

Trading Solutions for Lowering Air Pollution

TRADING OF GREENHOUSE GAS EMISSIONS ALLOWANCES CAN LOWER THE COST OF REGULATORY COMPLIANCE AND CREATE BUSINESS OPPORTUNITIES.

BY CHRISTOPHER ANNALA AND HARRY HOWE

Thanks to innovative trading in greenhouse gas emissions allowances, complying with air pollution regulations isn't the same for all firms all the time. In this rapidly growing field, a company—be it an electric utility, a dry cleaner, or an auto body shop—can, in effect, buy a real option from another company to legally pollute more than regulations permit.

In essence, this market-based approach to pollution compliance gives companies a flexible and cost-effective alternative to installing pollution-lowering technologies, changing energy sources, or building an entirely new plant.

Let's look at an example. Companies A and B emit 1,000 tons of methane per year each, and new regulations permit a maximum output of 900 tons per year. Company A reduces its emissions to 800 tons. Under environmental regulations that incorporate an emissions trading approach, Company A can sell an allowance from the U.S. Environmental Protection Agency (EPA) or a state air pollution regulator that would let the buyer emit an additional 100 tons of methane. Managers for Company B have a choice: reduce emissions by 100 tons

by investing in pollution-lowering equipment and technology or purchase the 100-ton permit from Company A.

MARKET APPROACH TO COMPLIANCE

It all began in the 1960s with theoretical work on emissions trading, but the development of active emissions trading (ET) markets is relatively recent, beginning in 1990 with the Clean Air Act, which established a trading approach for sulfur dioxide emissions under Title IV of its Amendments. Adding a market-based approach to complying with air pollution regulations jump-started the trading in EPA pollution allowances and augmented government-dictated solutions. Lawmakers reasoned that markets in tradable emissions allowances would be another way to help companies figure out themselves the best way to meet lower pollution standards, and it worked. Sulfur dioxide allowances began trading at prices much lower than had been anticipated while achieving emissions reductions at levels far greater than expected.

Today there are ET markets for pollutants such as sulfur

dioxide, nitrogen oxide, particulate matter, volatile organic compounds, and wastewater, among others. In Europe and other industrialized nations, ET markets are more advanced than in the U.S. because those countries are adhering to the Kyoto Protocol, which the U.S. withdrew from in 2001. The Kyoto Protocol is an agreement to reduce the greenhouse gas emissions believed to cause climate change. It was initially negotiated in Kyoto, Japan, in 1997 and to date has been ratified by about 122 countries.

Carbon trading under the Kyoto Protocol, for example, has the potential to create a new global commodity market valued at \$9 billion annually by the *Financial Times*. Other studies put the figure higher, at \$18 billion to \$36 billion, and, if derivatives are included, at least twice as high.

In the U.S., greenhouse gas emissions allowances trade on the Chicago Climate Exchange, the Chicago Board of Trade, Cantor Environmental Brokerage, and by over-the-counter intermediaries (see sidebar, p. 43). Also, regional U.S. programs such as RECLAIM (Regional Clean Air Incentives Market) in Southern California administer ET programs.

There are important issues that affect all the trading programs. One is the problem of the initial allocation of tradable permits, which are based on historical production of pollution. Newer sources of pollution, therefore, are subject to more stringent regulations. Also, most of the trading programs come with a cap on the total number of allowances issued. The cap is then lowered in subsequent years to achieve lower overall pollution levels.

Beyond compliance flexibility, market solutions offer companies lower costs, strategic business opportunities, preparation for potentially tougher greenhouse gas emission standards, preemption of environmentalists' attacks, and new knowledge and experience about using ET to solve compliance problems.

Economists estimate that the efficiency of a market approach compared to government fiat on how to achieve lower emissions has saved companies up to \$13 billion. Utilities alone, for example, are saving an estimated \$1 billion per year. Cantor Fitzgerald, which acts as an emissions trading broker, says thousands of emissions trades have been made over the last 20 years, and some companies have made or saved tens of millions of dollars. The EPA estimates that the monetary benefits of cleaner air to human health from fewer cases of respiratory diseases might reach \$50 billion by 2010.

ISSUES AND OPPORTUNITIES

Cost savings aren't the only benefit of trading emissions permits. It has also created business strategies for some compa-

nies. For instance, companies can create so-called emission "offsets" that will let them increase the level of a particular pollutant if they also do something that's good for air quality, such as planting trees, which lower carbon. Under this system, firms that can efficiently produce offsets typically will build or buy 20% more reductions in emissions, thereby creating potentially valuable trading opportunities.

