

Climate Change

Litigation, Regulation and Risk

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EXPERT ANALYSIS

Environmental Integrity in the Global Carbon Markets

By Kenneth J. Markowitz, Esq.
Akin Gump Strauss Hauer & Feld

Global markets that promote the reduction of greenhouse gases have emerged as the leading mechanism for achieving compliance with laws limiting GHG emissions. In 2005 the European Union launched the first major carbon market to help member states meet reduction commitments under the Kyoto Protocol, which was adopted by the EU and 37 other industrialized countries in 1997 to implement the United Nations' Framework Convention on Climate Change.¹

Markets supplying "voluntary" carbon offset credits quickly followed, along with other trading schemes around the world.² But as these fast-growing markets proliferate and attract new investment funding, there is a growing need to strengthen market integrity through improved monitoring, reporting and verification, as well as in carbon offset project approval.

For these nascent carbon markets to thrive, they must deliver actual environmental benefits. Ensuring these results is difficult, requiring the trust and confidence of investors, the public and governments. This trust can only be earned with transparent and accurate GHG emissions data when setting and meeting the cap.

Market Integrity Basics

Trust is the most fundamental element of market transactions. Long before there were electronic clearinghouses for financial transactions, people from every culture met face-to-face to exchange goods. For these trades to occur, participants in the transaction had to trust that the goods they received had value. This basic element of markets holds true whether the exchange is for fish, furs, ceramic pots, beads or the island of Manhattan. If one party does not trust that it is receiving fair value for its goods, the market will fail.

Markets have evolved significantly from the days of basic barter exchanges, but the element of trust is no less important today. In carbon markets, participants must trust that a ton's worth of credits generated in one place is the same as a ton generated elsewhere. This is extremely difficult when our basic human senses fail to assist us in assessing the veracity of these claims. You cannot see a ton

of carbon dioxide, nor can you feel it. Without adequate protection—that is, without market integrity—these complexities in carbon markets make it easy for unscrupulous actors to game the system and sell products that provide no actual environmental benefits.

Generating trust in carbon markets is accomplished by ensuring that all emissions data are properly measured, accurately reported and independently verified. These three functions form the basis for guaranteeing compliance and the delivery of environmental benefits. Effective implementation of well-designed laws requires the collection and reporting of accurate data, which in turn allows enforcement authorities to provide assurance that counterparties are following the rules. Without independently verified data, it is impossible to establish the rule of law within the marketplace. And without proper enforcement of the rules governing the market, the system cannot deliver environmental and financial benefits.

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Cap-and-Trade Experiences

Managing regulatory risks is essential for market participants; it requires predictability, transparency and certainty. This section illustrates how first-generation cap-and-trade programs manage risk and ensure environmental integrity.

The Acid Rain Program

The United States' acid rain program was the first major cap-and-trade initiative designed for environmental compliance purposes. Beginning operations in 1995 the ARP regulates sulfur dioxide and nitrogen oxides emissions from coal-, oil- and gas-fired power plants in the Midwest and on the East Coast. SO₂ and NO_x are the major manmade contributors to acid rain, which damages trees, lakes and rivers, soil, buildings, and human health.

The ARP was designed as a flexible market-based program, an alternative to traditional command-and-control regulation. Rather than mandating specific methods of reducing emissions, such as requiring the use of the “best available control technology,” the ARP sets a cap for emissions among all regulated facilities. The program allows individual facilities to determine the best, most cost-efficient way to comply. If a facility can reduce its sulfur and nitrogen oxide emissions through scrubber technologies, energy efficiency improvements, switching to cleaner fuels or other cost-effective methods, it can profit by selling excess allowances to facilities that have not been able to make such improvements. This system creates a win-win situation, as facilities that do the most to reduce emissions not only deliver significant environmental benefits, but also reap the financial rewards.

The acid rain program has produced significant environmental benefits at substantially lower costs than originally predicted. By 2006 it had reduced sulfur dioxide emissions by 6.3 million tons from 1990 levels, representing about 40 percent of the power sector's total emissions.³ This reduction has resulted in positive changes in the environment, including improved water quality in lakes and streams.⁴

In terms of costs, the Government Accountability Office has estimated that cap-and-trade programs like the ARP could save up to \$3 billion per year when compared with the typical command-and-control approach of other environmental

protection programs.”⁵ The Office of Management and Budget found in 2006 that the ARP had produced more human health benefits than any federal regulatory program implemented in the previous decade, with yearly benefits exceeding costs by 40-to-1.⁶

