets, complete and perfect information among all parties, perfect enforcement, no transaction costs, and other things that do not really describe the world in which we live. If uncertainty is added and markets are imperfect, it is likely that models can be developed to show alternative systems to be superior.)
- It is a big step to claim that international emissions trading is "ideal". The Deputies are not there yet, and I don't think they will be convinced to support this position by December. The paper should be written more as an overview of the issues involved in trading and JI and less as an advocacy piece.

- The paper seems to conclude that the demonstration project on JI are reasonably successful. However, only 15 projects have been approved in the last 3 years. I am not sure what these involve, but my instincts tell me these are things like planting trees in tropical lands and selling technology that may be less carbon intensive to developing countries. Under JI, the benefits are almost solely public relations and the claims for reductions in greenhouse gas emissions are likely to be exaggerated. Given this, I would hesitate to promote JI as a major tool in addressing greenhouse gas emissions (though it may be helpful).
- The material on what constitutes a “good” international trading system may be helpful in restructuring the paper.
- I would suggest restructuring along the lines of:
 - Statement of Principles about flexibility; recall Tim Wirth’s statement about “including” trading and JI as possible tools to meet goal of emissions reduction
 - Description of trading
 - Listing desirable qualities of an international trading scheme
 - Listing open issues regarding trading (e.g., who can trade, does there need to be an international intermediary, etc.)
 - Cautions about embarking on a trading scheme unless all the other parts are in place (a role for developing countries, real ways to ensure compliance, development of markets for emissions allowances and credits, etc.)
 - Description of JI
 - Listing of success stories
 - What has been learned through demonstration program
 - What need to be done if JI is to be scaled up to larger size

This whole paper would become descriptive and suggestive rather than prescriptive and advocating a particular solution.

Thurs. Nov. 7, 1996. Climate Change

J1 - must have to give up a lot
in terms of when. non-annex 1
countries come in -

- as how much they do. versus how
much we do -

Emissions trading - expensive to set
up -

Take some things off the
list -

→ EU's participation -

Climate control makes energy-inefficient
capital obsolete -

- size of adjustment

- how much you want to do

- how much technology change

- how quickly re. has to respond

- Adjustment has to be financed

- consumers - buy less

- firms - invest in R&D

- borrow from abroad

GE models - tell us what we'd do

new K stock -

Macro models - figuring out transition

but how K-stock they're less

involved in

Model selection

- ① GE - will pick the ones that do the best representing + transfer
- ② DIL

Three classes of assumptions

- What does baseline demand look like?
- When's technology going to go -
- discount rate assumptions -
 - well models figure are new
 - getting use new technologies
 - some countries supply DILs of 30-60%

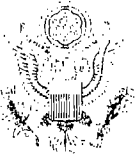
will do sensitivity assumptions.

Mark Chapter - could optimally shut down certain power plants -
[would still raise price of electricity?]

Free papers at early grp level
working grp papers.

Demarche $\approx$ ideas

- 4 papers will serve as basis for demarche
- required pros & cons. ideas



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

via fax

MEMBER

November 7, 1996

MEMORANDUM FOR TIMOTHY WIRTH, UNDER SECRETARY FOR
GLOBAL AFFAIRS, STATE

FROM: ALICIA MUNNELLA *AM*
JEFF FRANKEL *DF*

SUBJECT: Three Climate Change Options

Before pulling together the best available information on the economic implications of three possible options coming out of Kyoto, we wanted to make sure that the options coincided with your sense of ambitious, moderate, and modest outcomes. The three options on our list are:

1. Stabilizing at 10 percent below 1990 emissions levels by 2020.
2. Stabilizing at 1990 emissions levels by 2020.
3. Stabilizing at 10 percent above 1990 emissions levels by 2020.

We would present the effect of each of these policies on the price of carbon (and on oil, coal, gasoline, etc) and on GDP. All estimates would assume that the cutbacks were achieved in the most efficient way. The first set of numbers would assume that the cutbacks were all achieved domestically. We will also examine global targets. The second set would include international emissions trading among Annex 1 countries, with the initial endowment distributed in proportion to GDP. The third set would include international emissions trading, with the initial endowment distributed on the basis of population.

Please let us know as soon as possible whether you agree with this formulation of the exercise.

cc: Eileen Claussen
Rafe Pomerance *via fax*



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

NOV - 5 1996

OFFICE OF
POLICY, PLANNING AND EVALUATION

The Honorable Daniel Schaefer
Chairman, Subcommittee on Energy and Power
Committee on Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Schaefer:

I am enclosing documents that the Environmental Protection Agency has identified in response to your request of August 7, 1996 for documents relating to climate change, and your restatement of that request at the September 26 hearing.

Based on those requests and follow-up discussions with your staff, we asked staff in our Offices of Policy, Planning and Evaluation (OPPE) and of Air and Radiation (OAR) who were involved in climate change-related activities during the relevant period to produce all EPA documents in their possession dating from January, 1993 that analyze the use of current or expanded legal authority that would be required to take additional actions to reduce greenhouse gas emissions -- beyond those actions already contained in the 1993 Climate Change Action Plan. With the exception of certain documents that were prepared by or with other parts of the Executive Branch or that relate directly to sensitive, ongoing international negotiations, we are providing you the documents gathered by EPA that were responsive to this request.

Let me be clear about the nature of these documents. In large measure, they contain internal staff discussion documents or analyses, which have been developed over the course of the past four years. The Administration has publicly stated its positions and policies regarding global climate change on a number of occasions, most recently at the Second Conference of the Parties in July in Geneva. Unless these documents explicitly state otherwise, they do not represent the policies of the Environmental Protection Agency or of the Clinton Administration, either at the time which they were developed or now. In developing climate change policies, many options were evaluated; some were accepted, some were not. Many of these ideas have already been shared with the public in order to provide an opportunity for external input to our deliberations, so some of the documents consist of the resulting comments from those outside the Agency.

As EPA, the State Department, and the Department of Energy indicated in our letter of October 28, 1996, we have not been able to respond at this time to the more sweeping request made in your letter of October 21, 1996 for "all legal, policy, political, and other documents ... that relate to, directly or indirectly, global climate matters." The documents we are providing today should respond to your central point of inquiry. If you believe that more documents are needed, your assistance in focusing the needed supplemental information would be appreciated, given the large scale of your most recent request.

Many of the documents that we are providing the Committee are deliberative in character and thus potentially subject to privileges against disclosure. Our submission of these documents to an Oversight Committee does not itself constitute a waiver of such privileges, and we would ask that the Committee manage these materials in a manner that avoids compromise of their confidential status.

With respect to the other requests you have made for information, I expect to be able to respond to the specific questions posed in your letter of October 28, 1996 by Friday, November 8, 1996, and to the additional questions contained in your letter of October 31, 1996 by Wednesday, November 13, 1996.

Let me reiterate EPA's commitment to further cooperation with this Subcommittee, both in terms of satisfying your pending request for information and in terms of consultation throughout the process of developing and carrying out U.S. policy in the climate convention negotiations.

Sincerely,

A handwritten signature in black ink, appearing to read "David Gardiner", written in a cursive style.

David Gardiner
Assistant Administrator

Enclosures

cc: The Honorable Frank Pallone
The Honorable Thomas Bliley
The Honorable John D. Dingell

House REPUBLICAN Conference

NEWS

JOHN BOEHNER
Chairman
8th District, Ohio

Contact: Terry Holt or
Paula Nowakowski
(202) 225-5107

BOEHNER UNVEILS SECRET CLINTON EPA PLAN FOR 50-CENT GAS TAX HIKE, NEW BTU TAX

"A secret Clinton Administration 'War on the Family Car' that would put most Americans on bicycles"

WASHINGTON (October 30) -- House Republican Conference Chair Rep. John Boehner (R-OH) tonight unveiled the contents of a leaked EPA memo detailing a secret Clinton Administration plan for a 50-cent-per-gallon increase in the gasoline tax, a host of new energy taxes including resurrection of Clinton's repudiated 1993 BTU tax, tighter motor vehicle emissions standards, a new \$40 federal fee for automobile emissions tests, and a plan for "full pricing of roads" that alone would cost motorists as much as \$400 per year.

"It's a secret Clinton Administration plan for war on the family car," charged Boehner, who accused the Administration of "deliberately keeping this plan under wraps for two years." Boehner called the plan "a rewrite of Vice President Al Gore's 'Earth in the Balance', a radical, extremist approach which would put most working Americans on bicycles."

Boehner said the plan, detailed in an internal EPA memorandum dated May 31, 1994 from Michael Shelby of the EPA's Office of Policy, Planning and Evaluation, contains 39 different provisions to reduce automobile emissions, including:

- A 50-cent per gallon gas tax, to be put in place without prior Congressional approval under Section 232 of the Trade Expansion Act of 1962; the memo estimates the cost to motorists will be \$47 billion in the year 2000 alone
- 7 separate new "Energy Tax" alternatives on fossil fuel energy use, based on the carbon content, including: a "greenhouse gas tax," a "carbon tax," a "BTU tax," an "at-source ad-valorem tax" on the value of the fuel at the point of extraction; an "end-use

-- MORE --

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ad valorem tax" on the value of the fuel at the final point-of-sale; a "motor fuels tax" on the retail price of gasoline and diesel, an "oil import fee," and "combinations or permutations of the above. The taxes are referred to in the memo as "revenue recycling policies."

- A plan for "Full Pricing of Roads" which would "decrease subsidies to road users" by requiring that state and local matching funds for road and bridge construction under the Highway Trust Fund be raised exclusively from increases in state and local gas taxes, new or increased license and registration fees, imposition of new highway "congestion charges," and new or increased weight-and-distance charges for trucks. The report says that "If states raised gas taxes and decreased no other taxes, increases in out-of-pocket costs would be roughly 1% of household income, or about \$400/year." In this respect, as with the 50-cent-per-gallon gas tax, "the Administration has the authority to begin rulemaking on its own, without legislation," the memo asserts
- A new fee on vehicle emission tests of \$40 per person to "shift the cost of vehicle inspection from the state to the vehicle owner." Once again, the plan states that "federal rulemaking and state licensing-fee capacity exist today," eliminating the need to go through Congress.
- Tighter emissions standards for automobiles, accomplishing additional reductions of 2 percent per year, also to be accomplished without Congressional approval by Executive Order or administrative rulemaking authority.
- A "National Beverage Deposit and Return" system; individual states, several of which already have beverage deposit and return programs, would be able to "opt out" of the national program only if they can demonstrate their own plans meet certain specified "national performance standards."

"For almost two years, this Congress has sought to learn how the Administration intends to meet their stated goal of reducing greenhouse gas emissions below those set forth in the so-called 'Rio' Treaty of 1990," Boehner said, noting that the Energy and Power subcommittee has held four separate hearings on the subject. "In each case, the Administration has dodged us -- and small wonder, considering that their real plan is to declare war on motorists, homeowners, consumers and everybody in America who uses energy or has a job."

ACTIVITY SCHEDULE

DECEMBER 1996

SUN.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT.
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364	365	366	NOTES:			

DECEMBER 1996

7540-01-337-4702
For 1997 Order 7540-01-337-4703

EEO IS THE LAW

OPTIONAL FORM 67
(Formerly AD-300) 5067-125

ACTIVITY SCHEDULE

NOVEMBER 1996

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NOVEMBER 1996

7540-01-337-4702
For 1997 Order 7540-01-337-4703

KNOW YOUR RIGHTS

OPTIONAL FORM 67
(Formerly AD-300) 5067-125

cc: JAF
RP

OECD trading -
If we start with a 10% of
turnover - since we are
currently making 10% -
then we can gain a 10%.

DEPUTIES COMMITTEE MEETING
CLIMATE CHANGE NEGOTIATIONS
NOVEMBER 4, 1996

- I. Status of melding and how results will be integrated into policy process
- II. Target design options
- III. International emissions trading and joint implementation programs

DEFINING THE FORM OF THE TARGET

BACKGROUND

- * While rejecting proposals for short-term emissions reductions, at the second Meeting of the Parties in July, the United States called for a realistic, verifiable and binding medium-term emissions target.
- * Proposals by some other countries have defined a target in terms of a single level that would be reached in a given year (e.g., a 20% reduction by 2005).
- * Options exist for structuring a target which provides greater flexibility and potentially reduced compliance costs.
- * This discussion focuses only on the form of the target and not on the level of the target nor the timing for reaching the target which are being examined by the Interagency Analytical Team.

KEY ISSUES AND OPTIONS

convergent target - emissions per unit of GDP*

Form of Target: The simplest option would be to follow existing proposals and call for a specific level of emissions reduction to be achieved by a specific year. A second option would be a multi-year average target (e.g., a specified target achieved over the average of 2010-2015). Thirdly, the target could take the form of a cumulative target over a much longer period of time (e.g., 20 or 30 years or longer). A fourth option would be to define a target in terms of each nation's contribution to atmospheric concentration of greenhouse gases (however, this type of target might be harder to implement and be more controversial).

best case target 2010-2015

These options must be evaluated in terms of their impacts on such factors as economic costs, capital stock turnover, the rate of technological change, and the rate of climate change.

- * **Baseline:** The current baseline under the Framework Convention's non-binding aim is to return to 1990 emissions levels for each developed country. The range of options for an alternative baseline include:
 - o shifting to a more recent year (e.g., 1995 or 2000);
 - o adjusting emissions levels to reflect weather, energy or economic anomalies;
 - o averaging emissions over several years; or
 - o focusing on changes from projected levels of future emissions.

These options must be evaluated in terms of the degree of flexibility and cost savings they offer and how they would impact the United States and other nations.

- * Treatment of Gases: The United States has supported and the Climate Convention covers all greenhouse gases (except those controlled under the Montreal Protocol's ozone treaty). These include: carbon dioxide, nitrous oxide, methane, and fluorinated compounds. While continuing to support a comprehensive approach to the issue, a number of options are possible:

- o define a target using a single basket approach and allow trading between gases;
- o define a target in terms of carbon dioxide from energy use alone (70 percent of emissions) and treat other gases separately; or
- o limit the target only to sources and sinks of gases that can readily be quantified.

- * Other Issues:

- * How do we define "medium-term" commitments?
- * How often should commitments be reviewed?
- * How will the form of the target impact emissions trading? Will the choice of targets hinder efforts to further engage developing countries?

JOINT IMPLEMENTATION

BACKGROUND

- * Joint implementation (JI) is a concept under which entities from different countries could work together to reduce, avoid or sequester greenhouse gas emissions.
- * The U.S. has been an advocate for allowing joint implementation for two reasons:
 - o It can reduce the costs of meeting any given target by achieving those reductions through some combination of actions at home and abroad.
 - o It provides a potentially powerful incentive for redirecting investment flows in developing countries and economies in transition toward more greenhouse friendly technologies.
- * A limited form of JI (trading rights for producing CFCs) was used under the Montreal Protocol to reduce the costs of the phase-out of ozone-depleting substances.
- * To date, joint implementation has received only limited support by Parties to the Convention with strong opposition from many developing countries. This opposition reflects an unwillingness to accept baselines and concerns over sovereignty.
- * A broad spectrum of U.S. industry has strongly supported JI. For example, electric utilities have developed and support their own voluntary JI program.
- * A pilot JI project has been initiated to improve understanding but without granting "credit" for such activities (the amount of "credit" is an open issue).

ISSUES AND OPTIONS

- * Stay the course: Continue supporting the existing pilot project and work toward building a foundation for shifting to a credit-based regime in the future.
- * Advance the process: Seek agreement now that JI would be allowed after some specified year (e.g., 2000) with credit given to the parties involved.
 - joint activities between developed countries could build on agreed baseline commitments.
 - joint activities with developing countries could be permitted if the developing nation "opted in" and agreed to a baseline or could be permitted on a project-by-project basis.
- * ? Some observers have expressed some concern that a large JI program could have negative job implications for developed countries by shifting investment to developing countries with lower costs of emissions control.

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INTERNATIONAL EMISSIONS TRADING

BACKGROUND

- * International emissions trading is a more systematic form of joint implementation where national commitments to reduce greenhouse gas emissions can be achieved through some combination of activities at home and abroad.
- * Given the large differences in the marginal cost of controls among countries, the potential savings for meeting an agreed-upon target appear significant. For example, one modeling exercise showed a savings of roughly 70% for the United States if emissions trading were permitted on a global scale. This study assumed no transaction costs.
- * Establishing a robust emissions trading system represents a significant challenge given the complexities of any international climate regime.
- * A limited form of "international" trading has been used successfully under the Montreal Protocol. Emissions trading programs within the United States have been widely viewed as a success in reducing the costs of acid rain controls.
- * International emissions trading is widely supported by business and many environmental groups within the United States. Most developed countries have less experience with the regime but their interest appears to be increasing. Most developing countries have opposed any form of trading for reasons of national sovereignty and unwillingness to accept an emissions baseline.

ISSUES AND OPTIONS

- * Differences in domestic implementation: Countries are likely to employ a wide range of options in implementing domestically any internationally agreed upon emissions target. This will complicate the process of ensuring the integrity of international trades and potentially impact transaction costs.
- * Inclusiveness of trading regime: Trading between different greenhouse gases could be permitted, as could trades between sources and sinks. However, emissions from some sources are easier to quantify and verify than emissions from other sources.
- * Participants in trades: Trading must involve active private sector participation. At the same time, governments, not individual firms, are responsible for their treaty obligations. One option, to create a new entity that reviews or approves all trades, has little appeal.

- * Relationship to compliance: In defining measures related to compliance for the treaty, it will be important to take into consideration the need to support the integrity of trades without imposing undue transaction costs.
- * A country can attain its emissions reduction goals by either controlling domestic emissions or through trade of emissions rights. This points up the importance of the initial allocation of emission rights.
- * In the absence of a worldwide cap on emissions, international emissions trading by itself will not be sufficient to meet a global emissions target.

Lisa

11/4/96
from mdf

CLIMATE CHANGE CHEAT SHEET

Scientific

The four most important greenhouse gases (GHG), which account for 99.5% of anthropogenic sources, in descending order are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O)

Concentrations of these gases:

Gas	Preindustrial	1993	2100 (upper bound, business-as-usual)
CO ₂	280 ppm	358 ppm	650 ppm
CH ₄	0.7 ppm	1.72 ppm	3.12 ppm
N ₂ O	0.275 ppm	0.312 ppm	0.400 ppm
Fluorocarbons (HFC, PFC)	0	0.0003 ppm	0.0012 ppm

Greenhouse warming potential (GWP) Year 2100 CO₂ equivalent concentrations (business as usual)

1 ton CO ₂ = 0.27 tons of carbon (C)	650 ppm
1 ton CH ₄ = 6.69 tons of C	76.6 ppm
1 ton N ₂ O = 80 tons of C	32 ppm
1 ton fluorocarbons = 40 tons of C	.048 ppm

U.S. Situation

1993 emissions of GHG based on carbon equivalent

CO ₂	1406 million metric tons (1372 from energy consumption)
CH ₄	178 million metric tons
N ₂ O	40 million metric tons
fluorocarbons	20 million metric tons

Utilities responsible for 30% of U.S. GHG emissions

Transportation responsible for 27% of U.S. GHG emissions (fastest growing source)

In 1993, U.S. was responsible for 25% of world-wide emissions of CO₂ from burning fossil fuels, is projected to emit 13% by 2050

In 1993, U.S. was responsible for 21% of GHGs.

Economic

\$100 carbon tax would increase, in short run

gasoline prices by \$0.37/gal.

coal by \$75 per ton (current price \$28/ton)

petroleum by \$12/bbl (current price \$23/bbl)

natural gas by \$0.15 per 1000 cf (current price is \$1.65)

electricity from coal-fired plants by \$0.10/kwh (currently \$0.03/kwh)

electricity from natural gas combined cycle (NGCC) plants (the most energy efficient technology) by \$0.035/kwh (currently \$0.04-0.045/kwh)

Coal fired generating capacity in 1993 was 302,000,000 kw

Current capital costs for NGCC plants is \$500/kw, for coal fired plants is \$1421/kwh

(Back of the envelope estimate: Replacing 10% of coal fired plants with NGCC plants would require \$15 billion; 20%, \$ 30 billion, etc. Note: natural gas prices will increase as a result of fuel switching and switching may require some expansion of gas line capacity).

The industry expected to be most affected by reducing CO2 are coal mining, gas and oil producers, petro-chemicals, steel, utilities, aluminum, agriculture, auto industry and cement industry

**GLOBAL CLIMATE CHANGE
PREPARATIONS FOR DECEMBER NEGOTIATIONS
CALENDAR OF UPCOMING MILESTONES**

- October 25 -- Finalize first drafts of papers needed for December negotiations. The papers will elaborate four of the key issues to be considered over the next 14 months during climate change negotiations (as identified in the U.S. "elements paper" submitted to the Climate Change Secretariat). Four papers will be produced: 1) Advancing Developing Country Commitments; 2) Compliance; 3) Structure of a Target; and 4) International Joint Implementation/Trading
- Oct. 28 -- Distribute first drafts of papers for review at working level
- Nov. 1 -- Distribute publicly U.S. "elements paper" submitted to FCCC
- Nov. 6 -- Working-level IWG to discuss second drafts of papers
- Nov. 7 -- Assistant Secretary-level meeting to review progress of Ehrlich-led Interagency Analysis Team
- Nov. 11 -- Discussion of U.S. "elements paper" with interested Hill staff, NGOs (week of) and private sector representatives
- Nov. 14 -- Distribution of third drafts
- Nov. 16 -- Assistant Secretary-level discussion of third drafts of papers
- Nov. 18 -- Final drafts of papers distributed for formal interagency clearance
- Nov. 21 -- Final Assistant Secretary-level review and final clearances due
- Nov. 26 -- Demarche to key countries on U.S. views related to December negotiations
- Dec. 9-13 -- Next round of climate change negotiations (Geneva)



16 October, 1996

EU RESPONSE TO AGBM REQUEST FOR FURTHER CONCRETE PROPOSALS ON
POSSIBLE FEATURES OF A PROTOCOL OR ANOTHER LEGAL INSTRUMENT

Dear Executive Secretary,

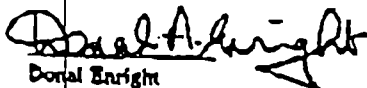
Attached is the EU response to the AGBM request for further concrete proposals on policies and measures, QELROs and other possible features of a Protocol or another legal instrument.

The EU response builds on the outline of a possible Protocol structure submitted by the EU at AGBM 2 on 30 October, 1995.

Further work is ongoing in relation to the Further Provisions to deal with the relevant Articles of the PCCC and the Final Clauses on the lines indicated in the attached text. Further work is also ongoing in relation to the prioritisation and allocation of policies and measures to the proposed Annexes A, B and C of the Protocol. The results of the further work being undertaken by the EU will be communicated to the Secretariat in due course.

Article 3 reflects the Berlin Mandate provision that the Protocol or another legal instrument will "reaffirm existing commitments in Article 4.1 and continue to advance the implementation of those commitments in order to achieve sustainable development". Detailed proposals will be elaborated in due course and the EU considers it essential that this aspect be included in both the AGBM Chairman's synthesis of proposals and the agenda for AGBM 3.

