

## GREENHOUSE GAS EMISSIONS TRADING: A COUNTRY'S- AND COMPANY'S-EYE VIEW

The Kyoto Protocol combines ambitious greenhouse gas reduction targets with innovative market-based mechanisms to help country Parties achieve those targets at the lowest possible cost. Recognizing that reducing greenhouse gas emissions is many times more expensive in some countries than in others, the Protocol allows the Parties to use “emissions trading” and other flexibility mechanisms to meet their commitments at much reduced cost. This paper describes how emissions trading could work, from the perspective of a country, and from the perspective of companies and other legal entities.

### How Will Emissions Trading Work?

The Kyoto Protocol establishes binding greenhouse gas emissions targets for 39 countries. These targets take the form of an “assigned amount”—the number of metric tons of greenhouse gases (counted as carbon dioxide equivalent) that may be emitted by sources within the country during the five-year commitment period running from 2008 through 2012. Each country must make sure that its emissions during the five-year period do not exceed its assigned amount.

Articles 3 and 17 of the Kyoto Protocol allow countries with binding targets to lower the cost of meeting their targets by participating in international emissions trading. In emissions trading, one country transfers part of its assigned amount to another. This transfer of assigned amount lowers the number of tons of greenhouse gases that the first country may emit between 2008 and 2012, and raises the number of tons that the second country may emit by an equal amount. It is useful to think of each one-ton unit of assigned amount as a tradable allowance

for one ton of emissions that may be transferred between countries.

Because the cost of controlling greenhouse gases differs by many times from country to country, emissions trading will allow enormous savings in meeting the Kyoto targets. Countries that have relatively inexpensive ways to control greenhouse gases have incentives to reduce emissions by more than their targets require, because they can sell to others tradable allowances that they will not need. Countries facing the most expensive control measures have incentives to buy less costly allowances from others, and thereby increase the amount they may emit. Since greenhouse gases are global pollutants, the environmental impact of reducing them is the same no matter where the reductions take place. The same overall reduction is achieved, total costs are reduced, and both buyers and sellers gain from the savings allowed by trading.

While countries can benefit by engaging in emissions trading at the government-to-government level, far more savings are possible if countries also authorize their

legal entities (companies, individuals, NGOs, etc.) to trade. The cost of controlling greenhouse gas emissions varies dramatically between companies both within the same country and across borders. The private sector can be much more effective than governments in finding the lowest-cost emission reduction opportunities. The greatest savings can come if private sector companies with the ability to reduce emissions are allowed to buy and sell allowances with other companies in the same country and with companies in other countries.

### How Would a Country Engage in Emissions Trading?

Trading rules should require a country that wants to trade to have the necessary capacity and infrastructure to measure and report on its emissions of greenhouse gases, according to the requirements of Articles 5 and 7 of the Protocol. In addition, the rules should require the country to establish a national registry—a computerized system to record who holds tradable allowances; to keep track of changes in allowance holdings due to emissions trading; and to show which allowances have already been used to cover past emissions (these would be permanently retired) and which remain available to be used against future emissions.<sup>1</sup>

A country that wants to increase the number of tons of greenhouse gases that it is allowed to emit could seek out other countries that are willing to sell some of

their tradable allowances. Buying and selling countries could arrange their transactions directly or use brokers or exchanges. Trades would be accomplished by removing allowances from the national registry of the selling country and adding them to the national registry of the buying country.

Trading rules should require each country to report to the Secretariat for the Framework Convention on Climate Change in Bonn at least once each year on the trades it has conducted and the appropriate increases or decreases in its assigned amount. These reports would be in addition to the annual reports that countries must make to the Secretariat on their greenhouse gas emissions. Together, this information would serve as the starting point for determining whether a country met its commitment to keep emissions within its assigned amount, as adjusted up or down by trading.

The emissions trading rules could be structured to give countries strong incentives to comply with basic requirements of the Protocol. For example, a country that came out of compliance with the Article 5 and 7 measurement and reporting rules, or that failed to maintain its national registry, could lose its eligibility to trade. The prospect of losing the savings available from trading could be a strong inducement to keep buyer countries in compliance. Likewise, the prospect of losing investment revenue could be a strong encouragement for seller countries to remain in compliance.

## How Would a Private Company Engage in Emissions Trading?

In addition to trading at the governmental level, some countries plan to use both domestic and international emissions trading at the company level as part of their program to meet their Kyoto commitments. The highly successful U.S. acid rain program, established in 1990, is a model for how a domestic greenhouse gas trading program could work. The acid rain program sets a strict limit on the total national emissions of sulfur dioxide allowed from electric power plants. There is a fixed number of emission allowances available each year, each one permitting the emission of one ton of sulfur dioxide. These allowances were allocated to power plant owners.<sup>2</sup> Emissions are rigorously monitored, and at the end of each year, each plant owner must turn back to the government enough allowances to cover its emissions during the year.

The sulfur dioxide allowances can be bought and sold. Companies facing high emission control costs have the flexibility to choose their own compliance strategies. They can reduce their emissions by enough to match their allowance allocation (e.g., by installing pollution controls, switching to cleaner fuels, or improving efficiency). They can also choose to purchase more allowances. Companies with inexpensive opportunities to reduce emissions below their allocations can sell allowances they do not need. A national registry records all allowance holdings

and trades, and shows which allowances have been used and which remain available for future use. Electric utilities, brokers, and private individuals have accounts in the registry recording their allowance holdings, purchases, and sales. Some allowances have even been purchased by school children and environmentalists, who have taken them "off the market" to further reduce emissions.

The results speak for themselves. Sulfur dioxide emissions are being cut about 30 percent more rapidly than expected, bringing cleaner air to millions of Americans. And the total costs of the acid rain program are now projected to be well under half of original expectations.

Countries could establish similar domestic emissions trading programs for greenhouse gases. While private companies and other legal entities would be able to hold and trade allowances, the country would remain fully responsible for compliance with Kyoto commitments. All legal entity holdings would be recorded in the country's national registry. In setting up their domestic programs, countries would have to address many issues, including which sectors to include in the emissions trading system and which to address through other policies. Other issues include how to distribute allowances (allocation or auction?), and how frequently to require emitters to turn them in (every year, or only at the end of the five-year period?). But the potential savings would make the effort well worthwhile.

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Companies and other legal entities subject to these programs would have strong incentives to look constantly for innovative ways to control their greenhouse gas emissions. Those who found inexpensive opportunities to reduce their emissions could sell the allowances they do not need to other companies who face higher costs. These tangible rewards for innovation should result in a steady stream of cost-saving breakthroughs and new technologies.

A country's domestic emissions trading program would also connect seamlessly with the international emissions trading system, using the same system of national registries to keep track of every allowance traded. An international trade

between legal entities of different countries would be carried out by moving the traded allowances from the account of the selling entity in the registry of one country, to the account of the buying entity in the registry of the other country. By buying and selling allowances not only within the same country, but also across borders, companies and other legal entities would dramatically reduce the overall cost of meeting the agreed Kyoto targets.

And that is the key to success in meeting the ambitious commitments made in Kyoto, and sustaining and strengthening our efforts to protect the global climate over the coming decades.

- 1 Allowances would be identified by serial number and country of origin. Those that have been used to cover emissions would be marked in the user country's registry as permanently retired. Those not yet used could be kept for use later in the five-year period, traded to other countries, or "banked" for the country's use in the next commitment period.
- 2 A country can distribute allowances in several ways: They can be auctioned to the highest bidders, or they can be allocated (given out) by a variety of formulas to the companies that the country makes responsible for emissions, to consumers, or to others.