The success of the ARP is a direct result of the strong monitoring, reporting and verification requirements. Power plants in the ARP follow “continuous emissions monitoring” regulations, which operate at the fuel-source level by measuring and recording sulfur dioxide concentrations in parts per million, volumetric gas flow in standard cubic feet per hour and SO₂ mass emissions in pounds per hour discharged to the atmosphere.⁷ The regulations create an automated reporting system, where data are submitted to the Environmental Protection Agency electronically in a standardized format. The EPA must verify and certify the emissions monitoring systems at each facility.⁸

To ensure compliance and system integrity, EPA regulations strongly deter the use of non-certified equipment or gaps in emission reporting data. The EPA assumes that during any period of noncompliance or non-reporting, emissions are based on the “maximum possible concentration of SO₂.”⁹ This means that facility owners face a significant financial burden for gaps or errors in data collection and makes compliance the less expensive option.

Although the acid rain program is not a carbon market, it shows that cap-and-trade schemes can deliver substantial environmental benefits at low costs and may serve as a model for carbon markets.

The EU’s Greenhouse Gas Emission Trading Scheme

The first major carbon market was launched in the European Union in 2005. The Emissions Trading Scheme operates in 27 countries and is designed to provide a flexible mechanism for member states to meet their compliance obligations under the Kyoto Protocol. The ETS is a far more complicated system than the acid rain program, and it has several integrity challenges. One major hurdle has been integrating 27 different regulatory cultures with varying levels of regulatory sophistication.

In January 2004 the European Commission established facility-level monitoring and reporting requirements for GHG emissions that required independent, third-party verification.¹⁰ The monitoring methodology is a tier system that attempts to balance the need for monitoring flexibility between industries while maintaining a level playing field across the EU.

Facility operators must apply the highest tier, which has the most specific monitoring requirements, unless they can prove that doing so would be unreasonably expensive. In such cases, use of a lower tier may be permitted. The result is that different facilities can end up with different reporting requirements and compliance costs, which adds uncertainty about data accuracy. Facilities that are unable to comply with the requirements are prohibited from trading allowances in the Emissions Trading Scheme.

Although the European Commission oversees the ETS, the United Nations retains enforcement powers to ensure integrity within the Kyoto Protocol.¹¹ In April 2008 the U.N.’s determined in its first enforcement action that Greece failed to demonstrate that it accurately measured and reported its greenhouse gas

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emissions.¹² The U.N. suspended Greece from participating in the ETS and in Kyoto's Clean Development Mechanism.

Greece is now subject to monitoring by international experts until it can develop adequate controls and processes for measuring and reporting GHG emissions. The U.N.'s decision provides a dual function for ensuring integrity; it not only guarantees that credits derived from bad data do not enter the market and compromise its integrity, but also reminds other countries of the importance of complying with U.N. mandates and the financial harm that can result from noncompliance.

The Clean Development Mechanism and Voluntary Offsets

Another substantial integrity problem within the ETS is derived from the Kyoto Protocol's other flexibility mechanisms, in particular the Clean Development Mechanism. The CDM allows industrialized countries to use emission credits from "carbon offset" projects in developing countries for compliance purposes. Offset projects can take many forms, such as renewable energy initiatives, energy efficiency gains at existing plants, methane capture from agriculture or landfills, and forest restoration.

Beyond the basic risks, there are serious integrity concerns with inadequate administrative procedures. These problems can lead to questions over whether the projects are creating actual emission reductions or whether benefits are being double-counted and sold to multiple parties.¹³

Voluntary Markets

Voluntary markets in the United States are emerging to take advantage of consumers' increased attention to climate change and "carbon neutrality." The credits are marketed to businesses and individuals who want to lessen their impact on the planet by offsetting their own carbon emissions by paying for reductions elsewhere. Once again, integrity is a significant issue with credits in the voluntary markets, as they are evaluated against numerous standards.¹⁴

In fact, prices in voluntary markets are significantly less per ton than in compliance markets, and much of this difference may be attributable to uncertainties regarding the actuality of reductions generated by voluntary market credits. Much of this uncertainty arises from lax verification and certification standards—there are no licensing requirements for certification agencies, so there is virtually no way to verify if their work is accurate. This problem, among others, has led to recent government attention, which is detailed in the following section.

Moving Environmental Integrity Forward

Congressional Activity in the United States

The U.S. government is currently weighing whether and how to implement comprehensive carbon regulation. In the Senate, the Lieberman-Warner Climate Security Act has received the most public attention to this point. The legislation would establish an economy-wide cap-and-trade program in the U.S. The program would regulate greenhouse gas emissions primarily from power plants and large, energy-intensive manufacturing facilities (steel, cement, aluminum, etc.).