A second strategy is a so-called "bubble policy," which enables a company to increase pollution at one source as long as it reduces pollution at another source. Still another strategy is "banking"—storing emissions allowances for later use or leasing them to another firm. Allowances that are banked are essentially a real option that allows for future increases in pollution, and these options will increase in value as emissions markets become more active and the supply of allowances falls over time.

But strategic opportunities bring strategic issues you'll have to consider. First, you'll need specialized services such as assurance and engineering skills to verify compliance. Next, accountants and traders will need sophisticated techniques to value intangible assets. Finally, ET will undoubtedly create novel and complex legal issues, so bring in the lawyers.

There will also be insurance exposures that arise from trading and financing activities. What if there's a sale of a tradable allowance and the seller can't deliver it? This could happen if the seller's emissions rise above the level used in computing the quantity of emissions that it had the right to sell. Insurers are looking into ways to provide products that would cover this risk. Swiss RE, for example, is developing a counterparty credit product that would protect the purchaser of a tradable allowance from the inability of a seller to actually deliver the appropriate rights.

Finally, there are political considerations. Allocating emission rights to businesses and by geographic areas and across political jurisdictions requires a careful balancing of rights and interests. Inevitably, there's a political dimension to this. Just as inevitably, firms will seek to influence the process.

But not all firms can realize the same benefits from ET. Economist Robert Stavins of Harvard University provides some insight:

- ◆ When a firm's costs of reducing pollution vary widely, the firm will gain more from trading allowances.
- ◆ As the *mix* of different pollutants a company emits increases, regulatory controls become more effective than tradable allowances for reducing damages from those pollutants. That's because a mix of pollutants in the environment isn't absorbed well by the air shed or watershed,

Where Air Pollution Allowances Trade

Markets in tradable emissions allowances have advanced significantly since 1990, when the U.S. Environmental Protection Agency (EPA) began allocating allowances for sulfur dioxide to electric utilities. The utilities either used them or traded them to other utilities.

Today, greenhouse gas emissions allowances trade on the following exchanges, broker-dealers, and under the administration of regional governmental entities:

California's RECLAIM Market

Southern California is considered the nation's "proving ground" for emissions trading. Its RECLAIM (Regional Clean Air Incentives Market) program aims to reduce compliance costs by more than \$60 million annually. The goal of the program is to reduce nitrogen dioxides and sulfur dioxides by 75% and 61%, respectively. In so doing, RECLAIM saves jobs that might otherwise be lost if noncomplying companies were forced to cease operations because of their inability to comply with clean air regulations.

Begun in 1994, RECLAIM is run by the South Coast Air Quality Management District (AQMD), a regional government agency responsible for air pollution control in the Los Angeles region. The program now includes more than 400 firms that emit four or more tons of nitrogen dioxides and sulfur dioxides per year. RECLAIM issues trading credits that can be sold to a facility that is unable or unwilling to make the changes necessary to meet its target that year. RECLAIM maintains master and account records for members, who arrange trades privately or through brokers.

Cantor Environmental Brokerage

Cantor Fitzgerald LP, an investment banking and

brokerage concern, runs Cantor Environmental Brokerage, a broker-dealer marketplace for trading air pollution emissions allowances. The company's website is www.emissionstrading.com.

Chicago Climate Exchange

Chicago Climate Exchange is a self-regulatory exchange that administers a marketplace for reducing and trading greenhouse gas emissions. It's a rules-based market whose members—corporations, municipalities, and other entities that emit greenhouse gases from facilities in the U.S., Canada, or Mexico—buy and sell credits to determine the most cost-effective means of achieving emission reductions. Its website is www.chicagoclimatex.com.

Chicago Board of Trade

The Chicago Board of Trade conducts the EPA's sulfur dioxide auctions. Information can be found at www.epa.gov/airmarkets/auctions/factsheet.html.

Multifuels

Multifuels LP buys, sells, and swaps emission credits and allowances globally through its networks of commercial, industrial, and trade contacts. Its website is www.multifuels.com.

creating "localized hot spots"—areas of much heavier pollution. If only tradable allowances were used, companies could buy up permits and the environment would have *much* higher levels of pollution in those spots.

