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OA/ID Number: 13723
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Folder Title:
GCC [Global Climate Change] NEC [National Economic Council] Workplan 9/1997 [2]

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Climate Change Scenarios
Presentation to the NEC Principals
September 11, 1997



SCENARIO 1
**ADOPT BEST POLICIES CURRENTLY ACCEPTABLE IN
INTERNATIONAL SPHERE, FIGHT FOR DOMESTIC RATIFICATION**

Overall strategy

- Reach the most advantageous but internationally feasible full agreement in Kyoto
- Fight to sell and ratify agreement domestically over the next few years

Components

Target and timetable	1990 emissions levels by 2010
Domestic implementation	Tradeable permits. R&D and Federal energy efficiency programs.
Developing country participation	Agreement in principle on joint implementation. Unlikely to get international agreement -- even in principle -- on Annex B (voluntary limits for developing economies) or evolution (a mandatory graduation system for adopting quantified targets).
International trading	Agreement in principle on a trading regime within Annex I (developed economies).

Energy price effects

No Annex I trading

- Permit price. A carbon price increase of between \$70 and \$120 per ton in 2010.
- Gas prices. Gas prices in 2010 would rise by between 18 and 30 cents per gallon.
- Coal prices. Coal prices in 2010 would rise by between \$50 and \$90 per ton, increases of between 150 and 350 percent relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of between \$2 and \$4 per million BTUs in 2010. (In 1993, the Administration proposed a tax of \$0.26 per million BTUs plus a \$0.34 per million BTUs tax on oil.)
- Effects on families. Whether it's true or not, some critics might charge that the average family would face [\$1,000] more per year in direct (e.g., air conditioning bills) and indirect (e.g., airline tickets) costs from the increase in energy prices. The percentage increase in expenditures for the lowest decile is approximately six times the percentage increase for the highest decile.

With Annex I (developed economy) trading

- Permit price. Carbon prices in 2010 are expected to increase between \$40 and \$100 per ton.
- Gas prices. Gas prices in 2010 would rise by between 10 and 25 cents.
- Coal prices. Coal prices in 2010 would rise by between \$30 and \$70 per ton, relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of between \$1.50 and \$3 per million BTUs in 2010.

International reaction

- Kyoto agreement feasible, albeit not guaranteed. Developing economy issue addressed only by agreement in principle to have further discussions.
- Some criticism from Europeans and other countries may occur, for failing to propose a more aggressive target than 1990 levels by 2010.

Domestic reaction

- Hill. Kyoto agreement *extremely* unlikely to be ratified and will be attacked as massive energy tax hike. Given the clear instructions in the Byrd mandate, Congress is likely to be particularly irritated by the agreement reached. Even without ratification vote, Congressional anger could manifest itself in many ways.
- Corporations. Major concerns over costs imposed on the economy, as well as developing economy stance. Firms in energy-intensive industries will be particularly opposed, and argue (regardless of the evidence) that their operations will flee the United States for other countries. Strong support is likely from renewable energy and energy-efficiency firms.
- Environmental groups. Many environmental groups will support a 1990 by 2010 target, but would prefer a more aggressive path (the environmental community has explicitly asked for 1990 by 2005).
- Labor. Significant concerns over costs imposed on industries such as steel and cement. Also, strong opposition from union workers in the coal industry and perhaps in the oil industry. The AFL-CIO indicated that to have its support, “every nation has to be in the regime, abiding by mutually agreed upon reduction regimes.”
- Elite media. Likely to support Administration for tackling critical issue.
- Outside critics. Many economists who have studied climate change are likely to be extremely critical of the 1990 by 2010 target, as will be discussed under Scenario 2.

SCENARIO 2
**DEVISE MORE ECONOMICALLY EFFICIENT DOMESTIC POLICY,
FIGHT FOR INTERNATIONAL ACCEPTANCE**

Overall strategy

- Devise more economically efficient domestic policy, and then fight for international agreement
- Makes agreement in December impossible
- Try to build strong domestic support for the most “sensible” approach -- which would reduce costs by allowing more natural turnover of the capital stock and include binding targets on developing countries, which would boost the environmental benefits.

Components

Target and timetable	Stabilize emissions (reduce emissions growth to zero) ten years after ratification.
Domestic implementation	Tradeable permits (auctioned), or equivalent measures (e.g., \$5 per ton initially, rising over time). R&D and Federal energy efficiency programs
Developing country participation	Mandatory, binding targets for developing economies with relatively large total emissions or relatively high per capita incomes
International trading	International trading system among all participating countries

Energy price effects

- Permit price. A carbon price increase of between \$5 and \$10 per ton by 2010, scheduled to increase further over time.
- Gas prices. Gas prices in 2010 would rise by an estimated 2 to 3 cents.
- Coal prices. Coal prices in 2010 would rise by between \$5 and \$7 per ton, relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of about \$0.05 to \$0.30 per million BTUs.
- Effects on families. Critics would charge, perhaps falsely, that the average family would spend between [\$20 and \$100] more per year from increased energy costs.

International reaction

- Kyoto agreement impossible: U.S. developing country stance tightened substantially (and our current stance is already unacceptable internationally), and target and timetable significantly less aggressive than European proposals.
- The U.S. is very likely to be blamed for undermining the current round of international negotiations (Rio II).
- Over time, we could try to build international support for our approach. Then any agreement that is ultimately reached internationally would have a chance at being ratified domestically.

Domestic reaction

- Hill. Less chance of intense attack. Potentially some criticism for undermining current round of negotiations.
- Corporations. Many firms could decide that the focus on concentrations and the gradual approach to emissions reductions is the best they will be able to achieve.
- Environmental groups. Environmental groups criticize the failure of reaching an agreement in December.
- Labor. The AFL-CIO has indicated that, "If it takes another round of conversation and negotiations to find the right solution mix with our global partners -- the right balance, the right equitable mix -- then take the time to find the best solution."
- Elite media. Criticism from environmental press. Likely to criticize Administration for failing to tackle critical policy challenge -- especially if severe weather events raise prominence of issue.
- Think tanks and specialists. Economists likely to be supportive, although some dissidents will remain.

SCENARIO 3
**ADOPT AGREEMENT IN KYOTO BUT DO NOT SUBMIT
IMMEDIATELY FOR RATIFICATION, CONTINUE INTERNATIONAL
NEGOTIATING PROCESS OVER DEVELOPING ECONOMIES**

Overall strategy

- Recognizes the magnitude of the decisions involved in climate change policies, and that solution requires a series of steps over an extended period
- Maintain balance between momentum in the international negotiations and concerns over the participation of developing economies
- Aims to achieve an interim agreement covering the developed economies, and a commitment to the next stage of negotiations -- which would involve mandatory, binding commitments for some developing economies.
- Ratification of the Kyoto agreement would be delayed until the developing economy negotiations are completed.

