

# Big Bucks for Global Warming

*The scientific debate seems to be over.*

*Discussion of costs is just beginning.*

BY GREG MASTEL

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888 16th Street, N.W.

Suite 740

Washington, D.C. 20006

Phone: 202-861-0791

Fax: 202-861-0790

[www.international-economy.com](http://www.international-economy.com)

For the most part, the scientific debate on global warming seems to be over. As the United Nations working group on climate change (officially the Intergovernmental Panel on Climate Change) said, the evidence of global warming is now “unequivocal,” the potential impacts are significant, and there is little doubt that human activities—mainly the burning of fossil fuels—have contributed importantly to warming.

There is less consensus though on the appropriate policy responses to global warming. The Kyoto Protocol set out an international understanding to reduce emissions of greenhouse gases—chiefly carbon dioxide. The unwillingness of the United States to join is a widely recognized shortcoming of the Kyoto regime, but it is not the only question. Although most major developing countries joined in Kyoto, notably including China, developing countries did not shoulder the burden of reducing greenhouse gas emissions under the treaty.

In the United States, the political debate has largely moved on to a discussion of possible approaches to lowering greenhouse gas emissions. The so-called Lieberman-Warner legislation—named for the lead sponsors Senator Joseph Lieberman (ID-CT) and John Warner (R-VA)—is now being considered in the Congress and could even be approved in 2008. That legislation creates a cap-and-trade system which is designed to reduce greenhouse gas emissions from a baseline period by allowing greenhouse gas-emitting companies to either reduce emissions

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*Greg Mastel is Senior Advisor with Akin Gump Strauss Hauer & Feld LLP. He formerly served as chief economist and chief international trade adviser to the U.S. Senate Finance Committee, 2000–2003.*

or purchase emission credits from a government-sponsored market. After eight years, this Lieberman-Warner system could be applied to imports as well as domestic production. Among advocates of pollution/emission control, the cap-and-trade system is widely seen as a flexible yet effective approach to implementing pollution reduction policies. But employed on this scale it raises a number of complex international competitiveness and international trade issues.

### ECONOMIC IMPACTS

There is much debate and disagreement on the economic impacts of policies reducing greenhouse gas emissions. Required controls on the burning of fossil fuels would certainly have considerable economic costs. At recent congressional hearings, business-friendly sources put the U.S. economy-wide cost of implementing the Lieberman-Warner legislation at \$4–\$7 trillion from 2010–2050. The UN climate working group reviewed a number of estimates of the likely impact of a global policy and pegged the total cost to the world economy at between a 1 percent gain and a 5.5 percent loss by 2050.

Some have argued—notably a widely discussed report by Nicholas Stern—that the costs of not acting to address climate change, such as rising sea levels, decreased agricultural production, and related problems, would be as large as the costs of carbon dioxide emission control strategies and that the cost of mitigation could rise sharply if action to control greenhouse gas emissions is not taken soon. The UN climate working group generally endorsed this perspective. Others have noted that a global emphasis on controlling greenhouse gas emissions would benefit some sectors, for example, renewable energy sources.

These arguments may be true, but the net benefits of a greenhouse gas emission control strategy do not mean that there are not real short-term costs to controlling emissions. Unquestionably, a reduction in greenhouse gas emissions from the burning of fossil fuels would require heavy investments in technology, infrastructure, and new power plants to either capture carbon emissions or create alternative energy sources.

Here again, there is debate on the estimates, but Europe's experiment with cap-and-trade was associated with increased energy prices. The Lieberman-Warner legislation authorizes a number of free credits, puts price-setting on credits in the hands of a new government board, and allows "off-ramps" (essentially safeguards) to address unforeseen economic problems. These provisions make it difficult to predict price changes resulting from the legislation, but there can

be little doubt that the cost of fossil fuel-based energy would rise under the Lieberman-Warner legislation. The increased costs of electricity, particularly in areas that now rely heavily upon coal, could be substantial.

### COMPETITIVE IMPACTS

Many sectors of the U.S. economy, such as utilities and transportation, would face higher costs, but for the most part they are likely to pass those costs on to consumers, resulting in—by one widely cited estimate—increases of \$300 to \$1,000 in the annual energy bill of middle-class families. Steps can, of course, be taken to reduce the impact upon consumers—as the Lieberman-Warner legislation attempts to do.

U.S. industries that consume energy and face international competition could, however, meet with grave competitive challenges if the rest of the world did not also adopt comparable greenhouse gas emission policies that would equalize costs around the world. For many heavy manufacturing industries such as steel, aluminum, and chemical production, energy is an important input. The details of a cap-and-trade system—particularly the allocation of free credits for past improvements in efficiency—could blunt the impact upon particular industries in the short term; these free credits could even provide an economic boon to some companies. Still, it is difficult to avoid the reality that any system to restrict greenhouse gas emissions is likely to result in higher energy prices.

In the United States, many heavy manufacturers are centered in areas that rely upon coal as a primary energy source for electricity and face serious international competition from companies both in the developed and the developing world. Increasing energy costs in the United States—especially without similar increases in the host countries of competitors—would impose a serious competitive burden on those industries and likely result in declining production, employment, and associated economic costs.