◆ Companies will need to consider state regulation as well as federal. New York, for example, limits the ability of New York polluters to engage in trades with polluters in other states that may be "detrimental to environmentally sensitive areas" in those states.

◆ Tradable allowances will be preferable to government fiat when there's a great deal of uncertainty about both the marginal abatement costs and marginal benefits.

◆ Low transaction costs will make it easier to trade allowances.

ACCOUNTING FOR EMISSIONS TRADING

Before embarking on an emissions trading program, you'll need specialized assurance services, as noted above. You'll also want to consider some accounting issues, both practical and theoretical, and ask yourself some questions.

Accounting theory for ET programs alone could be an entire textbook, but we'll stick to the following list of issues that most companies would have to deal with.

Classification of an emissions allowance. In most ways, an emissions permit fits the Financial Accounting Standards Board's (FASB) definition of an asset. Most accountants would classify it as a prepaid expense. So how should you deal with purchased vs. allocated emissions rights? For a purchased allowance, we can readily

see a debit to an allowance account and a credit to cash. Should the offsetting credit for a government-granted allowance go to a liability (recognizing an obligation to maintain emissions at a specified standard)? To contributed capital? Should you recognize an allowance as a by-product of a capital investment program that reduces emissions? If so, should allowances then be considered a component of plant assets? Given the variety of emissions for which permits might be traded, the number of issuing jurisdictions, and other firm-specific differences, it's easy to imagine that these conceptual issues will be further complicated by perplexing fact patterns.

Valuation and carrying amounts. Should you record emissions allowances at cost or marked to market? Should models be used to estimate values for allowances that are thinly traded?

Trading vs. operating use. Should there be different treatments for allowances that you use vs. those you trade? FASB's Statement of Financial Accounting Standards (SFAS) No. 115, "Accounting for Certain Investments in Debt and Equity Securities," and SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities," make distinctions between use and trading of financial instruments. We could argue for a similar approach, in some sense, that purchasing a permit is hedging a production cost. So should allowances be accounted for in a manner similar to derivatives under SFAS No. 133?

Valuation and impairment. It's easy to imagine a host of business and regulatory circumstances that would increase or decrease the market value of an allowance. Should all changes be marked to market on a regular basis? Under what circumstances would a fair value model be appropriate? Does SFAS No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of," provide adequate guidance for conducting an impairment review?

Currency issues. If companies trade allowances for foreign operations, they'll create foreign exchange (FX)

exposure. So should gains and losses from emissions-related FX exposure be reported separately?

Counterparty risk. There may be counterparty risk to firms buying an allowance if, because of the sale, the seller can't meet emissions standards and deliver the allowance to the buyer. So should firms defer all recognition of gains and/or reduced costs until full performance by the counterparty is certain, or should they accrue a reserve for potential default?

UNCERTAINTIES OF EMISSIONS CONTROL

Finally, you'll want to consider the uncertainties of your emissions control program.

There are two types of uncertainty: (1) when emissions technologies may be a better approach than trading allowances and (2) the political and regulatory situation of emissions control.

Economic theory predicts that when the price of tradable allowances increases, firms will improve technology and develop innovative approaches to abating pollution. For example, sometimes firms will install emissions-lowering technologies so they can sell permits on the open market.

Second, the upcoming elections in November create additional regulatory uncertainty. Some observers expect GOP leaders to challenge or review a handful of key environmental laws that govern power-plant emissions, water quality, endangered species, mining, and other related subjects. Any changes in pollution regulations could affect the tradable allowance markets and the value of those allowances.

The uncertainty surrounding environmental regulation, technology, and even fuel prices creates a situation where some firms may take a wait-and-see attitude toward pollution reduction, while others may move ahead in order to obtain perceived strategic advantages.

Certainly, in the months and years ahead we'll see a diversity of strategic choices and accounting treatments for market-based solutions to greenhouse gas emissions regulation. ■

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For Further Information

Kathy Gibson, "Accounting for Greenhouse Gas Emissions," *Australian CPA*, August 2002. This article discusses accounting issues in an International Accounting Standards context.

Tom Tietenberg, *Environmental and Natural Resource Economics*, Addison-Wesley, Upper Saddle River, N.J., 2003. Also see Professor Tietenberg's website for a bibliography on tradable allowances at <http://www.colby.edu/personal/t/ttieten>.

The EPA: www.epa.gov/airmarkets/resources.html.