The Climate Security Act was brought to the Senate floor the week of June 2, 2008. After three days of procedural maneuvers the Democratic leadership

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failed to bring the debate to a close with a cloture vote. The bill was pulled from consideration at that point. Once a new president is inaugurated in 2009, the Climate Security Act or a similar bill will likely return, since both John McCain and Barack Obama support a cap-and-trade program for carbon emissions.

The Climate Security Act contains strong provisions to ensure integrity and actual environmental benefits. It establishes a federal GHG registry, to be designed and operated by the EPA. There also would be an oversight board made up of a diverse array of stakeholders. The registry information would be populated by electronic emissions reports that are verified and audited by the EPA and published on the Internet. These provisions are clearly modeled after the reporting system in the acid rain program. To ensure compliance, the Climate Security Act would provide for penalties of up to \$25,000 per day per violation.

In the House, there has been less movement on a cap-and-trade program. Democrat John Dingell of Michigan, chairman of the Committee on Energy and Commerce, is issuing a series of white papers on the scope and design of carbon regulation in the U.S. The first discussed how accurate reporting and monitoring are critical to the success of any future program. Dingell has issued four white papers so far and is expected to offer a comprehensive bill in the near future.

Massachusetts Democrat Edward J. Markey has offered the Investing in Climate Action and Protection Act through his role as chairman of the House Select Committee on Energy Independence and Global Warming. ICAP takes a similar approach to the Climate Security Act but has more stringent emission reduction targets. The bill explicitly borrows the “continuous emissions monitoring” feature of the acid rain program as the basis for its monitoring, reporting and verification requirements. ICAP would require the EPA to verify the emissions data, which are then submitted to the Climate Registry. At this point, there is no timetable for debating Markey’s legislation, and it is unlikely to see major action this year.

Administrative Agency Action

While Congress is having difficulty moving forward with comprehensive legislation, administrative agencies are beginning to act on their own. The EPA is in the middle of a rulemaking procedure to develop standards for an eventual greenhouse gas inventory. This inventory must include both upstream (fossil fuel and chemical producers) and downstream (industry) sources of emissions. The EPA is building off existing federal, state and corporate emissions reporting programs. The proposed rule is due in September 2008 and a final rule in June 2009.

The Federal Trade Commission also is looking at how it can improve environmental integrity. A lack of certification and verification standards in the voluntary markets leads to questions about whether any actual environmental benefits are being achieved. The FTC has the authority to regulate false and deceptive advertising and is using that authority to investigate claims of “carbon neutral” or “sustainable” products as well as the legitimacy of voluntary offsets.

In January 10 states sent a letter to the FTC, expressing concerns that “[t]he lack of common standards and definitions, along with the intangible nature of carbon offsets, makes it difficult if not impossible for consumers to verify that they

are receiving what they paid for and creates a significant potential for deceptive claims.”¹⁵

As a result, the FTC is now looking at whether to update its “Green Guides” addressing corporate and retail carbon markets. The agency will look at how to substantiate claims of environmental benefits, prevent double-counting, provide consistent counting methods and account for the timing of environmental benefits.

Recent Developments in Europe

On the other side of the Atlantic, the European Union issued a proposed directive in January 2008 that would govern phase III of the Emissions Trading Scheme.¹⁶ The current phase ends in 2012 when the Kyoto Protocol sunsets. Phase III will operate from 2013 to 2020. The directive addresses some of the integrity concerns that currently limit the market. The proposal focuses on the need to harmonize verified emissions data among member countries to ensure that market participants always have accurate information. This effort is the result of an incident involving verified 2005 emissions data, which showed lower than expected overall emissions, causing the price of allowances to drop suddenly.¹⁷

In addition the ETS will continue to exclude credits derived from land use and forestry projects, saying: “Insufficient solutions have been developed to deal with the uncertainties, non-permanence of carbon storage and potential emissions ‘leakage’ problems arising from such projects. The temporary and reversible nature of such activities would pose considerable risks in a company-based trading system and impose great liability risks on member states.”¹⁸

International Enforcement

In December 2007 Bali, Indonesia, hosted the U.N. Framework Convention on Climate Change’s conference to initiate the process of negotiating a successor agreement to the Kyoto Protocol. The parties must complete a comprehensive treaty by the end of 2009 in order to take effect by 2013.

One of the major discussion topics at the conference was strengthening Kyoto’s Clean Development Mechanism process to ensure the legitimacy of credits derived from CDM projects. The major areas of concern are improving the consistency of oversight and enforcement by strengthening the administrative procedures, building additional capacity for certifying projects in a timely manner, and using market-based solutions like insurance and hedging products to mitigate project risks.

