TESTIMONY OF DERIK BROEKHOFF
SENIOR ASSOCIATE
WORLD RESOURCES INSTITUTE

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"VOLUNTARY CARBON OFFSETS—GETTING WHAT YOU PAY FOR"
JULY 18, 2007

Executive Summary

Carbon offsets are an innovative tool for allowing companies and individuals to reduce greenhouse gas emissions beyond what they can easily achieve on their own. In the past two years, interest in carbon offsets has grown dramatically as companies and concerned consumers have sought ways to help mitigate climate change. However, the global market for voluntary carbon offsets is currently unregulated, which has led to growing concerns about whether buyers are really getting what they are paying for. Various non-government programs and initiatives have sought to address these concerns by establishing standards. So far, none of these initiatives has managed to establish all three required elements of a true carbon offset commodity standard, namely: (1) accounting standards for emission reductions; (2) project verification standards; and (3) publicly reviewable registration and enforcement systems.

In the future, the domestic voluntary carbon offset market may be largely superseded by a mandatory U.S. trading program for greenhouse gas emissions. Even if it is, there may be grounds for government oversight of the voluntary market today. Oversight may be desirable, for example, to protect consumers and the public interest, to allow learning for regulators, and to provide greater certainty for investors. Oversight could take several forms, ranging from endorsing specific (complete) standards and programs, to providing guidance or certification for accounting standards, verifiers, and registries. In general, oversight should build off the work of existing standards and programs, and should seek to bring minimum standards of clarity, consistency, and quality to how voluntary carbon offsets are defined and guaranteed. Government oversight should not seek to limit the market, but should encourage experimentation with different types of projects subject to minimum standards.

What are carbon offsets?

In simplest terms, a "carbon offset" is a purchased reduction in greenhouse gas (GHG) emissions. Carbon offsets allow buyers to achieve a particular GHG emissions goal

without having to reduce their own emissions directly.[1] They are useful wherever direct emission reductions would be too costly or difficult. A well-designed market for carbon offsets can allow companies, organizations, and individuals to achieve GHG emission reductions at lower cost, which ultimately means they can afford do more to help avert climate change.

Carbon offsets can have other benefits as well. Offset revenues can help spur investment in innovative technologies that help transition the economy towards lower GHG emissions. Many types of projects that reduce GHG emissions, such as renewable energy, energy efficiency, transportation, and forestry projects, have significant secondary environmental and social benefits.

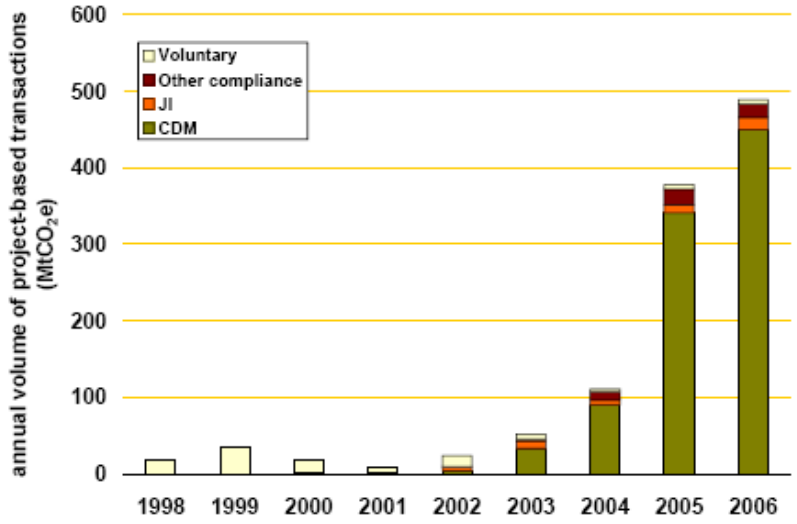
Although the very first carbon offset project was voluntary,[2] much of the work to establish real markets for carbon offsets has been done in the context of designing regulatory programs. Many experimental carbon offset projects were undertaken in the 1990s, for example, in order to inform negotiations under the Framework Convention on Climate Change about the design of an international GHG emissions trading system. Experience from these projects led to the creation of the "Clean Development Mechanism" (CDM) under the Kyoto Protocol, which now constitutes the largest functioning market for carbon offsets. Through the CDM, emission reductions in developing countries can be used to offset emissions in industrialized countries, whose total emissions are capped. Credits issued for these offsets allow industrialized countries to increase their emissions (effectively increasing the "cap"), on the premise that net emissions to the atmosphere remain the same. The CDM is also envisioned as a way to help less developed countries grow sustainably through the transfer and deployment of beneficial technologies and practices. A separate Kyoto Protocol mechanism, called "Joint Implementation" (JI) recognizes carbon offsets from projects in industrialized countries.