Yours sincerely


Donald Enright

On behalf of the European Community and its Member States

ELABORATION OF THE EU DRAFT PROTOCOL STRUCTURE

ARTICLE 1

Article on necessary definitions to be developed

ARTICLE 2

Commitments by developed country Parties and other Parties listed in Annex X

a) General commitment regarding policies and measures

- Parties listed in Annex X shall adopt and implement policies and take measures within national¹ and where appropriate regional programmes referred to in Article 4.1(b) of the Convention to limit and reduce anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol from all relevant sectors, including renewable energies; energy efficiency standards, labelling and other product related measures; CO₂ emissions from the transportation sector; economic instruments in the field of climate change; energy policies; industrial sector emissions, including voluntary agreements; agriculture; emissions from waste; fluorocarbons and SF₆; municipal actions; and to protect and enhance sinks and reservoirs, including forests.

b) Further commitments regarding policies and measures

- (i) Parties shall adopt and implement the policies and measures set out in Annex A.
- (ii) Parties shall give high priority to the adoption and implementation of the policies and measures set out in Annex B, and shall work towards their early coordination, by applying the guidance set out in the Annex.
- (iii) Parties shall give the policies and measures in Annex C priority for inclusion in national programmes, as appropriate to national circumstances.

c) Commitment regarding limitation and reduction objectives

- Each of the Parties listed in Annex X shall, individually or jointly, abide by quantified objectives to achieve significant overall reductions, after the year 2000 below 1990 levels

¹ This includes policies and measures adopted by regional economic integration organisations.

within specified timeframes,² of anthropogenic emissions by sources and enhancement of removals by sinks of greenhouse gases not controlled by the Montreal Protocol, as set out in Annex Y.³

d) *Joint Implementation*

- Parties may implement such policies and measures as set out in Article 2(b) above and attain such limitation and reduction objectives in greenhouse gases as set out in Article 2(c) above jointly with Parties listed in Annex X and Parties that have made a notification under Article 2(f) below of intention to be bound by commitments on emission limitation and reduction objectives under Article 2(c) above.
- The Conference of the Parties shall take decisions regarding criteria for joint implementation with other Parties at a future session⁴.

¹ such as 2005, 2010 and 2020

² To date, the following range of possible reductions have been proposed by some Parties, and further proposals will follow.

- each Annex I Party to reduce overall greenhouse gas emissions to 5-10% below 1990 levels by 2010 (UK);
- reduce CO₂ emissions to 10-20% below 1990 levels by 2010 (Belgium);
- each Annex I Party to reduce CO₂ emissions to 10% below 1990 by 2005, and 15-20% by 2010 (Germany, Austria);
- each Annex I Party to reduce CO₂ emissions to 20% below 1990 levels by 2005 (AOSIS);
- reduce CO₂ emissions by 20% of 1990 levels by 2005 and by 50% of 1990 levels by 2030 (Denmark);
- Annex I Parties together reduce total greenhouse gas emissions by an average of 1-2% per year (Netherlands);
- adopt greenhouse gas emissions paths converging eventually to similar levels of emissions per capita or per unit of GDP leading to an overall emissions reduction within specified timeframes (France, Spain);
- reduce/limit greenhouse gas emissions on the basis of emissions per GDP, in order to reduce overall Annex I emissions in the medium/long term (Japan).

⁴ As soon as Parties to the Convention have taken a decision on the pilot phase of 'AIJ' in accordance with Decision 5/CP.1

c) Commitments regarding communication of information relating to implementation¹

- Annex X Parties shall include in communications under Article 12 of the Convention a detailed description of the policies and measures adopted and implemented to meet the commitments under Articles 2(a) to 2(c) above, specific estimates of their effects and, as appropriate, their costs, and resulting projected anthropogenic emissions.
- Annex X Parties shall submit an initial communication within six months of the entry into force of the Protocol for that Party. Each Party not so listed shall make its initial communication within 3 years of the entry into force of the Protocol for that Party. The frequency of subsequent communications by all Parties shall be determined by the Conference of the Parties at its sixth session and subsequent sessions.
- Such communications shall include in particular the results of reviews of national policies and practices referred to in Article 4.2(e)(ii) of the Convention and any significant changes identified.

f) Voluntary application by non-Annex X Parties

- Any Party not listed in Annex X may, in its instrument of ratification, acceptance, approval or accession, or at any time thereafter, notify the Depositary that it intends to be bound by some or all of the commitments under Article 2(b) above to adopt and implement specific policies and measures in Annexes A, B and C, and/or that it intends to be bound by commitments on emissions limitation and reduction objectives under Article 2(c) above. The Depositary shall inform the other signatories and Parties of any such notification. Any Party not listed in Annex X making a notification in relation to Article 2(b) and/or Article 2(c) shall be bound by commitments regarding communication of information relating to implementation under Article 2(e) above, as relevant.

g) Possible annexes on methodological questions

- Annex D shall contain the most recent Global Warming Potentials (GWPs), as agreed by IPCC for greenhouse gases not covered by the Montreal Protocol.

¹ Since the new commitments would have to be accompanied by substantial and mandatory reporting commitments, appropriate parts of Article 12 of the Convention could be carried over into the Protocol as such. Additions to the "Guidelines for the preparation of National Communications by Annex I Parties" consistent with the control schedule will also have to be made.

ARTICLE 3**Commitments by all Parties**

Provisions on continuing to advance the implementation of existing commitments by all Parties so as to facilitate reaching the ultimate objective of the Convention.

[To be developed on the basis of Article 4.1 of the Convention, the Berlin Mandate and the EU submission to AGBM 4 (in FCCC/AGBM/1996/MISC.1/Add.3) and submissions from other Parties.]

ARTICLE 4

The Conference of Parties shall review the adequacy of these commitments on the basis of Article 2 of the Convention, of best available scientific information and assessment of climate change and its impacts, as well as relevant technical, social and economic information, and take appropriate action.

The first review and the appropriate action based on that review shall take place no later than 31 December 2002. Further reviews and appropriate action shall take place at regular intervals thereafter, to be decided by the Conference of the Parties.

The Conference of the Parties at its first session shall review the content and scope of all Annexes and shall update them regularly in the light of progress on the implementation of policies and measures by Parties, including progress on co-ordination of measures, the identification or elaboration of additional policies and measures, new scientific or technological advice, and other relevant developments.

ARTICLES 5 et seq of the EU Proposed Protocol Structure

[FURTHER PROVISIONS to deal with relevant Articles of the FCCC.]

(Articles 7, 8, 9 & 10 of the FCCC)

The EU strongly supports the use of the existing Convention bodies to the greatest extent possible. There may be practical or legal reasons why this is not possible or desirable in all cases. In particular, the EU believes that there is a need for the establishment of a separate Conference of the Parties of the Protocol. It will in any event be necessary to ensure that Parties to the Convention, which are not Parties to the Protocol, will not be represented on the Protocol Conference of the Parties Bureau or be able to provide officers of the Protocol subsidiary bodies or to vote on Protocol matters.

(Article 11 of the FCCC)

The financial mechanism defined for the purposes of the Convention as well as the entity or entities entrusted with its operation shall serve as the financial mechanism and entity or entities for the purposes of the Protocol.

(Article 13 of the FCCC)

The Protocol shall contain a provision enabling the establishment of an Implementation Committee to review, at the request of a Party or Parties, the Secretariat, or a Party in respect of itself, compliance with its obligations under the Protocol. The Committee shall make regular reports to the Conference of the Parties, which shall take appropriate decisions in the light of such reports. The review procedure shall be simple, facilitative, cooperative, non-judicial and transparent.

(Article 14 of the FCCC)

This Article is applicable. No need arises for a special provision in the Protocol, as paragraph 8 of Article 14 states that its provisions shall apply to any legal instrument which the Conference of the Parties may adopt, unless the instrument provides otherwise.

(Articles 15, 18 and 19 of the FCCC)

These should be made applicable mutatis mutandis.)

[PROVISIONS on amendments, including simplified procedures for amending the annexes.]

[FINAL CLAUSES (entry into force, etc).]

(Article 17 of the FCCC)

Paragraph 4 needs to be reiterated.

(Article 20 of the FCCC)

Needs to be adapted to the new Protocol

(Article 22 of the FCCC)

Needs to be rewritten for the purposes of the Protocol. The reference to the requirements of Article 17 paragraph 4 of the Convention (only Parties to the Convention may be Parties to a Protocol) could perhaps be included here, viz.: The Protocol, as set out in Article 17 of the UN FCCC, shall be subject to ratification, acceptance, approval or accession by States and by regional economic integration organisations, which are Parties to the Convention.

(Article 23 of the FCCC)

The conditions for entry into force of the Protocol will need careful consideration later in the negotiating process in the light of the commitments which can be reached in the Protocol negotiations.

(Article 24 of the FCCC)

Needs to be explicitly repeated in a Protocol.

(Articles 25 and 26 of the FCCC)

Should also be repeated and adapted.]

7

ANNEX A

**POLICIES AND MEASURES TO BE COMMON TO NATIONAL PROGRAMMES OF ALL
ANNEX X PARTIES**

ANNEX B

**POLICIES AND MEASURES TO BE GIVEN HIGH PRIORITY FOR INCLUSION IN
NATIONAL PROGRAMMES OF ANNEX X PARTIES AND FOR COORDINATION WITH
OTHER PARTIES**

ANNEX C

NATIONAL POLICIES AND MEASURES

ANNEX D

**Containing the most recent Global Warming potentials (GWPs), as agreed by IPCC for greenhouse
gases not covered by the Montreal Protocol**

ANNEX X

List of countries to be bound by Article 2(a) to Article 2(e).

ANNEX Y

Quantified limitation and reduction objectives for Parties in Annex X.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE
AD HOC GROUP ON THE BERLIN MANDATE

Submission from Australia

Principal Elements of the Berlin Mandate Outcome

The attached proposal is submitted in response to the invitation of the Ad Hoc Group on the Berlin Mandate at its fourth session for parties to submit further concrete proposals on the features of a protocol or another legal instrument (FCCC/AGBM/1996/L.2/Add.1, paragraph 20).

This submission is provided in the interests of advancing the negotiations under the Berlin Mandate. In doing so, it should be understood in the context of previously stated positions and caveats by Australia relating to key policy features of the Berlin Mandate outcome. In addition, Australia reserves the right to submit further material on the attached elements and other elements of a Berlin Mandate outcome.

In developing the attached proposal, Australia has been guided by a number of key principles. First, the outcome of the negotiations should be consistent with the Framework Convention on Climate Change and give full expression to all components of the Berlin Mandate. Secondly, Australia is firmly of the view that the best prospects for achieving the ultimate objective of the Convention in the long term are in the development of a mechanism which enables the burden of abatement action to be shared as equitably as possible by properly taking into account the relevant circumstances of each country, including its stage of development, in the formulation of commitments. Thirdly, the Berlin Mandate outcome should be seen as a further step in an ongoing process towards achieving the ultimate objective of the Convention. Accordingly, it should provide a solid basis for achieving greater participation, over time, in global action to address climate change.

This proposal is not intended to be an exhaustive or final articulation of the contents of an instrument resulting from the Berlin Mandate process. Rather, it seeks to identify some principal elements of the outcome of that process.

Differentiation

A key element of the proposal is the provision for differentiated quantified emission limitation and reduction objectives (QELROs). This contrasts with the uniform QELRO approach advocated by some other participants in the Berlin Mandate negotiations.

There is a growing body of literature and analytical work which demonstrates that a uniform QELRO (in a form like the Convention's present implied target of returning emissions to a uniform historical level by a specified date) will have non-uniform consequences for the economic welfare of different countries due to differences in factors such as population and economic growth, industrial structure, resource bases and trade linkages. A uniform QELRO would result in inequitable abatement tasks and unfair reductions in economic welfare for individual countries undertaking such commitments. Application of such an approach would therefore be inequitable, unfair and unlikely to attract the widest possible country

participation and the level of commitment needed to sustain international abatement efforts over the long term.

Considered from a global perspective issues of equity have many dimensions, some of which are addressed in the Convention (such as developed country parties taking the lead in combating climate change). In the Berlin Mandate context, the equity principles which Australia is focusing on address equity among Annex I parties in respect of setting QELROs within specified time frames, such as 2005, 2010 and 2020.

The Convention and the Berlin Mandate make provision for differentiation. Both refer to the need for equitable and appropriate contributions by Annex I parties. It is therefore necessary for the Berlin Mandate negotiations to deliver an outcome that is both fair and effective in further contributing to the global effort to address climate change.

In elaborating the approach in the attached proposal, Australia has been guided by the need for the Berlin Mandate negotiations to develop a workable, realistic and achievable differentiation framework that will deliver:

- fairness and equity: Annex I parties would face similar percentage changes in per person economic welfare;
- environmental effectiveness: increased ability of Annex I parties to fulfil commitments would lead to a more effective global effort to address climate change; and
- efficiency and cost effectiveness: differentiation is compatible with market based approaches, such as emissions trading and activities implemented jointly.

Australia's approach to differentiation is aimed at achieving equity between Annex I parties by having the Berlin Mandate outcome result in those countries undertaking mitigation commitments facing similar percentage changes in per person economic welfare as a result of international emission abatement action.

Underlying this principle of equity is the fundamental concept of distributive justice. Broadly, this means that each Annex I party, in contributing fairly to the collective objective, should share equally, on a per person basis, in the consequent changes to national economic welfare. Having regard to the structure of Annex I economies, it is Australia's position that this underlying concept of equity can best be expressed in the form of differentiated contributions to the collective objective which equitably capture both production and trade implications. For example, Gross National Expenditure (GNE) is a widely accepted index of national economic welfare which incorporates production and trade impacts. A tangible expression of equitable differentiation could accordingly be that each Annex I party's contribution to a collective objective would be determined on the basis that each Annex I party incurs an equal percentage change in terms of its per person GNE.

It is proposed that differentiation be achieved through the use of selected core indicators which would be applicable to all Annex I parties in taking account of differences in national circumstances. Such indicators would be used to formulate rules that could be applied, in a practical way, in providing guidance on how and to what extent country differences could be taken into account in differentiating QELROs for those countries undertaking mitigation commitments under the Berlin Mandate.

Australia's approach to the selection of relevant core indicators has been guided by the need to capture the economic welfare impacts of international abatement action, cover all

greenhouse gases, and be measurable using internationally accepted data. These core indicators are fully justifiable on the basis of common sense and economic literature* and are broadly applicable to all parties.

The attached proposal identifies the two main components of economic welfare change as domestic production effects and international trade effects. It is suggested that the core indicators that relate to the magnitude of the domestic economy impacts would be:

- . GDP growth,
- . population growth, and
- . emissions intensity of GDP.

Core indicators that relate to international trade impacts would be:

- . fossil fuel trade, and
- . emission intensity of exports.

This set of core indicators would be generally applicable but additional indicators may be developed in the negotiations. Such a process should initially concentrate on ensuring that the key differences between countries are adequately captured through describing the relevant elements of differentiation.

Australia considers it critically important that the key differences between Annex I parties are adequately addressed in the Berlin Mandate process through the use of selected indicators, including the interactions between such indicators in addressing the totality of their effects on the economic welfare of these countries, to ensure equitable QELRO outcomes.

Australia's approach to differentiation also provides an equitable basis for those non-Annex I parties who elect to undertake mitigation commitments under the Berlin Mandate to do so in line with their development situation and at a rate commensurate with their development needs.

Achieving a Berlin Mandate outcome involving differentiated QELROs for Annex I parties (and other Convention parties who elect to undertake commitments) will require agreement on what elements of differentiation need to be negotiated and the steps in the negotiation process. Such a negotiation would be aimed at simultaneously balancing the interests and priorities of all parties undertaking mitigation commitments - individually as well as collectively - within an agreed framework in which the interests of all negotiating parties are safeguarded.

The negotiating process could involve the balancing of a set of individual country interests within the parameters of a collective QELRO. The establishment of a collective QELRO would create the benchmark for the outcome of negotiated commitments under Part II of the attached proposal. This collective commitment and the explicit recognition of equity principles as the basis for determining each party's contribution to achieving it would improve the overall environmental outcome.

Flexibility

Fairness and economic efficiency are fundamental to achieving an environmentally effective outcome from the Berlin Mandate negotiations. Both considerations must be addressed to ensure the level of commitment and participation needed to sustain cooperative action to

achieve the ultimate objective of the Convention. A cost effective outcome is essential to maximising the environmental outcome achieved (for a given global economic cost) and a recognition that all parties undertaking QELRO commitments would receive fair and equitable treatment will encourage parties to make greater contributions and hence achieve a more effective environmental outcome.

Market based approaches are important to enhance the cost effectiveness of the Berlin Mandate outcome. Thus mechanisms such as emission trading and emission budgets - which allow for countries to take advantage of lower cost abatement options in other countries and to devise optimal emission abatement paths - could contribute to improving the cost effectiveness of the Berlin Mandate outcome.

Important as these mechanisms are, they do not address the central issue of equity. While cost effective approaches work to equalise the marginal abatement costs across countries, they will not, in general, achieve equal percentage changes in per person economic welfare across Annex I parties. Ensuring a fair and equitable outcome depends crucially on the initial distribution of commitments. Thus, the initial distribution of commitments must explicitly address the need for equity. This is the case for both simple emission banking regimes and provision for a simple form of emissions trading, as well as for fully fledged tradable emission regimes which may evolve over the longer term. Differentiating QELROs or establishing trading regimes which take into account national circumstances is necessary to ensure basic fairness in the distribution of the costs of mitigating climate change. This points to the need for the negotiations to develop a set of rules on which any QELRO and any emissions trading regime would need to be based.

Time frames

Consideration of the appropriate time frame to apply to the Berlin Mandate outcome raises a range of complex issues, including uncertainties over short/long term trade offs and the importance of workability and arriving at realistic and achievable QELROs. This involves consideration of the appropriateness of a single short or medium time frame or, alternatively, whether a shorter term time frame combined with an indicative longer term time frame would provide a more appropriate framework for long term planning, investment decisions and research and development of new technologies. While longer time frames might be judged conducive to better planning, full consideration needs to be given to dealing with the need for sufficient certainty concerning key variables within the planning horizon in assessing whether QELROs will be realistic, achievable and equitable.

Emission banking or budgets also have important implications for consideration of an appropriate time frame, by allowing countries to devise optimum abatement paths while achieving a given (cumulative) QELRO.

Transparency

Ensuring transparency and comparability of information provided by parties is a matter of fundamental importance to the Convention process. As the commitments resulting from the Berlin Mandate process are likely to be more complex than those encountered by the Convention to date, it will be necessary to ensure that the National Communications and in-depth review process is strengthened accordingly.

PRINCIPAL ELEMENTS OF THE BERLIN MANDATE OUTCOME

PART I: GENERAL OBLIGATIONS AND PRINCIPLES

1. The outcome should reaffirm the objective and principles in articles 2 and 3 respectively of the Framework Convention on Climate Change ("the Convention"), as well as the environmental, economic and equity objectives of the Berlin Mandate. It should explicitly acknowledge that parties assuming commitments in Part II are taking the lead in combating climate change, but that there remains an ongoing need for all parties to make equitable and appropriate contributions to the global effort to achieve the ultimate objective of the Convention.

2. A collective quantified emissions limitation and reduction objective ("QELRO") would establish the environmental outcome sought from the Berlin Mandate process and provide a basis against which specific commitments under Part II could be negotiated. Any collective QELRO should be realistic and achievable.

PART II: COMMITMENTS OF SPECIFIED PARTIES

(a) Quantified Emissions Limitation and Reduction Objectives

3. The negotiation of specific commitments of parties should result in differentiated QELROs within a specified time frame or time frames for the parties undertaking commitments under this Part ("Part II commitments"), which would be specified in an annex to the legal instrument (Annex A). These QELROs should cover anthropogenic emissions by sources and removals by sinks of all greenhouse gases ("GHG") not controlled by the Montreal Protocol.

4. The Berlin Mandate outcome should also ensure that the collective QELRO could be achieved at global least cost with parties undertaking Part II commitments being provided with sufficient flexibility to achieve their respective QELROs cost effectively.

Differentiation

5. The Convention and the Berlin Mandate respectively provide guidance on factors and individual country circumstances which should be taken into account in the implementation of emission abatement commitments and in the elaboration of new commitments under the Berlin Mandate process.

6. The process of negotiating commitments would be assisted through the elaboration of rules which would provide specific guidance on how and to what extent differences in starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of the parties undertaking Part II commitments to the global effort are to be taken into account to differentiate the commitments of parties equitably.

7. The formulation of appropriate rules for setting differentiated QELROs should be guided by the objective of ensuring that equitable contributions are made by each of these parties to the global effort to mitigate climate change. Underlying this principle of equity is the fundamental concept of distributive justice. Broadly this means that each party undertaking Part II commitments, in contributing fairly to the collective QELRO, should share equally, on a per person basis, in any consequent changes to national economic welfare.

An overarching rule for giving effect to this objective would be to require parties to aim to achieve an equitable distribution of the per person economic impacts associated with mitigation commitments, such that countries with similar per person income levels incur similar per person economic welfare impacts. Over the longer term, guidance will also be needed to better define appropriate contributions to the global effort to mitigate climate change. This could then be achieved in the context of a rule requiring countries' individual contributions to be determined according to their level of economic development.

8. These overarching rules describe the parameters of an equitable and appropriate outcome consistent with the provisions of the Convention. A Berlin Mandate outcome containing a set of equitable QELRO commitments would be achieved through use of a set of indicators for determining equal percentage changes in terms of per person GNE associated with mitigation commitments. These indicators would determine the key sources of economic impacts associated with international emission abatement action. In turn, these factors would be used to identify indicators of economic welfare changes which have universal applicability in taking account of differences in national circumstances for use in the differentiation of abatement tasks. The selection of such indicators should be guided by the availability of internationally accepted data.

9. A range of studies has shown that the economic impacts of international emission abatement actions can be split into two groups:

(a) domestic economy impacts; and

(b) international trade impacts.

10. Domestic impacts arise from changes to the composition and scale of economic activity associated with reduced GHG emissions. Trade impacts arise from shifts in international demand for fossil fuels, and other energy and emission intensive exports.

11. Core indicators which are universally applicable for domestic and trade related economic impacts are discussed below. Other countries may wish to propose additional indicators which they consider important in capturing the different sources of economic welfare impacts across countries.

I. Domestic Economy Impacts

12. Efforts to reduce GHG emissions in the economy beyond possible no-regrets measures will incur losses in economic welfare. The magnitude of economic welfare losses will, in general, depend on two key factors:

(a) the magnitude of the underlying rate of growth in GHG emissions, i.e. underlying business-as-usual ("BAU") growth; and

(b) the costs of reducing a unit of emissions.

13. Other things being equal, a higher underlying rate of GHG emission growth will be associated with a larger abatement task for any party attempting to meet a uniform QELRO and, therefore, will result in higher economic cost. As the emission reduction task increases, additional actions required to return emissions to pre-determined historical levels will become increasingly costly as low cost emission reduction opportunities are exhausted. Because of this, other things being equal, countries undertaking comparatively large emission reductions relative to BAU will face a higher average unit cost of emission reductions compared to other

countries and consequently their per person costs of emission reduction will be comparatively greater.

14. The rate at which unit costs of emission abatement escalate with increases in emission abatement tasks will differ substantially from country to country owing to differences in economic structure.

