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## EXECUTIVE SUMMARY

Science does not justify climate alarmism, and the costs of any mandatory carbon-reduction policy are likely to be out of all proportion to their putative benefits. The White Paper should but does not invite discussion of these threshold issues. The Committee has not yet heard the case against climate alarmism from qualified scientists even though Chairman Domenici promised to hold such a hearing in his opening statement of July 21, 2005. Issuing the White Paper before the Committee has conducted a balanced assessment of climate science was premature—a rush to judgment unworthy of the world's greatest deliberative body.

All mandatory carbon suppression schemes are contrary to the public interest, but cap-and-trade strategies have the greatest potential for political mischief and economic harm. A regime of carbon retail sale taxes would be administratively simpler, more transparent, and more accountable than a cap-and-trade program. Citizens would feel the bite the tax takes out of their wallets each time they purchased gasoline, paid an electric or natural gas bill, or bought a product manufactured with heat or steam from fossil fuels. Consequently, they would be more likely to demand that policymakers explain why the ostensible benefits of carbon taxes justify their costs—and more likely to resist attempts to increase such taxes—than they would to demand a justification for carbon caps or to resist attempts to tighten the caps. In addition, since taxes are a domestic policy matter, they are easier to repeal than policies, such as cap-and-trade, that are likely to become entangled in the policies of the European Union and the Kyoto negotiating process.

### *Who is regulated and where?*

The Competitive Enterprise Institute (CEI) does not believe that any entity anywhere in the United States should be regulated or taxed for the purpose of limiting carbon dioxide (CO<sub>2</sub>) emissions. As we explain in the Additional Topics section, the Domenici-Bingaman White Paper fails to address any of the scientific and economic issues at the heart of the climate policy debate. The White Paper assumes the desirability of a Kyoto-style cap-and-trade program and requests public comment on how to build it. The threshold questions—whether science justifies alarm about global warming and whether any regulatory strategy could possibly do more good than harm—are not even mentioned.

The White Paper's question-begging character is, sadly, part and parcel of the biased character of the "process" Senators Domenici and Bingaman have set up. They should not issue a White Paper until *after* the Senate Energy and Natural Resources Committee has an opportunity to conduct a balanced inquiry into the basic issues. Chairman Domenici promised a balanced assessment in his opening statement at the July 21, 2005 Committee hearing. Alluding to the fact that all the witnesses were from the alarmist wing of the scientific community, he stated:

**“I am also aware that there are other qualified members of the scientific community who do not share those views, and probably even more who are concerned that anything we do will significantly affect our economy and way of life, and also suggest that maybe anything we do will not have any impact [on climate change]. So, as I said, we are going to have additional hearings, and hear from those witnesses who are going to have different views from what we are going to hear today.”**

The Committee has yet to hold a hearing featuring those “other qualified members of the scientific community.” Issuing a White Paper before the Committee has heard the case against global warming alarmism from qualified scientists is premature—a rush to judgment unworthy of the world’s greatest deliberate body.

#### **Clarifying Question 1a:**

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

This question is meaningless because it is unfair to ask the public to bear multi-billion dollar burdens to achieve benefits that are inconsequential and unverifiable even under favorable scientific assumptions. As Tom Wigley of the National Center for Atmospheric Research showed in response to a query from then-Vice President Al Gore, the Kyoto Protocol, even if fully and faithfully implemented by all industrial countries including the United States, would avert only 0.07°C of global warming by 2050 (Wigley, T.M.L. 1998. The Kyoto Protocol: CO<sub>2</sub>, CH<sub>4</sub> and climate implications. *Geophysical Research Letters*, Vol. 25, No. 13: 2285-88). Yet, according to the U.S. Energy Information Administration (EIA), Kyoto would cost the U.S. economy roughly \$100 billion to \$400 billion per year, depending on the extent of international emissions trading. Kyoto is all economic pain for no environmental gain. It is unfair to ask the American people to bear high costs for no discernible benefit.

Sen. Bingaman’s Climate and Economy Insurance Act, based on recommendations of the self-titled National Commission on Energy Policy (NCEP), would cost less than Kyoto—roughly \$20 billion annually, according to the EIA. However, the Bingaman/NCEP plan would also accomplish commensurately less in greenhouse gas emissions reductions. Based on Wigley’s Kyoto analysis, CEI estimates that Sen. Bingaman’s bill would at best avert an almost infinitesimal 0.008°C of global warming by 2050. Yet, the plan would cost \$331 billion in cumulative GDP losses through 2025, according to the EIA. We think the American people have better things to do with \$331 billion. As with Kyoto, the cost is so egregiously disproportionate to the benefit, if any, that no variation on the theme can be “fair.”