The global market for carbon offsets has grown dramatically over the last few years since the CDM was formally established (Figure 1). In 2006, the total market value of CDM carbon offset credits was $5.5 billion.

[1] Because the effect of greenhouse gases is global, it does not matter where they are reduced.

[2] See Faeth, P., M. Trexler, and J.M. Kramer, 1989. *Forestry as a Response to Global Warming: An Analysis of the Guatemala Agroforestry and Carbon Sequestration Project.* World Resources Institute, Washington, D.C.

Figure 1. Annual Volumes of Carbon Offset Transactions in Millions of Tons of Carbon Dioxide Equivalent



Source: Capoor and Ambrosi 2007, *State and Trends of the Carbon Market 2007*. World Bank Institute, Washington, D.C.

What is the voluntary carbon offset market?

Although the majority of carbon offset purchases in the world today are by companies or governments seeking to comply with the Kyoto Protocol, growing concerns about climate change have led to an interest in carbon offsets among a much wider group of buyers. Demand for "voluntary" carbon offsets comes from two distinct groups:

1. **Wholesale buyers**. These are mainly companies seeking to reduce GHG emissions for reasons of social responsibility, public relations, or anticipation of future regulatory requirements (either to gain firsthand experience with carbon offset trading prior to regulation, or in hopes of gaining recognition under a future regime). In some cases, these buyers are purchasing and retiring offsets on behalf of customers. For example, they may offset the GHG emissions associated with the production or consumption of their products in order to offer a product that is "carbon neutral." Wholesale buyers currently dominate the voluntary carbon offset market; according to a recent survey, they were responsible for over 60 percent of voluntary offset purchases in 2006.[3] Around 20 percent of wholesale purchases consist of carbon offsets purchased on behalf of customers.[4]
2. **Retail buyers**. These buyers consist of smaller organizations or individuals seeking to offset the GHG emissions for which they are personally responsible. They may be travelers who offset emission associated with their airplane flights; individuals or organizations who offset the emissions they cause in order to become "carbon neutral"; or conference and event organizers who wish to offer

[3] Harris, E., 2006. *Working Paper on the Voluntary Carbon Market: Current and Future Market Status, and Implications for Development Benefits*. International Institute for Environment and Development, London, October 2006.
[4] Ibid.

"carbon neutral" events. According to the IIED, these buyers are responsible for less than 40 percent of voluntary offset purchases, but they are a fast growing segment. The number of retail carbon offset providers in the United States and internationally has grown markedly in just the past two years.[5, 6, 7]

The voluntary carbon offset market overall is growing rapidly. Worldwide voluntary offset purchases amounted to around six million tons of CO_2-equivalent emission reductions in 2005, growing to over 10 million tons in 2006.[8] The total market value globally for the voluntary offset market is now estimated at over $100 million, with prices for GHG emission reductions ranging anywhere from $1 to nearly $80 per ton of CO_2-equivalent.[9] Although projections are always difficult in a fledgling market, expectations are that the global market could reach a size of 400 million tons by 2011 (including 250 million tons in the United States),[10, 11] with a market value possibly rivaling that of today's CDM market.