15. The following gives a set of core indicators which identify the differential costs associated with the above two factors. The relative importance of each of these indicators for differentiation will depend on the national circumstances facing different countries.

Indicator: GDP Growth of the Economy

16. The growth of the economy is an important determinant of emissions growth for all parties. The importance of economic growth is recognised by the Convention and the Berlin Mandate, which require commitments to take into account the need to maintain strong and sustainable economic growth.

17. Other things being equal, faster economic growth would result in higher emissions growth and hence a higher economic welfare loss for any party attempting to meet a uniform QELRO.

18. Making allowance for different rates of economic growth will be important not only for OECD countries, but also for the Economies in Transition ("EIT"). It can be expected that the success of the economic reform process in the EITs would set the stage for a period of strong and sustained economic growth in these countries, with economic growth rates much higher than for the OECD average. This in turn would imply that the underlying growth in emissions in such fast growth economies will be higher than the average for countries undertaking Part II commitments and, consequently, result in a higher economic welfare loss in achieving a uniform QELRO. Accordingly, inclusion of an indicator of GDP growth to guide differentiation of party commitments will be essential to meet the requirements of the Berlin Mandate and the Convention in ensuring equity.

Indicator: Population Growth

19. Population growth is an important factor in determining the underlying emissions growth of an economy. Other things being equal, the higher the population growth, the higher will be the underlying rate of emissions growth.

20. The wide variation in population growth rates across parties undertaking Part II commitments and the long time frames required to achieve the Convention's objectives suggest that differences in population growth could prove an important consideration in achieving equitable outcomes. In particular, to achieve a uniform QELRO would require a country with high population growth to reduce emissions by a greater percentage than a country with low population growth. All else being equal, it would be expected that high population growth will result in a high abatement task and, due to increasing marginal costs, a high unit cost of abatement. Thus countries with high population growth could be expected to incur a relatively higher loss in economic welfare in meeting uniform QELROs. Using population growth as an indicator in the determination of country commitments will be an essential component of ensuring an equitable outcome.

Indicator: Emissions Intensity of GDP

21. The emissions intensity of an economy influences the economic welfare changes associated with international abatement action that that economy will experience in a variety of ways. The nature of the impact and its relative importance will depend on the economic structure and circumstances of individual economies.

22. A country with a relatively high emissions intensity of GDP will experience a higher magnitude of emissions growth for a given rate of economic growth than a similar economy with a lower emissions intensity of output. In the absence of subsidies and other market distortions, a relatively high emissions intensity of GDP is likely to reflect a country's comparative advantage in emission intensive goods and relatively high level of dependence on fossil fuels. Continued multilateral trade liberalisation will lead to further specialisation in areas of comparative advantage, driving economic growth in emission intensive activities in countries with a comparative advantage in these activities. In other words, other things being equal, the higher the emissions intensity of GDP, the higher the magnitude of the emissions reduction task and thus the higher the economic welfare cost of achieving a uniform QELRO.

23. Account should also be taken of circumstances where a country with a low emissions intensity of GDP would find it more costly to reduce unit emissions than an economy with higher emissions intensity of output. This stems from two factors. First, it is observed that some countries with low emissions intensity of output have achieved high levels of energy efficiency in certain sectors. It is also observed that for these low emission countries, in general, current emissions intensity derives from action taken prior to the negotiation of the Convention in responding to cost pressures to achieve energy cost savings and greater energy efficiency, including through switching to non-fossil fuel sources and less GHG-intensive activities. Secondly, some of these countries with low emissions intensity of output would find it necessary to reduce emissions across a more limited range of activities than countries with a higher emissions intensity of output. These elements are captured in the need to take account of differences in starting points in the Convention and the Berlin Mandate. Other things being equal, these countries are likely to incur higher economic welfare losses in reducing emissions to achieve a uniform QELRO.

24. The relative importance of these different influences will depend on the economic structure and circumstances of individual economies. This indicator demonstrates the importance of correctly identifying the impacts of factors affecting economic welfare loss in different economies and the need for them each to be carefully accounted for in ensuring commitments are determined equitably.

II. International trade impacts

25. The importance of trade linkages between economies and the role of terms of trade effects in determining the magnitude of economic welfare losses arising from international emission abatement actions is a consistent and powerful theme in climate change policy literature.

26. All countries are affected by trade impacts arising from international abatement action to a greater or lesser degree depending on the product composition, direction and volume of their exports. In particular, it is widely recognised that international efforts to reduce GHG emissions will reduce the demand for and price of fossil fuels and energy and other emission intensive goods, thereby affecting the economic growth and economic welfare of countries dependent on such trade.

27. Article 4.2(a) of the Convention and paragraph 2(a) of the Berlin Mandate make provision for these impacts on economic growth and economic welfare to be taken into account in the implementation of commitments and to guide the elaboration of QELROs. Accordingly, the Berlin Mandate negotiations need to determine appropriate means of differentiating QELROs to reflect the adverse trade impacts on parties undertaking Part II commitments.

Indicator: Fossil Fuel Trade

28. As identified in article 4.10 of the Convention and paragraph 1(b) of the Berlin Mandate, parties particularly dependent on income generated from the production, processing and export of fossil fuels are particularly vulnerable to adverse terms of trade impacts and hence economic welfare losses. Action by parties undertaking Part II commitments to reduce emissions will tend to reduce the price and demand for fossil fuels. This will result in adverse terms of trade movements and resultant economic welfare losses for exporters of fossil fuels. In contrast, international efforts to reduce emissions will result in improvements in the terms of trade for importers of fossil fuels and, consequently, improvements in their economic welfare.

29. The significance of these terms of trade impacts on economic welfare will vary between parties undertaking Part II commitments depending on the relative importance of fossil fuels in the party's export and import profile. It is important that this source of loss in economic welfare of fossil fuel exporters is fully accounted for in setting differentiated and equitable QELROs. The Berlin Mandate requires such considerations to guide the elaboration of new commitments. An indicator based on the relative importance of fossil fuels in a party's exports and imports would meet this requirement.

Indicator: Emissions Intensity of Exports

30. The emissions intensity of a country's exports will be another important determinant of the extent of economic welfare losses it experiences in the context of international emissions abatement action. For any one country, the emissions intensity of its exports will be a product of its resource base and industrial structure. Article 4.2(a) of the Convention and paragraph 2(a) of the Berlin Mandate call for resource bases and economic structures to be taken into account, as well as the need to maintain strong and sustainable economic growth. In addition, article 4.10 of the Convention and paragraph 1(b) of the Berlin Mandate recognise the vulnerability of parties particularly dependent on income generated from the production, processing and export of energy intensive products and the need for these considerations to guide the Berlin Mandate negotiations.

31. The Berlin Mandate outcome should provide a means for dealing with any economic welfare losses which derive from loss of international competitiveness flowing from the agreed abatement commitments, and the resultant displacement of emissions intensive activity to countries not undertaking Part II commitments (i.e. carbon leakage). Using the emissions intensity of a country's exports as an indicator of the extent to which it will experience such adverse economic welfare impacts and factoring this indicator into the determination of differentiated QELROs will be critical in achieving equitable differentiation.

32. The importance of international competitiveness and carbon leakage impacts for a country undertaking Part II commitments will depend on the relative importance of energy intensive and other emission intensive goods in that country's economy, the direction of that country's exports and the significance of market competition in the supply of such goods from countries which are not undertaking Part II commitments. The international competitiveness

impacts will be particularly acute for countries with relatively high emission intensiveness of exports. The export sectors of countries with relatively high emission intensities will be more vulnerable to adverse economic impacts from the implementation of measures to respond to climate change. Other things being equal, for these countries this will translate into relatively high economic welfare losses due to loss of international competitiveness and carbon leakage.

33. The Berlin Mandate outcome should be flexible enough to work with, and not against, the rapidly changing trading structures occurring as a result of global economic integration and the liberalisation of trade across the world. Using this indicator would explicitly take account of the structure of national economies and hence address international competitiveness and carbon leakage impacts as required by the Berlin Mandate.

Negotiating differentiated QELROs using indicators

34. The Berlin Mandate outcome should contain a set of rules developed from the above indicators which would be applied in the negotiation of differentiated QELROs which satisfy equity requirements. Elaboration of the rules would address any interactions between indicators to ensure equitable differentiated outcomes. These rules would need to be applied as a package as it will be their combined effect which will be critical in achieving an equitable negotiated outcome.

35. The Berlin Mandate outcome should include elaboration of appropriate guidance about the application of the rules and the modalities for the negotiation of differentiated QELROs using these rules. Negotiation of other international agreements where equity principles have been recognised provide a number of possible negotiating models.

Flexibility

36. In the negotiations further consideration should be given to approaches which improve cost effectiveness for individual countries undertaking Part II commitments and for the global economy. This consideration should include approaches to enhance flexibility for countries to devise optimal emission abatement paths through emission budgets or banking, both of which are compatible with the approach to differentiation set out above.

37. Importantly, this consideration should include approaches such as emissions trading and joint implementation which provide for countries to take advantage of lower abatement costs in other countries. It is important that consideration be given to the range of issues involved in emission trading, particularly the basis on which it could be established and operate. Any emissions trading regime will need to address fully the need for equitable initial allocations for parties undertaking QELRO commitments. Such initial allocations would need to be differentiated on a basis which satisfied the same set of economic welfare indicators set out above.

(b) Policies and Measures

38. The outcome should be based on the existing obligations under articles 4.2(a), 12.1 and 12.2 of the Convention by requiring each party undertaking Part II commitments to adopt national policies and measures to implement their obligations under this Part. Each of these parties would undertake to submit a National Action Plan detailing their national policies and measures, together with performance indicators by which that individual party's performance in implementing policies and measures to limit or reduce GHG emissions could be made transparent.

(c) Communication and Review of Information

39. There will need to be a process for communication and review of information regarding performance of parties in implementing their commitments and the policies and measures that collectively constitute their National Action Plans. Consideration will need to be given to whether this should involve the creation of a separate communication process or the provision of additional information as part of meeting the existing commitments in article 12 of the Convention.

40. Following the model of the Convention, the Conference of Parties/Meeting of Parties (see paragraph 46 below) under the new instrument should have the capacity to consider information supplied in national communications/National Action Plans.

(d) Periodic Review of Commitments

41. The Berlin Mandate instrument will need some provision for review of commitments before its expiry, with a view to possible adjustment of both country and collective commitments. If commitments were set to 2010 or 2020 without scope for adjustment, changes in scientific knowledge, technological developments and the circumstances of individual parties could undermine the environmental objective and lead to inequities. The modalities of the review process will depend on the nature of the commitments that parties undertake, e.g. setting a cumulative QELRO would require provision for a particular kind of review process.

42. Periodic review would be a separate process from communication and review of information. Provision for periodic review needs to be made to deal with the following cases:

(i) To take into account improved scientific understanding of climate change and technological developments.

(ii) To take it into account changes over time in the situation of parties implementing their commitments, including in respect of GDP growth, population growth, emission intensity of GDP, fossil fuel trade and emission intensity of exports.

(iii) To deal with the special circumstances of Economies in Transition and other countries which are undergoing rapid transformation and which are not listed in Annex I of the Convention, but which elect to undertake commitments under Part II. (In these cases, consideration should be given to providing for more frequent reviews at the option of individual parties in this situation. There should also be appropriate flexibility in approaching adjustments of such parties' commitments in line with their development situation and uncertainties associated with expectations regarding the growth in their emissions).

(iv) To allow individual parties to seek at any time a review of their commitments in the event of an unforeseen change in their circumstances. (The modalities of the review process in such cases will require further consideration.)

43. The outcome should provide that periodic reviews are to be undertaken by the parties, with appropriate technical assistance, at appropriate intervals. Provision will also need to be made for the basis on which any adjustment would be agreed. For instance, consideration would need to be given to the nature of that process, including means available for the acceptance or objection by individual parties of any adjustment affecting them.

PART III: INSTITUTIONAL ARRANGEMENTS

44. The Berlin Mandate outcome should include provision for the new regime's institutional arrangements and its relationship to the Convention's Subsidiary Bodies.

(a) Secretariat

45. The instrument should provide that the Convention secretariat service the new regime, it should list the functions to be performed by the secretariat in a general and brief way, and there should be a general provision that the cost of secretariat services for the new instrument is to be met only by its parties.

(b) Conference of the Parties

46. The instrument should make provision for the creation of a decision-making/governing body separate from the Convention's Conference of the Parties which, to maintain the independent identity of the new body, would have its own meetings. For reasons of administrative convenience and expense its sessions should be scheduled immediately before or after those of the Convention. To minimise the possibility of confusion, it should be called something other than a Conference of the Parties, possibly a Meeting of the Parties. The new body should be given a list of functions, including one corresponding to that provided in article 7.2 (a) of the Convention.

(c) Subsidiary Bodies

47. The instrument should provide that both the SBI (subject to resolving possible questions about its legal capacity to do so) and the SBSTA provide services to the new regime broadly similar to those provided to the Convention. The cost of undertaking additional work should be met by the parties to the new regime. The question of participation in the work of these bodies by representatives of countries not party to the new regime should be considered in the light of the precise role these bodies are given in the instrument.

(d) Settlement of Disputes and Multilateral Consultative Process

48. The formal dispute resolution mechanism provided in article 14 of the Convention should apply to the new regime, subject to any necessary technical modifications. The outcome should also provide that if and when the Multilateral Consultative Process provided for under article 13 of the Convention is developed, the Conference/Meeting of the Parties to the Berlin Mandate instrument be authorised to decide whether such a process be applied to the new regime and whether any modifications to that process would be necessary or desirable for its application. It could also decide upon any consequential financial arrangements.

(e) Relationship to other agreements

49. The relationship between the Berlin Mandate outcome and other existing international agreements will need to be addressed in the instrument, in particular how the rights and obligations derived by any party from any existing international agreement might be affected. The outcome should ensure that the instrument does not derogate from the provisions of the Agreement Establishing the World Trade Organisation (WTO) or affect the rights and obligations of Members of the WTO.

PART IV: FURTHER ACTION

50. The Berlin Mandate outcome should provide for the establishment of a process for further negotiations aimed at further contributing to achieving the ultimate objective of the Convention.

PART V: FINAL PROVISIONS

(a) Amendments

51. Amendment to parts of the instrument other than Part II commitments should take place in accordance with the procedure agreed to for article 15 of the Convention. Special provision should be made for adjustments to Part II commitments, as outlined above under Periodic Review of Commitments (paragraphs 41-43).

(b) Right to Vote

52. Consideration will need to be given to appropriate voting rights in respect of certain issues, such as those affecting commitments assumed under Part II.

(c) Provisional Application

53. The instrument should provide for individual parties to be able to apply its terms provisionally (i.e. before it enters into force). Such a provision could be useful if delay were expected in entry into force. It would also allow states to move to begin meeting their commitments when they faced long delays before joining the regime because of domestic processes.

(d) Entry into Force

54. The mechanism for entry into force could be important. Consideration will have to be given to whether it would be appropriate in the particular circumstances of this instrument for entry into force to be possible solely on the basis of a specified number of ratifications. It may be appropriate to include a further requirement of ratification by a certain number of countries which undertake Part II commitments.

(e) Other issues

55. Other final provisions would include Signature, Consent to be Bound (ratification etc.), Withdrawal and Authentic texts.

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Number of pages incl. this: 8

Date: 18 October 1996

Subject: Norwegian submission to the FCCC secretariat

Dear Dr. Pershing,

Norway has prepared a submission on differentiated commitments which we hope can facilitate further discussion in AGBM on this issue. It was dispatched to the FCCC secretariat in Bonn on 15 October. For your information, a copy of our submission is attached.

Best regards,



Harald Dovland
Senior Adviser

United Nations' Framework Convention on Climate Change - Ad Hoc Group on the Berlin Mandate - Submission by Norway

The Berlin Mandate prescribes the process for advancing the international response to climate change. An identified priority in this process is the strengthening of the commitments of Annex I Parties to the Convention in Article 4.2 (a) and (b). In this context, the Ministerial Declaration at the second Conference of the Parties, advising «...quantified legally-binding objectives for emission limitations and significant overall reductions within specified timeframes...» to be set for Annex I Parties, represents an important step towards adoption of an adequate agreement at the third session of the Conference of the Parties in 1997.

Consistent with the Convention, the Berlin Mandate contains a set of principles which commitments must adhere to. Specifically, in the context of policies and measures and quantified limitation and reduction objectives for Annex I Parties, the Berlin Mandate emphasises that «...the differences in starting points and approaches, economic structures and resource basis, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort...» must be taken into account when setting objectives.

The operationalization of these premises for commitments in a protocol or another legal instrument has been and will continue to be a key issue for the Ad hoc Group on the Berlin Mandate (AGBM). The UNFCCC Secretariat's note «Review of possible indicators to define criteria for differentiation among Annex I Parties» provides an overview of various possibilities which have been presented to this end. It is the position of the Government of Norway that a differentiated approach is necessary according to the Berlin Mandate. In addition, a protocol or another legal instrument should be, as far as possible, cost-efficient across greenhouse gases, sectors and countries to achieve environmental objectives at least overall costs to the Parties.

This submission is a response to the invitation to Parties to «submit further concrete proposals on policies and measures, QELROs, and other possible features of a protocol or another legal instrument, by 15 October 1996». The attached note substantiates the reasons why uniform targets across Annex I Parties would be inconsistent with the premises of the Berlin Mandate, and discusses some criteria and indicators for differentiation contained in the secretariat note that provide for key factors to be taken into account while maintaining simplicity. In order to facilitate completion of the work of the AGBM by the third session of the Conference of the Parties, a thorough discussion of the elements and preconditions set by the Mandate remains indispensable.

The Government of Norway remains strongly committed to the process of developing and taking on new and legally binding commitments as evolving scientific findings require.

Possible criteria and indicators for differentiated commitments (QELROs)

1. Introduction

At the fourth meeting of the Ad hoc Group on the Berlin Mandate (AGBM) the Parties were invited to submit proposals regarding possible criteria and modalities for differentiation of quantified emission limitation and reduction objectives (QELROs). The present proposal is intended to contribute to the discussions on how to achieve an agreement on a structure of QELROs that will be in accordance with the Berlin Mandate and fulfil the intentions of the UN Framework Convention on Climate Change (FCCC). It is meant as a basis for further discussions on criteria and indicators for differentiated QELROs.

The point of departure for the discussion in the following sections is that a protocol or another legal instrument should be, as far as possible, cost-efficient across greenhouse gases (GHGs), sectors and countries. In this way, environmental objectives can be achieved at least overall cost to the Parties. In addition, a new and strengthened agreement should take into consideration an equitable sharing of burdens between Annex I Parties.

An agreement that takes into account both cost-effectiveness and an equitable sharing of burdens could be implemented in at least two ways. An internationally harmonised tax levied on GHG emissions could be combined with a financial mechanism to secure a fair sharing of burdens. Another possibility will be for the Parties to undertake commitments based on differentiated QELROs. In both cases a set of criteria for distribution is needed. Any system which distributes emission commitments among Parties, including a system with differentiated QELROs, will in addition require flexible instruments, such as activities implemented jointly or tradable quotas, to secure cost-effectiveness. Criteria and possible indicators for differentiated QELROs are discussed below.

2. The Berlin Mandate - a mandate for differentiated QELROs

The FCCC and the Berlin Mandate establish provisions for differentiation of commitments both between Annex I and non-Annex I Parties and among Parties within these categories. The Convention contains several principles and specific provisions that reflect such differentiation between Parties.

The general principle outlined in Article 3.1 shall guide the Parties in their actions to achieve the objective of the Convention and to implement its provisions, stating that «the parties should protect the climate system for the benefit of present and future generations of humankind, *on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities*» (italics added).

Specifically for Annex I Parties, Article 4.2(a) further reflects the intention that equity should be applied *not only* between developed and developing country Parties but among developed country Parties as well.¹ Article 4.2(a) states that in the Annex I Parties' joint effort to reach the objective of the Convention, account shall be taken of *«the differences in these Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties...»* (italics added).

These principles and provisions were incorporated in the Berlin Mandate as an explicit guidance for the AGBM process. In paragraph 2(a) the Mandate clearly underlines that the differences in Annex I Parties' starting points, economic structures and resource bases, as well as other country-wise individual circumstances, are recognised as a basis for the negotiations on QELROs.²

The IPCC/WG III in the *Second Assessment Report* also strongly underlines the importance of reflecting the substantial differences that exist among countries in any future agreement. A basic argument for this view is that countries are «unlikely to participate fully unless they perceive the arrangements to be equitable», and that «governments will find it easier to comply with international obligations if their citizens feel that obligations and benefits of compliance are distributed equally».³ The IPCC/WG III further stresses that variations among developed country Parties, such as those referred to in Article 4.2(a), have to be reflected in the commitments to make the agreement both equitable and efficient.⁴

The above mentioned provisions of the FCCC and the Berlin Mandate, as well as the insight provided by the IPCC, should guide the ongoing elaboration on strengthened commitments, implying a need for the development of a system for differentiation of commitments on an equitable basis. A stringent flat rate approach should therefore in this respect *not* be seen as the «default value» in the present negotiations, but rather as being outside the mandate agreed to in Berlin. Clearly, a stringent flat rate approach for setting QELRO's would not take into account differences in Annex I Parties' starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties.

Most measures to reduce emissions of GHGs will involve costs to all Parties, but such costs will vary significantly among Parties. Differences in Parties' national circumstances, such as economic structure and energy profile, might lead to highly different burdens among Parties if the commitments were not distributed in a way that reflected these differences.

The present proposal does not enter into detailed elaboration on how a system of differentiation should be *implemented*. However, one possible solution is to strengthen the

¹ See especially IPCC (1996), *Climate Change 1995 - Economic and Social Dimensions of Climate Change*, Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change, chapter 3.

² Articles 4.1, 4.3, 4.6 and 4.10 of the Convention also reflect some degree of differentiation *vis-à-vis* the implementation of commitments by Annex I parties.

³ IPCC, *op.cit.*, page 83.

⁴ *Ibid.*, page 100.

commitments by setting an overall emission limitation or reduction objective for a group of Parties, e.g. the Annex I Parties, and then allocate QELROs to each Party within the group according to criteria and indicators as suggested below.

The proposal on a set of criteria and indicators for differentiation of QELROs is intended to form a basis for further discussions on a formula that may reflect different national circumstances and the need for equity.

3. Criteria for differentiation

The FCCC offers some guidance on national circumstances that should be given consideration when implementing the Parties' differentiated commitments under the Convention. For instance, Articles 4.6-4.10 elaborate on factors that could be relevant for an equitable sharing of burdens between Parties in responding to climate change.

Selecting one single criterion as a basis for differentiated QELROs might not be considered feasible. Instead a multi-criteria approach is suggested. With reference to the FCCC, three basic elements are here proposed to be reflected when establishing feasible and fair criteria for differentiation between Annex I Parties: a country's emission intensity - reflecting efficiency, a country's level of GHG emissions, and its level of economic development or «wealth».

It should be underlined that a *comprehensive approach* should be the basis for commitments. «Emissions» as used in the present proposal therefore in principle pertains to all GHGs, and includes removals by sinks. Although data for emissions of some GHGs may be uncertain, efforts should be made to include as many as possible of the GHGs in a formula for differentiation of commitments among Annex I Parties.

