EMISSIONS TRADING IN THE NEW GLOBAL MARKET FOR CLIMATE PROTECTION: WILL AMERICA LAG OR LEAD?

Fred Krupp

Introduction

Author's Note: An earlier draft of this paper was prepared prior to the events of September 11, 2001. That tragedy took the lives of business leaders who cared deeply about awakening the world to the problem of climate change and who sought to bring the power, transparency, and dynamism of free markets to bear in favor of reducing emissions of global warming gases. This paper, offered in the spirit of that shared vision, analyzes the climate accords reached in Marrakech, Morocco, two months after 9/11, and the implications of those accords for the climate policy of the United States.

The Kyoto Protocol on Climate Change commits every nation of the world to address, in real and measurable terms, the signature environmental issue of 21st century – global climate change. The Marrakech Accords pave the way for ratification of the Kyoto Protocol by all major greenhouse gas emitting nations of the world – all,that is, except the United States. The Accords launch a world marketplace for greenhouse gas emissions reductions, a marketplace that rewards improvements in energy efficiency, energy technologies, and agricultural practices. But it appears that at least in the near term, the United States will not be part of that market.

Fred Krupp is Executive Director of Environmental Defense. He acknowledges the assistance of Annie Petsonk, International Counsel for Environmental Defense,in the preparation of this paper.

The change is dramatic. Only a few years ago, it was American policy-makers who extolled the advantages of market-based cap and trade programs, while many of America's negotiating partners demurred. But now the rest of the world has embraced the framework, and it is American companies, farmers and foresters that risk being left behind.

This paper examines the relationship between domestic greenhouse gas emissions limitation policies and the international framework in the new world created by the Bonn Agreement and the Marrakech Accords. After analyzing options for integrating U.S. domestic climate policy into the international arena, and integrating environmental and economic policy, the paper concludes that the path forward is for the United States to return to the Kyoto Protocol on Climate Change.

Overview

Global warming has been the subject of the most extensive peer-reviewed scientific assessments of any environmental problem in history. In January of last year, the distinguished Intergovernmental Panel on Climate Change (IPCC) concluded:

- The world is warming already.
- Human activity is likely the main force in this warming.
- Because global warming gases remain in the atmosphere for decades to centuries, more warming is already inevitable.

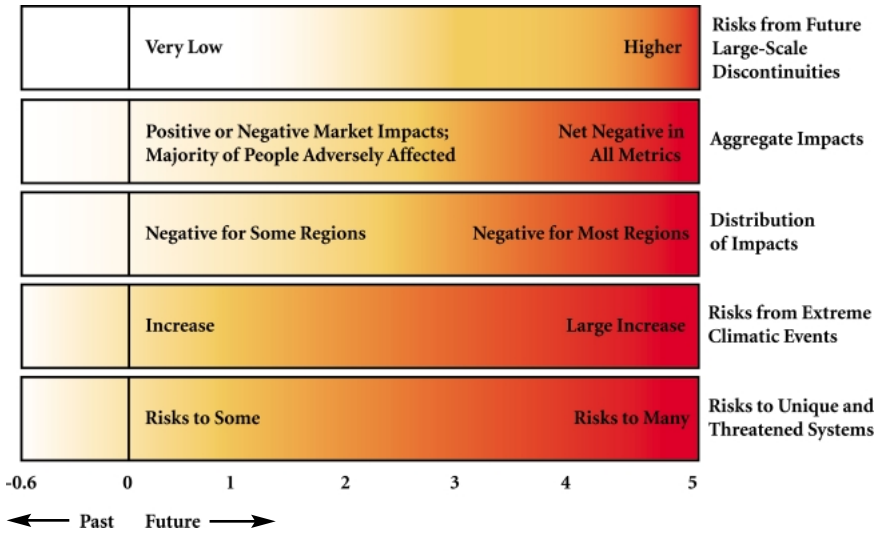
These conclusions were reinforced by a June 2001 National Academy of Sciences study commissioned by President Bush.

