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MIKE - HERE IS A SEMI-FINAL VERSION OF OUR CO_2 CAP & TRADING OPTION THAT WAS DEVELOPED ~~THRU~~ THE POST-2000 "PRICING WORK GROUP." I WANT BOB SHACKLETON TO TAKE 1 MORE LOOK AT THIS BEFORE WE PRONOUNCE IT "FINAL" - PROBABLY EARLY NEXT WEEK.

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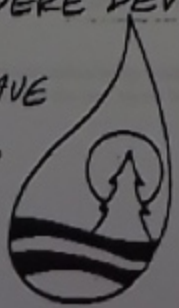
NEXT WEEK, WE WILL PROVIDE YOU WITH OUR ANALYSIS SHOWING HOW NUMBERS WERE DEVELOPED.

CALL ME IF YOU HAVE ANY QUESTIONS.



Post-2000 Option:
CO_2 CAP & EMISSIONS TRADING FOR ELECTRICITY, NATURAL GAS, AND TRANSPORTATION FUELS

	Low Case	High Case
1) Description of measure (for pros and cons, see attached)	Stabilization of CO_2 from energy at 1990 levels beginning in 2005.	Ratchet down CO_2 from energy 20% by 2025 beginning in 2005.
2) Emission reduction from base (MMTC-e)[1]		
cumulative to 2025	4329	6603
highest year	242	459
in 2010	170	227
in 2025	232	459
in 2000	0	0
3) Annualized compliance cost[2]		
@ 3% discount rate	$23-107/ton	(~1.5-3 times low case[3])
@ 7% discount rate	$10-46/ton	
4) Fed. budget cost		
in 1996	0	0
in 2000	$4-8 million	$4-8 million
in 2005	$20-30 million	$20-30 million
5) Implicit discount rate for cost-effectiveness of $50/ton	0.01% to 6.6%	(not determined)
6) Cumulative value of energy savings	(to be determined)	
7) Cumulative investments	(to be determined)	
8) Interaction with other measures	(see attached)	

1. Estimates include carbon emission reductions that can be attributed to other measures and are therefore not incremental.

2. Compliance cost estimates assume no other measures are applied to electric and gas utilities and oil refining sectors. If other measures alone achieve emission reduction goals, the net cost of an emissions cap would be zero or perhaps negative. Costs are based on model runs by the Energy Modeling Forum 12, Stanford University, adjusted for differences in GDP assumptions. Actual costs are expected to be at the low end of these ranges for the following reasons: (1) The ability of sources to plan for compliance well in advance under a phased in cap and trading system should reduce costs; (2) The system's incentive for technological innovation should reduce costs; and (3) To the extent that other emissions reduction measures will be implemented, net costs associated with an emissions cap will be reduced; (4) Empirical experience with EPA's acid rain control and leaded gasoline phase-out programs confirms that emissions trading can substantially reduce compliance costs, especially for larger sources.

3. EMF-12 results suggest the cost of a 20% emissions reduction by 2010 would be about 2-4 times the cost of stabilization. With 15 more years to achieve a 20% emissions reduction, we assume the cost would be about 1.5 to 3 times the cost of stabilization.

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Background: One potential means for ensuring that the U.S. is successful in meeting its long-term emission reduction goals for greenhouse gases is adoption of a nationwide emissions ceiling and trading regime with respect to carbon dioxide from certain sectors, including electric and gas utilities and transportation fuels. These three sectors alone account for approximately 85% of U.S. CO_2 emissions from energy use.[1] The existing tradable emissions system for sulfur dioxide in the Clean Air Act Amendments of 1990 provides a model for the trading of CO_2 emissions allowances, as well as an infrastructure for its implementation.

The CO_2 cap and trading option should not be seen as precluding other emission reduction options in the utility and transportation sectors. Rather, it should serve as a "backstop" to ensure that national emission reduction goals will be achieved even if other measures are not able to achieve these goals.

Description: This policy option would impose a national CO_2 emissions cap with a tradeable permits system on electric and gas utilities, as well as transportation fuels. Other sources could be added where practical. The Clean Air Act would be amended to create Phase I of the Global Climate Program, whereby electric and gas distribution utilities and transportation (indirectly, through petroleum refineries) would be required to surrender allowances in proportion to their emissions of CO_2. A fixed number of emission allowances would be allocated to all electric utility carbon emitters nationwide, based on the average plant carbon emission rates in 1988-1990, thereby "grandfathering" these emissions. Similarly, natural gas distribution utilities and petroleum refineries would be allocated allowances based on their sales of natural gas or production of transportation fuels (plus imports, less exports). Severe penalties would apply where emissions exceed surrendered allowances. CO_2 emissions allowances could be freely traded among any parties and may be banked for future use, thereby maximizing compliance flexibility and cost-effectiveness.