This leads us to a series of questions which we believe are more relevant to sound policymaking than those posed in the White Paper:

- (1) How much global warming would the NCEP cap-and-trade proposal avoid? If it would avert only a few thousandths of a degree of warming, what is the point of investing any resources in it at all? Is an unverifiable 0.008°C reduction in global temperatures 45 years hence really worth a \$331 billion in cumulative GDP losses?
- (2) Since the NCEP cap-and-trade proposal will produce no measurable public health or ecological benefit, is the real objective to establish the legal precedents and regulatory machinery for more costly restrictions on carbon-based energy?
- (3) How much global warming does NCEP believe U.S. policy must ultimately avert—2.5°C, 4.5°C, more? If the NCEP proposal would accomplish only 1/300<sup>th</sup> of the ultimate objective, how many steps beyond the first step would U.S. firms need to take?
- (4) Finally, how much would those subsequent steps cost—in lost GDP, higher consumer energy prices, and lost jobs?

### **Clarifying Question 1b:**

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

If one were going to regulate greenhouse gases (a policy CEI obviously opposes), the appropriate place in the chain of activities is at the point of consumption. This is clearly so from the perspective of program effectiveness, because it is the actual consumption of fossil fuels that produces carbon dioxide (CO<sub>2</sub>), the principal greenhouse gas. There is no more effective way to limit CO<sub>2</sub> emissions than to raise the price both of fossil fuels and of the goods and services that require fossil fuels for their production. This could be accomplished by a carbon tax on the sale of gasoline, diesel fuel, home heating oil, electricity generated from fossil fuels, and retail goods manufactured with steam or heat generated from fossil fuels. Many states and municipalities already have retail sales taxes. Most states and the federal government also tax the sale of motor fuels. So this approach—a Domenici-Bingaman Retail Carbon Sales Tax—is also superior from the perspective of administrative simplicity.

CEI also notes that a carbon retail sales tax is superior to cap-and-trade from the perspective of transparency and accountability. A cap-and-trade program is regulatory. Citizens do not directly bear the costs of most regulations. Rather, regulated entities bear the immediate costs, and then pass those costs, or a portion of them, on to consumers. Thus, to most citizens, regulatory costs are hidden, embedded in the price of the goods and services they buy. The costs of taxes are more visible. Consequently, the bite taxes take out of the citizen's wallet is more keenly felt. Sales taxes are perhaps the most visible form of taxation, since the costs are itemized on sales receipts.

Citizens would be more likely to demand that policymakers explain why the ostensible benefits of carbon taxes justify their costs—and more likely to resist attempts to increase such taxes—than they would to demand a justification for carbon caps or to resist attempts to

tighten the caps. Put somewhat differently, compared to a carbon tax, cap-and-trade allows politicians to fool more people, more of the time.

*Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?*

Please submit your response [HERE](#). (no page limit) There is no fair way to allocate allowances. If allowances are allocated at no cost to existing fossil-energy producers, they will have a competitive advantage over any new entity that must buy allowances from them in order to enter the market. On the other hand, if allowances are auctioned, that creates a competitive advantage for any firm that supplies non- or lower-carbon energy, such as electricity generated from nuclear power, dams, biomass, or wind, or motor fuels from ethanol. Some companies will gain market share and investment capital at the expense of others simply because they, e.g., split atoms, spin wind turbines, or grow corn for a living.

The fairest way to control greenhouse gas emissions is through a carbon retail sales tax (see response to Question 1). Although no tax is economically neutral and a carbon tax would create its own set of winners and losers, there is virtually no one in the economy who would not feel the bite of this tax, because virtually everyone uses carbon-based fuels. For example, ethanol may be lower in carbon than gasoline but it, too, emits CO<sub>2</sub> when combusted. In addition, natural gas is used to make ethanol, and diesel fuel is used to transport ethanol from the factory to the pump. Similarly, most shareholders in Nuclear Energy Institute-affiliated companies fill their cars with gasoline and many get their electricity from fossil-based power plants. Because the cost of the carbon tax would fall on consumers generally, there would be a broad-based political constituency to limit the costs of the program, or to demand that policymakers justify the program's costs in relation to its putative benefits.