The United States was the first industrialized nation to ratify the 1992 UN Framework Convention on Climate Change (the Rio Climate Treaty, the Framework Convention), following the Senate's unanimous consent. The Rio Treaty's objective, and the objective of any protocol related to it, is the stabilization of atmospheric concentrations of greenhouse gases at levels that would prevent dangerous interference with the climate system. The emphasis on atmospheric concentrations of these gases is well warranted,as the gases, once emitted, persist in the atmosphere for decades to centuries, trapping heat that would otherwise radiate out into space. So, stabilizing emissions of these gases is not enough, as in that case their concentrations would continue to increase in the

atmosphere, causing increasing warming of the planet. If concentrations of these long-lived gases are to be stabilized, then emissions must be limited and significantly reduced.

Moreover, if the objective of stabilizing concentrations at levels that will prevent dangerous climate change is to be achieved, then emissions limits and reductions must begin in the very near future. The IPCC has warned that warming of more than 1 to 2 degrees Centigrade over the next 100 years poses severe risks from extreme climate events, and also presents severe risks to unique and threatened ecosystems. (See Figure 1).

FIGURE 1: RISKS FROM CLIMATE CHANGE

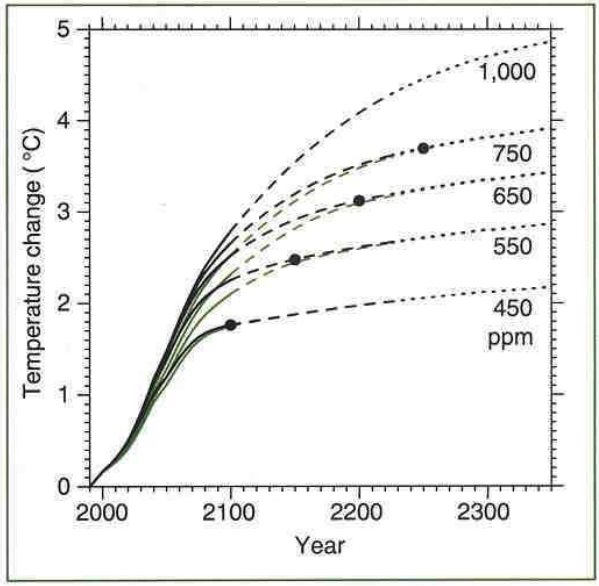


Impacts of or risks from climate change, by reason for concern. Each row corresponds to a reason for concern, and shadows correspond to severity of impact or risk. White means no or virtually neutral impact or risk, light gray means somewhat negative impacts or low risks, and dark gray means more negative impacts or higher risks. Global-averaged temperatures in the 20th century increased by 0.6°C and led to some impacts. Impacts are plotted against increases in global mean temperature after 1990. This figure addresses only how impacts or risks change as thresholds of increase in global mean temperature are crossed, not how impacts or risks change at different rates of change in climate. These temperatures should be taken as approximate indications of impacts, not as absolute thresholds.

Source: IPCC Third Assessment Report, Technical Summary (2001).

Limiting warming to 1 to 2 degrees in the next 100 years will require stabilizing atmospheric concentrations of greenhouse gases at approximately 450 parts per million (ppm) of carbon dioxide-equivalent. (See Figure 2).

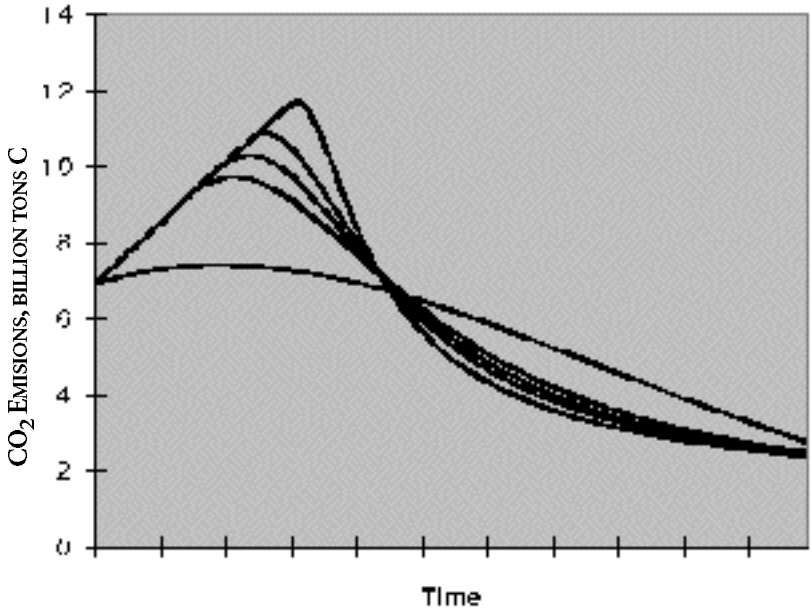
FIGURE 2: CONCENTRATION LEVELS AND TEMPERATURE CHANGE