Components

Target and timetable	1990 levels by 2010 to 2020
Domestic implementation	Tradeable permits. R&D and Federal energy efficiency programs.
Developing country participation	Do not submit for ratification until mandatory, binding targets for developing economies with relatively large total emissions or relatively high per capita incomes
International trading	International trading system among all participating countries

Energy price effects

- Permit price. The permit price in 2010 would be somewhere between \$25 and \$100.
- Gas prices. Gas prices would rise between 5 cents and 25 cents per gallon in 2010.
- Coal prices. Coal prices would rise between \$20 and \$70 per ton in 2010.
- BTU-equivalent. The coal price increase is equivalent to a BTU tax of between \$0.75 and \$3 per million BTU.
- Effects on families. Whether it's true or not, some critics might charge that the average family would face [\$1,000] more per year in costs from the increase in energy prices.

Reactions

International reaction

- Likely to be criticized by other countries for insisting on a stronger developing economy package before ratifying the putative Kyoto agreement. The U.S. target and timetable is also likely to be criticized as too weak.

Domestic reaction

- Hill. May provide comfort to those most concerned about developing economy issue. Still exposed to attacks on taxes.
- Corporations. Most corporations are likely to support the insistence on developing economy participation, but will nonetheless strongly attack the target and timetable as being overly aggressive. Indeed, the attack is likely to be nearly as strong as under Scenario 1, since the costs are similar. And we may be most vulnerable in between the stages of this strategy.
- Environmental groups. Environmental groups are likely to blame the President and Vice President for failing to submit a full agreement for ratification. It may falsely appear that we are playing games with the process.
- Labor. Labor is unlikely to oppose taking more time to reach an agreement. As noted above, Rich Trumka has indicated that it's worth waiting if necessary. But labor may still oppose the ultimate agreement, even if it includes a set of credible developing economy commitments, because of concerns over employment in specific heavily-affected industries (coal, steel, aluminum, etc.).
- Elite media. The elite media reaction is likely to be mixed. There may be some support for insisting on developing economy participation, but the potentially long delay in submitting the agreement for ratification may be criticized as reflecting a lack of political courage.
- Think tanks and specialists. Economists are likely to sharply critical of the 1990 by 2010-2020 target.

SCENARIO 1
**ADOPT BEST POLICIES CURRENTLY ACCEPTABLE IN
INTERNATIONAL SPHERE, FIGHT FOR DOMESTIC RATIFICATION**

Overall strategy

- Reach the most advantageous but internationally feasible full agreement in Kyoto
- Fight to sell and ratify agreement domestically over the next few years

Components

Target and timetable	1990 emissions levels by 2010
Domestic implementation	Tradeable permits. R&D and Federal energy efficiency programs.
Developing country participation	Agreement in principle on joint implementation. Unlikely to get international agreement -- even in principle -- on Annex B (voluntary limits for developing economies) or evolution (a mandatory graduation system for adopting quantified targets).
International trading	Agreement in principle on a trading regime within Annex I (developed economies).

Energy price effects

No Annex I trading

- Permit price. A carbon price increase of between \$70 and \$120 per ton in 2010.
- Gas prices. Gas prices in 2010 would rise by between 18 and 30 cents per gallon.
- Coal prices. Coal prices in 2010 would rise by between \$50 and \$90 per ton, increases of between 150 and 350 percent relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of between \$2 and \$4 per million BTUs in 2010. (In 1993, the Administration proposed a tax of \$0.26 per million BTUs plus a \$0.34 per million BTUs tax on oil.)
- Effects on families. The average family would pay between [\$\$\$] more per year in direct (e.g., air conditioning bills) and indirect (e.g., airline tickets) costs from the increase in energy prices. The percentage increase in expenditures for the lowest decile is approximately six times the percentage increase for the highest decile.

With Annex I (developed economy) trading

- Permit price. Carbon prices in 2010 are expected to increase between \$40 and \$100 per ton.
- Gas prices. Gas prices in 2010 would rise by between 10 and 25 cents.
- Coal prices. Coal prices in 2010 would rise by between \$30 and \$70 per ton, relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of between \$1.50 and \$3 per million BTUs in 2010.
- Effects on families. The average family would pay between [\$\$\$ and \$\$\$]

more per year in direct and indirect energy costs.

International reaction

- Kyoto agreement feasible, albeit not guaranteed. Developing economy issue addressed only by agreement in principle to have further discussions.
- Some criticism from Europeans and other countries may occur, for failing to propose a more aggressive target than 1990 levels by 2010.

Domestic reaction

- Hill. Kyoto agreement *extremely* unlikely to be ratified and will be attacked as massive energy tax hike. Given the clear instructions in the Byrd mandate, Congress is likely to be particularly irritated by the agreement reached. Even without ratification vote, Congressional anger could manifest itself in many ways.
- Corporations. Major concerns over costs imposed on the economy, as well as developing economy stance. Firms in energy-intensive industries will be particularly opposed, and argue (regardless of the evidence) that their operations will flee the United States for other countries. Strong support is likely from renewable energy and energy-efficiency firms.
- Environmental groups. Many environmental groups will support a 1990 by 2010 target, but would prefer a more aggressive path (the environmental community has explicitly asked for 1990 by 2005).
- Labor. Significant concerns over costs imposed on industries such as steel and cement. Also, strong opposition from union workers in the coal industry and perhaps in the oil industry. The AFL-CIO indicated that to have its support, "every nation has to be in the regime, abiding by mutually agreed upon reduction regimes."
- Elite media. Likely to support Administration for tackling critical issue.
- Outside critics. Many economists who have studied climate change are likely to be extremely critical of the 1990 by 2010 target, as will be discussed under Scenario 2.

SCENARIO 2

DEVISE MORE ECONOMICALLY EFFICIENT DOMESTIC POLICY, FIGHT FOR INTERNATIONAL ACCEPTANCE

Overall strategy

- Devise more economically efficient domestic policy, and then fight for international agreement
- Shifts focus from reducing *emissions* to stabilizing *concentrations*
- Makes agreement in December impossible
- Try to build strong domestic support for the most “sensible” approach -- which would reduce costs by allowing more natural turnover of the capital stock and include binding targets on developing countries, which would boost the environmental benefits.

Components

Target and timetable	Stabilize concentrations at twice pre-industrial levels (550 ppmv). U.S. emissions peak sometime between 2010 and 2020.
Domestic implementation	Tradeable permits (auctioned), or small tax (e.g., \$5 per ton initially, rising over time). R&D and Federal energy efficiency programs
Developing country participation	Mandatory, binding targets for developing economies with relatively large total emissions or relatively high per capita incomes
International trading	International trading system among all participating countries

Energy price effects

- Permit price. A carbon price increase of between \$5 and \$10 per ton by 2010, scheduled to increase further over time.
- Gas prices. Gas prices would rise by an estimated 2 to 3 cents.
- Coal prices. Coal prices would rise by between \$5 and \$7 per ton, relative to the current price of about \$20 per ton.
- BTU-equivalent. In terms of coal prices, the energy price increase is equivalent to a tax of about \$0.05 to \$0.30 per million BTUs.
- Effects on families. The average family would spend between [\$20 and \$100] more per year from increased energy costs.

International reaction

- Kyoto agreement impossible: U.S. developing country stance tightened substantially (and our current stance is already unacceptable internationally), and target and timetable significantly less aggressive than European proposals.
- The U.S. is very likely to be blamed for undermining the current round of international negotiations (Rio II).
- Over time, we could try to build international support for our approach. Then any agreement that is ultimately reached internationally would have a chance at being ratified domestically.

