

# Finding Transatlantic Common Ground on Climate Change?

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Global climate change has emerged as a key issue straining relations between the European Union and the United States. Last fall in The Hague, US and EU negotiators failed to agree on rules for implementing the Kyoto Protocol, the centerpiece of international attempts to control emissions of climate-altering greenhouse gases. This spring, the incoming Bush administration announced it would oppose US participation in the Kyoto accord, launching a flurry of criticism in Europe.

It is not surprising that climate change has become so contentious. In recent decades, nations have negotiated a wide variety of environmental agreements on issues ranging from solid waste to ozone-depleting CFCs. But climate change is perhaps the most vexing challenge. Since almost every sector of each nation's economy emits greenhouse gases, few human activities would remain untouched by attempts to control them. The problem is global and long-term – emissions from any spot on Earth can affect the climate worldwide for centuries, though with potentially very different consequences in different places. Climate change is also fraught with uncertainty. Current scientific understanding supports a range of views, from those who see the problem as a potential environmental catastrophe to those who argue its effects will be hard to notice among the other changes of the 21<sup>st</sup> century.

Over the last decade, important progress has been made towards addressing the climate change challenge. In the 1992 Framework Convention on Climate Change, most national governments agreed to a common, though ambiguous, long-term goal of stabilising atmospheric concentrations of greenhouse gases at a safe level. In the Framework's 1997 Kyoto Protocol, nations agreed to the key

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principles of binding limits on greenhouse gas emissions and market-based mechanisms to help achieve those reductions efficiently. Concurrently, private sector firms, governments, and other organisations worldwide have made important progress in reducing emissions and in developing new technologies that offer the potential for deeper reductions in the future.

But despite these initial successes, the current policy framework has done little to bridge the unavoidably wide range of expectations, interests and attitudes towards risk different parties hold regarding the climate change future. Neither Europeans nor Americans can protect their environment from climate change without the cooperation of the other. But the breadth, complexity, and uncertainty of the problem make it unlikely that they, or the numerous others involved, will come to a common view anytime soon. Paradoxically, while it is true that greenhouse gas emissions are the ultimate cause of the environmental problem, the Kyoto Protocol's overriding focus on near-term reductions in these emissions unnecessarily makes it more difficult to solidify an emerging consensus on the full portfolio of actions needed to address the long-term climate challenge.

This article reviews the transatlantic policy problem posed by climate change, the international response that has emerged over the last decade, and fundamental causes of the recent impasse. It argues that the character of the climate change challenge requires a policy approach that allows the parties to agree on near-term actions without waiting for consensus on the extent of the problem or the potential long-term costs of addressing it. The article suggests that the EU, US, and the rest of the world can agree on meaningful near-term steps to address climate change by emphasising a response that is robust against a wide range of plausible long-term climate futures. Such an approach would be consistent with the Framework Convention, would retain but modify Kyoto's binding emissions targets, and also include a broader set of milestones for near-term climate policy. It could enable the EU, US, and the rest of the world to take significant near-term steps to address climate change in the face of their differing expectations, interests, and values.

### **The climate change problem**

A vast and growing body of scientific evidence indicates that human influences have begun to compete with nature as a force changing the Earth's climate. Nonetheless, the impacts of these changes and the difficulty of halting them remain deeply uncertain and likely to remain so for the foreseeable future.

Since the start of the industrial revolution greenhouse gas emissions, primarily carbon dioxide from burning fossil fuels, have increased their concentration in the Earth's atmosphere by over 30 percent. These gases, a naturally occurring part of our atmosphere, trap heat and help regulate the Earth's temperature. But over the last century, their increasing concentrations have helped warm the Earth by about 1°C. The last decade has been the warmest ever recorded. Concurrently, we have observed melting glaciers, thinning ice caps, an earlier spring, and

changes in the frequency and severity of droughts and storms.<sup>2</sup>

Even without human influence, the Earth's climate is not constant. Thus, it is unclear to what extent today's climate changes are due to human or natural causes, but scientists believe human influence plays at least some role. At present, developed countries, with about a fifth of the world's population, produce over half of greenhouse gas emissions, only about a third more per unit of economic output, but five times more than developed countries per capita. As living standards rise in the developing world, their emissions may dominate within a few decades. It is virtually certain that if current trends continue human influences will become the dominant force changing the Earth's climate sometime during the 21<sup>st</sup> century.