Source: IPCC Third Assessment Report, Technical Summary (2001).

Achieving this stabilization target will require a significant turnaround in the global greenhouse gas emissions trajectory. The world is currently in a narrow time window within which to initiate that turnaround. Delay exacts a steep price in terms of damage from severe climate events and damage to fragile ecosystems. The long atmospheric lifetime of these gases, combined with the long tail of consequences of warming, means that delay today necessitates steeper emissions cuts later if we are to stabilize atmospheric greenhouse gas concentrations so as to avert these dangers. (See Figure 3.)

FIGURE 3: REPRESENTATIVE EMISSIONS PATHWAYS FOR STABILIZING ATMOSPHERIC CONCENTRATIONS OF CO_2



Recognizing the cost of delay, nations in 1997 adopted the Kyoto Protocol to the Rio Climate Treaty. The Protocol places legally binding obligations on the thirty-nine industrialized nations and economies-in-transition Parties included in Annex I of the Rio Treaty – to limit their total emissions of six greenhouse gases for the years 2008-2012. Individual national emissions targets are set forth in Annex B of the Kyoto Protocol.

Within the "emissions budget" period, the Protocol affords the nations full flexibility to determine when, where and how to meet their obligations. It allows them the freedom to choose whether to reduce emissions directly, e.g., by cleaning up power plants and cars; to finance emissions reductions in other nations – including developing nations – where the costs of control may be lower; or to plant and protect trees and agricultural crops that naturally take up carbon dioxide, the principal greenhouse gas. And through its innovative, market-based emissions trading and banking system, modeled on America's highly successful 1990 acid rain trading program, the Kyoto accord will spur technology development, as entrepreneurs who come up with better, cheaper, faster ways of reducing emissions earn a greater return on their investments. The Kyoto Protocol's market-

based framework builds upon climate change policy design parameters put forward in 1990 by the Administration of the first President Bush.

At the time the Protocol was negotiated, it was widely recognized that industrialized nations would need to take the lead on reducing emissions, and that developing nations would follow this lead. This approach, consistent with the Rio Treaty's principle of "common but differentiated responsibilities," followed the general approach of many other multilateral treaties in which the United States participates. While the United States does not always accept so-called "special and differential treatment" of developing nations, there are many instances in which it does. From the staggered ten-year time lags for developing countries to follow industrialized nations' lead in reducing ozone-depleting substances, as provided in the Montreal Protocol on the Ozone Layer, to the Generalized System of (tariff) Preferences (GSP) enjoyed by developing nation importers of goods to the United States in the context of the World Trade Organization, and from the differentiated loan terms provided to developing nations under the umbrella of the World Bank and its affiliated institutions, to the tailored terms of bailouts provided by the International Monetary Fund,the United States has a long history of recognizing that poor nations may require special assistance for participation in a range of multilateral contexts.

Following the general approach of these agreements, the Kyoto Protocol's requirement for industrialized nations to reduce emissions first,from 2008-2012, will need to be followed by a requirement for nations to develop further pollution targets, in which it will be environmentally important for major developing countries to participate. Dangerous climate change can be averted if industrialized countries meet their Kyoto Protocol 2008-2012 commitments,and industrialized and developing countries meet commitments for 2013-2017 and subsequent periods.