Domestic reaction

- Hill. Failure of immediate international agreement may make domestic implementation package less of a political issue. Potentially some criticism for undermining current round of negotiations.
- Corporations. Many firms could decide that the focus on concentrations and the gradual approach to emissions reductions is the best they will be able to achieve. But most -- particularly in industries with large current emissions -- are likely to oppose strongly the auctioning or tax provisions.
- Environmental groups.
[OPTION 1: Environmental groups criticize the failure of reaching an agreement in December.]

[OPTION 2: Environmental groups support the focus on stabilizing concentrations, rather than emissions. They criticize the Administration for not adopting a more aggressive path toward that stabilized concentration level, but are generally supportive of the effort.]
- Labor. The AFL-CIO has indicated that, "If it takes another round of conversation and negotiations to find the right solution mix with our global partners -- the right balance, the right equitable mix -- then take the time to find the best solution."
- Elite media. Likely to criticize Administration for failing to tackle critical

policy challenge -- especially if severe weather events raise prominence of issue. But overall response probably depends on attitude of environmental groups; if the environmental groups accept the focus on concentrations despite a less aggressive emissions reduction path, it is unlikely that the issue will generate enough controversy to be of interest to the media.

- Think tanks and specialists. Economists likely to be supportive, although some dissidents will remain.

SCENARIO 3
**ADOPT AGREEMENT IN KYOTO BUT DO NOT SUBMIT
 IMMEDIATELY FOR RATIFICATION, CONTINUE INTERNATIONAL
 NEGOTIATING PROCESS OVER DEVELOPING ECONOMIES**

Overall strategy

- Recognizes the magnitude of the decisions involved in climate change policies, and that solution requires a series of steps over an extended period.
- Maintain balance between momentum in the international negotiations and crucial concerns over the participation of developing economies are addressed.
- Aims to achieve in Kyoto an interim agreement covering the developed economies, and an agreement on the next stage of negotiations -- which would involve mandatory, binding commitments for some developing economies.
- Ratification of the Kyoto agreement would be delayed until the developing economy negotiations are completed.

Components

Target and timetable	1990 levels by 2010 to 2020
Domestic implementation	Tradeable permits. R&D and Federal energy efficiency programs.
Developing country participation	Do not submit for ratification until mandatory, binding targets for developing economies with relatively large total emissions or relatively high per capita incomes
International trading	International trading system among all participating countries

Energy price effects

- Permit price.
- Gas prices.
- Coal prices.
- BTU-equivalent.
- Effects on families.

Reactions

International reaction

- Likely to be criticized by other countries for insisting on a stronger developing economy package before ratifying the putative Kyoto agreement. The U.S. target and timetable is also likely to be criticized as too weak,
- It is likely to prove quite difficult to get the crucial developing economies -- China, India, Mexico, Korea, etc. -- to agree to binding quantified targets. Concessions in other areas of our relationships with the developing economies may be necessary.

Domestic reaction

- Hill. The Hill may attack the Administration's acceptance of a binding target before locking in commitments from the developing economies. The period in between Kyoto and the second round of negotiations -- when developing economy commitments would be clarified -- may be particularly difficult.
- Corporations. Most corporations are likely to support the insistence on developing economy participation, but will nonetheless strongly attack the target and timetable as being overly aggressive. Indeed, the attack is likely to be nearly as strong as under Scenario 1, since the costs are similar. And we may be most vulnerable in between the stages of this strategy.
- Environmental groups. Environmental groups are likely to blame the President and Vice President for failing to submit a full agreement for ratification. It may falsely appear that we are playing games with the process.
- Labor. Labor is unlikely to oppose taking more time to reach an agreement. As noted above, Rich Trumka has indicated that it's worth waiting if necessary. But labor may still oppose the ultimate agreement, even if it includes a set of credible developing economy commitments, because of concerns over employment in specific heavily-affected industries (coal, steel, aluminum, etc.).
- Elite media. The elite media reaction is likely to be mixed. There may be some support for insisting on developing economy participation, but the

potentially long delay in submitting the agreement for ratification may be criticized as reflecting a lack of political courage.

- Think tanks and specialists. Economists are likely to sharply critical of the 1990 by 2020 target.

broad survey of lit, not a couple of models

testimony: not those 3 models

Revised Scenarios - 9/6/97, a.m.

Scenario M1

- Average of 1990 emission levels over 2010-2020 period
- Domestic emissions trading program with auction at primary fuel level
- Submit Kyoto agreement for ratification only after new developing country commitments are met
- Increase technology funding by several billion dollars

Scenario M2

- Average of 1995 emission levels over 2010-2020 period
- Domestic emissions trading program with allocation upstream (at minemouth)
- Submit Kyoto agreement for ratification only after new developing country commitments are met
- No increase in technology program funding

Scenario B

- 1990 emission levels by 2040
- Carbon tax, starting at \$5/ton and increasing over next several decades
- Preannounced developing country emissions budgets, based on standard of living and/or CO2/GDP targets.
- No increased technology program funding

Scenario G

- 1990 emission levels by 2010
- Domestic emissions trading program with allocation downstream (e.g. refineries, utilities, industrial boilers)
- Current U.S. position on developing countries
- Increase technology funding by several billion dollars

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Escapade

SCENARIO 1: STATUS QUO/POTENTIAL DOMESTIC TRAIN WRECK

Issue	Kyoto position
Developing economies	Existing U.S. position (no hard targets)
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2015 or 2020)
Domestic implementation	Tradeable permits

Elements:

- U.S. does not alter its negotiating position very much: fights for JI, evolution, etc.
- U.S. adopts medium-term target (e.g., 1990 levels by 2015 or 2020).

International reaction/potential for Kyoto agreement:

- Kyoto agreement feasible, albeit not guaranteed.
- Some criticism of U.S. from Europeans and other countries, for not showing bold leadership on critical issue (failing to propose a more aggressive U.S. target).

Domestic reaction:

- Hill: Vitriolic opposition, given clear directions embodied in Byrd Resolution.
- Moderate firms: Perhaps some support, but major concerns over lack of firm developing economy stance likely to ensure overall opposition.
- Environmental groups: General support.

Potential next steps and ramifications:

- Potentially becomes large issue against Administration supporters during 1998 elections.
- Kyoto agreement *extremely* unlikely to be ratified.
 - Perhaps evolve into new round of negotiations, although U.S. will be seen as bad actor for failing to ratify.
 - Even without ratification vote, funding for U.S. negotiators could be curtailed

or Congressional anger could manifest itself in different ways.

SCENARIO 2: BYRD RESOLUTION APPROACH/INTERNATIONAL TRAIN WRECK

Issue	Kyoto position
Developing economies	Specific targets/hard evolution
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements:

- U.S. insists on developing country participation. One possibility is "hard" evolution concept: Once per capita GDP or total emissions cross some threshold, targets are mandatory. Targets could be linked to energy intensity, or to a formula that adjusts for growth, population, and starting income.
- U.S. adopts medium-term target (e.g., 1990 levels by 2010 or 2020). May be necessary to adopt a somewhat stricter U.S. target (e.g., 2010) to even have a hope of a deal.