- Emission intensity

The FCCC underlines the principle of cost-effectiveness. For instance, Article 3.3 of the Convention states that precautionary measures shall take into account that «policies and measures should be cost-effective so as to ensure global benefits at the lowest possible cost». An important criteria to be included in a multi-criteria formulae for differentiation would therefore be the consideration of the overall cost-effectiveness of the arrangement.

A strictly cost-effective agreement would imply a distribution of commitments among Parties in a way that leads marginal costs of abatement of all GHGs to be equal among all Parties and keeps the overall abatement costs to a minimum. It should be stressed that a set of criteria for differentiated commitments does not add up to a fully cost-effective agreement. The distribution of commitments as suggested in the present proposal will not only be based on the costs of reducing emissions of GHGs, but also take into account other differences among countries. It may therefore lead to higher overall costs than an agreement based exclusively on the concept of cost-effectiveness. Thus, it is acknowledged that an agreement establishing differentiated commitments requires flexible implementation mechanisms (such as activities implemented jointly, trade in emission quotas or other instruments) to further cost-effectiveness and stimulate the achievement of overall targets and commitments at the lowest possible costs.

- Level of GHG emissions

The principle of common but differentiated responsibilities (Article 3.1) gives some guidance on how to implement the Convention on an equitable basis. One of the basic considerations underlying this principle is the fact that countries vary widely in the degree and nature of their contribution to climate change: variations span over both gases and sources, as well as in capacities of sinks for absorbing carbon emissions. The emission levels should therefore be taken into consideration when allocating commitments between Parties.

- Level of economic development

It is understood in the FCCC, e.g. by pointing to Parties' respective capabilities (Article 3.1), that Parties that have greater capacity, economic or otherwise, to deal with the problem should do more than other Parties to reduce emissions. Wealth is one of the most clearly marked and pervasive differences between countries. To a large degree wealth determines a country's «ability to pay» or capacity to bear the costs of abating GHG emissions. The welfare impacts of reductions in GHG emissions may therefore differ according to the wealth level.

An indicator for levels of economic development or wealth should thus be included in a formula for allocation of commitments among Annex I Parties to limit and reduce emissions. Used in combination with the criterion emphasising the level of GHG emissions, these two criteria may together reflect the equity and fairness issues in a balanced way.

4. Possible indicators for differentiation

It has been considered as an overall aim that selected initial indicators should be simple and transparent. Such indicators would be easier to negotiate, compile and use. In a longer term, the indicators can be developed further with the aim to increase their ability to reflect national differences and their potential to encourage even more equitable and efficient outcomes. By opening for such an iterative process, more complex indicators, or the way they are combined, can be developed and agreed as more knowledge becomes available.

The three indicators suggested below are commonly identified as potentially useful in differentiating among Annex I Parties, and have as such been elaborated in the document FCCC/AGBM/1996/7 («Review of possible indicators to define criteria for differentiation among Annex I Parties») prepared by the secretariat.⁵ The indicators have a high degree of simplicity and are relatively easy to calculate. The data/input needed to use the indicators are also relatively easy to compile and verify, and should be available in the Parties' national communications.

a) An indicator reflecting emission intensity

To select a simple indicator to take into account cost-effectiveness is not straightforward. Here, it has been assumed that the higher the carbon intensity in a country's economy is, the lower the marginal costs will generally be of reducing CO₂ emissions by one unit. Accordingly,

⁵ See FCCC/AGBM/1996/7, 21 June 1996, para. 23-40.

the emission intensity, defined as *CO₂ equivalent emissions per unit of GDP (gross domestic product)*, has been selected as a rough indicator of the costs associated with emission reductions measures.⁶

Emissions per unit of GDP will vary, *inter alia*, according to national energy sources and energy efficiency, type of economic production and consumption of energy per unit of GDP. Countries might have a low emission intensity because they already have implemented measures to reduce emissions or because their energy supply system is based on low carbon intensive or carbon free energy sources. Generally, the cleaner the energy sources and the higher the energy efficiency, the lower the possibilities for substitutions to cleaner/renewable energy sources, and the higher the costs per unit emissions reduction. Although not perfectly revealing the costs of emission reductions, an indicator for emission intensity can still be considered an approximate measure for cost-effectiveness.

b) An indicator reflecting level of GHG emissions

An indicator which has frequently been proposed as a basis for the assignment of emission quotas is the share of emissions per capita. A similar indicator including all GHGs would be the share of *CO₂ equivalent emissions per capita*.

As an example, if a Party has higher emissions of CO₂ equivalents per capita than the average for the Annex I Parties, an exclusive use of this indicator would mean that the Party would have to reduce its emissions more than the average for the Annex I Parties, and vice versa.

c) An indicator reflecting a country's level of economic development

Several indicators may be used to reflect a Party's level of development or wealth as a basis for allocating emissions commitments among Parties. Among these, *GDP per capita* is a commonly used indicator of a country's level of economic development or wealth. An exclusive use of this indicator could for instance mean that Parties whose per capita GDP is above the average for the Annex I Parties should undertake more extensive commitments than the average of the Annex I Parties, and vice versa.

CO₂ equivalent emissions per capita and per capita GDP as indicators both reflect equity concerns, but differences in national circumstances may indicate that the two indicators could preferably be combined. For instance, if CO₂ equivalent emissions per capita were to be used as an indicator alone, countries with «economies in transition» might have come badly off because they have a relatively high level of CO₂ emissions per capita. If used in combination with GDP per capita, however, the special situation of these Parties can also be taken into account.

⁶ GDP is defined as the value of all goods and services provided in a country by residents and non-residents without regard to their allocation among domestic and foreign claims. An alternative measure would be *gross national product* (GNP), which is the sum of the domestic and foreign output of all residents of a country, including income received from abroad by residents for factor services rendered abroad, and after subtracting transfers to countries abroad of income by residents of other countries.

5. Calculation of emission quotas

In a formula, the weighted sum of the above indicators for individual Parties could be related to the average for a group of countries (e.g. the Annex I Parties). If it is assumed that the group agrees on a target for the group as a whole, the indicators suggested could be used to determine the specific targets for individual Parties. Such targets should be determined as annual emissions relative to the projected level for a specified year.

By attaching weights to the individual indicators the three indicators could be combined and constructed as a multi-criteria indicator. A Party might be above the average of the group for some indicators and below the average for other indicators. If a Party has an emission intensity which is higher than the average, the Party should reduce emissions more than the average as far as this indicator is concerned. Correspondingly, for the other indicators, if a Party has a level of GHG emissions per capita that is higher than the average, the Party should reduce emissions more than the average, and if a Party has a per capita GDP higher than the average, the Party should reduce emissions more than the average. By varying the values of the weights, one can attach varying importance to the different indicators. In order to stimulate cost-effective outcomes and reduce the overall international costs of implementing the agreements, the indicator for emission intensity should be given more weight than the two other indicators.

An example of a formula in line with this proposal is outlined in the box below. Such a formula might be particularly suitable for use in a long-term, dynamic perspective. When an agreed protocol or another legal instrument is to be renegotiated at a later time, the weights in the formula can be adjusted in line with new knowledge.

Example of formula:

The formula outlined below considers a Party's required percentage reductions of greenhouse gas emissions on basis of the indicators singled out in the proposal. CO₂ equivalent emissions/GDP is included in the formula as an indicator for emission intensity, while the GDP per capita and CO₂ equivalent emissions per capita are included to conduce to an equitable outcome.

This gives the following formula:

$$Y_i = A \left[x \left(\frac{B_i}{B} \right) + y \left(\frac{C_i}{C} \right) + z \left(\frac{D_i}{D} \right) \right]$$

where Y_i is the percentage reduction of emissions for Party i . The relation of B_i to B is CO₂ equivalents to the GDP for Party i relative to the average in the Annex I Parties. The relation of C_i to C is the GDP per capita in Party i relative to the average in the Annex I Parties, while the relation of D_i to D is CO₂ equivalent emissions per capita in Party i relative to the average of the Annex I Parties. A is a scale factor to ensure that the desired overall reduction in emissions is achieved. The coefficients x , y and z are weights, which add up to a total of 1.

674-071

Japan

<provisional version>

Working Paper for the Informal Meeting of A-CAP

Proposals on the elements to be included in the Draft Protocol
by the Government of Japan

• General commitment

1. Parties shall recognize the need for early actions to mitigate adverse effects of climate change.
2. Parties shall take note that, according to the IPCC Second Assessment Report, stabilization of atmospheric CO₂ concentration at 550 ppmv will eventually require global emissions to be less than 50 per cent of current levels.
3. Annex I Parties of the Convention (the United Nations Framework Convention on Climate Change) shall take note that many of the Annex I Parties need to make additional efforts to overcome difficulties that they face in achieving the aim of returning their emissions of greenhouse gases to 1990 levels by 2000, and shall recognize the need of GHG emission limitations and significant overall reductions within specified time frames.

• QELROs

- Carbon only*
1. Each Annex I Party to the Convention shall select (a) or (b) ~~as~~ QELROs;
 - (a) To limit the average annual anthropogenic emissions of carbon dioxide over the period from (2000+x) to (2000+x+[5]) to pt-C per capita; *from 1990* ([5] is tentative proposal.)
 - (b) To reduce the average annual anthropological emissions of carbon dioxide over the period from (2000+x) to (2000+x+[5]) by q% from the level of 1990; *- uniform to all countries*
 2. The Meeting of the Parties entrusts to SBSTA the examination on greenhouse gases other than carbon dioxide (except for those controlled under the Montreal Protocol). The Parties of the Annex I to the Convention shall make as much efforts as possible not to increase the amount of emissions of such gases until adequate measures are designated on the basis of the examination.

1 ton per person long-term target

• Policies and Measures

1. The Annex I Parties to the Convention agree to adopt appropriate policies and take measures in the following areas;

- (a) Efficient use of energy
- (b) Introduction of ~~low~~ or ~~low~~ carbon-containing energy
- (c) Innovative technology development
- (d) International technical cooperation and technology transfer etc. *inter alia*

2. The Annex I Parties to the Convention should adopt appropriate policies and measures from those listed in the Annex in accordance with the agreement provided under subparagraph 1 above.

3. The Meeting of the Parties at its first session decides indicators of policies and measures provided under subparagraph 1 above. Each Annex I Party shall set voluntary goals for such indicators.

• Communication and its review

1. Each Annex I Party to the Convention shall incorporate the following elements into its communication to be presented under the provisions of the Convention;

- (a) QELROs that the Party has selected;
- (b) National programmes for its emissions and reduction of greenhouse gas
- (c) Voluntary goals for its policies, measures, and indicators;
- (d) Projection for anthropogenic emissions by sources and removals by sinks of carbon dioxide until the mid-21st century;

2. The expert review term commissioned by the Secretariate shall review communication of each Party. The Meeting of the Parties shall decide the frequency of the review. The result of the review shall be reported to the Meeting of the Parties;

3. The Meeting of the Parties shall receive the results of such review and make recommendations to a Party when, assessing the implementation of policies and measures, the Meeting of the Parties conclude that the Party will not be able to achieve its objectives. The Party which received recommendations shall revise its national programme and its implementation and present the result to the Meeting of the Parties within one year.

• Revision

The Protocol should contain a regular revision mechanism of the Protocol, so that policies could reflect latest scientific knowledge, such as the Assessment Report of IPCC.

Comments on papers in general:

Our understanding is that the papers are to provide background to the deputies so that they may evaluate the characteristics of a treaty that commits the U.S. to a legally binding target. The major characteristics are the target itself, whether to allow permit trading (either domestic and/or international), compliance problems, and what countries should be included in the treaty.

As useful as they are, the papers would be more helpful if they were organized in terms of options (a target, description of the trading program, if any, compliance costs, and what countries would be included) rather than by characteristics as they are now. A discussion of pros and cons should also accompany each option. It would also be helpful if the targets were to range from modest to ambitious in terms of their impact on concentrations. Organizing by options would be more instructive because as the material is now presented it is difficult to gauge how important any the characteristics are to any particular target.

Finally, these papers can be used as an input ^{but} into the demarche statement should not be based solely on the discussion in these papers. The demarche statement needs to include some instructions to U.S. negotiators concerning specific proposals that have or are likely to be made at the December meetings which the U.S. would not find acceptable.

AGENCY COMMENTS ON
FIRST DRAFTS OF
U.S. CLIMATE CHANGE PAPERS

The following comments are a compilation of those received from the interagency group following a reading of the first drafts of the four papers. The compilation has been undertaken without an effort to prioritize comments by importance, or to assign any value judgment to any individual comment. In order to present them in an abbreviated form, some of the content may have been lost, and some misinterpretation of the individual remarks may have been inadvertently made. These errors are the responsibility of DOS/EGC, and not of the commenting agencies.

The papers are currently in the process of being redrafted (by the original lead agencies) and drafters have been instructed to take these comments into account in their redrafts. These comments are provided only for your information. While attributions are included, they do not necessarily represent the views of the entire agency.

Revised drafts of these papers are to be circulated to the interagency group on Wednesday, November 13.

Comments are included on:

- 1) Compliance Paper
- 2) Form of the Legal Instrument
- 3) Article 4.1

While a fourth paper on JI/trading was drafted, it is currently in the process of substantial revision, agency comments on this paper were not compiled.

General

- Need to consider inter-relationship of all issues, and possible trade-offs between them or negotiating strategy; suggest integrated paper be based on key underlying objectives of flexibility central role of trading, commitment from developing countries, economics/competitiveness, clarity and comprehensives (DOC)

Compliance Paper

Issues not addressed/Comments:

- Paper would benefit from insights on other agreements and the way they address “legally binding” (EPA)
- Need more fulsome examination of “consequences of non-compliance” (EPA)
- Elaboration of infrastructure (e.g., expert capacity, institutional incentives, measurement/monitoring, equipment needs, verification, rewards and penalties) (EPA)
- Options provided to parties to choose to “reserve” on any dispute resolution provisions (EPA)
- Desirability of resolving trade related disputes under WTO and/or NAFTA (EPA)
- Possible inclusion of restrictions on participation in emissions trading could be included as additional sanction for non-compliance (EPA)
- Consideration of border tax adjustments (and their operation and possible conflict with trade agreements) (EPA, DOC)
- Need more emphasis on current reporting requirements and review process under FCCC (CEQ)
- Note that long-term measurements of atmospheric concentrations may be pertinent to compliance (DOC)
- Beware penalties for uncontrollable events (e.g., annual fluctuations in weather), but do not give flexibility for controllable phenomena (e.g., population growth) (DOC)
- Need to consider providing escape clause that provides relief to displaced workers and industries (DOC)
- Do not penalize or allow countries to benefit from immigration (DOC)
- Agreement should permit trade sanctions (DOC)
- Need to make US position in WTO consistent with negotiating objectives under FCCC (DOC)
- Need to include some discussion of how differentiation issues will affect compliance. A vaguer commitment (perhaps for non-Annex I Parties) could be associated with a less stringent regime (DOS/EB)

Form of the Target

Issues not addressed:

- Consider phased approach based on importance of gases to climate problem (DOC)
- Baseline discussion should state countries not be penalized or faster than average economic growth (Treas)
- Consider flexibility for EITs (EPA)
- Emission target based on acceptable rates of climate change -- i.e., concept of "safe emissions corridors" (EPA)
- Note drawbacks of including all sources of greenhouse gas emissions in comprehensive target (e.g., compliance problems) (EPA)
- Differentiation -- need to speak to issue and why US opposes (EPA, CEQ, DOS/EB)
- Relationship between emission trading and other issues (e.g., cost effectiveness, encouraging developing countries to opt in, encourage compliance) (EPA)
- Conditional target (CEQ)
- Need to make clear that Kyoto is not end-point -- but only beginning; new obligations will follow (CEQ)
- Need to have some discussion of relationship between developed and developing country targets (CEA/NEC)
- Need to address whether policy can drive GHG emissions technology development at all (CEA/NEC); technology issues must be highlighted to greater degree (DOC)
- Additional options for trading may include trades between sources but not sinks; must also consider validity of GWP for intergas trading (CEA/NEC)
- Need some discussion of how various forms would be met in the U.S. (DOC)
- Consider rate of change or percentage change/year form of target. May help develop buy-in with industry, which thinks of growth in terms of annual percent change -- familiarity with structure may assist with understanding -- and possible support of structure. (DOS)
- Consider focus on coal. It may be responsible for majority of future CO₂ emissions -- and a focus on coal could allay opposition from oil and gas industry (and the fuels are anyway projected to be of limited availability by 2050-2100) while also emphasizing the long-term nature of the problem. Could call for phaseout of new coal power plant constructions, as well as prohibition of the conversion of coal to synfuels. (DOS)

Recommendations and comments:

- Define baseline as average of several years rather than negotiate adjustments for weather or economic cycles. (EPA)
- Limit allowability of renegotiation of commitments if significant amount of "borrowing" had occurred (EPA)
- Agreement on long-term concentration goals is unlikely to be reached in Kyoto, although the selection of a medium term target will be aided by considering the long-term atmospheric concentration goal (EPA)
- Recommend deleting option of target based on contribution to future concentrations (EPA)
- Need to clarify option of financial option approach to emissions trading - or delete
- Delete discussion of conditions to be placed on target if it does not include trading (CEQ)
- Need to evaluate length of time required to make cumulative target viable (e.g., does it still have advantages at short intervals such as 10-15 years?) (CEQ)
- Discussions of non-binding aim needs to indicate how far from meeting this goal developed countries are likely to be. (CEA/NEC)
- Discussion needs to indicate arbitrariness of baseline year choice -- and should not that in choosing year other than 1990, a higher level would be set, and the target would be easier to achieve. Also, indicate that changing base year is extremely unlikely outcome of negotiations. (CEA/NEC, DOS/EB)

- Need to better highlight importance of compliance with respect to long-term cumulative targets. (CEA/NEC)
- Need to indicate that coal-fired power plants must be replaced with plants using other fuels to make much of an impact on CO2 emissions (CEA/NEC)
- Adjustments to future commitments may be either tightening or loosening depending on science (Treas, CEA/NEC, DOC)
- Need to elaborate role of sinks (CEA/NEC)
- Delete section on incentives for early reductions (CEA/NEC)
- Agreement must be based on net emissions (including sinks), use multi-year period (preferably 90-95), with developing countries subject to same base period, include longer term multi-year cumulative targets that permit banking and borrowing. Do not set short term targets unless science requires immediate action. (DOC)
- Need to more strongly emphasize drawbacks of single year target (Treas, DOS/EB)
- Consider using interest rate to increase attractiveness of early reductions in "borrowing" scheme. (DOS/EB)
- Consider discounting emission reductions in cases where certainty of reductions are low (DOS/EB)
- Need to consider relationship between commitment and entry into force (both for the agreement and for any individual Party). For a commitment which has an entry into force in 2005 or later, the value of a medium term (e.g., 2010 or 2015) may be reduced. Perhaps consider a commitment which enters into force a fixed number of years following ratification, rather than in a fixed year. (DOS/EB, DOE)
- Consider agreement which targets producers of fossil fuel combustion devices -- rather than end users of fuels. Producers would include manufacturers of autos, airplanes, utility combustors, etc. Could establish trading regime and permitting process for each manufacturer (USGCRP)
- Example of CFC costs for phaseout may not be applicable to climate debate (DOE)
- Developing variable targets based on certainty/uncertainty of measurement or monitoring of emissions (e.g., for non-CO2 greenhouse gases) may not be appropriate. Would not therefore necessarily preclude intergas trading, or intersectoral trading of emissions credits/allowances. (DOE)
- U.S. must have strong -- and where possible explicit statement at December AGBM. Existing text is flat and inadequate. (DOE)

Article 4.1

Recommendations and comments:

- Continuum may be more helpful for internal thinking than as part of international dialogue; consider instead creating groups of countries and assign different levels of responsibilities to each. Country groups could include: OECD, EIT, NIC, Energy Exporters, Large Emitters (which may also be in any category), LDCs with negligible emissions, countries most vulnerable to climate change effects (DOS/EB)
- Consider setting threshold in terms of national annual average emissions growth; below threshold could have no or low commitments (DOS/EB)
- Only options in category E have a chance of securing real ghg reductions from developing countries; this needs to be made clear (Treas)
- Options which are not controversial also have little chance of securing reductions (DOJ)
- Need to note that options in various categories are not mutually exclusive; could adopt a series of policies from various parts of the continuum (DOJ)
- Revise introductory/background section to indicate more clearly need to include developing countries (EPA)
- Recommend that paper address strategy of how to negotiate as well as what to negotiate (EPA)
- Need to more carefully distinguish between what is currently allowed under Berlin mandate - and what would be outside of box; current draft overstates the Berlin mandate. US may choose to reopen discussion, but must be up front about doing so. Do not anticipate that any significant new commitments for developing countries will be in next step.(DOE)
- Beware mixing concepts of “no regrets” and “cost-effective”; the latter is used where the former is meant. (DOE)
- Paper should indicate the domestic political rationale for including developing countries (DOE)
- Could recommend pursuing both inside and outside Convention efforts in parallel tracks (EPA)
- Consider new voluntary initiative in which a group of developing countries would undertake new commitments in return for direct and coordinated assistance in implementing these actions (e.g., appliance standards, energy efficiency or carbon intensity targets) (EPA)
- Some concern that category E approach may not be appropriate to this instrument, but may be better relegated to a new long-term objective(EPA)
- Urge that December strategy be broad based; no single approach likely to generate strong new actions (EPA)
- Focus December on broad approach, domestic efforts by developing countries, work to split G-77 block, pursue JI/trading -- but do not link opt-in to discussion of new commitments, work with EITs, NICs outside of agreement, promote “agreement to agree” (note that this latter would follow the precedent of the Berlin Mandate itself) . (EPA)
- Consider allowing opt-in for JI/trading with agreed baseline; alternatively, allow opt-in on discounted basis (CEQ)
- Develop guidelines for domestic processes to implement commitments under Article 4.1 (EPA)
- Introduction is too long and does not properly frame issue; focus should be on problem with future unsustainable development path of developing countries (if they follow OECD course)
- New approach in which baseline is set for year of graduation, with ten additional years before obligation kicks in at that level (for category E) (CEQ, DOC)
- Suggest renaming options (CEQ)
- Beware discussions of “unfair competitive advantage; they may lead to arguments about equity. (AID)
- Option A(2) -cost effective measures by developing countries, if properly undertaken, may qualify as an E level action (AID)
- Option A(4) on investment guarantees may be opposed domestically if it has any teeth, although it could be useful option (AID)

- CTI is about as far as we can now go with technology; beware proposing additional action (AID)
- Additional GEF conditionality likely to be strongly opposed by developing countries (AID)
- Ranking GEF proposals could be problem in terms of short vs. long-term reductions gains. (AID)
- Any change to MDB lending should be preceded by domestic lending bank changes (e.g. to OPIC) (AID)
- Beware mixing JI with trading (AID)
- Need to elaborate how we could work to split G-77 countries (AID)
- US industry should not be burdened with more than our "fair share" of the global cost; this sets the stage for the minimum US negotiating position (DOC)
- The entire paper is unrealistically optimistic; no indication that China and India will act with limited carrots we can offer (DOC)
- Recommend that Annex I Parties act only contingent on developing country action (DOC)
- Propose exploring differentiation formula in which a country's emissions are fixed on basis of 90-95 emissions, and ratio of OECD income to national income on a per capita basis; possible bonus allowance could be offered to non-Annex I parties that take early commitments. (DOC)
- On strategy, may wish to consider bringing in elements overseas industry that might be more receptive to US position than LDC officials; use of key ENGO constituencies (DOC)
- Any instrument must allow Annex I Parties to impose restrictions on multinationals (DOC)
- It is not true that effects of minimal actions will not be measurable. Over longer time frame, even minimal actions will begin to build - and the trend is important. Also, even limited actions may be important in reducing the rate of change -- or preventing the crossing of some threshold for rapid change. (USGCRP)
- Quantifying effects of emissions reductions from developing countries in next phase (assumed to be very little) would be "difficult if not impossible" (DOE)
- Key issue of differentiation is one for consideration within Annex I -- not between Annex I and non-Annex I. (DOE)

2

within specified timeframes,¹ of anthropogenic emissions by sources and enhancement of removals by sinks of greenhouse gases not controlled by the Montreal Protocol, as set out in Annex Y.²

d) *Joint Implementation*

- Parties may implement such policies and measures as set out in Article 2(b) above and attain such limitation and reduction objectives in greenhouse gases as set out in Article 2(c) above jointly with Parties listed in Annex X and Parties that have made a notification under Article 2(f) below of intention to be bound by commitments on emission limitation and reduction objectives under Article 2(c) above.
- The Conference of the Parties shall take decisions regarding criteria for joint implementation with other Parties at a future session³.