Furthermore, while such targets would need to be approved by a majority of Kyoto Protocol Parties, the Protocol allows any developing nation to adopt an emissions budget and participate in emissions trading voluntarily. Getting the emission trading market going now provides a powerful incentive for developing nations to participate, because it can enhance developing nations' access to investment capital to finance environmentally friendlier development in such major areas as electric power, transportation,and forest conservation/park man-

agement. And, as explained more fully below, by taking a cap and participating in the allowance trading market, such nations can channel investments into emission reduction and emission avoidance projects without incurring the costs of having to prove, on a project-by-project basis, each project's "business-as-usual" emissions baseline.

The Emissions Trading Market of the Kyoto Protocol

The Kyoto Protocol's system of cumulative limits on total emissions allows trading between and among sovereign nations and, if sovereigns so agree, between companies in different countries. Since such trading confers an affirmative economic value upon actions that produce surplus reductions,the emissions trading market rewards environmental innovators and any industry or sovereign that "over-complies" with its emissions reduction responsibility. In addition, emissions trades,almost by definition,allow the trading countries and companies to achieve the same net emissions reduction at a cost lower than that which they would have incurred in making their reductions in the absence of trade. That companies and sovereigns can resort to trading in addition to whatever other emissions reductions strategies might be available guarantees that they will enjoy increased flexibility in integrating their economic needs and their greenhouse gas compliance requirements.

The Kyoto Protocol creates its emissions trading system by allocating to each nation listed in its Annex B an "assigned amount" of greenhouse gas (GHG) emissions for the 2008-2012 period. The Protocol provides for two principal types of trading:1) trading in "parts of assigned amounts" of allowable emissions; and 2) trading in "certified emissions reductions."

1) In the first category, any Kyoto Protocol Party that has adopted a legally binding emissions limitation under Annex B of the Protocol may transfer increments or "parts" of the total "assigned amount" of GHG emissions allocated to it under the Protocol. Such transfers are referred to in the Protocol as "emissions trading". Also in the first category, the Protocol provides that certain highly industrialized nations (the "Annex I Parties") may transfer assigned amounts in connection with individual projects undertaken in other Annex I Parties where such projects ("joint implementation" projects) yield emissions reduction units.

2) In the second category of trading, Annex I Parties, operating through the Clean Development Mechanism (CDM), a new institution created by the Protocol, may acquire certified emissions reductions resulting from cooperative projects in non-Annex I Parties, thereby increasing the former's emissions allowances. Because the latter have not adopted binding emissions targets, a greater degree of scrutiny is required in order to ensure that such transactions actually involve reductions below what would have otherwise occurred. Thus there is a need for clear "business as usual" baselines against which emissions reductions can be certified and quantified.

When it enters into force, the Kyoto Protocol will establish a global "currency" of tradable greenhouse gas emissions allowances and reductions. In July 2001, at the continuation of the Sixth Session of the Conference of the Parties to the Rio Climate Treaty (COP-6bis) held in Bonn, Germany, and in November 2001, at the Seventh Session (COP-7) held in Marrakech, Morocco, the Rio Treaty Parties reached agreement on key issues and detailed rules for creating this "Kyoto currency" and implementing the Protocol's cap-and-trade mechanisms. Following the Bonn Agreement and the Marrakech Accords, many nations – including several such as Japan that had previously expressed concerns about joining Kyoto without the United States – have begun discussing preparations for ratifying the Protocol. It is now possible that the Protocol may enter into force as early as 2002.[1] The nations of the world are poised to bring the dynamism of emissions cap and trade to bear on the global problem of climate change. But the United States remains on the sidelines.

The United States and the Kyoto Protocol

The Kyoto Protocol, the Bonn Agreement and the Marrakech Accords bring forward most of the key market-based flexibility elements sought by the United States in over ten years of climate change negotiations.[2] Yet the current Bush Administration, claiming that the Kyoto framework is "fatally flawed" because it fails to include legally binding targets for developing nations and would, in the Administration's view, cause serious economic harm to the United States, has renounced the Protocol. Rather than seeking to mend what it saw as flaws in the Protocol, the Administration instructed its delegations at Bonn and Marrakech to

remain on the sidelines. The result is that in climate policy terms, the United States is now isolated.