Compliance would begin in 2005, with annual emissions for these three sectors capped at 1990 levels. The number of emissions allowances per year could be held constant (low case) or ratcheted down over time, e.g., to a 20% reduction by 2025 (high case), to meet national carbon emission reduction goals. Carbon sinks enhancement such as forestry offsets and international joint implementation (JI) strategies could be permitted subject

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[1] U.S. Department of Energy, Energy Information Administration, Emissions of Greenhouse Gases in the U.S. 1985-1990, No. DOE/EIA-0573. Washington, Sept. 1993.

to strict verification requirements.[1] With respect to electric utilities, existing Acid Rain Program requirements would remain intact, although permits would have to be issued that include the CO_2 requirements and plans. Quarterly emissions monitoring reports would be required based on the continuous emissions monitoring (CEM) systems that are now required to include, in most cases, CO_2, for the utilities in the Acid Rain Program.

Implementation: The Clean Air Act would be amended to establish a national CO_2 emissions trading system, delegating administrative authority to EPA. EPA would implement this option by writing rules and establishing permitting, emissions trading, and emissions monitoring systems similar to those under the SO_2 allowance trading program. CO_2 monitoring requirements for electric utilities already exist under the Acid Rain Program. Appropriate proxies would be developed for emissions from transportation sources (based on refinery output) and natural gas distribution utilities.

Compliance Cost: The cost of this option is highly dependent on the implementation and effectiveness of other options. If other options combined achieve CO_2 emission reduction goals for the utility and transportation sectors, an emissions cap would entail no compliance costs and might even result in net cost savings. In the event of a shortfall of the other options, the cost of this measure could be substantial in aggregate but quite modest relative to the emission reductions achieved (see attached table). The timing and magnitude of emission reductions will determine the marginal cost curve for compliance costs. The market-based approach and flexibility afforded by this measure should ensure that it is among the most cost-effective means for achieving the nation's emission reduction goals. The effectiveness of this option would be unaffected by changes in fuel prices or GDP growth assumptions, but compliance costs would be affected by these factors.

Budget Costs: Administrative costs of the program are estimated at $20-30 million/year when fully implemented. The potential for stiff penalties should make the program largely self-enforcing. Coordination with EPA's existing Acid Rain Program should provide substantial economies and operating experience.

Affected Stakeholders: Most firms in utility and transportation sectors do not want additional regulation, although the flexibility provided by the allowance trading option would be very appealing, including the possibility of forestry offsets. Most utilities would probably prefer emissions trading to a carbon tax since allowances could be allocated without cost. A small but growing number of utilities will like the option, as

[1] Inclusion of JI credits is recommended only for the high case, as leverage for additional cost-effective emission reductions.

will emissions exchanges/brokers, most environmental groups, and industries that could benefit from restrictions on carbon emissions.

Interaction With Other Measures:
By design, an emissions cap with trading achieves emission reductions through interaction with other measures. Rather than achieving emissions reductions on its own, a cap would enhance achievements of other measures by providing an economic incentive for reduction and sequestration of carbon emissions. In effect, the emissions cap and trading option would provide a "backstop" to ensure that emission reduction goals will be achieved by a combination of measures. "Leakage" could be minimized by imposing emissions caps or taxes on other sectors as well, where feasible. It would not be appropriate, however, to apply both an emissions cap and emissions tax on the same sector, as these mechanisms would duplicate the purpose of placing a value on emission reductions.

Pros: A CO_2 cap with emissions trading provides perhaps the most economically efficient mechanism possible for achieving emission reduction goals, irrespective of the level of the target. This option would assure substantial reductions of carbon emissions by three sectors that together contribute approximately 85% of the nation's energy-related CO_2, in coordination with other initiatives. The tradeable emissions feature would ensure that emissions reductions are pursued where they are most cost-effective, making this approach among the lowest-cost means of ensuring achievement of national emission reduction goals. An emissions cap with trading offers an appealing alternative to an energy tax, as it could be less costly and less administratively burdensome. An emissions cap could also assure that emission reduction targets will be achieved, in contrast to a tax. In the high case (20% reduction in CO_2 emissions), credit could be given for international joint implementation projects to offset a firm's domestic CO_2 requirements, thereby making the program more cost-effective and more attractive to utilities and oil refineries. Restrictions on carbon would be viewed favorably by certain sectors such as renewable energy, energy efficiency, and perhaps natural gas.

Cons: Incorporation of CO_2 emission costs will increase the price of electricity, natural gas, and petroleum. This could elicit opposition from consumers as well as the electricity, petroleum and transportation sectors, unless it is perceived as preferable to more onerous alternatives such as an energy tax or command and control approaches. No-cost allocation of carbon allowances to existing sources could raise equity questions. Compared with an energy tax, a cap does not enhance federal revenues, unless emission allowances are allocated by an auction. Issues of leakage must be addressed to the extent that certain sectors are not covered by either an emissions cap or tax.

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