Yet, the effects of future climate change are difficult to predict, not only because they depend on detailed shifts in regional patterns of temperature, storms and precipitation, but at least as important, they depend on the economies and values of future human societies. How dependent will the economies of developing nations be on subsistence agriculture? What value will our descendants place on natural ecosystems devastated by a changing climate? If climate shifts are gradual, current scientific understanding suggests that natural ecosystems may be heavily damaged, the economies of many developed countries may see only relatively small impacts; and many developing countries could be seriously stressed.<sup>3</sup> There is little understanding of the impact of sudden or unexpected climate shifts. The degree of difficulty in halting climate change is at least as uncertain. It depends critically on technology and lifestyles many decades in the future. With today's technology, halting climate change could cost several percentage points of gross world product. With the technology of fifty years ago the same result would cost much more. With the technology of the future, the costs are deeply uncertain.

### The international response

Faced with growing evidence of human influence on the climate, the nations of the world have negotiated two agreements over the last decade to address the threat of climate change, the 1992 Framework Convention on Climate Change (FCCC) and its 1997 Kyoto Protocol. The Framework Convention, signed at the Rio de Janeiro Earth Summit and since ratified by over 175 states, including the United States and the states of the European Union, presents a widely accepted, but ambiguous, long-term goal of stabilising greenhouse gas concentrations in the atmosphere at a level that would "prevent dangerous anthropogenic interference with the climate system" while enabling "economic development to proceed in a sustainable manner."<sup>4</sup> All signatories agreed to measure and report emissions and

2 Intergovernmental Panel on Climate Change, *Summary for Policy Makers, Working Group 1, Climate Change 2001: The Scientific Basis* (Geneva: IPCC, 2001) <http://www.ipcc.ch/>.

3 Intergovernmental Panel on Climate Change, *Summary for Policy Makers, Working Group 2, Climate Change 2001: Impacts, Adaptation and Vulnerability*, (Geneva: IPCC, 2001) <http://www.ipcc.ch/>.

encourage more climate-friendly activities, while developed nations also pledged to enact voluntary measures to reduce their emissions to 1990 levels by the year 2000. The FCCC further established periodic meetings, the Conference of Parties (COP), to review progress towards the long-term goal of climate stabilisation and to enact other measures as necessary.

By the mid-nineties, greenhouse gas emissions were still rising and it became clear that most nations would miss their voluntary reduction targets. Concurrently, a report of the Intergovernmental Panel on Climate Change (IPCC), a UN-sponsored network of thousands of scientists worldwide, concluded that anthropogenic greenhouse gas emissions had already caused a discernible human influence on global climate.<sup>5</sup> In response, the third COP, meeting in Japan in December 1997, adopted the Kyoto Protocol. Its key part consists of legally binding commitments by 38 developed nations to reduce their emissions of greenhouse gases 5 percent below 1990 between the years 2008 to 2012, apportioned differently among the participating nations. For instance, the United States agreed to an emissions target 7 percent below 1990 levels, the European Union agreed to a target 8 percent below 1990 levels, and Russia agreed to a target equal to its 1990 emissions. Developing countries have no emission reduction obligations in this first commitment period.

The Kyoto emission reduction targets are significant. Depending on the forecasts, they could represent a 30 percent or more cut in what many nations' emissions would otherwise have been. Nonetheless, in and of themselves, the Kyoto reductions are far too small to stabilise atmospheric concentrations of greenhouse gases. Thus, the Kyoto Protocol is widely seen as a first step towards the Framework Convention's long-term goal. Future emission reduction obligations for all nations are scheduled to be discussed in negotiations currently planned to begin sometime before 2005.

### What would Kyoto cost?

There is much debate over the potential cost of the Kyoto Protocol's targets and timetables. Some estimates suggest that the widespread use of conservation and low-emitting technologies could allow the developed countries to meet their obligations with little expense. Other estimates suggest that the costs of meeting the Kyoto targets could be substantial, in the order of one percent of gross domestic product. These widely divergent predictions are due in part to differing expectations about the cost of alternative energy sources and the extent of available, but under-utilised potential for energy conservation in each nation's economy.<sup>6</sup>

4 United Nations Framework Convention on Climate Change, Article 2

5 J.T. Houghton, L.G. Meira Filho, B.A. Callender, N. Harris, A. Kattenberg and K Maskell (eds), *The Science of Climate Change: Contribution of Working Group I to the Second Assessment of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 1995).