This "end it, don't mend it" approach is a deeply troubling development. As Senator John McCain (R-AZ) cautioned shortly after the Bonn meeting, "The risks that climate change poses for businesses have now increased. In addition to the risk of unpredictable impacts of global warming, and of unpredictable regulation of greenhouse gas emissions, American companies now face the risk of being left out of the global marketplace to buy and sell emission reductions." Senator Joseph Lieberman (D-CT) similarly noted that under the Kyoto Protocol, corporations would be able to receive valuable credits for making efficiency gains that reduce greenhouse gas emissions. "Those credits will be worth cold, hard cash in the world market that will be established under the treaty. In contrast," Senator Lieberman said, "the United States currently has no system by which the company will gain credit for the gains. Mr. President,the result will be that more efficient, more competitive technology will be driven overseas."[3]

The two Senators have announced their intent to draft legislation that would launch a national cap-and-trade system, giving American business valuable experience they will need to remain competitive in countries where greenhouse emissions trading is moving forward,and ensuring that what America does domestically can be integrated and recognized internationally. "Ultimately, we need to make sure that the emissions reductions our companies, our farmers, and our foresters produce are fully recognized and fully tradable in the emerging global greenhouse gas marketplace."[4]

How can the United States bring about that result? Before tackling this question,it is worth looking at what such a system would mean.

As the Wall Street Journal pointed out in early August 2001,the idea of cap-and-trade is simple. Government mandates a cap on pollution at a certain level and issues pollution allowances within that level. Firms that produce less pollution than their allowances can then sell surplus allowances to firms that produce more than their allowances. This approach creates financial incentives for firms to come up with pollution-reducing innovations because they will directly benefit through lower abatement costs, lower payments for pollution allowances and/or selling unneeded allowances.

Moreover, market-based trading results in a more efficient allocation of allowances. Firms that can reduce pollution at relatively lower costs will reduce more and sell their allowances, and firms that have higher costs will reduce less and buy allowances. The net is the same amount of overall reduction in pollution, but achieved at a lower overall cost than under a traditional, inflexible regulatory regime.

The result can be seen in the cap-and-trade program the U.S. adopted in 1990 and started in 1995 to reduce acid rain. Although the program is not yet fully implemented, it has successfully cut SO_2 emissions at one-half the cost initially estimated. The flexibility elements of the Kyoto Protocol have been widely estimated to have the potential to reduce the costs of Kyoto by as much as 50-80%.[5]

Against that backdrop, what domestic climate policy choices are available to the U.S.? How do these measure up when subjected to the tests of environmental and economic efficacy? The next section examines four principal alternatives in terms of how well they (a) move toward stabilization of atmospheric concentrations of greenhouse gases at levels that would prevent dangerous interference with the climate system,and (b) provide U.S.firms with access to the new global market in greenhouse gas emissions allowances and reductions.

The Technology Subsidy Option

The Bush Administration has recently signaled its interest in pursuing a climate policy whose only or primary focus would be technology subsidies. Department of Energy representatives in Bonn announced that the President had requested a DOE study of climate technologies so as to enable the Administration to select technology winners and losers for purposes of re-directing federal research dollars. Legislation pending in the Senate Energy Committee also would follow this approach.

The technology subsidy approach, without more,fails both the environmental and economic efficacy tests. History has amply demonstrated the federal government's inability to excel at choosing technology winners and losers. The technology-only strategy provides no assurance that America could successfully limit emissions and prevent dangerous warming. Further, a technology-only strategy affords U.S. business no opportunity to earn "Kyoto currency" for international transactions. In the absence of a domestic cap and trade mechanism, other nations would have no way to tell whether emissions reduced through the deployment of the new technologies represented truly surplus "extra" reductions that

would be fungible with "Kyoto currency." While significant technological advances will be needed under any climate policy, a cap and trade system is the best way to spur these innovations at least cost,and to translate these into real and measurable greenhouse gas emissions reductions.