International reaction/potential for Kyoto agreement:

- Kyoto agreement seems very unlikely, even with U.S. target of, say, 1990 by 2010. Criticism for violating 6-month rule (making new proposals less than 6 months before final meeting).
- Given Berlin mandate, U.S. likely to be blamed for blowing up negotiations.

Domestic reaction:

- Hill: No strong opposition, and perhaps some muted, private support.
- Moderate firms: Support the President for pushing to include developing economies.
- Environmental groups: Likely to blame the President for failure to get an agreement.

Potential next steps and ramifications:

- Work to get agreement in Conference of Parties during 1998 or later, while insisting on developing economy participation.
- Risk that Europeans will agree to their own steps, isolating U.S. further
- Could encourage more voluntary and Federal efforts, but may not be able to counter

impression of undermining Kyoto.

SCENARIO 3: DON'T ADOPT AGGRESSIVE DOMESTIC TARGET, ACCEPT RELATIVELY WEAK DEVELOPING ECONOMY COMMITMENTS

Issue	Kyoto position
Developing economies	Existing U.S. position
U.S. target and timetable	Longer-term (e.g., cut emissions <i>growth</i> to zero by 2010 or 2020, stabilize thereafter)
Domestic implementation	Aggressive technology effort combined with voluntary corporate programs

Elements:

- Recognizing that this is a long-term problem, the U.S. decides to adopt most cautious approach.
- U.S. adopts longer-term target, and does not necessarily rely on an increase in the relative price of carbon to achieve objectives. Instead, adopts aggressive technology effort combined with voluntary corporate programs.

International reaction/potential for Kyoto agreement:

- "Rio II": U.S. position sharply criticized as being completely inadequate to issue at hand.
- Kyoto agreement may be possible, albeit with much criticism of weak U.S. position.

Domestic reaction:

- Hill: Opposition from those who are truly concerned about problem. Perhaps some muted, private support from those who are more concerned with mitigation costs.
- Moderate firms: Support from renewable energy and high-tech firms. Others?
- Environmental groups: Charges that President broke promise to address this problem with real, credible steps.

Potential next steps and ramifications:

- Develop technology program, start to make some progress regardless of Kyoto outcome.
- As scientific evidence accumulates, press for stricter international regime.

SCENARIO 4: FOCUS ON A FEW SPECIFIC DEVELOPING ECONOMIES, ADOPT MEDIUM-TERM TARGET

Issue	Kyoto position
Developing economies	Specific targets/hard evolution, but only for China, Korea, Mexico, India, and perhaps 1 or 2 others
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements:

- Address the developing economy issue by trying to split the developing economy bloc: focus efforts primarily on China. Perhaps use other leverage (WTO, trade, UN) to get China to agree to targets. Clarify our intentions during Chinese visit pre-Kyoto.
- U.S. adopts medium-term target.

International reaction/potential for Kyoto agreement:

- Kyoto agreement difficult, but perhaps could be possible. May require substantial high-level (POTUS and VPOTUS) involvement.
- Aggressive developing economy position may require somewhat tighter U.S. target to get agreement.

Domestic reaction:

- Hill: Inclusion of China and a few other developing economies may split the Byrd bloc into those who are truly opposed to acting, and those who are truly concerned about the important developing economies.
- Moderate firms: Could perhaps support, depending on which economies are included.
- Environmental groups: Support, with some criticisms that agreement was unfair to developing economies.

Potential next steps and ramifications:

- Continue working on including more developing economies in future negotiations.

***SCENARIO 5: PUT EMPHASIS ON TAX SHIFT, DEMAND AGGRESSIVE
DEVELOPING ECONOMY PARTICIPATION***

Issue	Kyoto position
Developing economies	Specific targets/hard evolution (perhaps only China, Korea, Mexico, India, and 1 or 2 others)
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Auctioned tradeable permits, with revenues recycled in progressive fashion

Elements:

- Dramatic step to announce that revenues would be recycled to *consumers* -- note importance of incidence, and why allocation of permits to firms doesn't solve economic as opposed to political problem -- by raising standard deduction, reducing payroll taxes, or some other progressive tax relief measures.
- Build constituency for policy by emphasizing potential double dividend. Try to move focus from targets and timetables to credibility of overall tax shift approach.
- Extremely complicated and difficult questions about potentially undermining Social Security.

International reaction/potential for Kyoto agreement:

- Kyoto agreement remains difficult, but U.S. exercising strong leadership (?)

Domestic reaction:

- Hill:
- Moderate firms:
- Environmental groups:
- Support from elite media and professional economists/think tanks for policies that make sense in terms of the "double dividend." But public may not accept trade of lower income or payroll taxes for higher gas prices.

Potential next steps and ramifications:

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SCENARIO 6: PARTIAL AGREEMENT IN KYOTO, DON'T SUBMIT FOR RATIFICATION

Issue	Kyoto position
Developing economies	Current U.S. negotiating position, but clarify that we will be pushing for more in Annex reviews in 1998 and will not ratify agreement without assurances on developing economy issue
U.S. target and timetable	Medium-term
Domestic implementation	Tradeable permits

Elements:

- Seek new developing economy commitments outside Kyoto agreement, so that (at least very technically) Berlin Mandate would not be contravened. Possibilities include getting key countries to join Annex 1 under the Convention (during "review of annexes" in 1998), amending the Convention to include Annex B rather than doing so in Kyoto agreement, including Annex B in Kyoto agreement but getting key countries to sign on afterwards, etc.
- The U.S. could either adopt a minimally accepted package in Kyoto, but not submit it for ratification until further progress is made, or push for general adoption of Kyoto agreement to occur at COP 4 in 1998 -- after such progress was cemented.

International reaction/potential for Kyoto agreement:

- Reaction may be somewhat less negative than under Scenario 2 (international train wreck), but U.S. is still likely to be criticized sharply for its position.

Domestic reaction:

- Hill: Muted support for tough U.S. approach to developing economies, although there may be substantial frustration if the Kyoto agreement is adopted but not submitted for ratification.
- Moderate firms:
- Environmental groups: Criticism for delaying agreement until developing economies accept what would be called an unfair burden.

Potential next steps and ramifications:

SCENARIO 1: STATUS QUO/POTENTIAL DOMESTIC TRAIN WRECK

Issue	Kyoto position
Developing economies	Existing U.S. position (no hard targets)
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements:

- U.S. does not alter its negotiating position very much: fights for joint implementation, evolution, etc.
- U.S. adopts medium-term target (e.g., 1990 levels by 2010 or 2020).
- U.S. pursues international trading system among Annex I countries.

International reaction/potential for Kyoto agreement:

- Kyoto agreement may be feasible, albeit not guaranteed. The U.S. position on developing economies is already seen as beyond the acceptable range by other countries.
- Some criticism of U.S. from Europeans and other countries, for not showing bold leadership on critical issue (failing to propose a more aggressive U.S. target).

