

# 1

## ENERGY AND ENVIRONMENTAL SECURITY

BROOKINGS GLOBAL EXPERTS

- WARWICK MCKIBBIN
- PETER WILCOXEN

**E**nergy and environmental security has emerged as the primary issue on the global agenda for 2007. Consensus has recently been forged on the potential for long-term economic, national security and societal damage from insecure energy supplies and environmental catastrophe, as well as the intense need for technological advances that can provide low-polluting and secure energy sources. Yet despite growing global momentum, there is still little agreement on the best set of actions required to reduce global dependency on fossil fuels and greenhouse gas emissions. Confounding the international policy challenge is the disproportionate impact of high oil prices and global warming across nations, insulating some countries from immediate concern while forcing others to press for more rapid change.

### THE GLOBAL CONTEXT

These challenges will only grow greater in the year ahead as the rising economies, specifically China and India, expand and consume at remarkable rates. According to the United States Energy Information Administration (EIA), China's oil consumption increased by almost half a million barrels per day in 2006, or 38 percent of total growth in world oil demand. India's electricity consumption is estimated to grow from 519 billion kilowatt-hours in 2003 to 845 billion kilowatt-hours in 2010. Overall, the EIA forecasts that worldwide oil consumption will rise from 80 million barrels per day in 2003 to 98 in 2015 and 118 million in 2030.

Although energy and environmental security are frequently argued about as separate and distinct issues, policymakers in the United States and abroad would be well advised to focus on mitigating climate change as the most effective means to the energy security end. Establishing a credible, practical and effective framework for cooperation on climate change should be the primary means of making an immediate impact by addressing energy and environmental security in a coherent policy.

Furthermore, policy would be greatly strengthened by institutionalizing market-based mechanisms for pricing carbon emissions, which would spur the development of new technologies that will decrease emissions at the same time as they decrease reliance on crude oil. Carbon taxation approaches would have a similar effect by increasing the competitiveness of biofuels, which can be produced widely and enhance the capability of home-grown supply. In this way, an effective climate change policy has the potential to make a more immediate impact on our long-term energy dependence than singular policies that attempt to reduce reliance on supplies from particular countries.

## THE CHALLENGE

To address the fundamental issues of uncertainty and paralysis that surround climate policy, we must move beyond the current set of policy recommendations that have been proposed and debated by the international community. Though the Kyoto Protocol process and other policy discussions have been helpful in proposing systems for addressing climate change and in focusing attention on the severity of the problem, such efforts have failed to obtain international cooperation on carbon emission reductions from the largest emitter—the United States—and the fastest-growing emitters—China and India. International environmental treaties must overcome the political reality that leaders will find it exceedingly difficult to swap economic growth, flexibility and sovereignty for ambiguous benefits that are shared by nations unequally and are limited in their domestic impact.

For a climate policy to be effective, therefore, it must satisfy three broad requirements: it must be widely adopted; it must remain in force indefinitely; and it must provide credible incentives for individuals and firms to make the investments necessary to reduce emissions. The third point is particularly important: Creating a solid foundation for large, long-term investments by the private sector will create a national constituency with a strong financial interest in perpetuating the policy and avoiding any backsliding by future governments.

## RECOMMENDATIONS FOR ACTION

The way forward lies in a variant of the cap-and-trade market-based proposals that are generally recognized to be the most efficient and least-cost method for reducing emissions of greenhouse gases. The original cap-and-trade approach was successfully applied to reduce sulfur dioxide emissions that are quite different from those of the carbon dioxide emissions in the northeastern United States. Thus there needs to be a longer term approach and great care in reducing carbon emissions where possible at low cost.

One approach that meets these criteria is the blueprint for climate change developed by Warwick McKibbin and Peter Wilcoxen—a hybrid system of long- and short-term emissions permits that would be coordinated across countries but managed and traded within national borders. The blueprint would combine a fixed supply of long-term (“perpetual”) permits with a flexible supply of short-term (“annual”) permits that would be valid only for emissions in a specific year.

- > **Perpetual permits for carbon reduction.** A country adopting the hybrid policy would distribute perpetual permits that would account for less than its current emissions by the amount of its commitment to reduce total emissions. The permits could be bought, sold or leased without restriction and each would allow the holder to emit one ton of carbon per year. When initially distributed, the permits could be given away, auctioned or distributed by the government in any way it deems appropriate. After that, the permits could be traded among firms or bought and retired by environmental groups. The permits would be highly valuable because 1) there would be fewer available than needed for current emissions and 2) each permit would allow one ton of emissions for every year in perpetuity. As a consequence, the owners of the perpetual permits would form a private sector interest group, which would be needed for long-term support of the policy as they would have a clear financial interest in keeping the policy in place.
- > **Annual permits for efficiency.** The other component of the policy—annual emissions permits—would be sold by the government for a specified fee. There would be no restriction on the number of annual permits sold but each permit would be good only in the year it is issued. In this way, the annual permits would provide the advantages of a carbon tax by instilling clear financial incentives for emissions reductions without committing the government to achieve a particular emissions target regardless of cost.
- > **Private sector investments in carbon reduction technologies.** Although the policy would be more complex than an emissions tax or conventional permit system, it would provide a stronger foundation for the large private sector investments in capital and research required to fundamentally address climate change. It would also address the core issue many democratic governments face in adopting climate change policies by establishing a set of stakeholders that have a strong incentive to maintain the policy.
- > **National action now.** This type of policy would be simplest to implement on a national basis with permits valid in the country of issue and not internationally tradable. With permits managed by each country according to

its domestic legal system and regulations, there would be no need to establish complex international trading rules or the creation of a powerful new international institution before meaningful action on climate could be taken. International accession to such a protocol would be easy: A country would simply need to agree to establish a hybrid permit system and to charge a specified price for annual permits. There would be no loss of sovereignty to an outside authority, no lengthy political ratification process of the accord and no need to extensively monitor international activities.

- > **Carbon sinks.** Although the proposed hybrid scheme does not contain cross-border carbon permit trading, additional carbon reduction could be achieved by creating permits that could be allocated for projects that remove carbon from the atmosphere. These carbon “sinks” or “offsets” would be established by individual country regulations that would qualify, measure and verify emissions offsets, and award short- or long-term permits for the equivalent tonnage reduction.

#### OTHER BROOKINGS EXPERTS:

- DAVID SANDALOW

#### WANT TO READ MORE?

McKibbin, Warwick J. “Environmental Consequences of Rising Energy Use in China,” *Asian Economic Policy Review*, December 2005.

McKibbin, Warwick J. and Peter J. Wilcoxon. “A Credible Foundation for Long-Term International Cooperation on Climate Change.” *Brookings Discussion Papers in International Economics* 171, June 2006.

Sandalow, David B. “Ending Oil Dependence.” *Brookings Institution*, January 2007.

Sandalow, David B. and Craig Hanson. “Greening the Tax Code.” *Tax Reform, Energy and the Environment Policy Brief*. Brookings Institution and World Resources Institute, April 2006.

Sandalow, David B. “Michael Crichton and Global Warming.” *Brookings Institution*, January 28, 2005.