The "Voluntary Commitments" Option

The Bush Administration, and Senators Chuck Hagel (R-NE) and Frank Murkowski (R-AK), are considering climate policy approaches premised on wholly voluntary commitments by U.S. companies. This option also fails on both environmental and economic efficacy grounds. Many companies have made important strides in reducing greenhouse gas emissions and increasing, through practical voluntary emissions trading programs, their understanding of marginal costs of control. But voluntary programs alone will not be enough to limit emissions to needed levels. The laudable programs of the Department of Energy, which have encouraged electric utilities and others to undertake voluntary reductions in greenhouse gas emissions, have failed to achieve reductions in overall U.S.GHG emissions. Moreover, even if U.S. companies participating in a further round of voluntary programs achieved significant reductions, those reductions would not be recognized in the international trading system launched by the Kyoto Protocol.

NAFTA-Based or Hemispheric Carbon Credit System

Another option under consideration is some type of tradable carbon crediting system among the nations of the North American Free Trade Agreement (NAFTA), or more broadly, throughout the western hemisphere. Discussions in the context of the NAFTA Commission on Environmental Cooperation (CEC) and its Joint Public Advisory Committee (JPAC) in Guadalajara, Mexico, in June 2001 indicate that while members of the public have urged that any such system be premised on legally binding caps on greenhouse gas emissions, the only approach that the U.S. Administration is seriously considering adopting is one that does not entail such caps. Rather, under a cap-less system, a company that undertakes a project that reduces emissions below what would otherwise have been emitted, would receive a credit in the amount of the reduction, regardless of whether total emissions in a participating nation have increased.

Such a system would certainly lack the environmental integrity of a total cap on emissions for the United States. In fact, were such credits to be used by U.S. companies to offset other emissions in the hemisphere, the system could actually

result in increased overall emissions, as the integrity of each offset would depend entirely on the rigor with which its proponents had demonstrated not only that a particular project had reduced emissions, but also that the original emissions-generating activity had not simply relocated to another place in the hemisphere. This phenomenon is often referred to as "leakage." One could imagine, for example, that someone who is paid not to cut down a particular forest might simply move down the road and cut a different forest. If the person were awarded an emissions credit for the emissions avoided by not cutting down the first forest, used that credit to offset emissions elsewhere, and cut down the second forest, the total emissions that person was responsible for would have doubled. Analogous problems can arise with fossil fuel projects. While the Kyoto Protocol's Clean Development Mechanism provides that credit-based projects may be undertaken in nations that do not yet have caps on their total emissions, elaborate rules were finalized in Marrakech and will be further developed in order to ensure that such "leakage" does not occur.

Without such rules, a NAFTA or hemispheric carbon crediting system would lack environmental integrity. Moreover, its "currency" would not be fungible with the Kyoto currency. Under the Kyoto Protocol, most industrialized nations are adopting legally binding caps on their total emissions. There is no reason that national regulatory authorities in nations operating under the Kyoto system would recognize, as satisfactory for domestic compliance purposes, carbon credits imported from competitor industrialized nations that lack caps.

Furthermore, such an approach would undermine the Administration's claim that the reason that the Kyoto Protocol is flawed is its lack of commitments for developing nations. Mexico has made substantial strides toward adopting a national cap on greenhouse gas emissions. It has completed a national forest inventory, undertaken significant analysis of its fossil fuel emitting sectors, and most recently, its national oil company, PEMEX, working in partnership with Environmental Defense, has announced its intent to adopt a voluntary greenhouse gas emissions cap and undertake emissions trading. A NAFTA or hemispheric carbon crediting approach would signal that rather than building upon this foundation and encouraging Mexico to take next steps toward participating in a cap-and-trade system, the United States wished to offer Mexico, which has already ratified the Kyoto Protocol, a "second-best" alternative. This would be tantamount to keeping the United States from joining the Kyoto framework because the framework lacks commitments for developing countries while encouraging developing countries to refrain from adopting caps. The resulting short-term climate policy stasis could heighten the need for future, steeper mandatory cuts in GHG emissions, as subsequent admin-

istrations, faced with the need to limit dangerous warming, could be forced to require steeper emissions cuts.