### **Clarifying Questions 2a:**

#### ***Technology R&D and Incentives***

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?

- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

Again, if one is going to set political constraints on greenhouse gas emissions (a policy CEI opposes), the least objectionable method is through a carbon retail sales tax. There would be a strong temptation—as evidenced by Question 2a—to channel the proceeds into federal R&D programs. That temptation should be resisted. The federal government’s track record in energy-technology development is not impressive. Consider the Partnership for a New Generation of Vehicles, which spent hundreds of millions of taxpayer dollars for little if any gain in new-car fuel economy, even as Japanese auto companies were establishing their leadership in hybrid technology without significant government direction or support.

To the extent that climate change is a problem, it will only be solved by the development and diffusion of new technologies. The best way to accelerate the replacement of the old by the new is to lower the cost of capital and, more generally, promote prosperity. Therefore, CEI recommends that the proceeds of any carbon tax be used to lower federal taxes on capital investment. To discourage Congress from attempting to pick winners and losers, which would only impair the efficiency of capital investment, the tax relief should apply equally to all investment in new plant and equipment, not just technologies deemed low-carbon or “climate friendly.”

### **Clarifying Questions 2b:**

#### *Adaptation Assistance*

- What portion of the overall allowance pool should be dedicated to adaptation research or adaptation-related activities?
- How should these allowances or funds be administered?
- What is the appropriate division between federal vs. regional, state, and local initiatives?

Investment in adaptation is a more cost-effective protection from climate-related risks than are regulatory mitigation strategies (see Additional Topics). However, there is no need to link adaptation investments to mitigation policies such as cap-and-trade or carbon taxes. Adaptation is what free people do spontaneously in the private marketplace and at the state and local levels. For example, elder retirees who move from Buffalo to Miami or Chicago to Phoenix experience a more dramatic climate change in one year than any region of the country is likely to undergo in a century. The retirees do not require a federal program to adapt.

The alleged hazards of global warming are often overblown. For example, there is little reason to fear a dramatic acceleration in sea-level rise over the next century (see Additional Topics).

However, if it becomes necessary for the federal government to help local communities build sea walls, the costs are likely to be much smaller than those imposed by a cap-and-trade program or carbon tax. Funds for such projects should be paid out of general taxes rather than via the receipts of economy-chilling carbon mitigation strategies.

### **Clarifying Questions 2c:**

#### *Consumer Protections*

- What portion of the overall allocation pool should be reserved to assist consumers?
- Should funds from the sale of permits or allowances be targeted primarily to low-income consumers, or should they be more widely distributed to benefit all consumers?

The proceeds of a carbon tax should not be used to “assist” (subsidize) consumers because that would merely mask the burden of paying the tax. A virtue of retail sales taxes is that their impacts are highly visible and not easy to conceal from the public. Relief for selected categories of consumers would only encourage policymakers to ignore the costs of the tax, create a new form of welfare dependence, and allow politicians to play a manipulative double-game of predatory benevolence, raising energy costs in order to win political support by doling out relief.

### **Clarifying Questions 2d:**

#### *Set-Aside Programs*

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

Early credit schemes are inherently mischievous. First, they encourage lobbying for cap-and-trade. The credits derive their market value solely from the threat or imposition of a cap. Consequently, every credit holder has an incentive to lobby for a cap.

Secondly, credits can be awarded for all manner of dubious reasons. During the recent Department of Energy-led initiative to upgrade the Voluntary Reporting of Greenhouse Gases Program, nuclear power producers claimed they deserve early credits for “displacing” emissions that would otherwise have occurred if their customers had instead been served by non-existent coal-fired power plants. Waste-to-energy companies claimed they deserve early credits for “avoiding” the methane emissions that would otherwise have been released from decomposing landfills. Aluminum manufacturers claimed they deserve early credits because automobiles made with lighter aluminum components burn less fuel and emit less CO<sub>2</sub> than cars made with steel components. Utilities claimed they deserve early credits for the emission reductions that occur when demand for purchased electricity drops (or does not rise as fast as it might otherwise) because industrial customers installed on-site combined-heat-and-power plants.