6 R. Repetto and D. Austin, *The Costs of Climate Protection: A Guide for the Perplexed*, (Washing-

However, the yet-to-be-determined details of the Protocol's implementation may present the most significant cost uncertainty. The Protocol offers several "flexible mechanisms" enabling nations and the firms within them to trade emission reductions, thereby increasing the efficiency, and reducing the cost, of each nation's commitment. The first mechanism allows developed nations to trade emissions permits among themselves. The owner of a permit has the right to emit a specified amount of greenhouse gases and those who reduce emissions below their targets can sell their additional reductions to those who do not. Virtually all economic analysis suggests that trading can cut the costs of emission reduction targets significantly and also encourage the technological innovation that will reduce future costs.

Another mechanism would allow developed nations to earn credits by funding emission-reducing projects in developing nations through a program called the Clean Development Mechanism (CDM). Fast-growing developing countries, which must replace antiquated, inefficient capital stock and build large amounts of new infrastructure, often have emission reduction opportunities costing much less than those in developed countries. The CDM would lower compliance costs for the latter while at the same time encouraging vital technology transfer that would enable the former to follow cleaner development paths.

The exact rules governing the Kyoto flexible mechanisms and the treatment of carbon sinks (that is, agricultural lands and forests which can remove carbon from the atmosphere and store it in plant materials and soils) will do much to determine the treaty's near-term costs and long-term environmental impacts. These rules are not yet finalised, in part because the EU and US disagree on how to balance cost savings against environmental benefits. For instance, Russia potentially has numerous permits to sell because its shrinking economy has already put its emissions well below 1990 levels. If the Protocol allows Russia to sell all this "hot air" on the world market, other countries could meet their Kyoto targets at much less cost but with much less impact on global emissions. In large part, negotiators are stymied because creating an international emissions trading system is an extraordinarily complex endeavour with little precedent to guide it. Successful trading programs exist on the national and local levels, but nothing of the scale and scope envisioned by Kyoto has ever been attempted.

### **The Kyoto Protocol: fatally flawed or indispensable?**

The Kyoto Protocol has suffered serious political blows over the last year. In November 2000, at the 6<sup>th</sup> Conference of Parties meeting in The Hague (COP6), the United States and European Union failed to agree on crucial implementation rules, in particular, the credits to be earned from carbon stored in agricultural lands and forests. The US favored expansive allocation of such credits, as a low-cost means to help meet its Kyoto obligations and to encourage support in the US Congress

ton, DC: World Resources Institute, 1997).

from representatives of farm states that could benefit from such carbon sequestration. But EU negotiators feared that too much sequestration could slow the adoption of emission-reducing technologies and practices by reducing the need for deep emission reductions from the industrial and transportation sectors. In March 2001, the Bush administration announced its opposition to the United States' participation in the Kyoto Protocol, citing the lack of developing country participation and potential damage to the US economy.

These events have intensified the transatlantic debate over the direction of climate change policy. Many Europeans view the Kyoto Protocol as indispensable. Driven by strong domestic environmental movements, the European Union often uses the "precautionary principle" as a guide for managing environmental risks.<sup>7</sup> This principle suggests that human activities with a potential for serious environmental harm should be limited even in the absence of full scientific certainty. Accordingly, the EU has generally seen the need for immediate and significant action to reduce greenhouse gases emissions. For many of its advocates, the Kyoto Protocol is crucial because it embodies a decade of work and international consensus-building that, if abandoned, would delay climate action for many years before an international coalition could be reassembled. Some Kyoto supporters argue that the Protocol's specific emission reduction targets are inviolate because reopening negotiations over these core treaty obligations would cause the rest of the agreement to unravel. Others suggest that the framework could be retained with modified targets and timetables. Many argue that the Framework Convention's inability to reduce emissions proves the need for binding caps on emissions.