Domestic Emissions Cap

Various senators have proposed or are considering proposals that would cap U.S. greenhouse gas emissions and other pollutants from the electricity sector (the "four pollutant" bills) or across the whole U.S. economy. Depending on the level of the cap, these approaches have the potential to provide far greater environmental efficacy, spur greater technology innovation, and reduce costs more effectively than would any of the preceding options. Moreover, in the event such bills included flexibility mechanisms that paralleled the Kyoto framework – like domestic emissions trading, domestic and international offsets for enhancing forest and agriculture uptake of carbon dioxide, and international emissions trading – the "currency" thus created could be internationally tradable.

Whether other nations and firms would choose to transact in the emissions allowances thus created might depend on the extent to which the cap contained in the domestic legislation compared favorably to the target identified for the U.S. in the Kyoto Protocol. If it did, other nations might choose to allow firms and entities to tender, for purposes of complying with emissions reduction obligations in their economies, emissions offsets earned in the U.S.

Importantly, were the United States to adopt such a cap, the forest offset provisions that might be included could provide an example for the rest of the world on how to design more environmentally effective provisions than those included in the Bonn Agreement and the Marrakech Accords. They also could provide the U.S., at some future date, with a mechanism for re-gaining entry into the Kyoto system, with leverage to negotiate environmental improvements in the forest provisions agreed at Bonn.

In any case, the essential first step would be the legally binding cap on greenhouse gas emissions for the United States. That first step is what could begin to open the possibility that emissions reductions earned by U.S. companies under the domestic policy framework would, over time, be recognized as fully fungible in the international system. Moreover, this first step would provide an important negotiating path forward for the broader inclusion of large developing nations in future rounds of Kyoto commitments.

Conclusion

Environmentally and economically, the preferred policy option is a domestic policy framework that ultimately creates a path forward for the U.S. to join the Kyoto Protocol,thus integrating fully into the existing international framework and its international emissions trading system. The Kyoto Protocol provides an established framework of emissions trading recognized by many nations. It provides both a political structure and realistic, practical tools – firmly based on market principles. It respects the need to meet world energy demand at prices that foster economic development and national competitiveness while also promoting environmental sustainability. A domestic policy framework that proceeds from a legally binding target on GHG emissions and sets an example for broadening the Kyoto Protocol could meet the twin tests of environmental and economic efficacy, while providing companies with the regulatory stability and predictability they seek. This path forward will enable U.S. companies to regain leadership in a competitive global market for technologies and processes that can solve the greatest environmental challenge of our time: climate change.

Endnotes

1. The Kyoto accord enters into force when 55 nations, representing 55% of 1990 carbon dioxide emissions from specified industrialized nations,have ratified. Were 55 nations,including the European Union and the accession states, Russia, and Japan to ratify, the Protocol would enter into force.

2. The caps on crediting for carbon taken up by forests, agreed at Marrakech, are problematic. Forest crediting caps will fail to encourage improved forest management in those nations that have adopted emissions targets (Annex I nations) and whose business-as-usual forest carbon sequestration is expected to be equal to or greater than the amount of carbon capped. Instead the caps will simply credit a defined amount of a nation's business-as-usual forest management. Moreover, because the Marrakech Accords bar forest conservation crediting in developing nations that have no emissions targets, the Accords fail to provide incentives for conserving forests, and could actually perversely encourage nations to destroy intact forests in order to plant fast-growing monocrop plantation forests. This issue, which might have been corrected if the U.S.had participated in the negotiations, will need further attention if the U.S. is to come back to the Kyoto Protocol.

3. Colloquy between Senators McCain and Lieberman, U.S. Senate, August 3, 2001.

4. Id. These concerns are well warranted. As representatives of the European Commission made clear in Bonn, it is highly likely that a Kyoto-based system will not "recognize" emissions reductions produced in a non-Kyoto nation unless that nation has adopted a domestic policy framework that provides the same degree of environmental and economic integrity as the Kyoto Protocol. See presentation of Peter Vis, European Commission,"Integrating Domestic and International Emissions Trading Systems," July 20, 2001 (available at www.iisd.ca/climate/cop6bis/enbots/).

5. See summaries of analyses of the costs of Kyoto available at www.pewclimate.org.