What kinds of projects are being funded through the voluntary carbon offset market?

There are a vast number of technologies and practices that can be employed to reduce GHG emissions for the purpose of generating offsets. In addition, GHG emissions can be offset through certain kinds of land use and forestry practices that remove CO_2 from the atmosphere. According to a survey from 2006, projects involving land use and forestry practices are in fact the most common type being funded by voluntary offset purchases.[12] The next most common type of project involves renewable energy production, followed by demand-side energy efficiency improvements (Table 1).[13] The proportion of actual emission reductions or removals may be different from the numbers of projects, however, since certain kinds of projects produce far greater volumes of CO_2-equivalent reductions than others. This is especially true of projects involving non-CO_2 gases (such as methane or HFCs), whose contributions to atmospheric warming are many times higher than CO_2 on a per weight basis.

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[5] Hamilton, K., et al., 2006. *Offsetting Emissions: A Business Brief on the Voluntary Carbon Market.* Business for Social Responsibility and Ecosystem Marketplace, San Francisco.
[6] Clean Air-Cool Planet, 2006. *A Consumers' Guide to Retail Carbon Offset Providers*. Clean Air-Cool Planet, Portsmouth, New Hampshire.
[7] Kollmuss, A., and B. Bowell, 2006. *Voluntary Offsets for Air-Travel Carbon Emissions: Evaluations and Recommendations of Voluntary Offset Companies*. Tufts Climate Initiative, Boston.
[8] Capoor, K. and P. Ambrosi, 2007. *State and Trends of the Carbon Market 2007*. World Bank Institute, Washington, D.C.
[9] Ibid.
[10] ICF International, 2006. *Voluntary Carbon Offsets Market: Outlook 2007*, ICF International: London.
[11] Trexler , M., 2007. "US Demand?" presentation at the Point Carbon "Carbon Market Insights 2007" conference, Copenhagen, 13-15 March 2007.
[12] Harris, E., 2006. *Working Paper on the Voluntary Carbon Market: Current and Future Market Status, and Implications for Development Benefits*. International Institute for Environment and Development, London, October 2006.
[13] Ibid.

Table 1. Types of Projects Funded by Voluntary Carbon Offset Purchases

Type of Project	Percentage by Number of Projects
Land Use and Forestry	56%
Renewable Energy	25%
Demand-Side Energy Efficiency	10%
Fugitive Emissions (e.g., methane capture)	6%
Supply-Side Energy Efficiency	3%

Source: Harris, E., 2006. *Working Paper on the Voluntary Carbon Market: Current and Future Market Status, and Implications for Development Benefits*. International Institute for Environment and Development, London, October 2006.

Can the voluntary carbon offset market really help to address climate change?

The answer to this question is partly a matter of perspective. Current scientific evidence suggests that to mitigate the risk of dangerous climate change, global GHG emissions must be reduced by 60 to 80 percent by mid-century, [14] equivalent to many billions of tons of annual reductions. In this context, the contribution of the voluntary carbon offset market – even under the most optimistic demand scenarios – is likely to be small. Instead, globally coordinated mandatory policies will be needed to drive significant near-term reductions in emissions and achieve long-term stabilization of atmospheric GHG concentrations.

Voluntary carbon offset markets may still have a role to play. In simplest terms, the magnitude of effort required is large, and every little bit helps. Voluntary carbon offsets allow companies and individuals to reduce emissions beyond what they could achieve on their own, by tapping into project opportunities that would otherwise go unexploited. The benefits of carbon offsets can be multiplied to the extent they drive innovation in emission-reducing technologies and create new markets for them. Finally, the voluntary offset market can play a very significant role in educating the public about climate change and about effective and affordable ways to mitigate it. Ultimately, however, mandatory emissions trading systems, particularly if they allow offset projects, are likely to subsume the advantages of a voluntary regime.

Won't demand for voluntary carbon offsets evaporate once we have mandatory regulations to control greenhouse gas emissions?