In the wake of the Bush administration's rejection of Kyoto, some Europeans have suggested that the Protocol can be put into force without the United States.<sup>8</sup> While technically possible (the Protocol can enter into force if it is ratified by countries representing 55 percent of developed country emissions), such a course may be politically unrealistic, putting the ratifying countries at an economic disadvantage relative to the United States. However, there may also be sufficient "hot air" to allow the participating nations to meet their emission reduction targets largely through permit trading with Russia. Such a scenario might unfold with little environmental benefit, but with much opportunity for US-EU recriminations.

Polls show that a large majority of Americans favour action against the climate change problem. Large US firms have increasingly voiced the need for action. Another view, found often in the United States, holds that the Kyoto Protocol is fundamentally flawed. In some quarters, Kyoto is opposed from a conviction that the US should be less entangled in international agreements that limit its freedom of action. Recent energy shortages in the US have also encouraged some to favor unfettered increases in fossil fuel production. Much US concern with the

7 P. Sand, "The Precautionary Principle: A European Perspective", *Human and Ecological Risk Assessment*, vol 6, no. 3, 2000, pp. 445-58.

8 "EU to increase pressure on US to accept Kyoto", *Financial Times*, 2 April 2001.

Kyoto Protocol, however, rests on concerns about the potential costs. Americans are accustomed to low energy prices and often react with strong disfavour when prices rise. Additionally, while its basic laws for water and air quality are based on health standards not directly compared to costs, there is an increasingly strong strand of cost-benefit thinking in US environmental policy. Many economic studies suggest that gradual emission abatement over many decades, with near-term reductions much less than Kyoto's targets, are the most cost-effective path to stabilised concentrations.<sup>9</sup> In addition, there is concern that US law would put firms in the US at a competitive disadvantage by enforcing any binding international emission caps more aggressively than elsewhere. While most agree that, in principle, Kyoto's flexible mechanisms can significantly reduce its costs, others argue that unavoidable mistakes in implementing these mechanisms could themselves be very expensive. For instance, the United States would require in the order of \$2 trillion in newly-created assets to meet its Kyoto targets with emissions trading overseas.<sup>10</sup> Critics argue that the practices and institutions necessary to support such trading cannot be created in so short a time.

Developing countries hold a wide range of views on the Kyoto Protocol, from the small island states seriously at risk from rising sea levels which are among its strongest backers to the oil-producing states generally unsympathetic towards efforts to reduce demand for their primary export. Developing countries are united, however, in the view that developed nations must take significant steps to reduce their emissions before developing nations commit to binding caps on theirs. Although emission intensities (the amount of emissions per unit of economic activity) are dropping rapidly in many developing countries, these nations believe that at present their primary need is to dramatically increase the standard of living of their populations.

Both sceptics and supporters of the Kyoto Protocol offer a variety of alternatives. Some advocate working within its framework, but reducing potential costs by relaxing the emission reduction targets and expanding the actions that give credit reductions. Some analysts propose a "safety valve" approach, which would retain the emission targets, but allow governments to issue new permits at an agreed price.<sup>11</sup> This approach would retain many of the virtues of a trading system but eliminate uncertainty about the maximum costs it would impose. Many seeking effective action have grown weary of international negotiations and instead emphasise the many independent responses currently underway by individual nations or firms, such as the establishment of domestic emissions trading in the UK and efforts by firms to set and meet aggressive targets for reducing their own

9 T.M.L. Wigley, R. Richels and J. A. Edmonds, "Alternative emissions pathways for stabilizing CO<sub>2</sub> concentrations", *Nature*, vol. 379, 1996, pp. 240-3.

10 D. Victor, *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming* (Princeton University Press, 2001).

11 R.J. Kopp, R. D. Morgenstern, W. Pizer and M. Toman, *A Proposal for Credible Early Action in US Climate Policy*, (Washington DC: Resources for the Future, 1999); <http://www.weather-vane.rff.org/features/feature060.html>.

emissions. Some argue that any significant global emission reductions are unlikely, so that the response to climate change should instead focus on increasing society's ability to adapt to its adverse effects.<sup>12</sup>

### **Near-term milestones for a robust long-term climate policy**

At present, there appears to be little consensus on climate change policy. Most Europeans favour the Kyoto framework. The Bush administration's emerging climate action plan will not. Failure to converge on climate policy could put an enduring strain on US-EU relations, derail much of the progress made to date in responding to climate change, and make it more difficult to fashion an effective response in the future.