¹ such as 2005, 2010 and 2020

² To date, the following range of possible reductions have been proposed by some Parties, and further proposals will follow.

- each Annex I Party to reduce overall greenhouse gas emissions to 5-10% below 1990 levels by 2010 (UK);
- reduce CO₂ emissions to 10-20% below 1990 levels by 2010 (Belgium);
- each Annex I Party to reduce CO₂ emissions to 10% below 1990 by 2005, and 15-20% by 2010 (Germany, Austria);
- each Annex I Party to reduce CO₂ emissions to 20% below 1990 levels by 2005 (AOSIS);
- reduce CO₂ emissions by 20% of 1990 levels by 2005 and by 50% of 1990 levels by 2030 (Denmark);
- Annex I Parties together reduce total greenhouse gas emissions by an average of 1-2% per year (Netherlands);
- adopt greenhouse gas emissions paths converging eventually to similar levels of emissions per capita or per unit of GDP leading to an overall emissions reduction within specified timeframes (France, Spain);
- reduce/limit greenhouse gas emissions on the basis of emissions per GDP, in order to reduce overall Annex I emissions in the medium/long term (Japan).

³ As soon as Parties to the Convention have taken a decision on the pilot phase of AJ in accordance with Decision 5/CP.1

Draft

October 29, 1996

NOTE: This paper is a draft for internal U.S. Government discussion purposes only. It is intended to outline issues and options and does not reflect the views of any agency of the U.S. Government.

Reaffirming and Continuing to Advance the Implementation of Article 4.1 Commitments

Issue

What specific proposals should the United States advocate to "reaffirm and continue to advance the implementation of Article 4.1 commitments?"

Negotiating Objectives

To ensure that action by developing countries is part of a protocol/amendment to the U.N. Framework Convention on Climate Change.

To ensure appropriate balance between the actions taken by developed countries and actions taken by developing countries pursuant to the protocol/amendment.

Background

Greenhouse gas emissions in developing countries are growing rapidly. By the year 2020 they are projected to exceed the emissions of the developed world. China is now the world's second largest greenhouse gas emitter (after the United States).

Developing countries must be part of the protocol/amendment because:

- (1) action by the developed world alone cannot solve the problem of global climate change, and
- (2) developing countries may otherwise gain unfair competitive advantage

In negotiations toward the Convention, participants largely acknowledged that the environmental benefits of developed country efforts to return their greenhouse gas emissions to 1990 levels by the year 2000 were not quantifiable; the "aim" of the Convention was largely political -- a small downpayment toward reaching the Convention's ultimate objective (the stabilization of atmospheric concentrations of greenhouse gases at a level that will prevent dangerous human interference with the climate system).

In this regard, nothing has changed since 1992. Whatever step developed countries are prepared to take in negotiations toward a new legal instrument will also be insusceptible to quantification in terms of its environmental benefits. It will likewise be impossible to measure the environmental benefit of action by developing countries.

In the absence of an environmental metric, the benefits of action by developed countries and action by developing countries can only be measured relatively -- both on a political scale, and each largely in terms of the other.

Politically, it will be indispensable to include developing countries in the new legal instrument. Without developing country participation, it will be difficult for developed countries to summon. For this reason, including developing countries in any next step has long been a sine qua non of U.S. policy.

Differentiation

The issue is how to include them. Article 3 of the Convention provides that, "The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities [emphasis added]. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof." Article 4.1, which pertains to all Parties, also speaks of their "common but differentiated responsibilities."

Therefore, under the Convention there must be appropriate balance -- or differentiation -- between the actions of developed countries and those of developing countries. This "differentiation" is rooted in their "responsibilities" (historic emissions) -- the usual emphasis of developing countries. It is also rooted in their "respective capabilities" (resources available to respond) -- the preferred emphasis of developed countries.

The Convention differentiates between developed and developing countries by requiring all Parties to take the actions set forth in Article 4.1 and by requiring developed countries to take the additional actions set forth in Articles 4.2, 4.3, 4.4, and 4.5. Differentiation is also evident in Article 12's reporting requirements.

The Berlin Mandate further differentiates between developed and developing countries. It provides for strengthening the commitments of developed country (Annex I) Parties by elaborating policies and measures and setting quantified limitation and reduction objectives within specified timeframes. It also provides that the process will not introduce any new commitments for developing country Parties, but will reaffirm existing Article 4.1 commitments and continue to advance the implementation of these commitments.

"Differentiation" is thus central to the Convention and to the Berlin Mandate. It is also reflected in the Geneva Declaration (July 1996), which provides that the "outcome" [of the negotiations] should encompass commitments for Annex I Parties regarding policies and measures as well as "quantified legally-binding objectives for emission limitations and significant overall reductions within specified timeframe. The Geneva Declaration also specifies that the "outcome" should encompass "commitments for all Parties on continuing to advance the implementation of existing commitments in Article 4.1."

[Note: Arguably, the Geneva Declaration -- which speaks to the "outcome" of negotiations -- offers greater assurance that developing countries will be part of the next step than the Berlin Mandate itself, which speaks only to what the negotiating "process" should include.]

Establishing the Continuum

Not yet established in the negotiations is the concept of a continuum with respect to "continuing to advance the implementation of Article 4.1 commitments." At one extreme, very little beyond existing implementation efforts might be expected; at the other, the distinction between "continuing to advance the implementation of existing commitments" and "new commitments" might almost be lost.

Where precisely along this continuum we would expect developing countries to end up will depend both on how far developed countries are prepared ultimately to go in their "next step." It will also depend on the political judgment they reach about the concomitant action they will need from developing countries to achieve the kind of rough symmetry that their domestic constituencies will demand.

To settle at some future date on a point along a continuum, it will be critical soon to establish it conceptually and to suggest potential parameters. This could be done in U.S.

interventions at the AGBM's Fifth Session in December. Waiting much beyond December will create several problems: 1) what to say in December, if not this; 2) when else to begin laying the ground for potentially significant action from developing countries; 3) how to begin rallying other developed countries, recognizing that unity among them will be important in the negotiations.

With three likely negotiating sessions (March, August and October) after the AGBM's next meeting and before Kyoto in December 1997, now much time remains in which to posit a conceptual approach, rally developed countries and persuade developing countries.

Options Along the Continuum

The continuum of approaches that could be proposed is extremely broad and includes actions both humble and grand. It may aid evaluation to consider them in several categories. They are labeled here simply by letter (categories A-E), which correspond, however, to increasing levels of action.

The categories are obviously subjective, and there is no systematic basis for including a particular action at the high end of one category or the low end of the next. Still, they may serve roughly to differentiate among various possible options, recognizing that there has as yet been little substantive discussion in the AGBM sessions to date of how to "continue to advance the implementation of Article 4.1 commitments."

Category A

This category of options may include some or all of the following:

- 1) Stressing the vulnerability of developing countries to the impacts of significant climate change, and systematically documenting the local (national) benefits to be gained from actions to respond to climate change
- 2) Urging developing countries to implement measures to address (mitigate) greenhouse gas emissions that are judged to be cost-effective in their national circumstances

- 3) Proposing to expand the U.S. "Support for National Action Plans (SNAP) Program (the successor to "Country Studies") to help developing countries identify and implement such "country-driven" (nationally determined) cost-effective measures, essentially seeking to replicate internationally U.S. voluntary programs under the Climate Change Action Plan of 1993
- 4) Using investment guarantees to encourage U.S. firms to support developing country efforts to implement such cost-effective measures

Options in this category would require little of developing countries beyond what they are already doing. Domestically, they could require some additional work (seeking to use investment guarantees) or commitment (expanding the SNAP Program). They would not be controversial or provocative. It might be possible to implement them without significant expenditure (or calls for significant additional funding from developing countries). They could be reflected in the new legal instrument to demonstrate that developing countries were moving forward to some extent (e.g., a commitment to implement "country-driven", cost-effective measures).

Category B

Options in this category would constitute more of a departure from the status quo than those described above. They might include such items as:

- 1) Promoting an in-depth review process, similar to that of Annex I Parties, for the initial and subsequent national communications of developing countries (this could involve amending Article 10.2(b) of the Convention to specify clearly that the Subsidiary Body on Implementation, or a counterpart body under the new legal instrument, would be empowered to consider information submitted by each Party individually; it could also involve expanding the powers of such a body, e.g., by enabling the Conference of the Parties to 'elaborate' further the functions and terms of reference of the SBI or new legal instrument counterpart body)

- 2) Developing a common menu of actions deemed generally to be cost effective (provision for doing so and for revising the menu from time to time could be included in the new legal instrument, although the menu itself would be established through decisions of the Conference of the Parties) and urging that developing countries periodically and systematically review the menu and "order" such items as could be justified in their national circumstances
- 3) Proposing new provisions to engage developing countries more effectively in technology cooperation and diffusion (this could be shaped in such a way that developing countries, as the primary beneficiaries, would have little objection -- that is, it need not include references to 'market reform' or 'removing barriers to technology diffusion', but could involve participation in a revitalized Climate Technology Initiative or various elements thereof)

To date the United States has tended to view the development and implementation of a review process for national communications of developing countries as a part of ongoing efforts to implement the Convention. In this sense, the United States has been unwilling to "count" such efforts as "continuing to advance the implementation of existing commitments" under the Berlin Mandate. Still, having just adopted guidelines for initial communications of developing countries at the Second Conference of the Parties in July 1996, the issue has yet to be joined. Experience in negotiating those guidelines has proven that a significant effort will likely be required to develop and implement a meaningful review process, particularly in view of developing country sensitivities and in view of language they successfully included in the Convention that presents obstacles to doing so.

In the context of a new legal instrument, clarifying that national communications of developing countries would be subject to individual, in-depth review (not merely review in the aggregate) would be a meaningful change.

Other options in this category could be structured in such a way as to avoid issues that would provoke developing countries while still advancing efforts to implement existing commitments. None should directly involve significant cost or fuel developing country demands for significantly enhanced funding commitments from developed countries.

Category C

Options in this category go beyond those in Category B. Because they would largely require developing country acquiescence, rather than active agreement, or because they could be accomplished in other fora (e.g., the GEF Council), they could perhaps be accomplished with persistence and determination. Such options largely focus on using "conditionality" with respect to existing funds to promote greater engagement in addressing climate change within developing countries. They might include:

- 1) Proposing that future GEF funding be conditioned on submission of an initial national communication (report)
- 2) Requiring that GEF project proposals from each developing country in the climate change focal area be ranked according to their effects on greenhouse gas emissions and that the GEF establish rigorous funding requirements linked with such rankings (either for individual countries or among proposals submitted by all eligible countries)
- 3) Promoting comprehensive changes in the lending practices of multilateral financial institutions to condition loans and grants on certain policy changes in key sectors (e.g., energy demand/supply, transportation, agriculture) designed to encourage greater attention to climate change concerns and greater participation in the global effort to address them

Options in this category would need to be pursued persistently over time. They might not lend themselves to textual treatment in a new legal instrument, and therefore might satisfy domestic political needs. They would likely strike a particularly sensitive nerve among developing countries, who have long railed against "new forms of conditionality" and fought hard at the Rio Conference in 1992 to establish an international policy decrying "conditionality" in international funding activities. Moreover, considerable "conditionality" already is associated with international funding efforts; it might be difficult to add new criteria and/or to avoid inconsistencies with existing criteria.

Category D

Options in this category include those that have already occasioned intense debate internationally, or those that could reasonably be expected to do so. Some may well be indispensable to any new legal instrument; still, negotiating them would likely be extremely difficult. Such options include:

- 1) Advocating joint implementation for credit under an "opt-in" approach in which developing countries, on a voluntary basis, would be allowed to participate in the emissions trading regime among developed country Parties, provided they met certain criteria (e.g., agreement to begin developing a national baseline for greenhouse gas emissions); the criteria that might be adopted regarding developing country participation in such a program might best be implemented through "premiums" for countries that met higher standards in their national programs (e.g., all or most emissions reductions from eligible projects would count if the host country agreed to develop a national baseline within "x" years; less of the emissions reductions would count if lesser efforts were involved);

the "opt-in", voluntary basis orientation of such a program could serve to lessen the controversy that would otherwise attach to it; still, a number of developing countries will likely argue that "joint implementation," particularly "joint implementation for credit," cannot take place until the "Activities Implemented Jointly" international pilot phase has been concluded and there has been a "conclusive decision" of the COP to move to a successor regime
- 2) Seeking developing country agreement in a new legal instrument to begin negotiations toward "new commitments" for them by "x" date after the conclusion of COP-3 in Kyoto; this option is sometimes described as an "agreement to agree"; there are many variables and possibilities under this option (e.g., would the future negotiations with developing countries specify that the outcome should be binding targets and timetables, would the negotiations result in a non-binding "aim" for developing countries, would the date fixed for negotiations to begin be the same for all developing countries, might the date for beginning negotiations be triggered when a country met a

particular threshold (in terms of total emissions or as a percentage of global emissions), might the agreement only involve a commitment to begin negotiating such a threshold by "x" date, etc.;

Options in this category may have some proponents within the ranks of the developing countries (e.g., on joint implementation). Some developing countries might even be willing to set a date for future negotiations that could involve new commitments for them, provided that the mandate for these negotiations was vague enough, that the date set to begin was sufficiently distant, and that the negotiations involved still further commitments from developed country Parties. Still, options in this category will be highly controversial and will, at a minimum, lead to accusations by some that their proponents have torn up the COP-1 decision on "Activities Implemented Jointly", the Berlin Mandate, or both.

Category E

Options within this category define the far end of the continuum of potential developing country actions. They would be the most far-reaching, would likely give rise to the strongest developing country opposition, but hold the potential for a clear advance under the Convention and would go some distance toward placating domestic critics. They might also require stronger commitments from developed countries to make proposing them credible. Possibilities include:

- 1) seeking to establish a threshold at which developing countries would "graduate" to a new status; this "new" status might not be equivalent to developed country status, but would clearly involve heightened commitments (for example, to energy efficiency "targets" or to a certain percentage increase in the renewables portion of the national fuel mix); the existing Convention "differentiates" between OECD countries (Annex II), OECD countries plus the so-called "economies in transition" (Annex I), developing countries and least developed countries, but it contains no mechanism by which to move from one category to another; the "economies in transition" are less likely in this round of negotiations to settle for the same commitment as OECD countries with only "a certain degree of flexibility" in meeting that commitment -- they are likely to want more "differentiation"; in addition, despite the accession of Mexico and Korea to the OECD, it is highly doubtful

that either would agree to take on the identical commitment as their OECD colleagues -- they are likely to argue for separate treatment within Annex I; the threshold might be triggered by total national greenhouse gas emissions that rise beyond a certain level or by a certain level per GDP and/or per capita, etc.

- 2) seeking to change the underlying approach in the Convention, which essentially equates Gabon with China, to one which clearly identifies the 25-30 largest greenhouse gas emitters that now account for, and will continue to account for, some 85 percent of the world's total emissions; if this group of countries, both developed and developing, could be segregated from the remaining 130-plus countries whose emissions only amount to about 15 percent of the global total, if a spotlight could be trained on them, and even if only the developed countries among them were to take on new commitments in this round of negotiations, it would be a matter of time before the key developing countries began to feel international pressure to deal with their own emissions; moreover, such an approach would deny the key developing country emitters their hiding place within the ranks of countries such as Antigua/Barbuda, Sri Lanka and Togo.

Proposing options in this category will occasion a strong opposition among developing countries, led by the chief emitters among them who, presumably, would spare no effort to cow their smaller cousins. They will be problematic to negotiate and may attract few supporters among the OECD countries, some of whom are quick to retreat when confronted by strong opposition from the G-77. Still, options in this category would likely win strong domestic support, would represent a significant and perhaps critical change in the Convention's approach to the problem, and achieve critical positioning for future negotiations.

APPENDIX A

BACKGROUND ON DEVELOPING COUNTRY COMMITMENTS UNDER THE
U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE

The Berlin Mandate (April 1995) and the Geneva Declaration (July 1996) are the key documents providing guidance on the outcome anticipated with respect to developing countries from the current round of negotiations.

The Berlin Mandate provides that:

"2. The process will, inter alia:

"(b) Not introduce any new commitments for Parties not included in Annex I, but reaffirm existing commitments in Article 4.1 and continue to advance the implementation of these commitments in order to achieve sustainable development, taking into account Article 4.3, 4.5 and 4.7;"

The Geneva Declaration provides that:

The Ministers and other heads of delegations present at the second session of the Conference of the Parties to the United Nations Framework Convention on Climate Change,

"8. Instruct their representatives to accelerate negotiations on the text of a legally-binding protocol or another legal instrument to be completed in due time for adoption at the third session of the Conference of the Parties. The outcome should fully encompass the remit of the Berlin Mandate, in particular:

- commitments for all Parties on continuing to advance the implementation of existing commitments in Article 4.1;"

Status of Countries

The Convention creates four categories of Parties:

- 1) Annex II Parties (developed countries that were members of the OECD at the time the Convention was negotiated)

- 2) Annex I Parties (developed countries included in Annex II, plus 11 specifically named "economies in transition" including: Belarus, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation and Ukraine)
- 3) Developing countries (all Parties not included in Annex I or Annex II)
- 4) Least developed countries (assumed to be those on the U.N. list of Least Developed Countries)

Current Commitments

In Article 4.1, all Parties, "taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances" are required to take the actions included in the 10 subparagraphs of the Article. Most significant among these is the requirement to:

"(b) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;"

Article 12 provides that "each Party shall communicate to the Conference of the Parties, through the secretariat, the following elements of information:

- "(a) A national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;
- "(b) A general description of steps taken or envisaged by the Party to implement the Convention; and
- "(c) Any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.

On a voluntary basis, developing countries may propose projects for financing, along with, if possible, an estimate of all incremental costs, of the reductions of emissions and increments of removals of greenhouse gases, as well as an estimate of the consequent benefits.

Under Article 12.5, each developing country Party must make its initial communication within three years of entry into force of the Convention for that Party, or of the availability of financial resources under the Convention. Least developed countries are allowed to make their initial communications at their discretion.

Article 4.3 provides that developed country Parties will meet the agreed full cost to developing countries of meeting their reporting requirements under Article 12. Article 4.3 also provides that developed country Parties will meet the agreed full incremental costs [to developing country Parties] of implementing the measures contained in Article 4.1 that are agreed between the developing country Party and the entity operating the Convention's financial mechanism (currently, the Global Environment Facility).

Developing Country Perspectives

In the negotiations that led to the Berlin Mandate, the Group of 77 (G-77) (the developing country caucus in the United Nations) strongly resisted undertaking any new commitments. Leaders of this effort included notably China and India. China, in particular, felt that there was no need to begin negotiations toward a new legal instrument in Berlin, that the Parties should first implement the Convention's existing commitments for an indeterminate period. They reacted very negatively to the German "Elements Paper" (an early effort to set forth basic elements of a protocol. The German paper called for new commitments from developing countries; the G-77 so soundly rejected the German paper that they allowed no reference to it in the Berlin Mandate. Even the protocol proposed by the Alliance of Small Island States (AoSIS) touched off a firestorm within the G-77 because it suggested that developing countries might take some, albeit minor, actions.

Ultimately, the G-77 relented and agreed that negotiations could begin -- but they were adamant that these negotiations involve no new commitments for developing countries. Developed countries, in particular the United States, insisted that developing countries must be involved in the negotiations and that the new legal instrument must include action by developing countries.

The compromise ultimately agreed provided that all Parties would "reaffirm" their existing commitments and "continue to advance the implementation" of those commitments. To some developing countries, this provision was hollow; their representatives have since asserted that developing countries will do nothing beyond what they are already doing. To most developed countries, this provision means that developing countries will be included in the new legal instrument, which will elaborate to some extent on their existing commitments.

SEEGC Doc #9782

AGENDA FOR
CLIMATE CHANGE MEETING WITH ASSISTANT SECRETARIES
THURSDAY, NOVEMBER 7 - 3:30 to 4:30pm

- A. Erhlich Presentation (30 minutes)
- B. Other Items (30 minutes)
 - Process on Papers
 - Consultations
 - Deputies Process and November 19 Deputies Meeting
 - Participation in Assistant Secretaries Meeting
 - Submissions by other countries

U.S. Submission on
Elements of a New Legal Instrument
(October 21, 1996)

General

In the U.S. view, the new legal instrument should respond effectively to the serious threat posed by global climate change; should reflect outcomes that are real and achievable; should be consistent with economic prosperity; should allow for maximum flexibility and cost-effectiveness in its implementation; and should lay the foundation for continuing progress by all countries.

Meeting the ultimate objective of the Convention will require concerted, long-term efforts by all Parties. While it is important for developed countries to take the lead, it is also essential that the Kyoto agreement recognize the growing contribution of developing country emissions and begin to plan for appropriate, cost-effective ways to address these emissions in a sustainable manner. In this connection, at COP-2 the United States called for continued work toward a longer-term concentration goal (e.g. for the next 50-100 years), recognizing that scientific understanding and technology will improve over time.

In putting forward these suggestions for a new legal instrument, the United States has rejected proposals by some countries calling for short-term targets that we believe are neither realistic nor achievable. We have also rejected the use of inflexible, internationally harmonized policies and measures. In the spirit of providing individual countries greater flexibility in meeting any agreed upon limitations, we believe that it is critical that flexibility in implementation be accorded all countries, including through emissions trading and joint implementation among nations.

We believe that the following elements would serve as a useful basis for the consideration of topics that would need to be included in a new legal instrument. Given the continuing uncertainties surrounding the form of such an instrument, we have noted particular aspects of these issues that may differ depending on whether the Parties choose a protocol or an amendment to the Convention to codify their agreement.