Although the conference did not produce any final determinations, it did end with agreement on the “Bali Action Plan” that lays out the next steps for the negotiations. Strengthening the CDM process will be a major topic of discussion at international climate meetings for the next 18 months.

Conclusion

Cap-and-trade programs, when designed and administered properly, can provide significant environmental benefits at substantially lower costs than traditional

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command-and-control legislation. However, the benefits will not be achieved if the markets lack integrity, which engenders a lack of trust between market participants.

To build and ensure environmental integrity, there must be strong measurement, reporting and verification programs in place at every level. The programs allow market participants to manage the risks inherent in environmental projects and market-based programs. With more than 10 years of experience in the acid rain program and three years in the EU Emissions Trading Scheme to draw upon, the governments responsible for the next generation of cap-and-trade programs have the opportunity to learn from earlier mistakes and design robust programs that provide verifiable environmental benefits while saving money for participants.

■ Notes

- ¹ UNFCCC established three “flexibility mechanisms” that offer signatories to the Kyoto Protocol innovative ways to reduce GHG emissions: the Clean Development Mechanism, joint implementation and emissions trading. CDM and joint implementation allow project developers to receive tradable credits for implementing energy and infrastructure projects that reduce emissions. The credits can be used within the third flexibility mechanism, a cap-and-trade system. In a cap-and-trade market, regulated entities (power plants, manufacturing facilities and other energy-intensive industries) receive or purchase allowances entitling them to emit one ton of carbon dioxide. Facilities that are able to reduce their emissions can profit by selling unused allowances on the market, which forces high-emitting facilities to pay a financial penalty for their excess emissions.
- ² Voluntary markets allow individuals and businesses not subject to legally binding emission limits to “offset” their emissions by purchasing credits from certified projects. Other trading schemes, either in operation or development phases, include the Regional Greenhouse Gas Initiative (<http://www.rggi.org>), the Western Climate Initiative (<http://www.westernclimateinitiative.org>) and the Australian Climate Exchange (<http://www.climateexchange.com.au>).
- ³ ENV'TL PROT. AGENCY, ACID RAIN AND RELATED PROGRAMS, 2006 PROGRESS REPORT (2007), available at <http://www.epa.gov/airmarkets/progress/docs/2006-ARP-Report>.
- ⁴ *Id.*
- ⁵ EPA, Acid Rain Program, available at <http://www.epa.gov/airmarkets/progsregs/arp/basic.html#model>.
- ⁶ John Schakenbach, Robert Vollaro & Reynaldo Forte, *Fundamentals of Successful Monitoring, Reporting and Verification Under a Cap-and-Trade Program*, 56 J. AIR & WASTE MGMT. ASS'N 1576 (November 2006), available at <http://www.epa.gov/airmarkets/cap-trade/docs/fundamentals.pdf>.
- ⁷ 40 C.F.R. § 75.10(a)(1).
- ⁸ *Id.* at § 75.20.
- ⁹ *Id.* at § 72.20(a)(4)(iii).
- ¹⁰ The 2004 directive (2004/156/EC) was updated by in July 2007 (2007/589/EC).
- ¹¹ Kyoto Protocol Compliance Committee, decision 27/CMP.1 (2006).
- ¹² Kyoto Protocol Compliance Committee, Enforcement Branch, decision CC-2007-1-8/Greece/EB (2008).
- ¹³ See Michael Wara & David Victor, A Realistic Policy on International Carbon Offsets, Stanford Univ. Program on Energy and Sustainable Dev. Working Paper 74 (April 2008).
- ¹⁴ For a comparison of how voluntary market standards differ, see Anja Kollmuss, Helge Zink and Clifford Polycarp, Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards (March 2008), available at http://assets.panda.org/downloads/vcm_report_final.pdf.

- ¹⁵ Letter from Elliot Burg, Assistant Attorney General, and David A. Zonana, Deputy Attorney General, Vermont Attorney General's Office, to Federal Trade Commission (Jan. 25, 2008), available at http://ag.ca.gov/cms_attachments/press/pdfs/n1520_carbon_offset_letter.pdf.
- ¹⁶ See EU ETS post 2012, available at http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm.
- ¹⁷ See Questions and answers on the commission's proposal to revise the EU Emissions Trading System, MEMO/08/35 (Jan. 23, 2008), available at <http://europa.eu/rapid/press-ReleasesAction.do?reference=MEMO/08/35>.
- ¹⁸ *Id.*

Kenneth J. Markowitz is senior counsel with Akin Gump Strauss Hauer & Feld and the coordinator of its climate change practice group. He would like to thank associate Jeremy Schiffer and Meredith Reeves of Akin Gump for their assistance with this article.

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