It is useful then to step back and sketch the contours of an ideal approach to climate change, and inquire whether it might offer some guidance towards breaking the current impasse.

Climate change presents a challenge of decision-making under conditions of deep uncertainty; that is, a situation in which decisions made today will unavoidably have consequential future implications impossible to predict with any confidence. Such challenges are difficult, ubiquitous and tractable. Explicitly or implicitly, government, business and individuals commonly address problems with deep uncertainty, often by using robust, adaptive strategies. A robust strategy is one that will work reasonably well, at least compared to the alternatives, across a wide range of plausible scenarios. Robust strategies are often adaptive, that is, they are designed to evolve over time in response to new information. For example, if you were planning a future outdoor event during rainy season you might reserve a tent and wait until the morning of the event to observe the weather and decide whether to use it. If you knew the future with certainty, you would either rent a room safe from the rain or enjoy the sunshine without wasting money reserving the tent. But the tent is a reasonable, if second-best, solution in both the rainy and sunny futures, and thus renting it beforehand is a robust, adaptive-decision strategy.

Climate change, given its long-term, contentious, and deeply uncertain nature, seems a natural candidate for a robust, adaptive-decision approach.<sup>13</sup> Not only is robustness a useful criteria for judging policies when the future is fundamentally unknowable, it may also provide a framework for consensus among contending parties who do not have to agree on what will happen in the future in order to agree on the best actions to take today.<sup>14</sup>

12 D. Sarewitz and R. Pielke, "Breaking the Global Warming Deadlock", *The Atlantic Monthly*, vol. 286, no. 1, 2000.

13 R. J. Lempert, M. E. Schlesinger, "Robust Strategies for Abating Climate Change", *Climatic Change*, vol. 45, no. 3/4, 2000, pp. 387-401.

14 K. van der Heijden, *Scenarios: The Art of Strategic Conversation* (Chichester, UK: Wiley and Sons, 1996).



Ideally, a robust, adaptive climate strategy would have three key elements. It would present long-term goals, fifty to one hundred years out, agreed to by most of the relevant stakeholders. It would specify near-term milestones to guide actions over the next five or ten years. Finally, it would specify a process that over time would refine the long-term goals and periodically update the near-term milestones as steps to achieving the goals.

The Framework Convention addresses, to greater or lesser extent, each of these key elements. It offers a widely shared, though suitably ambiguous, long-term goal – stabilising atmospheric concentrations of greenhouse gases at a level that is environmentally safe and economically sustainable. The FCCC's Kyoto Protocol provides near-term milestones in the form of national emissions reduction targets for the first, roughly decade-long, commitment period. The FCCC established the Conference of Parties to periodically review and update these milestones.

Nonetheless, today's climate policy has fallen short of an effective robust strategy. Rather than a catalyst for consensus among parties with different expectations of the future, today's climate policy has become a lightning rod for controversy. Few nations appear on target to meet their Kyoto obligations with purely domestic reductions and the emissions trading system required to ensure compliance risks becoming too complex and involving too large a financial stake to be implemented successfully.<sup>15</sup> Finally, the current framework exacerbates the tendency to focus attention on the near-term, although all agree that the goal of stabilising atmospheric concentrations will require long-term transformations in society's emissions-producing industrial and transportation infrastructures.

At present, there is no agreement, and insufficient information, to determine the level at which greenhouse gases concentrations should be stabilised. Nonetheless information exists to define near-term actions consistent with a wide range of long-term destinations. For simplicity, imagine that a decade or two from now society will learn that it faces one of three plausible futures: 1) climate change is a *Big Problem*, requiring worldwide, greenhouse gas emissions to decline over 80 percent during the course of the 21st century; 2) climate change presents *Little Problem*, requiring little reduction in emissions; and 3) technological advance and efforts to address other environmental problems (such as regional air pollution) dramatically reduce greenhouse gas emissions so that we *Never Know* what the impact of climate change would have been.