Preamble

If the legal instrument takes the form of a protocol, it might include a preamble. If it takes the form of an amendment, it would not, although the decision adopting the amendment could.

Definitions

A protocol would need to incorporate some or all of the definitions in Article 1 of the Convention, include its own definitions, or some combination of the two. An amendment, to the extent it introduces new terms, might also require amendment of Article 1.

Objective

We do not believe that it is either necessary or desirable to develop a separate objective for this legal instrument, whether an amendment or a protocol. The Convention's Article 2 would apply to an amendment. A protocol should incorporate Article 2 of the Convention.

Level and Structure of the Target

The Geneva Declaration calls for quantified, legally-binding objectives within specified timeframes. This is consistent with the U.S. call at COP-2 for a shift in the negotiations away from unrealistic, near-term proposals to legally-binding, medium-term targets that are both realistic and achievable.

A number of ideas and approaches regarding the structure of the target have been suggested thus far in the discussions within the Ad Hoc Group on the Berlin Mandate (AGBM). Many of these ideas and approaches have focused on a single-year target, but we believe it will be important to consider a broader range of possibilities (e.g., cumulative or aggregate targets covering a number of years, multiple-year rolling average targets, flexibility over time through banking and borrowing, etc.) We anticipate that more such ideas and approaches will be tabled and considered as we work toward a new legal instrument for adoption at COP-3.

The Berlin Mandate calls for adoption of the protocol/other legal instrument at COP-3, making calls to date for differentiated commitments in this timeframe impracticable.

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In addition to being realistic and achievable, it will be important that the target/timetable be sufficiently specific (to facilitate compliance), flexible in terms of its implementation (to encourage cost-effectiveness and broad participation) and straight-forward (to ensure negotiation and adoption by COP-3). As we noted at COP-2, as a general proposition, the United States opposes mandatory, harmonized policies and measures. However, we are open to the possibility of exploring consensus on agreed procedural measures, for example, those that might be necessary to implement an international trading regime or ensure enhanced reporting.

The United States is continuing its domestic analysis and assessment efforts so as to contribute to this discussion in upcoming negotiating sessions.

Advancing Article 4.1 Commitments

"Continuing to advance the implementation of Article 4.1 commitments" will be a critical component of next steps and must be reflected in the Kyoto agreement. Given the global nature of this problem, we must work together toward a global solution, recognizing our common but differentiated responsibilities and capabilities. A number of assumptions underlie U.S. views on next steps:

- Article 4.1:
 - applies to all Parties;
 - speaks to commitments ranging from inventories of emissions, to reporting, to adopting measures to mitigate climate change;
 - speaks to the requirement to promote the development and diffusion of technologies;
- The Convention anticipates that the status of countries will evolve over time (e.g., Article 4.2(f))
- Paragraph 2.b of the Berlin Mandate governs what will be included on this issue in the Kyoto agreement

Bearing in mind these assumptions, there are a number of approaches that can be taken through a new legal instrument. For example, the Parties could agree to:

- continued and more systematic support for efforts to develop national action plans (particularly in developing countries) following the revised Annex I Guidelines for National Communications and the newly adopted Non-Annex I Guidelines for Initial Communications

- redoubled efforts to adopt and implement "no-regrets" measures
- expanded programs aimed at developing, diffusing and deploying climate-friendly technologies (including through systematic efforts to identify and remove barriers to technology diffusion and to enhance the role of international financial institutions in responding to the threat of global climate change)
- further consideration of thresholds at which the status of countries would change, and the process involved in such a change in status
- further consideration of future steps (post-Kyoto) toward the objective of the Convention

International Emissions Trading and Joint Implementation

In the U.S. view, flexibility will be an essential element of the Kyoto agreement, including international emissions trading and joint implementation; it will therefore be a priority task to establish the guidelines for a credible emissions trading and joint implementation regime by December 1997.

Properly designed emissions trading and joint implementation regimes will motivate parties to achieve and strengthen national commitments to limit or reduce greenhouse gas emissions, because the cost savings potential in these types of programs can achieve more environmental protection than less flexible, less cost-effective regimes.

A number of principles must underlie an emissions trading and joint implementation regime. At a minimum, such a regime must be credible, efficient, transparent and verifiable.

Various design questions need to be addressed, and we intend to present our further thinking in this regard in the near future.

Institutions

For reasons of administrative efficiency and in light of budgetary constraints, a new legal instrument should utilize existing institutions to the maximum extent practicable.

A protocol would need to specify its institutions. In the case of an amendment, the institutions established under the Convention would apply. (Note: We do not believe it would be appropriate for non-Parties to a protocol to be officers of an institution serving the protocol.)

Compliance

The term "compliance" is used in this context to refer to the cluster of processes/mechanisms that provide incentives for the Parties to abide by their legal commitments.

Ensuring effective compliance will be critical for environmental as well as economic competitiveness reasons. Unless Parties comply, there will be little incentive for each Party to act and we will not achieve our environmental objectives. Uneven compliance will undermine confidence in the new legal instrument and encourage "free-riding."

A key means of promoting compliance will be to ensure that commitments are realistic and achievable (as noted above). In addition, it will be important to consider supplementary means for promoting compliance, including ways to ascertain whether Parties are meeting their obligations. In this context, we will need to consider elaborating existing reporting and review mechanisms.

Unless otherwise provided, an amendment to the Convention would be covered by the Convention's reporting requirements, as well as dispute settlement provisions and any multilateral consultative process that might be established. A protocol would need to specify whether any of these Convention mechanisms would apply, as well as any additional compliance-related provisions.

Decision-Making

Only the Parties to the protocol or amendment should have decision-making authority with respect to that instrument.

Final Clauses

A protocol would need to contain several final clauses, including, for example, provisions on entry into force and amendment. An amendment's final clauses are already set forth in the Convention.

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EXECUTIVE OFFICE OF THE PRESIDENT

Washington, D. C.

FAX TRANSMITTAL COVER SHEET

DATE: 25-Oct-96

TO: DAN REIFSYNDER

SUBJECT: DRAFT PAPER ON TRADING

FROM: STEPHEN R. SEIDEL 395-3706
COUNCIL ON ENVIRONMENTAL QUALITY

If there are any problems receiving this transmission,
please call the sender, or (202) 395-7370.

DRAFT 10/24

NOTE: This paper is a draft for internal discussion purposes only. It is intended to outline issues and options and does not reflect the views of any agency of the U.S. government.

ACHIEVING A FLEXIBLE, COST-EFFECTIVE CLIMATE CONVENTION:
INITIAL THOUGHTS ON EMISSIONS TRADING AND JOINT
IMPLEMENTATION

The United States has been a strong proponent of incorporating flexible, cost effective measures into the underlying structure of the Framework Convention on Climate Change (Climate Convention). At the Second Meeting of the Parties to the Climate Convention last July, we stated that any proposed medium-term target "must be met through maximum flexibility in the selection of implementation measures, including the use of reliable activities implemented jointly, and trading mechanisms around the world."

This paper presents background information on international emissions trading and joint implementation, discusses issues affecting their potential role in the context of the Climate Convention, and ends with a description of what the U.S. might say on emissions trading and joint implementation at the upcoming negotiating session in December.

EMISSIONS TRADING AND JOINT IMPLEMENTATION -- BRIEF DESCRIPTIONS

The concept of joint implementation (JI) essentially involves entities from two different countries working together to reduce, avoid or sequester greenhouse gas emissions. As a concept, it was incorporated into the original Climate Convention with the statement in Article 4.2 (a) that "These [Annex 1 or developed countries] may implement such policies and measures jointly with other Parties" A pilot project, "Activities Implemented Jointly" scheduled to run possibly through the year 2000 was established by decision at the First Conference of the Parties in order to advance understanding of a host of critical issues underlying the ultimate goal of providing "credit" for any such activities.

The United States launched its own Initiative on Joint Implementation in October 1993. By the summer of 1996, 51 project proposals had been submitted of which 15 projects had

been accepted and 18 more remain under development. The projects involve six different countries outside the U.S. and include activities related to fuel switching, solar, biomass, and hydro, and forest management. A coalition of electric utilities in the United States have also initiated their own program aimed at identifying and promoting joint implementation activities.

Emissions trading can be thought of as a more systematic program of joint implementation. It could take any number of forms (e.g., trading of allowances or credits), but currently is not formally part of the structure of the Climate Convention.

It is important to keep in mind that this paper focuses on international forms of trading. It explicitly does not address how the United States, or any other nation, might implement domestically the commitments agreed to as part of the current round of treaty negotiations. It looks only at the potential for incorporating international forms of trading into the framework of the Convention. Although how nations chose to implement domestically their commitments will to some extent influence the magnitude and costs associated with international trading, questions of domestic implementation of treaty obligations fall outside the scope of this paper.

SUPPORT FOR TRADING

International emissions trading and joint implementation are viewed as potentially attractive mechanisms for two reasons. First, they offer the potential to substantially reduce compliance costs by allowing countries to meet their commitments to limit greenhouse gas emissions through the lowest cost combination of actions at home and abroad. One estimate of the potential savings for the United States of achieving some of its reductions abroad suggests that costs would be reduced by 70%. (Stanford EMF) Another study estimated that trading roughly half the benefits from global trading can be achieved if trading occurred between OECD countries and countries with economies in transition (Jacoby, et. al.) Note that both these studies likely overstate savings from emissions trading by failing to consider any transaction costs and assuming perfection information.

The second potentially attractive reason for allowing "trading" among nations involves several unique characteristics of the role of developing countries in climate change. Developing countries will experience the largest growth in emissions over the coming decades, will be the recipients of considerable private sector capital and technology from developed countries in energy and related sectors, and represent a significant source of potentially low cost reductions. Trading

offers one potential means of creating incentives for redirecting some of the growth in these fast growing countries toward more sustainable, lower greenhouse gas emitting technologies.

The recent international assessment report on climate change (prepared by the Intergovernmental Panel on Climate Change) strongly endorsed the use of international trading as a means of lowering the costs of any reductions in greenhouse gas emissions. [Confirm??] Trading has also been widely endorsed by the private sector in the United States as a means of reducing the costs of achieving greenhouse gas reductions, but has been received mixed reactions by the environmental community (see below).

The views of other developed countries have evolved considerably. Early opposition to U.S. proposals on joint implementation in 1992 seemed rooted in the concern that the U.S. was generally seeking to avoid taking any actions at home to reduce greenhouse gas emissions. With the recent move toward a "legally binding" target and the difficulty most other developed countries have had in achieving the non-binding aim, interest in trading among other developed countries has expanded. Moreover, countries such as Japan and Australia, where domestic reductions appear to be most costly, may view trading at least as a partial solution to the concerns they have about a single target for Annex 1 countries.

OPPOSITION TO TRADING

Dating back to the negotiations leading up to the Convention itself, the United States has consistently pushed for making trading a part of the treaty's framework. Our support for trading has met opposition from a number of sources. Most importantly, developing countries have generally opposed allowing trading because they feared: it represents a new form of eco-imperialism with developed countries seeking to avoid solving a problem they largely created; it would be used as a substitute for needed development assistance; inexpensive reductions would be bought up by developed countries leaving only expensive reductions behind for developing countries when faced with their own commitments; and it threatens their sovereignty by providing an incentive for private companies to circumvent their governments in ways potentially inconsistent with the nation's development objectives. However, some developing countries, particularly in Central America, have begun to take a more active role in JI projects and to view this as an opportunity to encourage investment and technology transfer and to channel development in a more substantiable direction.

Some environmental groups fall squarely in the camp of supporters for trading assuming that appropriate environmental safeguards are built into the program. Others have voiced some of the same equity concerns as developing countries as discussed above and are concerned that by achieving reductions abroad, developed countries will effectively slow the advance in technologies needed to provide more significant, longer term reductions in greenhouse gases.

ISSUES RELATED TO INTERNATIONAL TRADING

The United States' consistent support for incorporating trading into the Convention's framework has been driven by the desire to achieve the greatest possible reductions for the resources expended and to provide an incentive to redirect capital flows to developing countries toward more greenhouse friendly technologies.

In the abstract, international trading sounds extremely promising. If it is to become a reality however, there remain a host of policy issues that must be resolved and significant hurdles to overcome. For example, we will need to better understand the following questions: What provisions need to be agreed to in the Convention to allow for international trading? How should we distinguish between joint implementation and emissions trading, if at all? How do we hold down transactions costs to facilitate trading, while at the same time ensuring the integrity of a trading regime? How can an international trading system accommodate to the diversity of ways different countries are likely to implement domestically any agreed upon emission objective? How do we convince other nations, both developed and developing, that international trading can benefit all involved?

Two groups within the government are addressing these and other questions related to trading. A trading subgroup within the Interagency Working Group chaired by State Dept. has begun to sort out issues related to the design of an international trading regime. The Interagency Analytical team, chaired by Undersecretary Ehrlich of the Dept. of Commerce, is developing the analytical capability to estimate the potential benefits to the United States from alternative trading scenarios.

U.S. STATEMENT AT DECEMBER MEETING

The details of the U.S. proposal for an international trading regime will need to be developed over the upcoming months. At the next Climate Convention negotiating meeting in mid-December, the United States should be in a position to

continue making the argument for trading, begin to describe in broad terms what a trading regime might look like, but not commit to any of the specific details of such a regime. We should use this session to further inform others of the potential benefits from trading, and to begin to shape thinking on what needs to be part of an international trading regime.

The U.S. statement on emissions trading and joint implementation would be based on the following:

- * The United States believes that flexible approaches to implementation of any agreed upon emissions limitation are essential elements to maximizing the environmental benefits and reducing the costs associated with achieving the limitations being negotiated by the Parties.

- * The U.S. referred to both emissions trading and joint implementation as two possible forms of flexibility in its proposed framework.

- * While "trading" opens up the potential for substantial benefits for all nations, a number of important concerns have been raised and must effectively be addressed in the design of any trading program. We believe the following principles are critical to a successful trading program. A trading regime should:

- minimize costs, especially transaction and administrative costs;

- motivate Parties to achieve and strengthen national commitments to limit greenhouse gases;

- be as flexible as possible to accommodate different national programs or approaches to implementing emissions commitments;

- be as inclusive as possible of all greenhouse gases, both sinks and sources, consistent with other related principles;

- facilitate trading through effective monitoring and verification, building on existing reporting through national communications and joint implementation activities;

- promote compatibility among national approaches to trading to facilitate such activities;

-- effectively incorporate issues related to trading into matters related to compliance

-- provide for institutional support and capacity building to encourage broader participation in trading.

* We have already taken the first important steps towards the use of trading in the Framework Convention through the provision for joint implementation and the pilot project on activities implemented jointly under decision 5 of the first Meeting of the Parties.

* We believe further progress down this path offers enormous opportunities to provide powerful incentives for increased technology transfer and investment in greenhouse friendly technologies for those countries that choose to participate. However, the potential benefits of joint implementation will only be realized if the appropriate incentive exists for initiating such actions and if clear guidelines are established.

* We propose that the Parties decide at COP-3 that AIJ will move from its pilot phase to full implementation by the year 2000, and that guidelines will be developed and adopted by Parties to the Convention prior to the year 2000 based on the experience under AIJ to date.

* While no country can or should be forced to participate in joint implementation activities, the option of permitting such activities should be open to all countries, both developed and developing, within the guidelines that will be developed.

* In addition to joint implementation, the United States also stated that emissions trading among countries represents an important part of its proposed framework for the Kyoto agreement.

* Emissions trading is similar to joint implementation in that it involves a country meeting its emissions limitations through some combination of actions taken at home and abroad. However, we would distinguish between the two in several respects. First, emissions trading would allow for a more systematic approach to trading between nations. As a result, it would be limited to those countries subject to an agreed upon emissions limitation and which have incorporated international trading regimes as part of their national action plans.

* The U.S. proposes that the agreement reached in Kyoto set adopt as a core element provisions related for emissions trading beginning in the year 2000, and calling for the elaboration of

guidelines for such activities to be adopted prior to that date.

Issue Paper: "Compliance"

Introduction

- o In general, the United States views the subject of "compliance" with international environmental agreements broadly. We look at the range of techniques that can be used in the negotiating process, in the agreement itself, and outside the agreement to promote a particular environmental objective.
- o In the climate change context, the United States has substantial environmental, economic, and treaty-integrity interests in achieving an agreement that properly balances the right commitments, the right parties, and the right incentives to comply.
- o This paper will focus on the following issues:
 - 1) how can the commitments themselves be structured so as to promote their own implementation?
 - 2) what kind of review process(es) would be appropriate, including how to deal with parties that are not in compliance?
 - 3) how should the agreement deal with non-parties?

Commitments

- o The U.S. has taken the view that the new legal instrument should contain at least two key sets of commitments:
 - for so-called "Annex I" countries, a legally binding medium-term emissions target; and
 - for all countries, commitments that continue to advance implementation of Article 4.1 of the Convention.
- o In terms of the target, the reason that the U.S. is seeking a legally binding target is precisely because the non-binding "aim" in the Convention has largely not been implemented. A legally binding target, in and of itself, does not necessarily ensure compliance in a meaningful sense. It generally ensures that a State has in place the necessary legislation to implement the target before it ratifies. However, a target that was legally binding but not realistic could have the effect of attracting very few parties. While those few parties might comply with the target, the overall environmental objective of the target would certainly not be met.

Thus, if the goal is to both promote compliance and attract parties, it is critical that the target also be "realistic" and "achievable," as the U.S. has suggested.

- o In terms of commitments advancing Article 4.1 implementation, given the need to get the agreement of developing countries, there may be a limit to how much can be done in structuring these commitments to promote their implementation. In theory, it would be helpful to make the commitments as specific as possible (to make it harder to hide behind the very general language of existing 4.1) and to avoid provisos (such as references in the chapeau of 4.1 to "priorities," "circumstances," etc.). It may be possible to provide developing countries with necessary flexibility through choice of specific measures, rather than through vague, heavily qualified obligations.
- o In addition to appropriately structuring the above commitments to promote compliance, options for collateral commitments that could have the effect of promoting compliance with the key commitments would include, for example:
 - As under the Convention, a party could be required to report on its implementation; while the specifics could vary for different categories of parties, this type of requirement could apply to all parties.
 - The Parties could agree to continued and more systematic support for efforts to develop national action plans (particularly for developing countries) following the revised Annex I Guidelines for National Communications and the newly adopted Non-Annex I Guidelines for Initial Communications.
 - The Parties could agree to expanded programs aimed at developing, diffusing and deploying climate-friendly technologies (including through efforts to identify and remove barriers to technology transfer and to improve the performance of existing financial institutions).
 - "Annex I" parties could be required to have in place domestically an emissions monitoring system (at a minimum for CO2, at a minimum for specified sources).
 - "Annex I" parties could also be obligated to effectively enforce their domestic laws related to implementation of the target. (The NAFTA environment side agreement contains such an obligation regarding environmental laws generally. Note that, as in the NAFTA agreement, such an obligation would need to be worded very carefully.)

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timely
processes
of emissions

Review Processes

- o As under the Convention, the U.S. should support appropriate review/dispute settlement mechanisms to ascertain whether parties are implementing their commitments under the new legal instrument.
- o Key questions include:
 - who should do the reviewing?
 - what should they review?
 - what is the status/consequences of their conclusions?
- o As to who reviews, options include, for example, the parties themselves (through the Conference of the Parties or other institution); experts nominated by parties; ad hoc panels; standing bodies outside the treaty; the public. What type of expert or panel member is involved depends on what is being reviewed (e.g., a scientist would not be appropriate for an issue involving treaty interpretation).
- o As to what is reviewed, there are at least two basic issues:
 - First, it needs to be considered whether a review mechanism is to be aimed at alleged non-compliance (i.e., an actual treaty violation), implementation generally, or a particular aspect of implementation:
 - o Some mechanisms, such as traditional dispute settlement, only deal with situations of non-compliance with treaty obligations. (These are generally bilateral, but can also be multilateral.)
 - o Other mechanisms are conceived more broadly to review "implementation" issues, where it is not necessary for any allegation of non-compliance to be made in order to trigger a process; such mechanisms are seen as having the advantages of being less adversarial (and therefore more likely to be used) and capable of dealing with a wider range of issues. They are also useful where treaty obligations are so general or caveated that it would be difficult to make out a case of actual non-compliance. (It should be noted that, whereas the Montreal Protocol's friendly multilateral process involves "non-compliance," Article 13 of the Climate Change Convention calls for consideration of a process "for the resolution of questions regarding the implementation of the Convention.")

- o Still other review processes are aimed at particular aspects of implementation, such as verifying facts related to a specific obligation (e.g., the SBI review process noted below).
- Second, it needs to be considered whether a particular review process is to review facts and/or law. For example, a dispute involving Article 4.2(b) of the Convention, if it were legally binding, could involve the factual question of actual emissions, the legal question of whether sinks can be counted, or both.

Traditional dispute settlement (such as conciliation or arbitration) is generally empowered to review disputed facts, disputed interpretation of a treaty provision, or the application of a treaty provision to facts. A review mechanism can, however, be limited to fact-finding. As noted above, what is being reviewed will dictate, to a certain extent, who should be doing the reviewing.

- o As to status of conclusions of a review process, a review process might have no formal conclusion (e.g., discussion, political pressure) or could yield, for example, a recommendatory report on possible steps to promote compliance (such as technical assistance, in the case of a developing country), a factual report, a recommendatory award, or a binding judgment concerning compliance.
- o As to consequences, the conclusion of a review process could form the basis for, for example, further discussions among the parties, action by the Conference of the Parties (in the case, for example, of a recommendation on promoting compliance); good faith consideration by a party (in the case, for example, of bilateral conciliation), or a sanction. Consequences of a conclusion are related to its status; for example, a sanction would not flow from a recommendatory (non-binding) award.

Review Processes under Framework Convention

- o By way of background, under the existing Convention:
 - The Conference of the Parties (COP) and the Subsidiary Body for Implementation (SBI) have roles with respect to reviewing reports of parties on emissions/implementation; with respect to Annex I communications, the SBI has established a review process, coordinated by the Secretariat, involving fact-finding by third-party experts nominated by Parties; review conclusions have political, not legal, status.

- Parties have the option of resorting to formal dispute settlement, in the event of a dispute concerning the interpretation or application of the Convention. If parties cannot resolve a dispute on their own within a year, the dispute is to be submitted, at the request of any one party to the dispute, to conciliation. The conciliation commission would be composed of members appointed by the parties to the dispute (and a chairman chosen by the members); the results of conciliation are recommendatory, not binding. (Parties may elect to send their disputes to binding arbitration or the International Court of Justice, but this is not required.)
- Article 13 calls for the COP to consider the establishment of a "multilateral consultative process...for the resolution of questions regarding the implementation of the Convention." As this issue is still being considered, the who, what, and status/ consequences of this process are not yet known.