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The costs to the United States of a greenhouse gas emission control policy without international consensus would not only be felt by American manufacturers. The lack of a global policy would result in production of energy-intensive products shifting to countries that do not impose greenhouse gas emission reduction policies. This shift, in turn, would lead to increasing greenhouse gas emissions from these countries both from global shifts in energy-intensive industries and continuing economic growth.

**GLOBAL RESPONSE**

For these and other reasons, the advocates of greenhouse gas emission policies have long emphasized the need for a global response, which led to the Kyoto Protocol. The Lieberman-Warner legislation and other U.S. legislation to control greenhouse gas emissions have also recognized the central role of international agreements to reduce greenhouse gas emissions.

Unfortunately, global competitive problems resulting from greenhouse gas emission policies may not be easy to address. Advocates of international greenhouse

gas emission controls point to the Montreal Protocol, which limited the use of ozone-depleting chemicals, as an example of effective global response to an environmental problem. This example is encouraging, but the costs of controlling greenhouse gas emissions are far higher than the costs of reducing ozone-depleting chemicals.

In addition, the burning of fossil fuels and greenhouse gas emissions is a practice in every country in the world. The United States is presently the leading source of carbon dioxide from the burning of fossil fuels. According to an assessment by the Center for Global Development, however, China is about to pass the United States as a source of carbon dioxide in a matter of months and continue to increase use of fossil fuels for the foreseeable future. Greenhouse gas emissions are also rapidly increasing in other developing countries, including India and South Korea.

International agreements have long given considerable deference to the needs of developing countries, granting effective exemptions from many international rules. In the case of greenhouse gas emissions, however, it is difficult to see how a control regime could be effective without parallel controls in at least major developing countries. Certainly, the manufacturing industries in the United States could suffer serious consequences if China and India were exempted from the costs of greenhouse gas emission control. Beyond that, if a decrease in greenhouse gas emissions from the developed world is combined with an increase from the developing world, little has been achieved.

Unfortunately, it is not at all clear that developing countries are willing to shoulder the burden of reducing carbon dioxide emissions. Chinese authorities, for example, have repeatedly made it clear that they place development as a higher priority than environmental protection. Faced with increasing demands for energy driven both by an expanding industrial base and a population that demands increasing energy for personal use, it is easy to understand the reluctance of Chinese and Indian officials to reduce greenhouse gas emissions. Those economic and political realities, Chinese statements, and China’s announced plans to build and expand two hundred coal-fired electricity plants in the next decade, suggest that China and other developing countries will be quite reluctant to decrease greenhouse gas emissions from current levels or even constrain future growth.

Advocates of legislation like Lieberman-Warner rightly point out that developing countries are unlikely to constrain their own use of fossil fuels and greenhouse gas emissions unless the United States agrees to

<b>Countries whose power sectors create the most air pollution</b>	
Annual emissions of carbon dioxide in millions of tons	
United States	2,790
China	2,680
Russia	661
India	583
Japan	400
Germany	356
Australia	226
South Africa	222
Britain	212
South Korea	185
Source: Center for Global Development, 2007.	

similar limits on itself. This is almost certainly true, but it does not necessarily follow that the developing world would adopt a regime to reduce greenhouse gas emissions if the United States were to act. In fact, current evidence would suggest that the developing world would likely be reluctant to take on an expensive program to reduce greenhouse gas emissions—even if the United States were to make some contributions by allowing greenhouse gas emission control technology to flow to these countries.

#### **POLICY IN A DIVIDED WORLD**

This likely raises the prospect of making policy on greenhouse gas control in a world that is divided on the appropriate response to global warming. Many developing countries would likely take the position that the developed world has responsibility for reducing carbon dioxide emissions; there is some equity argument to support this position since, to date, most greenhouse gas emissions have come from developed countries. Unfortunately, growth in the developing world will soon date that assessment. It is difficult to imagine a successful greenhouse gas control policy without developing country curbs.

Even if there was a broad agreement, national policies to control greenhouse gas emissions are likely to vary from country to country. There are alternative approaches to a cap-and-trade system that have some merit, such as a carbon tax. Even if all countries adopted the outlines of a cap-and-trade system, it is likely there would be differences. It is certainly foreseeable that countries might choose to exempt or otherwise lessen the burden on key industries. It is certainly possible that some countries might exempt or pay offsetting subsidies to, for example, the fertilizer industry to ensure food security, or steel production to ensure national security or economic health. Even the Lieberman-Warner legislation attempts to limit the impact on U.S. agriculture. Absent some overarching international understanding, can there be any real doubt that other countries will respond to their own domestic political priorities even if they agree to impose greenhouse gas limitations?