Now imagine society poised at the moment when it is about to learn the scenario it faces. What would society most want to have accomplished since the year 2001 to prepare for what lies ahead? Five milestones would seem important.<sup>16</sup>

15 Victor, *Collapse of the Kyoto Protocol*.

16 These arguments draw from ongoing integrated assessment studies of robust, adaptive-decision strategies for climate change using "exploratory modeling" techniques, most recently R. J. Lempert, M. E. Schlesinger, S. C. Bankes, N. G. Andronova, "The Impact of Variability on Near-Term Climate-Change Policy Choice," *Climatic Change*, vol. 45, no. 1, 2000, pp. 129-61, and D.A. Ro-

### We would want to have

1. slowed climate change to the extent possible with low-cost actions for reducing emissions;
2. generated a wide array of low-cost technological options for eliminating humankind's net greenhouse gas emissions;
3. built well functioning domestic and international institutions capable of regulating and monitoring any required large-scale emission reductions;
4. developed an effective capability to adapt to any unavoidable impact of climate change;
5. promoted worldwide economic growth, for overall well-being and to give nations and firms sufficient resources to take whatever climate response actions are necessary.

These milestones are consistent with the national commitments of the Framework Convention (Article 4) and encompass most near-term objectives expressed by numerous parties to the climate change debate. Not all milestones are necessary for all futures. For instance, institutions for regulating emissions will not be needed in the *Little Problem* or *Never Know* scenarios. Nonetheless, these milestones represent important hedging actions because the first four can be relatively inexpensive and insufficient progress towards any of the five could jeopardise society's ability to respond successfully to one or more of the scenarios. In addition, these milestones may help shape a more desirable future. For instance, efforts to create technologies for future low-cost emissions and to develop regulatory institutions may increase the likelihood of the *Never Know* scenario by encouraging firms to advance potential low-emitting technologies. Encouraging this last scenario could be particularly important in addressing the potential for rapid, irreversible climate impacts.

### Relaxing the trade-offs required to achieve near-term milestones

There are many specific actions that government, firms and other organisations can and should take to meet these near-term milestones. While clear trade-offs exist – more resources spent towards one milestone may mean less for another – in the near term they need not be severe. But the current, overriding focus on specific targets and timetables for national emission reductions exacerbates the difficulty of achieving a balance among these milestones acceptable to all the parties, given the deep uncertainty and varied interests associated with the climate

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balino and R. J. Lempert, "Carrots and Sticks for New Technology: Crafting Greenhouse Gas Reductions Policies for a Heterogeneous and Uncertain World", *Integrated Assessment*, vol 1, No. 1, 2000, pp. 1-19.

change problem.

Binding targets for near-term national emission reductions, even ones that are relatively easy to attain, are a powerful tool to encourage near-term, low-cost emission reductions (Milestone 1). Such targets may also be the only means to induce serious efforts at building institutions for regulating and monitoring emissions (Milestone 3). The development and diffusion of emission-reducing technologies (Milestone 2) takes time so that many policies important in the long-term, such as R&D spending and tax credits for early adopters, may have little effect on near-term emissions. Attempts to accelerate technology development primarily with the use of stringent near-term emissions targets may be costly and thus conflict with Milestone 5. As evidenced by the negotiations to date, strict emission targets can also complicate the requirements for emissions trading and other institutional designs, greatly increasing the chances for failure with Milestone 3. Emissions targets do little to promote efforts to improve the capacity to adapt to adverse climate changes (Milestone 4).

These problems manifest themselves in the current diplomatic impasse. Many Europeans emphasise the urgent need to begin the social and technological transformations that may enable viable options for deep future emission reductions. Many Americans emphasise the need for efficient, low-cost actions to meet near-term goals. These differences play out, for instance, in the US-EU disagreements about the extent to which countries should use emissions trading and carbon sinks to avoid emission reductions in their own economies.

These shortcomings of a primary reliance on targets and timetables for national emission reductions would be unavoidable if the environmental harm from climate change were directly tied to annual greenhouse gas emissions. But they are not; the climate changes as a result of the *concentration* of greenhouse gases in the atmosphere, and because greenhouse gases, once emitted, can stay in the atmosphere for decades to centuries, the emissions in any single year make virtually no environmental difference. This contrasts with many other environmental problems such as local air pollution, where the impact depends directly and immediately on daily emissions.