This is another reason why a Domenici-Bingaman Carbon Retail Sales Tax is a superior option—it is less easily combined with early credit schemes. The only way a company could earn early credits towards a future carbon tax would be to pay the tax early. Who would want to do that? Energy-rationing profiteers are less likely to lobby for carbon taxes than for carbon caps, and less able to turn the carbon tax program into a money-for-nothing rent seekers game.

### Clarifying Questions 2e:

#### *Special considerations for fossil-fuel producers?*

- Would some upstream fossil fuel producers be unable to pass the cost of purchasing permits or allowances through in fuel prices if they are the regulated entity?
- Is there a sufficient policy rationale for addressing these costs to justify the complexity of setting up and administering an allocation system for these entities?
- What other options exist to address the inability of fossil fuel producers to pass through these costs?

Some upstream fossil fuel producers would be unable to pass some of the cost of purchasing permits or allowances to consumers in higher fuel prices. Although energy demand is relatively inelastic, it is not absolutely so. Consumers will continue to purchase electricity and fuel when the price goes up, but they will not purchase as much. Carbon-suppression programs unavoidably disadvantage some producers and many consumers.

This series of questions should serve as a reminder that, from a political economy perspective, carbon-suppression policies are fundamentally wealth-transfer schemes. However, credit or allowance allocation strategies are much more easily manipulated for this purpose than a carbon retail sales tax would be.

Consider the striking similarities between a carbon cap-and-trade program and a government-administered cartel such as OPEC. In cap-and-trade no less than in OPEC, government sets an overall production level, divvies up quota among producers, and then attempts to prevent individual members from producing beyond their quota. The economic effect of cap-and-trade is exactly like that of OPEC: increase energy prices by restricting supply. The only difference is that, in the case of cap-and-trade, the cartel applies to all fossil fuels, not just oil. Also just like OPEC, a carbon cartel shifts wealth from consumers to quota holders. Most importantly, the amount of wealth transferred from consumers to the cartel greatly exceeds the overall GDP loss or aggregate burden on the economy—which is why so many rent-seeking firms lobby for cap-and-trade.

Again, although taxes are also susceptible to political manipulation, a carbon tax would not create a carbon cartel. Unlike carbon credits or allowances, carbon taxes are simply a liability to those who must pay them. Firms subject to the tax cannot fleecе consumers by lobbying to

increase the tax. Producer and consumer interests would tend to coincide—the lower the tax, the better for both—rather than diverge, as in the case of cap and trade.

### **Clarifying Questions 2f:**

#### *Allocations for downstream electric generators?*

- Should electricity generators be included in the allocation if they are not regulated?  
(Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

All these questions point to a regime in which politicians pick winners and losers. That's a good thing if the intent is to generate campaign contributions but a bad thing if the intent is to advance consumer welfare.

## **Clarifying Questions 2g:**

### *Allocations for energy-intensive industries?*

- Is there a sufficient policy rationale to have an allocation to selected energy-intensive industries? What industries should be included in the allocation?
- What portion of the overall allocation framework should be reserved for these industries?
- What are the appropriate metrics for determining allocations across different industries?

Such allocations would create a new class of corporate welfare clients and allow politicians to pick winners and losers (see answers to 2c and 2f).

This question implicitly acknowledges that carbon-suppression schemes are detrimental to energy-intensive industries. Manufacturing is the most energy-intensive sector. Manufacturing is also the most exposed to competition in the global economy, and therefore less able than most other sectors, especially electric power generation, to pass higher energy costs on to consumers. One would think that a Congress concerned about the loss of U.S. manufacturing jobs would be highly allergic to cap-and-trade proposals. In any event, the predictable job losses and plant closings in the manufacturing sector from carbon-suppression programs is a reason to oppose such programs, not to create new corporate welfare handouts (in the form of emission allowances). Again, cap-and-trade easily becomes a double game of predatory benevolence, enabling politicians to restore (partially) with their left hand what their other left hand has taken away.

## **Clarifying Questions 2h:**

### *Allocations to other industries/entities?*

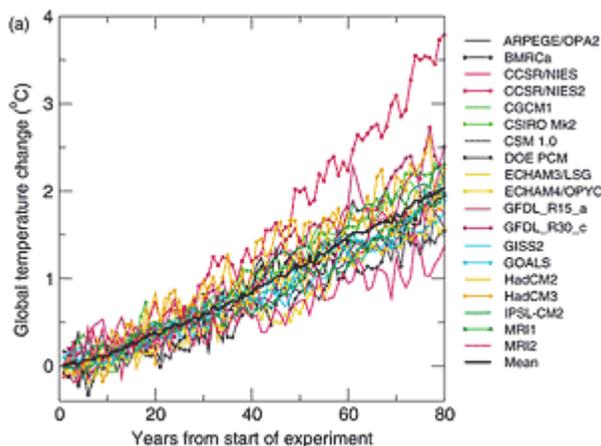
- What other industries/entities (e.g. agriculture, small businesses, etc.) should be considered in the allocation pool?
- What should be the basis for their share of the total allocation as well as for the distribution among such industries/entities?