Such a global patchwork might theoretically be effective in reducing greenhouse gas emissions, but special protections for selected industries would likely have enormous global competitive impacts within those industries chosen for special treatment. If China were to exempt its steel or chemical industries from greenhouse gas emission controls or pay them large subsidies, competing industries in the United States and Europe would be at a devastating competitive disadvantage. If Russia were to exempt its fertilizer indus-

try, U.S. fertilizer producers and perhaps farmers would feel the competitive pain. The resulting economic dislocations in the United States would pose a serious and legitimate problem for a greenhouse gas emission control regime. Important industries have been successful in shaping U.S. policy in many areas in the past and,

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with a legitimate competitive problem to point to, Washington is likely to respond in situations like those envisioned here. Similar scenarios are likely to play out in other countries.

Domestic legislation, such as Lieberman-Warner, has—as noted—foreseen concerns such as these and sought to address them by imposing restrictions on imports to ensure that the burden is at least partly shared. After eight years, Lieberman-Warner would require companies exporting to the United States to purchase emission rights if the country from which the import came does not have its own comparable greenhouse gas emission control strategy. Though its purpose is certainly understandable, this provision faces a number of serious problems.

First, it will be difficult for the United States to judge just how comparable policies are in foreign

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countries. It is unlikely that national authorities in other countries will welcome U.S. efforts to verify enforcement within their borders. Based on experience in other fields such as protection of labor rights, U.S. trade laws, and other environmental restrictions (dolphin-safe tuna), questions about whether effective emission controls or carbon capture requirements are truly being enforced in other countries are likely to arise.

Second, the eight-year delay in application of cap-and-trade requirements to imported products could

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pose significant problems. It is unlikely that U.S. industries and their representatives in Congress would wait eight years while their production and employment declined and imports from non-complying countries rose.

Third, controls on imports into the United States would at best address trade injury in the U.S. market. But most manufacturers compete in global markets. Controls on imports would not address competitive problems in third markets or lower global prices on products resulting from competition from countries that do not adopt greenhouse gas controls. For example, U.S. chemical companies could face loss of export markets around the world to Indian producers due to emission control costs if the U.S. imposed stringent greenhouse gas controls and

India did not—even if Indian imports into the U.S. market were at some point forced to purchase emission credits. Collectively, these competitive concerns could force U.S. companies producing various energy-intensive products to move manufacturing operations to countries that did not require carbon dioxide emission controls.

Finally, the provisions of the World Trade Organization could constrain the ability of the United States to impose requirements (effective tariffs) on imported products. The WTO imposes restrictions on measures (including environmental measures) that restrict imports, including a requirement for “national treatment” (ensuring imports are treated no differently from domestic production), a requirement for a scientific basis for trade restrictions, and a requirement that policies be implemented through the “least trade-restrictive means.” The WTO does recognize the legitimacy of environmental restrictions in various provisions, such as Article XX (g) which allows trade restrictions for “the conservation of exhaustible natural resources.” But WTO dispute settlement panels have found a number of national environmental policies to violate the WTO. Special exemptions or subsidies to selected industries could well also draw WTO attention.

In a potentially interesting parallel, a WTO dispute settlement panel ruled against provisions of the U.S. Clean Air Act of 1990 that imposed limits on imports of reformulated gasoline because the application of those restrictions fell unduly on foreign refiners even though there was a parallel regulation on domestic refiners. The parallel application of a cap-and-trade system on imports could raise similar complaints from countries that fail to adopt greenhouse gas emission controls deemed effective by the United States, which could result in the United States facing the prospect of repealing or amending those restrictions or facing trade sanctions.

**I**t may well be that there is an imperative for national action to address greenhouse gas emissions. To be effective, however, that policy is best a global policy. A policy pursued only by the United States or even by the entire developed world would generate enormous competitive problems for U.S. industries if major developing countries did not participate or did not participate fully. Based upon past experience, it is unlikely that U.S. policymakers would ignore those problems. This suggests that effective response to global warming requires careful thought to addressing the international competitive challenges at the outset.

This reality should redouble the focus upon achieving a truly global response to global warming with provisions to address the competitive concerns of particular industries. Unquestionably, uniform global action is the best result from all perspectives.

At some point—perhaps even now—the United States must consider acting alone or at least without true global consensus to lead a response to global warming. To be minimally effective and be economically and politically sustainable, however, that policy must give careful consideration to the possibility—even likelihood—that other countries will not adopt greenhouse gas emission control strategies at all or adopt different and possibly less effective policies. Given that the bulk of greenhouse gas emissions will increasingly be outside U.S. borders, this is a central challenge to U.S. policymakers and easy responses are elusive. Before setting up a domestic carbon dioxide emission control policy absent an interna-

tional agreement, the United States should be willing to face certain international disputes, possible adverse decisions by the WTO, and potentially even the prospect of large trade sanctions.

Most previous U.S. environmental protection regimes, such as protections of air and water quality, were rightly considered to be largely domestic issues in which international and competitive concerns were little more than footnotes, but in the case of reducing carbon dioxide emissions those issues must be moved to center stage. Before acting on legislation to establish regulations in an area with such sweeping economic and competitive implications, U.S. policymakers should give careful thought to the competitive and international implications. International competitive problems and/or international trade disputes may in the end be unavoidable costs of a U.S. policy to control greenhouse gas emissions, but they are costs that deserve advance consideration and great weight in crafting U.S. policy. ♦