Possible domestic policy packages:

- Domestic emissions trading system with Annex I trading. Achieving 1990 emission levels by 2010 or 2015 through a domestic emissions trading system with trading among Annex I countries is likely to imply an increase in the price of carbon of [approximately \$50] per ton.

-- Such an increase in the price of carbon is equivalent to a tax of approximately [\$1.00 to \$1.50] per million BTUs or so. (In 1993, the Administration originally proposed a tax of \$0.26 per million BTUs plus a \$0.34 per million BTUs tax on oil.) It would imply a gasoline price increase of [about 10 to 15 cents].
- Technology. Technological advances can help to attenuate the costs of reaching the emissions goal, but -- without an increase in the price of carbon -- will be insufficient to meet a target of 1990 emissions by 2010. Even studies with optimistic assumptions about the role of technology -- for example, the DOE 5-Labs study -- conclude that such a price increase is necessary to induce enough technological advances to meet the target. *[Need more on budgetary costs of possible R&D projects.]*
- Under an international trading system that includes the former Soviet Union and Eastern

Europe and no joint implementation, the U.S. could wind up importing somewhere [between \$25 billion and \$70 billion per year] in emissions permits -- largely from the economies in transition.

- The annual value of domestic emissions permits in this scenario would be [approximately \$60 to \$70 billion] in 2010. If those permits were auctioned, the funds could be used to reduce other taxes or to raise national saving. [Give examples: cut payroll taxes, raise standard deduction, etc.] Could try to build constituency for policy by emphasizing potential double dividend.

Domestic reaction:

- Hill: Vitriolic opposition, given clear directions embodied in Byrd Resolution.
- Moderate firms: Perhaps some support, but major concerns over lack of firm developing economy stance likely to ensure overall opposition.
- Environmental groups: General support.

Potential next steps and ramifications:

- Potentially becomes large issue against Administration supporters during 1998 elections.
- Kyoto agreement *extremely* unlikely to be ratified.
 - Perhaps evolve into new round of negotiations, although U.S. will be seen as bad actor for failing to ratify.
 - Even without ratification vote, funding for U.S. negotiators could be curtailed or Congressional anger could manifest itself in different ways.

SCENARIO 2: BYRD RESOLUTION APPROACH/INTERNATIONAL TRAIN WRECK

Issue	Kyoto position
Developing economies	Specific targets/hard evolution
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements:

- U.S. insists on developing country participation
 - One possibility is generalization of evolution concept: Once per capita GDP or total emissions cross some threshold, targets are mandatory. Targets could be linked to energy intensity, or to a formula that adjusts for growth, population, and starting income.
 - Another possibility would be to try to split the developing economy bloc by focussing efforts primarily on China. Perhaps use other leverage (WTO, trade, UN) to get China to agree to targets. Clarify our intentions during Chinese visit pre-Kyoto.
- U.S. adopts medium-term target (e.g., 1990 levels by 2010 or 2020). May be necessary to adopt a somewhat stricter U.S. target (e.g., 2010) to even have a hope of a deal in Kyoto.

International reaction/potential for Kyoto agreement:

- Kyoto agreement seems very unlikely, even with U.S. target of, say, 1990 by 2010. Criticism for violating 6-month rule (making new proposals less than 6 months before final meeting).
- Given Berlin mandate, U.S. likely to be blamed for blowing up negotiations.

Domestic policy package and impact:

- Domestic emissions trading with international component including both developed and developing economies. Achieving 1990 emission levels by 2010 or 2015 through a domestic emissions trading system with trading among Annex I countries *and* developing countries is still likely to imply an increase in the price of carbon of [approximately \$50 per ton]. Such an increase in the price of carbon is equivalent to a tax of approximately [\$1.00 to \$1.50] per million BTUs or so.
- Under an international trading system that includes the former Soviet Union and Eastern Europe and no joint implementation, the U.S. could wind up importing *more than* [between \$25 billion and \$70 billion per year] in emissions permit.

Environmental impact:

Domestic reaction:

- Hill: Inclusion of China and a few other developing economies may split the Byrd bloc into those who are truly opposed to acting, and those who are truly concerned about the important developing economies. But in general, unlikely to be strong opposition, and perhaps some muted, private support.
- Moderate firms: Could perhaps support, depending on which economies are included.
- Environmental groups: Likely to blame the President for failure to get an agreement.

Potential next steps and ramifications:

- Work to get agreement in Conference of Parties during 1998 or later, while insisting on developing economy participation.
- Risk that Europeans will agree to their own steps, isolating U.S. further
- Could encourage more voluntary and Federal efforts, but may not be able to counter impression of undermining Kyoto.

SCENARIO 3: PARTIAL AGREEMENT IN KYOTO, DON'T SUBMIT FOR RATIFICATION

Issue	Kyoto position
Developing economies	Current U.S. negotiating position, but clarify that we will be pushing for more in Annex reviews in 1998 and will not ratify agreement without assurances on developing economy issue
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010)
Domestic implementation	Tradeable permits

Elements:

- Seek new developing economy commitments outside Kyoto agreement, so that (at least technically) Berlin Mandate would not be contravened. Possibilities include getting key countries to join Annex 1 under the Convention (during "review of annexes" in 1998), amending the Convention to include Annex B rather than doing so in Kyoto agreement, or including Annex B in Kyoto agreement but getting key countries to sign on afterwards.
- The U.S. could either adopt a minimally accepted package in Kyoto, but not submit it for ratification until further progress is made, or push for general adoption of Kyoto agreement to occur at COP 4 in 1998 -- after such progress was cemented.
- Another possibility, if it were obvious that we could not achieve a domestically acceptable package in Kyoto, would be to try to delay the Kyoto meetings themselves. This approach would generate very strong international criticism.

International reaction/potential for Kyoto agreement:

- U.S. is still likely to be criticized sharply for its position.

Domestic reaction:

- Hill: Muted support for tough U.S. approach to developing economies, although there may be substantial frustration if the Kyoto agreement is adopted but not submitted for ratification. May be seen as playing games.
- Moderate firms: Probably no strong opposition.
- Environmental groups: Strong criticism for delaying agreement until developing economies accept what would be called an unfair burden.

Potential next steps and ramifications:

-

SCENARIO 4: GO SLOW, WITH MODEST DOMESTIC EFFORT AND DEVELOPING ECONOMY COMMITMENTS

Issue	Kyoto position
Developing economies	Existing U.S. position
U.S. target and timetable	Longer-term (e.g., cut emissions <i>growth</i> to zero between 2010 and 2020, stabilize thereafter)
Domestic implementation	Aggressive technology effort combined with voluntary corporate programs

Elements:

- U.S. adopts longer-term target, and does not necessarily rely on an increase in the relative price of carbon to achieve objectives. Instead, we could attempt to adopt aggressive technology effort combined with voluntary corporate programs to meet target. *However, your economic advisers want to emphasize that they do not believe that such an effort would have a significant effect in reducing emissions. Indeed, even the most optimistic technology analysis (e.g., the DOE 5-Labs study) recognizes the need for an increase in the price of carbon in order to induce substantial technological advances.*

Domestic policy package and impact:

- Major technology initiative. The major policy initiative under this approach would be to accelerate R&D funding for “home run” technologies -- such as those identified in the PCAST/11-Labs studies.
- Voluntary corporate program. We could try to more aggressively develop voluntary corporate programs.