See responses to 2f and 2g.

*Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?*

Again, CEI views a carbon tax as superior to cap-and-trade, assuming *arguendo* that Congress decides to suppress carbon-based energy use. Lawmakers should not lock the United States into policy decisions they may later regret. Taxes are a purely domestic matter and can be repealed without negotiating with foreign powers. A trading scheme would more easily entangle the United States in multilateral institutions created by the European Union (EU) and/or the Kyoto Protocol. Indeed, once a domestic cap-and-trade program is in place, some firms would aggressively lobby for U.S. participation in the Kyoto and EU systems in order to expand their opportunities to buy and sell emissions credits. Repealing taxes is hard but far less so than de-ratifying a treaty or disengaging from multilateral institutions.

Senators Domenici and Bingaman believe global warming to be one of the great threats facing mankind. Science does not support this view. Nearly all climate models predict that, once global warming from greenhouse gas emissions starts, it continues in a constant, not an accelerating, rate. (See Michaels et al. 2002. Revised 21<sup>st</sup> Century Temperature Projections. *Climate Research* 23:1-9.) Although different models predict different absolute amounts of warming, when their projections are plotted on a graph, the slope in almost every case is linear rather than exponential, as shown in the figure below (IPCC: *Climate Change 2001: The Scientific Basis*, p. 537). The only model to break the “consensus” and predict an accelerating rate of warming is the Canadian Climate Center model, which by sheer accident served as a key basis for the Clinton Administration’s “national assessment” report on U.S. climate variability and change. But I digress.



The linear form of most model projections implies that the amount of future warming can be known to a relatively high degree of certainty. All one needs to do is make a linear extrapolation from the observed rate of warming. Since 1976, the planet’s surface has warmed at a remarkably constant rate of 0.17°C per decade (IPCC, *Climate Change 2001*, p. 115). Consequently, if the “consensus” of climate models is correct, we may reasonably anticipate about 1.7°C of warming during the 21<sup>st</sup> century.

Congress (or rather the nation's taxpayers) has spent billions of dollars on climate modeling research over the past 20 years. Unless that investment was a colossal waste, in which case climate models are still too primitive to guide policymaking, we are driven to the conclusion that alarm about global warming is not scientifically justified.

Now suppose a future Congress examines the climate model "consensus" in favor of linearity, draws the obvious inference from the observed rate of warming, and concludes that spending trillions of dollars to mitigate a modest warming by a few tenths of a degree makes no sense. If so, repealing a carbon tax will be politically more feasible than disengaging from treaty obligations or international trading mechanisms.

**Clarifying Question 3a:**

- Do the potential benefits of leaving the door open to linkage outweigh the potential difficulties?

Opening the door to linkage is a peril to be avoided. See the previous answer.

**Clarifying Question 3b:**

- If linkage is desirable, what would be the process for deciding whether and how to link to systems in other countries?

Linkage is not desirable, because it dramatically increases the political difficulty of rescinding carbon suppression policies. See above.

**Clarifying Question 3c:**

- What sort of institutions or coordination would be required between linked systems?

*If a key element of the proposed U.S. system is to "encourage comparable action by other nations that are major trading partners and key contributors to global emissions," should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?*

Developing countries are too energy-poor to even debate imposing mandatory limits on carbon-based energy use. A better approach is the one being pursued by the Asia Pacific Partnership on Clean Development and Climate, also known as AP6. Members include Australia, China, India, Japan, South Korea, and the United States. Instead of setting mandatory limits on greenhouse gas emissions—something developing countries cannot do without dooming their peoples to perpetual poverty—the AP6 parties agreed to cooperate on the development and transfer of technologies that reduce air pollution, lower greenhouse gas intensity, and enhance energy security.