Review Options

- o With respect to the new legal instrument, there are numerous compliance review options, many of which are not mutually exclusive. (Note, in this regard, that an amendment does not necessarily have to be subject to the same mechanisms as the current Convention, provided the amendment so specifies.) For example:
 - regular meetings of the parties as a means of keeping political pressure on parties to comply and providing a forum for raising questions about compliance (through a new Conference of the Parties, if the instrument is a protocol);
 - in addition to regular meetings of the parties, establishment of a subsidiary body focused on implementation issues;
 - requirement that reports prepared by parties on their implementation be made publicly available, thereby permitting public scrutiny and pressure;
 - regular factual review of parties' implementation (e.g., current SBI review process involves factual review of Annex I communications by experts nominated by the parties);
 - factual review of parties' implementation (generally or with respect to particular obligations), at the request of a party

- availability of "friendly," multilateral consultative process, designed to address either cases of non-compliance only or implementation more generally; should not overlap with the functions of any subsidiary body;
 - availability of traditional bilateral traditional dispute settlement, with (as in the Convention) non-binding conciliation as a minimum requirement;
 - availability of traditional bilateral dispute settlement, with binding arbitration or judicial settlement as a minimum requirement.
- o On the particular issue of whether the United States should support mandatory binding dispute settlement, there are several considerations. For example:
- Binding dispute settlement could have several advantages:
 - o The existence of mandatory, binding dispute settlement could create an incentive for parties to fully implement their treaty obligations.
 - o The prospect, during the negotiations, of ultimately including binding dispute settlement in the legal instrument could have the effect of causing countries to negotiate more realistic and achievable commitments.
 - o The existence of mandatory, binding dispute settlement could be the type of enforcement tool against other countries that some domestic constituents are looking for in terms of creating a level playing field.
 - o To the extent that we seek to pursue penalties against parties for non-compliance (such as a monetary penalty or trade sanction), binding dispute settlement would appear to be a precondition; it would be difficult to argue, or accept, that penalties could be triggered by a non-binding finding of non-compliance.
 - Potential disadvantages include:
 - o Binding dispute settlement is a double-edged sword. ~~While some domestic constituents may view it positively as an enforcement tool, others might prefer to give up that tool rather than subject the United States to the prospect of binding dispute settlement as defendant.~~

- o Even those not generally wary of binding*dispute settlement may not support it in this case. Specifically, it is probable that the ultimate target will not be crystal clear, but will be surrounded by some kind of ambiguity (akin to the way the Convention aim is unclear on whether JI, sinks can be counted). If so, a commitment to binding dispute settlement is a commitment to potentially have a third party interpret the ambiguities in a manner binding on the United States.
- o In the climate change context, developing countries have historically been opposed to binding dispute settlement. A decision to seek binding dispute settlement would therefore likely lead to developing country calls for differentiated dispute settlement (which we have avoided so far) and/or weaker developing country obligations.
- o Binding dispute settlement could cause some countries to decide not to become party to the new legal instrument.
- o In making decisions on which review process(es) to support (including, in the case where binding dispute settlement is supported, whether a penalty should attach to a party's non-compliance), the United States should be mindful of the relationship between these issues and the treaty commitments themselves, particularly the target. Relevant aspects of the target (which are not yet known, thereby complicating the task) include:
 - whether it is clear or clouded by ambiguity (either with respect to the target itself or as to whether, for example, JI or emissions trading can be counted);
 - whether it is objectively measurable (is assessing compliance a purely factual endeavor? or does it, for example, involve the application of a subjective standard to objective facts?).

Some hypothetical examples help demonstrate the relationship between a target and issues that might or might not be subjected to a review process:

- Taking the cleanest case first, assessing compliance with a target that clearly required a party to ensure that its emissions of a particular greenhouse gas in a given future year did not exceed some percentage of a past year's emissions would involve the factual issues of past emissions and emissions in the future year. Disputes could arise concerning the data collection method or other methodology used by a party in implementing the target.
- To the extent that a target related to emissions of greenhouse gases generally, issues could arise concerning the GWP assigned to various gases and corresponding calculations. There could be additional measurement issues if sinks were part of the calculation.
- To the extent that a target were based on a predicted future baseline, issues could arise concerning the facts/methodology used to predict that baseline.
- Any lack of clarity in the text would raise issues of legal interpretation (for example, with respect to whether JI/emissions trading could count (and, if so, how) toward achieving the target).
- Issues of legal interpretation and application of law to facts would also arise if an otherwise quantitative target were surrounded by one or more non-quantitative phrases (such as "appropriate," "taking into account," or any of the types of phrases currently found in Article 4(2)(a) of the Convention).

Non-Parties

- o An issue related to, but distinct from, the issue of how to deal with non-complying parties is how to deal with non-parties. Where a treaty addresses a global environmental issue, a non-party can potentially stand to benefit from the actions of other countries while taking no action of its own (to so-called "free rider") or affirmatively undermining the treaty's objective. Thus, a recurring question regarding such treaties is how to deal with the non-party issue.
- o There are numerous ways to seek to minimize the non-party problem:
 - through the negotiating process itself, i.e., figuring out which countries' participation in the regime is essential and ensuring that they are involved in the negotiation;

- o -- through positive incentives for countries to join a regime (e.g., financial and technical assistance, differentiated obligations; allowing opt-outs from certain obligations);
- through an entry into force clause that requires ratification by key countries (i.e., those that would be "free riders" if they did not join) (note that an amendment would require 3/4 of the parties to ratify for entry into force; a protocol would need to set its own entry into force requirement);
- o -- the use of trade measures against non-parties.
- o Were the trade measure option to be pursued in this case, several factors would need to be considered:
 - It is not obvious what the subject of the trade measure would be. (In the Montreal Protocol, which is the only real precedent here -- given that Basel and CITES are all about restrictions on trade -- the trade restriction applies to certain ozone-depleting substances and products containing such substances; a further call to consider restricting trade in products made with certain such substances has deliberately not been implemented.)
 - In order to meet the GATT/WTO Article XX chapeau requirement that trade measures not constitute a means of unjustifiable or arbitrary discrimination among countries where the same conditions prevail, the trade measures should not apply where a non-party is in de facto compliance with the environmental requirements of the agreement. This raises the question of who decides whether a country is in compliance and, particularly in the case of developing countries, what constitutes compliance, given the likely general language of any developing country obligation. (This is in contrast to the Montreal Protocol, where the obligations are specific and quantitative and therefore amenable to objective measurement.)
 - Also in order not to discriminate, the trade measure should apply equally to parties that are not in compliance. (See discussion above concerning dispute settlement and penalties for non-compliance.)
 - The United States may itself be a non-party to the treaty for an extended period.

DEFINING THE FORM OF THE TARGET

Note: This paper is a draft for internal discussion purposes only. It is intended to outline issues rather than positions or options, and does not reflect the views of any agency of the U.S. government.

In July of this year, at the Second Meeting of the Parties to the Framework Convention on Climate Change (FCCC), the United States rejected calls by some nations for short-term emissions targets that would disrupt our economy by coming on too quickly and inflexibly (e.g., a 20% carbon dioxide reduction from 1990 levels by 2005). Instead, the U.S. proposed that the Parties negotiate a legally-binding medium-term emissions target, ^{incorporating} international emissions trading and joint implementation and ~~reflecting flexibility as to the timing of~~ ^{that provided significant} ~~implementation.~~ ^{timing flexibility, including}

This paper provides an overview of issues and options related to the design or form of a target. It also identifies a number of issues for further analysis by the interagency analytic effort. Recognizing that ~~reaching~~ ^{reaching} firm conclusions on specific design issues is likely to require additional time, the ~~concluding~~ ^{concluding} section outlines what the U.S. might say at the December negotiating session to advance the discussion on this issue without foreclosing potentially attractive options.

The following key issues are addressed in this paper:

1.2. carbon
per unit
GDP *
Should targets be defined relative to 1990 emission levels (like the current non-binding aim), to emission levels in a later year, or to indicators of future population growth or economic activity?

should
target be
emissions
levels or
growth or
concentrations *
Should the "medium-term" target be set on a single-year basis? As average over a multi-year period (e.g., 3 to 10 years)? As a cumulative amount of emissions over long-term period (e.g., 30 years or more)? In terms of contributions to atmospheric concentrations?

What conditions or options, if any, should be built into the form or design of the target if full agreement on the scope of international emissions trading cannot be achieved in this negotiation?

* How frequently should Parties' performance be evaluated against their commitments?

* How frequently should Parties' commitments be reviewed and potentially changed?

wrap around
can we
ask
as
performance
OK

1. 1990
2. 1995
compliance?
→ This
really gets
at what
we need to do to
meet target, not
to go
to 1995

This has nothing to do with targets

[* Assuming that a binding target does not take effect before the medium-term dates (e.g., before 2010 or 2020), how can incentives be structured to encourage early reductions?

- * Should the U.S. maintain its current position in favor of a comprehensive target (i.e., all gases, sources, and sinks) or handle different gases in different ways?

I. Target Forms and Periods

a. Baseline Issues

should say: (1) this will not be met (2) how far from meeting the target the developed countries are likely to be

The existing non-binding aim of the FCCC calls for developed countries to return their emissions to their 1990 levels by 2000. Most proposals to date for post-2000 commitments have been stated in terms of changes from 1990 levels in a future year (e.g., 20% reduction from 1990 levels in 2005; 1990 levels in 2010). Other baseline alternatives could be considered:

also makes the target easier to meet

A later year than 1990. Changing the base year affects the relative position of countries that have had different emissions growth rates in the 1990s. A base year later than 1990 (e.g., 1995) would favor countries such as the U.S. that have had relatively fast emissions growth since then. It would disadvantage countries such as the U.K. and Germany that have reduced emissions since 1990, and especially disadvantage Russia and other countries with economies in transition (EITs) that have had sharply declining emissions due to reductions in economic activity (hopefully temporary) and energy market reforms (hopefully permanent). Raising this issue could complicate and slow the negotiating process.

2000 emissions will be higher (generally) than 1990 emissions

1990 "adjusted" for weather or economic cycles. In national reports submitted under the FCCC, a few countries unilaterally adjusted their baselines to reflect weather, economic, or energy market conditions in 1990, altering the relative position of different countries. The current Convention, which includes only a non-binding "aim" for 2000, gives no guidelines or limitations for such adjustments. In the context of a legally binding target, any adjustment methods would have to be internationally negotiated and agreed upon.

that might be permitted

An average of several years. If there were concerns that unrepresentative weather or economic conditions in the base year unfairly affected the Parties' relative position, they could agree to use the average of several years (e.g., the average of the 3 or 5 years surrounding 1990).

However, are a business cycle too difficult

Change from a projection of future emissions. Another approach could be to reduce emissions by a specified percentage from what they would otherwise have been under "business as usual" in a future year (e.g., 20% reduction from projected 2010 emissions). This raises difficult questions concerning the choice and validity of any underlying model to project the "business as usual" reference case. Several countries (e.g., Australia, Japan) have suggested including indicators such as population growth or economic output growth in the formula for the

target (e.g., reduce per-capita 1990 emissions, or emissions per unit of GDP, by 10 percent by 2010). Such formulae make it harder to determine what total emissions will be achieved, since allowed emissions become a function of other variables. In addition, such formulae could become unwelcome precedents for efforts to limit emissions from developing countries. While a per-capita-adjusted formula would benefit the U.S. relative to Europe and Japan (which have stagnant population trends), it would disadvantage all developed countries relative to countries such as India and China, which have very low per-capita emissions and higher population growth.

Design

b. Target ~~Form~~ Proposals

(1) Single-Year Targets. Proposals for future commitments made to date by other Parties define both the target level and the base in terms of single-year emissions levels. For example, one proposal would have each Party meet its 1990 level of greenhouse gas emissions in 2010, and presumably in each year thereafter.

A single-year target has the disadvantage of being sensitive to short-term variation in the weather, energy prices, and business cycles. Unusually hot or cold years, for example, can cause U.S. emissions to swing by + or - 25 million metric tons carbon equivalent (MMTCE) -- about 2% of total U.S. emissions and about 40% of the reduction sought by 2000 in the U.S. Climate Change Action Plan. *should explain relation to stage of business cycle by indicating variation over the cycle* Because swings in weather, energy prices, or economic cycles cannot be predicted with confidence, a single-year target would require each country to build in an extra margin of GHG reductions to ensure compliance, raising both cost and environmental effectiveness.

(2) Multi-Year Average Targets. A short-term (3 to 10 year) multi-year average target would be less sensitive to short-term variation in weather, energy prices, or business cycles, reducing the need for an extra margin of emission reductions to assure compliance. This, in turn, might enable the Parties to agree on a more stringent target.

Form. Either "block" or "rolling" averages could be used. With "block" averages, each defined time period lies end to end (e.g., 2010-14, 2015-19). Compliance would be determined at the end of each block of time, looking at average emissions over the period (e.g., every five years). With "rolling" averages, each year begins a new time period that overlaps the prior and following periods (e.g., 2010-14, 2011-15, 2012-16). Compliance would be determined at the end of each year, looking back to the average emissions of the preceding period (e.g., the preceding five years). Both block and rolling averages smooth out year-to-year variation associated with weather, energy prices, and economic conditions. Block averaging offers additional flexibility for a Party to determine the pace at which the emissions "budget" for the period will be expended (evenly, front-loaded, or back-loaded) in accordance with its national circumstances. (This issue is explored further with regard to longer-term cumulative emissions targets, below).

How long? A multi-year average target could be set for periods of various lengths (e.g., 3 to 10 years). Analysis of weather variation, energy price fluctuations, and business cycles is needed to illuminate how much smoothing of weather and business cycles is provided by rolling average targets of various lengths.

Role of banking and borrowing. Multi-year averages inherently incorporate some degree of banking and borrowing. If emissions are below the target in any one calendar year, that amount automatically can be carried over to offset higher-than-target emissions in other years within the same five-year periods.

Banking or borrowing could also take place *between* multi-year average periods. For example, in a "block" average system, emissions amounts "unused" during one period could be banked and carried over to a later period. Such an approach rewards efforts to make early reductions. Borrowing from a later period in order to emit more in a current period raises more complex issues, however. (These issues are treated more fully in discussion of long-period cumulative targets, below.)

(3) Longer-Period, Cumulative Targets. A cumulative target for longer periods (e.g., 20 or 30 years or more) could give parties flexibility, ~~over longer periods than the shorter-term multi-year average target concept already discussed.~~

Form. Each party would be assigned a cumulative emissions budget for a longer-term period (e.g., 2010-2040, 2000-2050). Each party would then be free to determine how fast to consume its cumulative emissions budget over the period, in accordance with its national circumstances. For example, one country may choose to defer emission reductions to later in the period, and to let emissions continue at or even above current rates in the early years. Another may choose to set a tighter budget for the early years, with less steep reductions in later years.

"Flight plans" and banking/borrowing. Each Party would be required to file a "flight plan" committing to the rate at which it will consume its emissions budget over the whole period. An intermediate reporting and review process would be necessary to assure that each Party was staying on its "flight plan." For example, the longer-term period could be subdivided into multi-year average sub-periods, with each Party required to specify how much of its budget will be used in each sub-period. "Flight plans" might be subdivided into 3 to 7 year intervals, and compliance evaluated on that frequency, reflecting a balance between the need for early identification of deviations and the limited capabilities of the process. Consideration would have to be given to how much borrowing should be allowed from later in the period (i.e., the consequences of "falling behind"). A limit might be needed to prevent a Party from using up its entire budget before the multi-decade period ended.

How does this differ from "multi-year averages" targets?

How long? A longer-term cumulative target of 30 years or longer is suggested by the desire to avoid prematurely retiring long-lived energy-related capital stock, and by reliance on technological progress to bring forth cleaner and lower cost technology.

- For example, the United States might want to take account of the replacement cycle for its existing coal-fired power plants, which are responsible for roughly 30 percent of current U.S. carbon dioxide emissions. Most energy analysts project significant rates of replacement of current coal-fired plants in the 2015 to 2025 period and beyond, although replacement rate predictions are uncertain given the option of refurbishing plants to extend their lifetimes. A cumulative budget that allowed reductions to be deferred to late in the period would conserve this capital stock and require less capital to be used for emissions abatement early in the period. Further cost reductions would accrue from deferral if time improves the efficiency of replacement sources and brings down their costs.
- One study of both capital stock turnover and replacement cost issues in the U.S. concluded that, assuming agreement at this time on a 50-year cumulative emissions budget for developed countries, flexibility to allocate emission reductions over that 50-year period could reduce overall costs by 40%. The savings would be less if the budget period is shorter.
- The potential savings would also be less if (as is almost certain to be the case) the 50-year cumulative target cannot be guaranteed and is subject to periodic review and tightening based on developments in science, technology, and economics. Since scientific understanding of the rate and severity of warming is likely to continue improving, targets are likely to be repeatedly reviewed and reconsidered over the next 50 years. Under those conditions, the long-term "flight plan" approach loses some of its attractiveness.
- The rate of technological improvement and cost reduction is also uncertain and subject to policy influence. A target that requires relatively early, but non-Draconian, reduction efforts will send a signal to the private sector that can be expected to accelerate the rate at which current technology is applied and improved technology developed. As an example, while it first appeared that eliminating ozone-depleting CFCs from building "chillers" would force costly early retirements of existing units with 30-year expected lives, redesigns stimulated by the phase-out improved energy-efficiency beyond historical or expected rates of improvement; reduced operating costs now make it profitable to replace existing units early. An important question is whether policy-driven acceleration of technological progress in one sector of the economy can be achieved only by diverting resources from technological progress in other sectors, slowing overall labor and capital productivity growth. The Interagency Analysis Team is further considering these issues.

(4) Concentration-Based Targets. The U.S. statement at the COP in July suggested the desirability of setting a *concentration* goal for the long-term (e.g., for 2050 or 2100). This would be an interim step towards the FCCC's "ultimate objective" of stabilizing greenhouse gas concentrations at non-dangerous levels. It would respond to requests from some U.S. business interests (specifically the International Climate Change Partnership) for a signal as to our long-term trajectory. It would also serve as a message to all governments that limitations will be needed over the long-term on emissions from both developed and developing countries.

In addition to this long-term concentration goal, some have suggested that the medium-term target itself should be set in the form of the cumulative *contribution* to future concentrations of greenhouse gases that each developed country Party was permitted to make during a specified period. Such an approach would take account of the "sink" processes by which carbon is removed from the atmosphere, which suggest that early emissions may have less effect on concentrations in an "out-year" than emissions released closer to that out-year. A Party's total allowable emissions could be varied depending on the time profile of emissions over the period, to take account of the carbon cycle. Complicating this approach is the possibility that the efficiency of sink processes may be reduced as warming proceeds. In addition, substantial scientific information suggests that the *rate of warming* on the decadal scale may be as important as the cumulative warming over a longer period, because a high rate of warming may exceed the adaptation rate of ecosystems and individual species. A further issue with regard to a contribution-to-concentration target is whether it could encourage developing country Parties to focus attention on historical responsibility for current concentrations, which falls primarily on the developed countries.

II. Treatment of Various Gases

The current Climate Convention covers all GHGs except those controlled under the Montreal Protocol (the treaty that protects the ozone layer); the excepted gases are being phased out or limited for ozone protection reasons. The principal other gases are methane, nitrous oxide, and a class of industrial gases containing fluorine, many of which are replacements for CFCs. Globally, these gases represent about 30% of the added radiative forcing to the atmosphere since pre-industrial times. The FCCC also covers emissions "sinks" of carbon dioxide as well as "sources." Significant amounts of atmospheric carbon are released by deforestation and some agricultural and land management practices. Reforestation can also remove carbon from the atmosphere.

The U.S. supported inclusion of all GHGs and inclusion of both sources and sinks -- the so-called "comprehensive approach" -- during negotiation of the current FCCC, and we used this approach in constructing our Climate Change Action Plan (CCAP). Reductions in emissions of gases other than carbon dioxide constitute about 30 percent of the reductions counted on for meeting the CCAP's goal of returning U.S. greenhouse gas emissions to 1990 levels by the year 2000. Many developed countries, however, have ignored gases other than carbon dioxide in their

national action plans. Some have addressed only sources, and not sinks. Target proposals now on the table generally focus only on carbon dioxide emissions.

Different GHGs may present different strategic opportunities from the perspective of effects on the climate system. Methane reductions are especially important given concerns about the rate of warming over a decadal scale (see above). Methane has a short atmospheric lifetime, meaning that reductions in methane emissions produce lowered atmospheric concentrations more rapidly than reductions in emissions of carbon dioxide or other GHGs. If a priority goal is to limit the rate of warming over the next few decades, methane reduction is extremely valuable.

Looking to the period to be covered by the medium-term target, analysis could illuminate whether including all greenhouse gases increases or decreases the overall burden of a given target, as compared to the same target for carbon dioxide alone. For the U.S. (as well as other countries), methane currently may be more cost-effective to control than carbon dioxide when gases are compared on an equivalent basis (see below). Indeed, net reductions in methane, and net increases in the forest sink, were used in the U.S. CCAP to offset growth in carbon dioxide. The fluorinated industrial gases, however, are growing rapidly from a baseline of near-zero and may be more expensive to limit. Including them in the CCAP made meeting the target of 1990 levels by 2000 more difficult to achieve.

Assuming continued pursuit of a "comprehensive" approach, each Party could be given flexibility (1) to decide the "shares" of the overall GHG target that it will assign to different gases and sectors, and (2) to allow trading among gases and sectors in order to encourage the greatest and most cost-effective reductions. Several issues are important to consider in regard to inter-gas trading.

Is this compliance?

Different levels of measurement certainty for various sources and sectors. Emissions from some source types are readily quantifiable, while emissions from others are subject to very large uncertainties. CO₂ emissions from individual power plants are easily monitored (indeed monitors are already in place in the U.S. as a by-product of the Clean Air Act's acid rain program). CO₂ emissions from individual cars are not known so precisely, but they are uniform enough for use of emission factors and averaging. On the other end of the spectrum, carbon uptake by trees is uncertain for the U.S. as a whole and highly uncertain for specific tracts of forest. Similarly, methane reductions from improved cow nutrition can be estimated on a national basis, but estimates at the level of a particular dairy may be subject to great uncertainty. Trading among different gases and sources might be limited by the need for information on emissions and emission reductions to meet a reliability threshold.

- As one approach, targets could be set for each greenhouse gas, and same-gas trading (but not inter-gas trading) could be allowed between types of sources that pass this reliability threshold.

- Alternatively, targets could be set across key sectors and inter-gas trading could be allowed within (but not between) sectors that meet the reliability threshold.

Gas equivalence ratios. GHGs can be compared using indexes of "global warming potential" (GWP). The relative strength of the gases varies, however, depending on the time scale being considered. Methane, for example, is considered 22 times more potent, pound-for-pound, than carbon dioxide on a 100-year basis. Its relative importance is even higher on a short-term timescale (e.g., 20 years). The Parties could agree to allow inter-gas trading based on the 100-year GWPs. Alternatively, if slowing the rate of warming in the next few decades is given priority, then a shorter-term GWP might be preferred for inter-gas trading.

III. Interactions With Other Key Issues

(a) When Does the "Medium-term" Commitment Start?

The U.S. is on record as supporting a "medium-term" target. Many believe that medium-term translates into a date somewhere between 2010 and 2020 (dates reflected in the Berlin Mandate and the Geneva Declaration), but ~~there~~^{US} has been no definitive decision. For an averaged or cumulative target, a date identified as being "medium-term" could refer to the start of the period, a mid-point of the period, or the date of the first "flight plan" review.

(b) How Often Is the Commitment Reviewed?