International reaction/potential for Kyoto agreement:

- “Rio II”: U.S. position sharply criticized as being completely inadequate to issue at hand.
- Kyoto agreement may be possible, albeit with much criticism of weak U.S. position.

Domestic reaction:

- Hill: Opposition from those who are truly concerned about problem. Perhaps some muted, private support from those who are more concerned with mitigation costs.
- Moderate firms: Support from renewable energy and high-tech firms. Others?
- Environmental groups: Charges that President broke promise to address this problem with real, credible steps.

- Economists and elite media attack plan as lacking in credibility, not attacking the problem, and being overly rosy on technology assumptions.

Potential next steps and ramifications:

- Develop technology program, start to make some progress regardless of Kyoto outcome.
- As scientific evidence accumulates, press for stricter international regime.

AM

CLIMATE CHANGE SUBSTANCE PROCESS

August 10, 1997

To maximize the chances for developing a sensible, successful U.S. effort on climate change in Kyoto, we clearly need both an effective outreach effort and a focused high-level policy process. Todd Stern is running the outreach system extremely efficiently. The purpose of this memorandum is to formalize the management structure for the policy side.

We have already held a series of principals meetings to provide background information and to frame the issues involved. It is now time to move to a decision mode.

The structure proposed mirrors the "budget team" approach that successfully engineered the budget deal. The "White House climate change oversight team" -- Dan, Katie, Gene, Janet, and Larry -- will meet twice a week in policy oversight meetings to provide ongoing guidance for the entire process, including the large working groups at the Assistant Secretary level. David Sandalow and Peter Orszag will serve as the conduits between the White House oversight team (Dan, Katie, Gene, Janet, and Larry) and the Assistant Secretaries.

Under the close supervision of the White House oversight team, David, Peter, Mark Mazur (Energy) and Jon Gruber (Treasury) will also be responsible for drafting position papers and options memos on the major issues. An outline of the issues that must be addressed in such memos is attached. The oversight team will then circulate the memos as necessary (e.g., to frame principals discussions), and report back to Erskine and to other relevant principals on an ongoing basis. In addition, Janet Yellen and Larry Summers will lead a small economic analysis team to answer any quantitative questions that may arise in evaluating various policy issues. Jeff Frankel (CEA) and David Wilcox (Treasury) will have operational, day-to-day responsibility for the work program of this team. A proposed timeline for critical decisions is found below at Section V.

I. White House oversight group: Gene Sperling, Katie McGinty, Dan Tarullo, Janet Yellen, and Larry Summers

- A. Meets twice a week (Mondays and Thursdays)
- B. Provides oversight to entire process, including working groups at Assistant Secretary level
- C. Todd Stern to attend all meetings to ensure proper coordination with outreach

D. When necessary, meetings will include appropriate officials from State and other relevant agencies

E. David Sandalow (CEQ/NSC), Peter Orszag (NEC), Mark Mazur (Energy) and Jon Gruber (Treasury) responsible for drafting memos under the supervision of the oversight ~~troika~~

quintavate

II. Assistant Secretaries group

market mechanisms
implementation

A. Working groups include: Domestic Emissions Trading; International Emissions Trading and Joint Implementation; Technology; Developing Country Commitments; and Federal Undertakings

B. David Sandalow (CEQ/NSC) and Peter Orszag (NEC) to provide conduit from oversight team to Assistant Secretary working groups, which meet regularly.

C. The workplan for the Assistant Secretaries group is attached.

III. Economic Analysis Team

A. Led by Janet Yellen and Larry Summers. Jeff Frankel and David Wilcox have operational, day-to-day responsibility for work program. Includes other members of the Administration as chosen by Yellen and Summers.

B. Decides which tools to use in evaluating specific quantitative questions, especially for use in options memos

C. Feeds back into oversight team and rest of process

IV. Possible outline for options memos that must be drafted

A. *Targets and timetables*

1. Optimal path for a given concentration target

-- Role of uncertainty on both sides (go slow to resolve uncertainty, go fast because of risk-aversion and possible non-linearities)

-- Importance of allowing time for turnover of capital stock and technological development

-- Importance of political credibility (too long a deadline may not seem politically credible, and therefore not induce required behavioral adjustments)

-- Estimates from Manne and Richels; Nordhaus; others

2. Alternative definitions of "stabilization"

- Reducing emissions growth
- Eliminating emissions growth
- Returning emissions to historical benchmark (e.g., 1990)
- Link to concentrations

3. Flexibility

- Multi-year averages for targets
- Multiple target periods
- Banking
- Borrowing
- Escape clauses

4. Negotiating with other countries in Kyoto

- Other country positions on targets, timetables, and flexibility

5. Our targets and timetables for Kyoto

- 1990 by 2010
- 1990 by 2020
- Eliminate emissions growth by 2010-2020, reduce afterwards
- Our position on flexibility

B. Domestic implementation

1. Advantages of market-based solutions

2. Tradeable permits

- Impose requirement at what level?
- Allocation: auction, grandfathering, or some combination

3. Revenue recycling options

- Deficit reduction
- Transition assistance
- Reducing most regressive taxes
- Reducing most distortionary taxes

4. T?

Entitlements

5. Technology

- Autonomous
- Government-induced, with no price shift
- From price shift
- 5 Labs Study and rebuttals

6. Voluntary measures

- Pre-introduction of regime
- Allow credit within regime?

7. Impact

- Price forecasts
- Aggregate effects on output
- Effects by industry

C. International

1. Allocation

2. International trading

- Inter-linkage with domestic system
- How much does international trading help?

-- FSU

-- How big would transfers be?

3. Monitoring and enforcement

4. Developing economies

-- What is fair? What is in U.S. interest?

-- JI

Positions

Defined with or without LDC targets?

-- Evolution:

Mandatory?

Tied to per capita income?

Formulas for making more specific

5. Implications for U.S. competitiveness and external balance

-- CEA/NEC paper

D. Domestic strategy

1. Political environment

2. When to release proposals

3. Level of specificity

4. Possible scenarios for passage

5. Post-Kyoto activities

V. Timeline for critical policy decisions

<u>Date</u>	<u>Event</u>
August	Refined background papers cleared at Assistant Secretary level and forwarded to principals Informal package of proposals developed by White House team Preliminary revenue-recycling options evaluated by White House team, OMB, and Treasury Develop comprehensive voluntary approach to take effect prior to beginning of international regime
September	Writing and refining options memos
Late September	Preliminary decisions on domestic approach and target/timetable options: Domestic policy decisions include structure of domestic emissions trading program, revenue recycling options, technology programs, and Federal undertakings.
October 6	White House conference on climate change
Mid-October	Public release of U.S. targets, timetables, broad domestic approach, and developing economies position
Late October	Penultimate negotiations in Bonn
November	Intense diplomatic campaign, formulating precise negotiating instructions, working with domestic constituencies, and examining post-Kyoto scenarios
December 1-12	Kyoto