Although members describe AP6 as complementary to rather than competitive with the Kyoto Protocol, it will likely emerge as a competitor during the Protocol's second (post-2012) phase. AP6 countries produce almost 50 percent of the world's greenhouse gas emissions. They include the Kyoto host country (Japan), the two industrial nations opposed to Kyoto (the United States and Australia), and the two most populous Kyoto ratifying countries that refuse to accept mandatory limits on energy use (China and India). The AP6 approach, emphasizing voluntary action, emission goals set by each country, and technology development, is likely to draw more and more adherents as European Union and other industrial countries flail and fail to meet their phase I Kyoto commitments.

The London-based Institute for Public Policy Research (IPPR) analyzed European Environment Agency data and concluded that most EU countries are not on track to meet their Kyoto targets. Specifically, in its December 2005 *Traffic Lights* report, the IPPR found that:

- CO<sub>2</sub> emissions are rising in 13 of the 15 EU countries;
- 10 out of 15 EU countries “will fail” to meet their Kyoto targets “even with planned additional measures”;
- Three others will fail unless “planned new policies are implemented”; and,
- Denmark, Ireland, Portugal, Spain, and Italy are projected to exceed their respective Kyoto emission reduction targets by 10 percent or more.

This is noteworthy, because unlike the United States, EU countries generally have low-to-negative population growth, stagnant economies, and punitive taxes on gasoline consumption.

A recent column in the *Guardian* (“Scientists say British greenhouse gas emissions now higher than in 1990,” David Adam, environment correspondent, Friday March 10, 2006) reveals that even Britain is failing to meet its Kyoto target. This is big news, because it has long been conventional wisdom that the UK's switch from coal- to gas-fired electricity following Margaret Thatcher's privatization of the electric power sector reduced Britain's CO<sub>2</sub> emissions by so much as to make compliance with Kyoto a cakewalk. If Britain will have trouble meeting its round one Kyoto obligations, what are the odds that other industrial countries can comply with even deeper cuts in round two?

More pertinently, if the Kyoto road is a dead end for relatively wealthy EU countries, why should energy-poor developing countries want to take even one step down that path?

**Clarifying Question 4a:**

- What metrics are most valuable for comparison of developed and developing country mitigation efforts to U.S. efforts?

There are no good metrics available. Population growth, wealth, geography (whether a country is compact or spread out), natural resource endowments (for example, whether a country is rich or poor in coal), technological development, and economic structure (for example, whether services, agriculture, or manufacturing dominate) all affect overall greenhouse gas emissions and greenhouse gas intensity. Any attempt to weight these factors to arrive at a universal metric for comparing different countries is bound to be arbitrary.

Per capita emissions—the metric favored by “contraction and convergence” advocates—would bias inter-country comparisons against the United States. Given our level of wealth, we of course emit more CO<sub>2</sub> per capita than do people in, say, Argentina. Emissions intensity (tons of CO<sub>2</sub> per unit of GDP) is a better measure of environmental performance, but it may obscure important differences in natural resource endowments, industrial structure, and geography, putting the United States (and other developed countries) in a falsely negative light. For example, a coal-rich country like Australia with an extensive mining industry is bound to emit more tons of CO<sub>2</sub> per dollar of GDP than countries lacking large coal deposits or with little mining or heavy industry. A continent-sized nation like the United States is bound to use more transportation fuel per dollar of GDP than a small island nation like Japan. America’s spaciousness also partly explains why Americans tend to live in bigger houses and own more appliances. Bigger houses and more appliances mean more energy use and emissions. To chide the United States for being more emissions intensive than Japan is tantamount to scolding the United States for being a big country. There is no “right” level of energy- or emissions-intensity for an economy as whole any more than there is a “right” level of labor- or capital-intensity.

Such metrics are more useful as rhetorical weapons than as analytic tools for informing policy decisions. About all one can safely say is that as nations grow in wealth and technological prowess, they tend to use less energy and emit less CO<sub>2</sub> per unit of output. This is the natural tendency of competitive markets, which constantly challenge firms to do more with less. Although Kyoto-style policies may reduce emissions intensity in the short run, the long-term impact is less clear. Carbon suppression has enormous potential to stifle economic activity and, thus, the technological progress that is both a cause and consequence of wealth creation.

#### **Clarifying Question 4b:**

- What process should be used to evaluate the efforts of other nations and how frequently should such an evaluation take place?
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#### **Clarifying Question 4c:**

- Are there additional incentives that can be adopted to encourage developing country emission reductions?