The FCCC contemplates a periodic review of commitments, based on up-to-date scientific, technological, and economic assessments. The first review will be completed in 1997, five years after the Convention was adopted. The next major scientific assessment report is scheduled for 2000 or 2001, but no decision has yet been made on when the next review of commitments will be completed. Five years seems to represent a minimum interval for the accumulation of significant new information and for conducting a diplomatic endeavor of this magnitude, but longer intervals might also be considered.

Given emissions trends in the developed and developing worlds, it is clear that meeting the ultimate objective of the Convention (stabilization of atmospheric concentrations of greenhouse gases at a level that prevents dangerous human interference with the climate system) will require limitations on emissions from both developed and developing countries. Since it is a negotiating reality (reflected in the terms of the Berlin Mandate) that new commitments for developing countries will not be agreed to in this round, questions need to be asked as to when should be the deadline for completing the next round of negotiations, and what should the scope of that negotiation include.

One approach would be for the U.S. to seek a next round focussed on developing country commitments, in order to avoid pressure for further action by developed countries before

developing countries take on emissions targets. Realistically, however, we may be unable to definitively rule out review of developed country commitments. How quickly to expect a more forthcoming attitude from developing countries may depend on how successful we are in this round in creating an emissions trading/joint implementation framework in which developing countries, as well as developed ones, see benefits of participation.

(c) The Form of the Commitment and Emissions Trading

Analysis shows that emissions trading with both developed and developing countries has substantial potential to reduce the costs of achieving a given change in greenhouse gas emissions. The U.S. has its support for a binding medium-term target is premised on the availability of international emissions trading and joint implementation. It is possible, however, that agreement on trading provisions of appropriate scope may not be agreed upon by COP-3 in 1997. The pilot phase on "activities implemented jointly" (during which the transfer of emissions credits is excluded) will not be completed before COP-3, and some developing countries could attempt to block discussion of trading or joint implementation in this round on that basis. ~~There are several ways that this situation might be addressed.~~

- Conservative approach: Set a target the U.S. would be willing to meet without trading, recognizing that trading may not materialize. The possibility that trading might not be available could put added value on flexibility over time.
- Conditional approach: Develop a commitment that explicitly conditions the developed countries' target on a future determination regarding access to emissions trading on a global scale.

Financial option approach: Include an option for parties to make contributions to an "Emissions Reduction Fund" in lieu of making emissions reductions. The fund's resources would be used to secure additional emissions reductions beyond those required by any FCCC obligations. The charge for meeting emissions reduction obligations through the fund could be based on the estimated cost of available low-cost mitigation opportunities plus some administrative premium. Access to the fund could be limited to some fraction of an overall emissions limitation obligation.

(d) International Negotiating Considerations

Some developed country Parties are now seeking formulae for differentiation among developed country commitments reflect their views of differing national circumstances. Attempting to agree on an explicit formula for differentiation would slow the negotiating process, and create domestic problems if it resulted in the perception that the U.S. had more onerous commitments than other developed countries. A possible alternative would be to seek a relatively distant definition of "medium-term," coupled with an emphasis on longer-term average

For the
business
negotiations

or cumulative commitments. The flexibility in this approach might satisfy those Parties' call for differentiation.

On the other hand, pursuit of a relatively distant and long-term cumulative target could be read by other countries to mean that the U.S. (and developed countries as a whole) are unwilling to take significant early actions and are therefore not serious about the climate issue. This could create problems for efforts to negotiate further commitments for developing countries, which will be necessary in view of their projected emissions growth.

(e) Incentives for Early Reductions

Most proposals already tabled or likely to be advanced in the future contemplate a 10- to 20-year period before the first "medium-term" target takes effect. It would be desirable to create incentives to encourage early reductions during this period. One approach would be to define a baseline emissions path for this interval. While Parties would not be required to stay within that baseline during that interim period, they could bank any reductions below that path, for use against later commitments. Another approach, in connection with a long-term cumulative emissions target, would be to begin the long-term period immediately (e.g., 2000-2050).

IV. U.S. Thoughts on Design of Target for December Negotiating Session

- * The U.S. framework calls for a realistic, verifiable, and binding medium-term target incorporating international emissions trading and joint implementation and reflecting flexibility as to the timing of implementation. While we are not yet prepared to talk about a specific level or timetable for the target, we do want to put forth some ideas concerning the design of the target itself.
- * The current non-binding aim and most proposals for new targets offered to date have been defined in terms of a percentage change from 1990 emissions, to be met on annual basis starting in a particular year (e.g., 2010) and presumably each year thereafter.
- * Defining the target in this manner suffers from several shortcomings. A single-year target is especially sensitive to short-term variations in regional weather patterns, with consequent effects on energy use and greenhouse gas emissions; short-term fluctuations in energy prices, with consequent effects on energy consumption and emissions; and fluctuations in economic activity due to normal business cycles, which can also affect overall emissions.
- * A single-year target is not required given the almost negligible impact that small changes in emissions from one year to another have on atmospheric concentrations of greenhouse gases.

* We believe, therefore, that it is in everyone's interest to take a closer look at potentially more flexible ways of defining a target. If we define the target more flexibly and cost-effectively, we will be able to afford to do more to protect the climate.

* One option for consideration would be a multi-year average target. Averaging over a modest number of years (e.g., 3-10 years) could address the issue of short-term variation due to weather variability or short-term shifts in economic conditions or energy prices. Further flexibility could be added by defining the target in such a way that allowed countries to "bank" reductions in one period to meet a target in a later period or to "borrow" reductions by exceeding limits in an earlier period in return for offsetting tighter limits in a later period.

* Another option for consideration would be to set a cumulative target over a longer period of time -- as long as several decades -- and allow each country the flexibility of setting forth its plan to meet the cumulative emissions cap. This approach allows for banking and borrowing over this extended period, with the potential for significant cost reductions. Consistent with our obligation to periodically review the adequacy of commitments, a long-term emissions budget of this nature would be subject to change. Nevertheless, there could be significant savings associated with this approach.

* Building in flexibility may be useful for both the future target as discussed above, but also in determining the baseline year. Several countries, in developing their national communications, have raised concern about the fairness of a relying solely on 1990 as the base year. We also intend to explore whether a later base year is possible.

* In sorting through these and other possible options we will be looking to define a target in a manner which: provides flexibility to reduce the costs of compliance; permits us to achieve the maximum environmental protection for our expenditures; encourages compliance and facilitates verification; and creates a solid foundation upon which future actions can be based.

* We intend to work hard in further developing these thoughts on target design and welcome hearing the views of other nations on this important issue.

~~Handwritten scribbles and illegible text at the top of the page.~~

JAF
cc: RRP

Post-it* Fax Note 7671		Date 10/18	# of pages 5
To Alicia Mammol	From Ray Savitieri		
Co./Dept. CEA	Co.		
Phone # 395-	Phone # 622-1301		
Fax # 395-6958	Fax # -1294		

10/29 FYI.

10/29 draft — not yet sent

To: Jeffrey R. Shafer
From: Joshua Gotbaum
Re: Climate Change Deputies Meeting, Oct. 24

Last week's Deputies' meeting raised important policy questions that deserve our continued attention. Rather than providing detailed notes about the meeting proper (I assume that Bill Schuerch, who attended the meeting, has briefed you on this), this memo will list my concerns about some of the policy questions raised.

In December, the U.S. will embark on a new round of negotiations on a climate treaty that could result in the most costly environmental program ever undertaken here. Richard Schmalensee of MIT, long prominent in the economics of climate change, puts the cost of stabilization in the US (20 years after controls are imposed) at one to four percent of GDP; that is, GDP in each year would be reduced by one to four percent from the baseline. For comparison, the US now spends about two percent of GDP on all environmental programs combined.

Choice of targets. Tim Wirth, who presented the State Department's brief, acknowledged the importance of flexibility in meeting a climate target. He pointed to language in recent U.S. statements calling for, among other things, carbon emissions trading, as a way of lowering the cost of climate programs. Treasury naturally supports more efficient ways of achieving a given goal. We remain concerned, however, that not enough attention is being paid to the goal itself.

Recommendation: The U.S. should not discuss the choice of climate targets at the Conference of the Parties in Geneva this December.

Costs and benefits of different targets. Alicia Munnell attempted to raise the question of costs and benefits of different greenhouse targets, making the point that the choice of a target should bear some relation to the costs and benefits of the alternatives, and asking that the Deputies be given some idea of the costs of the alternatives under consideration. Katie McGinty asserted that costs were irrelevant in the Deputies' decision, that it was the job of policymakers to decide on a policy; that costs should be considered only in implementing a policy. Dan Terullo responded that the process must be iterative, and that of course policymakers should be given information on the costs of the alternatives. We agree. We believe it would be dangerous and irresponsible to attempt to make policy decisions without considering the costs of alternatives.

Recommendation: The Deputies should not be asked to make policy decisions without adequate briefing on the measurable consequences of the alternatives.

Other concerns. Tim Wirth stated that "The science [about global warming] is for real. The

debate is over." While recent evidence has narrowed the remaining areas of disagreement, is certainly not true that we can set a course now once and for all, putting aside further considerations of science. Climate change policy will not be one decision, but rather a series of decisions taken over many decades, modified by evidence that surfaces in the meantime. The challenge today is to identify short-term strategies in the face of long-term uncertainty. The question is not, what is the best course over the next 100 years, but rather, what is the best course for the next few years, knowing that a prudent hedging strategy will allow time to learn and change course.

The U.S. should be wary about signing onto an early-action control path, as some countries have been urging. Such a path is expensive for three reasons: it requires the premature retirement of the capital stock, it fails to take advantage of technological changes, and it crowds out other productive investment. We will greatly increase the ultimate costs of any control program if we fail to acknowledge that new information will continue to become available, that technology will continue to change, that investment funds have alternative uses, and that hedging strategies can dramatically lower the total cost of any control program.

Recommendation: The U.S. should urge caution on early-action proposals.

Wirth also said three times that, "Diplomacy has at all times followed the science." This seems to me a serious misreading of what has taken place. We should recognize that the political decisions taken so far are just that -- political decisions, the result of the usual pulling and hauling of a political forum. This is not necessarily bad. But it would be a delusion to believe that decisions concerning gigantic resource reallocations made by consensus among 174 countries have been firmly rooted in science.

10/8 draft

To: Larry Summers
From: Joshua Gotbaum
Re: Climate Change Meeting with Tim Wirth

In July, at the second Conference of the Parties in Geneva, Tim Wirth announced a new U.S. position in the climate change negotiations: He called for binding targets and timetables to control greenhouse emissions in the medium term (2005 to 2010), and later added the U.S. to the other "Annex I" (developed) countries who had pledged to negotiate a new set of targets in 1997. U.S. negotiators plan to spend the next 15 months in detailed negotiations.

Treasury has not participated in policy development. As best we can tell, economic considerations do not seem to be primary. The costs of control even to current levels could be 1-4% of GDP and will vary substantially depending upon whether controls (a) apply to both developed and less-developed nations, and permit (b) trading of emissions rights across regions and (c) "banking" across time periods.

(There also appears to have been relatively limited review of the potential benefits of these controls. Many economists believe the costs of modest warming will be relatively small; some believe they net effects will be positive. Obviously, many in the environmental and scientific community strenuously disagree.)

Both elements of the business community (auto manufacturers and energy producers) and some in the environmental community who are sensitive to cost issues and the use of market-oriented control mechanisms (e.g., the Environmental Defense Fund) have urged Treasury to take a more active interest. Treasury was not invited to the NEC meetings leading up to this announcement. We were permitted to comment on a draft of Wirth's written statement, but were told that the basic policy decisions had already been made, so there was no use in challenging them. As we understand it Wirth's later pledge to negotiate further reduction targets was not cleared by the NEC at all.

Since the Geneva announcement, Wirth asked Ev Ehrlich to supervise an analysis of the economic effects of alternative control strategies. Ev has asked Treasury's office of Economic Policy and Tax Policy participate. It is unclear what role the analysis will play.

We are attempting to find out the views of other agencies on these issues.

Background

The Evidence on Global Climate Change

To summarize what is known about climate change:

- o Human activities are probably causing the earth's climate to become warmer.

The UN-sponsored International Panel on Climate Change (IPCC), a large group of scientists charged with evaluating the state of climate change science, stated this conclusion last month for the first time in its closely-watched *Second Assessment Report*.

Over the last four years, atmospheric scientists have gained considerable confidence in the accuracy of their models; general circulation models (GCMs), the basis of most predictions of warming, can now reproduce the last century of so of climate history reasonably well. Until about 1992, GCMs failed badly to reproduce the climate history of the 20th century. Since then, climate modelers have been able to capture the effects of airborne sulfates (produced largely by burning fossil fuels) in their models; the result has been much better prediction of the historical record, and thus more credibility for the models.

- o But evidence for the effect of human activities is still not conclusive.

The IPCC report gives important evidence that does not point toward human influence on global warming.

- Land-based temperature records indicate a warming of about 0.5 degrees C. this century, this might be due to natural variability, according to the IPCC.
- The influence of clouds is not yet understood; they may dampen warming or intensify it; this, in turn, may tend to validate or invalidate GCM projections.
- o Extreme events -- the possibility of runaway warming, a big increase in storms, etc. -- may have a big effect on the conclusions. Impacts assessment is a complicated and controversial area, and depend greatly on the still-unsettled question of the treatment of extreme events.
- o Credible cost estimates cover a wide range.

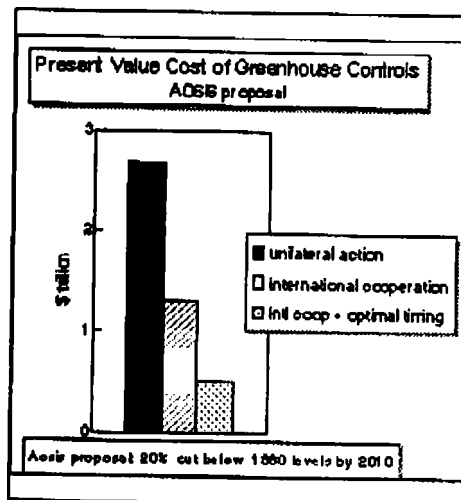
The Costs of Greenhouse Gas Control

To choose one plausible estimate:

- o To stabilize U.S. greenhouse emissions at about current levels over the next several decades, assuming this is done in the most efficient way (using tradable carbon rights or carbon emission taxes), could cost about 2% of the *growth rate* of GDP; this would reduce growth from, say 2.5% annually, to 2.45% annually (source: Stanford Energy Modeling Forum).

Some analysts have put the likely costs at two to four times this amount, in part because governments are not likely to implement control measures cooperatively, consistently, and steadily over decades. Richard Schmalensee of MIT, long prominent in the economics of climate change, puts the cost of stabilization in the US (20 years after controls are imposed) at one to four percent of GDP; that is, GDP in each year would be reduced by one to four percent from the baseline. For comparison, the US now spends about two percent of GDP on all environmental programs combined.

- o The economic cost of reducing emissions by 20% relative to 1990 levels would be more than twice as much as the cost of stabilizing at 1990 levels.
- o Imposing carbon taxes designed to meet the stabilization target would "feel like" living through another oil shock, with similar reductions in real wages and other indicators; this estimate assumes greenhouse control costs near the lower bound of cost estimates.



To the electorate, it might feel worse, for several reasons: it would be more contentious, as we would be doing it to ourselves; the actual cost would be above the lower range, because governments are unlikely to choose the least-cost way to implement the tax; and it would feel more unfair than the oil shocks, because of differences in costs imposed by sector and region.

- o Uniform national emission targets do not make economic sense, because of widely differing control costs among countries.
 - More efficient schemes, such as tradeable emission permits, could cut costs by half.
- o Flexibility in the timing of emission reductions is crucial to the cost.
 - Total emissions over time is a better target than annual emissions.

A minimum-cost control path allows higher emissions in the near term in exchange for lower emissions later. In contrast, an early-action control path is expensive for three reasons: it requires the premature retirement of the capital stock, it fails to take advantage of technological changes, and it crowds out other productive investment.

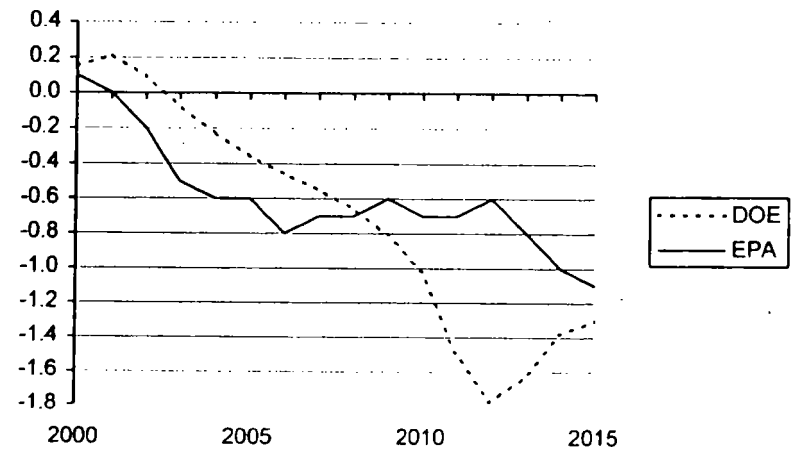
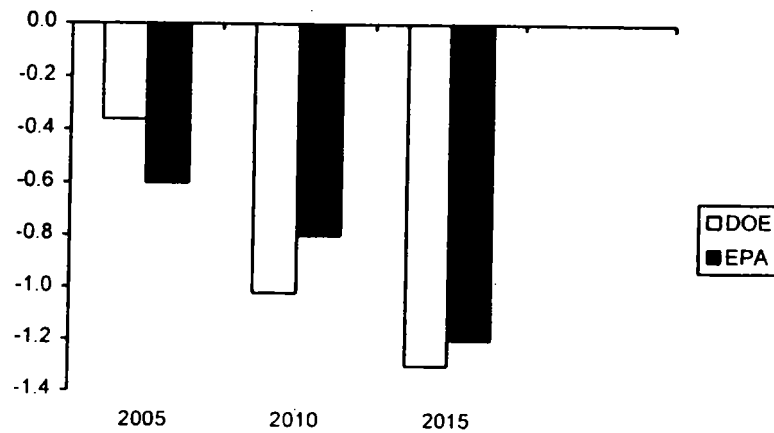
Prepared by Ray Squitieri

Prepared by Ray Squitieri

Stabilization: 1990 CO₂ Levels in 2010

Revenue Recycled: 100% to Consumers
(DOE & EPA Using the DRI Model)

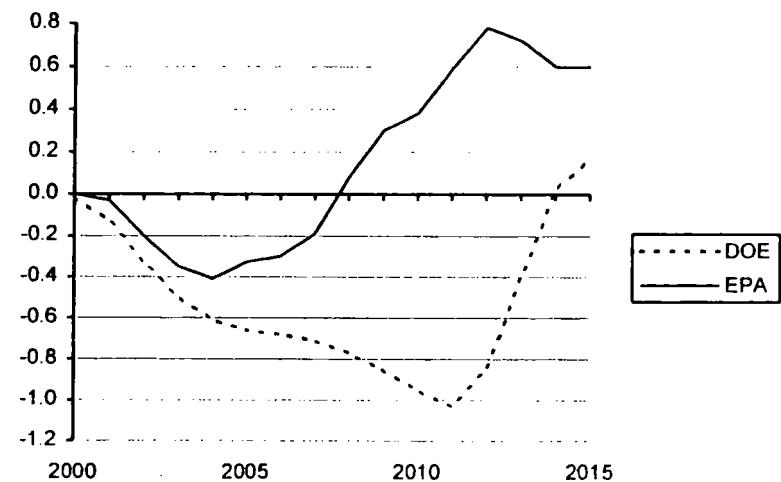
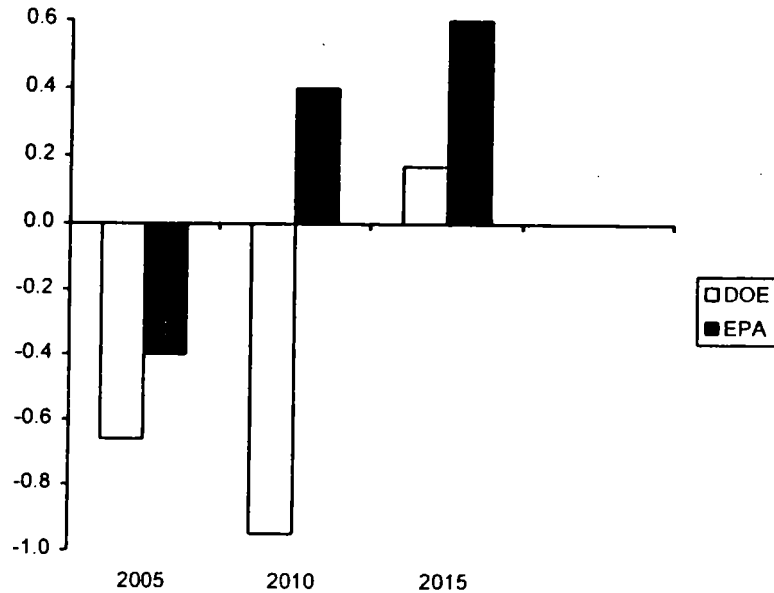
Percent Change in GDP (U.S.)



Stabilization: 1990 CO₂ Levels in 2010

Revenue Recycled: 40% to Consumers, 60% to Business
(DOE & EPA Using the DRI Model)

Percent Change in GDP (U.S.)



DOE annual data are not yet available.

Notes on the June DOE and EPA Model Runs

- Which is right? Probably neither.
- EPA abates about 350 million tons of carbon with a "shadow tax" of \$160 per ton. DOE abates about 200 million tons of carbon at a cost of about \$195 per ton. Yet, despite the smaller deadweight loss, DOE produces far greater macroeconomic losses.

Why this contradiction?

- EPA runs represented energy in their potential GDP equation through "domestic oil and gas production," a misspecification. (DOE, correctly, used total energy demand.) Absent a binding "speed limit" equation, EPA adjustment happens more quickly and effortlessly. This accounts for half the difference between the two sets of results.
- EPA also recycles revenues through reductions in marginal tax rates. DOE does so through lump sum transfers. EPA's approach leads the model to increase investment and, therefore, productivity.
 - Revenue recycling has much to do, therefore, with final impacts.
- There were also important differences on the energy front:
 - DOE uses the "IDEAS" model -- a model based on an exogenous set of technological choices. As a result, it is fairly static, and yields very low observed price elasticities. EPA used DRI's energy model, which has econometrically derived elasticities with more conventional term structure, etc. As a result, DOE's results emphasize fuel switching, while EPA's emphasize demand reductions and energy efficiency improvements.
 - The conservatism of DOE's approach is seen in the fact that EPA had faster electricity consumption growth and emissions growth in its baseline, yet still produced cheaper emissions reduction.
- DRI may simply be too static in its approach. Other models produce more sanguine results.
 - ICF, a (the) leading energy/environment consulting firm, has produced utility sector runs showing greater responsiveness, hence lower adjustment costs.
 - CGE models generally give smaller burdens. Twelve of them analyzed by the Stanford Energy Modeling Forum produced median annual costs of \$8 billion (in \$1987).