If the future were certain, there might be some near-term, emission reduction target for each nation that could successfully balance the differing interests of all the parties. But given the deep uncertainty, Americans and Europeans will assess any near-term emission reduction target in light of different expectations about the potential consequences of failing to meet one or more of the near-term objectives. For any level of emission reduction target, some important stakeholder will see an important near-term need unmet. Thus, it seems virtually impossible that near-term steps of a robust climate policy can be formulated, negotiated and successfully implemented using national greenhouse gas emissions as the sole objective.

### **Moving forward**

The United States and European Union have reached an impasse over climate change, which threatens both transatlantic relations and the Earth's environment. □

There is widespread, growing, though certainly not universal, sympathy with the long-term goal of stabilising atmospheric greenhouse gas concentrations and advocates exist for each of the necessary near-term milestones on the path to achieving this goal. But the primary focus of climate policy on targets and timetables for emission reductions has made it more difficult to reach consensus on a viable portfolio of near-term actions.

Advocates of the Kyoto Protocol are probably correct that some type of binding, near-term international controls on greenhouse gas emissions are an important part of any successful response to climate change. But the critics are correct that, as currently configured, the Kyoto Protocol has fundamental flaws. In particular, the Framework's national emission reduction targets, the particular levels of which have little immediate connection to environmental impact, have inflamed controversy and increased the complexity and, hence, risk of failure of any early-stage experiments in international emissions trading.

The US, EU and the other parties to the Framework Convention on Climate Change and the Kyoto Protocol would do well to revisit the full set of outcomes they hope to achieve from their near-term climate policies. In so doing, they may recognise a need to adjust emissions caps and supplement them with additional measures of success to encourage the full portfolio of near-term actions necessary for a robust long-term response to climate change. Such additional measures of success might include, for instance, national commitments to take specific actions or achieve levels of progress related to the development and diffusion of new emission-reducing technologies and to building the capacity to adapt to the impacts of climate change. New measures of success might also include recent proposals such as targets based on the intensity (rather than the absolute amount) of national emissions.<sup>17</sup> Some such national commitments might resemble the "pledge and review" concept initially considered in early climate negotiations but rejected as difficult to codify and insufficient to compel serious action. But such commitments could be useful when combined with binding emission targets and informed by today's better understanding of the near-term actions most important to a robust long-term response to climate change. Some additional commitments might be binding, but more likely they would be supported by extensive monitoring and reporting under the "national communications" provisions of the Framework Convention.<sup>18</sup>

Whether to retain, modify or replace the Kyoto framework looms as a central diplomatic problem because the Protocol has become a focus of opposition for many and a symbol of hard won progress for others. The Framework Convention and Protocol have achieved a number of important successes to date, including an international consensus on long-term goals and on an initial process for modifying

17 K. Baumert, R. Bhandari and N. Kete, *What might a developing country climate commitment look like?* (Washington, DC: World Resources Institute, Climate Note, May 1999).

18 United Nations Framework Convention on Climate Change, Article 12

climate policy over time, an acceptance of the principles of binding emissions reduction targets and the use of market-based mechanisms for meeting them, and an initial infrastructure for the monitoring necessary to support any action on climate change. Thus, building on the current structures may be less disruptive than attempting to begin again with a clean slate. The existing treaty language is certainly sufficiently broad to accommodate a wide range of possible interpretations and revisions. Given US opposition, any conceivable climate change agreement will include significant modifications to the emissions caps, through some combination of weakening or delaying the target, expanding the definition of what counts as emission reductions, or some variant of the safety valve. But the substance of the differences between the EU, US and others can be reduced if negotiators combine changes in the emission caps with new commitments to other actions directly tied to the other key milestones.

There are certainly entrenched ideologies and economic interests on all sides of the issue, but any necessary, serious economic dislocations due to climate change policy remain largely in the future. Thus, by retaining emissions controls, but balancing them as only one component of a well-balanced, robust climate policy, the EU and US may be able to create a framework that will allow them, and the rest of the world, to agree on the key near-term actions needed to prepare effectively for a wide range of plausible climate-change futures.