WORK PLAN FOR ASSISTANT SECRETARY WORKING GROUPS ON CLIMATE CHANGE POLICY ANALYSIS

(Lead authors indicated in parentheses)

1. Domestic Emissions Trading (Gardiner, Gruber)
Revised paper to be distributed Aug. 8. Includes analysis of auctions (FCC, other experiences) and administrative issues.
 - WTO/MAI issues (Haverkamp)
Paper due Aug. 8
 - Relationship to international trading (Simon)
Draft being circulated for comment.
2. International Emissions Trading and Joint Implementation (Doniger, Gruber)
Revised int'l emissions trading paper to be distributed Aug. 13. Will include additional analysis of institutional and compliance/monitoring issues.
 - joint implementation/additionality (Doniger, Gruber)
Paper due Aug. 13
 - payment/trade account questions (Hunker, Shogren)
Paper due Aug. 13
 - WTO/MAI issues (Haverkamp)
Paper due Aug. 8
3. Technology (Glauthier/Bierbaum)
Sectoral paper distributed. Paper setting forth major policy options to be developed in August. (First draft Aug. 13). President's Committee of Advisers on Science and Technology (PCAST) and DoE Labs preparing reports to the President for October 1 delivery.
4. Developing country commitments (Pomerance, Hunker)
Paper setting forth policy options due Aug. 13
 - escape clause (Pomerance, Gruber)
Paper due Aug. 8
 - competitiveness/trade issues (Yellen, Frankel)
Paper drafted. To be circulated August 9.
5. Federal undertakings (Goodman, Glauthier)
Paper setting forth major policy options due Aug. 22. (First draft Aug. 13).



5 principles for climate change policies

Our climate change policies will:

- Use market-oriented mechanisms to ensure that we reduce carbon emissions in the most efficient manner possible;
- Include an escape clause to protect American industry in case the costs of reducing emissions are unexpectedly large;
- Be revenue-neutral, so that our policy package does not involve any net increase in government revenue;
- Involve a significant developing economy commitment to the effort to reduce greenhouse gas emissions; and
- Protect those most vulnerable in our efforts to protect the global climate.

"Elim. e.g.
by 2010-2020
* reduce thereafter

SCENARIO 1: POSSIBLE AGREEMENT IN KYOTO

Issue	Kyoto position
Developing economies	Existing U.S. position (no hard targets)
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements

- U.S. does not alter its negotiating position very much: fights for joint implementation and evolution for developing economies, with a voluntary Annex B.
- U.S. adopts medium-term target (e.g., 1990 levels by 2010 or 2020).
- U.S. pursues international trading system among Annex I countries.

International reaction/potential for Kyoto agreement

- Kyoto agreement may be feasible, albeit not guaranteed. The U.S. position on developing economies is already seen as beyond the acceptable range by other countries.
- Some criticism of U.S. from Europeans and other countries, for not showing bold leadership on critical issue (failing to propose a more aggressive U.S. target).

Possible domestic policy packages

- Domestic emissions trading system. Achieving 1990 emission levels by 2010 through a domestic emissions trading system is likely to imply an increase in the price of carbon of between [\$80 and \$140] per ton by 2010. and possibly much higher thereafter

-- In terms of coal prices, the shift is equivalent to a BTU tax of somewhere between [\$2 and \$4.50] per million BTUs. In 1993, the Administration proposed a tax of \$0.26 per million BTUs plus a \$0.34 per million BTUs tax on oil.

-- Gasoline prices would be expected to rise [between 20 and 40 cents].

Also compare
with Kyoto
oil shock

-- The annual value of domestic emissions permits would be [approximately \$60 to \$70 billion] in 2010. If those permits were auctioned, the funds could be used to reduce other distortionary taxes, to raise national saving, and/or to provide transitional assistance to affected workers and firms.

→ [Achieving 1990 levels by 2020; other options.]

Domestic permits plus trading with other OECD (Annex I) countries. In addition to

may be led with this one.

trading permits domestically, it may ^{well} be possible to agree in Kyoto to a regime for trading permits across participating countries -- potentially offering a somewhat more efficient approach to emissions reduction. Achieving 1990 emission levels by 2010 through a domestic emissions permit trading system coupled with an OECD-wide international trading system would imply an increase in the price of carbon of [about \$50] in 2010.

-- In terms of coal prices, that is equivalent to a tax of about [\$1.50] per million BTUs. Gas prices would rise by an estimated [10 to 15 cents].

-- Under an international trading system that includes the former Soviet Union (FSU) and Eastern Europe, U.S. imports of permits from the FSU and Eastern Europe could amount to [about \$5 billion per year] by 2010.

[Achieving 1990 levels by 2020; other options.]

- Technology. The increase in energy prices implied by a domestic permits system would be likely to induce significant energy-saving technological advances. ^{and more rapid dissemination of existing technologies} But your advisers have sharp disagreements about how much we can reasonably expect of technological advances ^{average} without the spur of a price increase. Some ^{ital.} believe that even without an increase in the price of energy, there are numerous opportunities for energy-saving technologies to be developed and applied. Such a program may require substantial Federal R&D expenditures. For example, your science advisers believe that spending [\$XX] billion per year on energy R&D could achieve [XX] percent of the reductions off the business-as-usual baseline required to reach a 1990 by 2010 target. Your economic advisers strongly disagree, believing that technological advances will clearly be one of the conduits for meeting the target, but that significant energy price increases are necessary to induce the requisite technological advances.

Environmental impact

- Under business-as-usual, concentration levels of carbon are expected to rise from approximately 360 parts per million by volume (ppmv) to about [700] ppmv by 2100 -- the highest in more than 50 million years. The increase in carbon concentrations is expected to produce an increase in mean global temperature of approximately 2.0 degrees Celsius by 2100.
- If all OECD (Annex I) countries reduced emissions to 1990 levels by 2010, carbon concentration would be expected to rise from 360 ppmv to approximately [650 ppmv], rather than 700 ppmv as under the business-as-usual baseline. Carbon concentrations would not reach double pre-industrial levels until 2075, rather than 2068 as under the business-as-usual baseline. The central estimate of the increase in mean global temperature under a 1990 by 2010 target is [1.8 degrees Celsius], rather than the 2.0 degrees Celsius under the business-as-usual baseline.

[Achieving 1990 levels by 2020; other options.]

Domestic reaction

- **Hill:** Two major arguments -- competitiveness and taxes. The first argument is likely to be that U.S. industry will flee the country as a result of the agreement, with its weak developing economy provisions. The second is that the permits, if they are auctioned, would be the largest energy tax increase in history. (If the revenues are recycled by reducing other taxes, we may be able to argue that the program was a tax shift -- tax waste, not work -- rather than a tax hike.) The fact that the Byrd resolution had clearly warned (by a vote of 95-0) against this first scenario would stoke the fires.
- **Moderate firms:** Perhaps some support, but major concerns over developing economy stance may mean overall opposition. Firms in the aluminum, steel, chemicals, petroleum refining, paper and allied products, and cement industries will be strongly opposed, and argue that their operations will flee the United States for other countries. Moderate support may be likely from agricultural interests, insurance companies, natural gas interests, some appliance manufacturers, and financial firms (if auctions are traded). Strong support is likely from renewable energy and energy-efficiency firms.
- **Environmental groups:** Many environmental groups will support a 1990 by 2010 target, but would prefer a more aggressive path (e.g., 20 percent below 1990 by 2010). The environmental community is split on the issues of emissions trading and joint implementation: some (e.g., Environmental Defense Fund) are supportive, others (e.g., Sierra Club) oppose.
- **Elite media:** Likely to be support for tackling issue.

Potential next steps and ramifications

- Potentially becomes large issue against Administration supporters during 1998 elections.
- Ratification process not likely until 1998 or 1999. But Kyoto agreement *extremely* unlikely to be ratified.
 - Perhaps evolve into new round of negotiations, although U.S. will be seen as bad actor for failing to ratify.
 - Even without ratification vote, funding for U.S. negotiators could be curtailed or Congressional anger could manifest itself in other ways.

SCENARIO 2: NO AGREEMENT IN KYOTO

Issue	Kyoto position
Developing economies	Specific targets/hard evolution
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010 or 2020)
Domestic implementation	Tradeable permits

Elements:

- U.S. insists on developing country participation
 - One possibility is generalization of evolution concept: Once per capita GDP or total emissions cross some threshold, targets are mandatory. Targets could be linked to energy intensity, or to a formula that adjusts for growth, population, and starting income.
 - Another possibility would be to try to split the developing economy bloc by focussing efforts primarily on China. Perhaps use other leverage (WTO, trade, UN) to get China to agree to targets. Clarify our intentions during Chinese visit pre-Kyoto.
- U.S. adopts medium-term target (e.g., 1990 levels by 2010 or 2020). May be necessary to adopt a somewhat stricter U.S. target (e.g., 2010) to even have a hope of a deal in Kyoto.

International reaction/potential for Kyoto agreement:

- Kyoto agreement seems very unlikely, even with U.S. target of, say, 1990 by 2010. Criticism for violating 6-month rule (making new proposals less than 6 months before final meeting).
- Given Berlin mandate, U.S. likely to be blamed for blowing up negotiations.

Domestic policy package and impact:

- Domestic emissions trading. Same as above.
- Domestic emissions trading with international component including both developed and developing economies. Achieving 1990 emission levels by 2010 through a domestic emissions trading system with trading among Annex I countries *and* developing countries is likely to imply an increase in the price of carbon of [approximately \$20 per ton]. Such an increase in the price of carbon is equivalent to a tax of approximately [50 cents] per million BTUs or so.
- Technology. Same as above.

Environmental impact

- If the developed countries reduced emissions to 1990 levels by 2010, and the developing countries reduced emissions to 1990 levels by 2040 (which is far beyond what they plausibly agree to), carbon concentration would rise from 360 ppmv to approximately 450 ppmv, rather than 700 ppmv as under the business-as-usual baseline. The central estimate of the increase in mean global temperature would be about [1 degree] Celsius, rather than the 2 degrees Celsius under the business-as-usual baseline.

Domestic reaction

- Hill: Failure of agreement may make domestic implementation package less of a political issue. But there still could be false accusations that we proposed “the largest energy tax hike in history.” The inclusion of China and a few other developing economies may split the Byrd bloc into those who are truly opposed to acting, and those who are truly concerned about the important developing economies. But in general, unlikely to be strong opposition, and perhaps some muted, private support.
- Moderate firms: Could perhaps support, depending on which economies are included.
- Environmental groups: Likely to blame the President for failure to get an agreement.

Potential next steps and ramifications:

- Work to get agreement in Conference of Parties during 1998 or later, while insisting on developing economy participation.
- Could encourage more voluntary and Federal efforts, but may not be able to counter impression of undermining Kyoto.

SCENARIO 3: PARTIAL AGREEMENT IN KYOTO, DON'T SUBMIT FOR RATIFICATION

Issue	Kyoto position
Developing economies	Current U.S. negotiating position, but clarify that we will be pushing for more in Annex reviews in 1998 and will not ratify agreement without assurances on developing economy issue
U.S. target and timetable	Medium-term (e.g., 1990 levels by 2010)
Domestic implementation	Tradeable permits

Elements

- Seek new developing economy commitments outside Kyoto agreement, so that (at least technically) Berlin Mandate would not be contravened. Possibilities include getting key countries to join Annex 1 under the Convention (during "review of annexes" in 1998), amending the Convention to include Annex B rather than doing so in Kyoto agreement, or including Annex B in Kyoto agreement but getting key countries to sign on afterwards.
- The U.S. could either adopt a minimally accepted package in Kyoto, but not submit it for ratification until further progress is made, or push for general adoption of Kyoto agreement to occur at COP 4 in 1998 -- after such progress was cemented.
- Another possibility, if it were obvious that we could not achieve a domestically acceptable package in Kyoto, would be to try to delay the Kyoto meetings themselves. This approach would generate very strong international criticism.

Domestic implementation

- Depending on final agreement, same as either #1 or #2 above.

International reaction/potential for Kyoto agreement:

- U.S. is still likely to be criticized sharply for its position.

Domestic reaction

- Hill: Muted support for tough U.S. approach to developing economies, although there may be substantial frustration if the Kyoto agreement is adopted but not submitted for ratification. May be seen as playing games.
- Moderate firms: Probably no strong opposition.
- Environmental groups: Strong criticism for delaying agreement until developing

economies accept what would be called an unfair burden.

Potential next steps and ramifications:

SCENARIO 4: GO SLOW, WITH MODEST DOMESTIC EFFORT AND DEVELOPING ECONOMY COMMITMENTS

Issue	Kyoto position
Developing economies	Existing U.S. position
U.S. target and timetable	Longer-term
Domestic implementation	Aggressive technology effort combined with voluntary corporate programs

Elements:

- U.S. adopts longer-term target, and does not necessarily rely on an increase in the relative price of carbon to achieve objectives. Instead, we could attempt to adopt aggressive technology effort combined with voluntary corporate programs to meet target. *However, there is strong disagreement among your advisers about the role of technology. See discussion in domestic implementation section of Scenario 1 above.*

Domestic policy package and impact

- Major technology initiative. The major policy initiative under this approach would be to accelerate R&D funding for “home run” technologies -- such as those identified in the PCAST/11-Labs studies. A [\$XX] billion per year R&D effort would [XXX].
- Voluntary corporate program. We could try to more aggressively develop voluntary corporate programs.

International reaction/potential for Kyoto agreement:

- “Rio II”: U.S. position sharply criticized as being completely inadequate to issue at hand.
- Kyoto agreement may be possible, albeit with much criticism of weak U.S. position.

Domestic reaction:

- Hill: Opposition from those who are truly concerned about problem. Perhaps some muted, private support from those who are more concerned with mitigation costs.
- Moderate firms: Support from renewable energy and high-tech firms. Others?
- Environmental groups: Charges that President broke promise to address this problem with real, credible steps.
- Economists and elite media attack plan as lacking in credibility, not attacking the problem, and being overly rosy on technology assumptions.

Potential next steps and ramifications:

- Develop technology program, start to make some progress regardless of Kyoto outcome.
- As scientific evidence accumulates, press for stricter international regime.