It makes sense that when governments implement policies requiring reductions in GHG emissions, public interest in *further* voluntary emissions reductions will diminish. It is

[14] Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007 – Mitigation of Climate Change: Working Group III Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report.* Cambridge University Press.

quite likely that much of the current demand for voluntary carbon offsets is driven by buyers' concerns that governments are not going far enough yet to address climate change. Nevertheless, it also seems likely that substantial demand for voluntary GHG emission reductions can exist even where there are regulatory requirements. "Carbon neutrality" has become a goal for many companies seeking to attract customers by providing environmentally friendly products and services. Likewise, growing awareness about climate change has sparked an interest among many individuals to do their part to help solve the problem. Given the magnitude of emission reductions required, it is quite reasonable to expect that many firms and individuals will continue to seek ways to cost-effectively mitigate their "carbon footprints" even after mandatory GHG limits are in place. In fact, a significant segment of the demand for voluntary carbon offsets exists in Europe, where limits on GHG emissions are already in place.

Perhaps a more central question is whether a separate system for voluntary offsets will be required once a mandatory regime is in place. If a mandatory regime encompasses all sectors and all types of projects, this would not be necessary. However, if a mandatory program were to begin with limited coverage of project types, there is still likely to be a place for a voluntary system, in large part to serve as a proving ground for new types of technologies and projects.

Why are some people concerned about the voluntary carbon offset market?

Voluntary carbon offsets have been traded in relatively small volumes and on a demonstration basis since the late 1980s. Some organizations, such as the Climate Trust in Oregon, have many years of experience in purchasing and retiring offsets on behalf of clients or customers (the Climate Trust was established in 1997 to assist new power plants in Oregon to meet a state regulatory requirement for net CO_2 emissions). As the data above indicate, however, there has been a dramatic increase in the last two years in the number of voluntary offset transactions, with an accompanying expansion in the number of suppliers. Unlike the Kyoto Protocol's CDM offset market, however, where there are clear rules, standards, and oversight mechanisms, the voluntary market is operating in a regulatory vacuum. Many observers are concerned about the lack of standards and oversight for voluntary carbon offsets, and wonder whether buyers are truly getting what they pay for, i.e., real emission reductions.

The issue is not so much a question about the integrity of carbon offset providers. Most suppliers in the market today are well-meaning private companies and non-profit organizations that sincerely want to help their customers do good for the environment. The questions that arise are really about the definition of the "commodity" being sold. Carbon offsets are an intangible good, and as such their value and integrity depend entirely on how they are defined, represented, and guaranteed. What the market lacks are common standards for how such representations and guarantees are made and enforced.

What elements are necessary for a carbon offset standard?

Much of the literature on carbon offsets (and nearly all aspiring "standards") point out that credible offsets must be "real, surplus, permanent, verifiable, and enforceable" – or some variation of these terms.[15] Different sources do not always agree on the definitions of these criteria, however, and having a "standard" for carbon offsets really depends on how they are interpreted. What the criteria boil down to are three things, all of which need some form of official certification or oversight to create a true carbon offset "commodity": (1) accounting standards; (2) monitoring and verification standards; and (3) registration and enforcement systems.

1. GHG Emission Reduction Accounting Standards

Accounting standards address the actual quantification of GHG reductions that carbon offsets represent. Accounting standards are a first-order requirement for ensuring that a ton of emission reductions from one project is the same as a ton from another, and ensure that offsets are "real, surplus, and permanent."

As might be expected, a lot of work has been done over the years to develop accounting standards for offsets. In December 2005, the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) published the *Greenhouse Gas Protocol for Project Accounting* ("Project Protocol"), which provides a general framework for quantifying emission reductions from offset projects, based on the accumulated knowledge of an international group of experts from businesses, governments, and environmental groups.[16] It has since been supplemented with two sector-specific accounting protocols, one for land use and forestry projects, the other for renewable energy and energy efficiency projects.[17, 18] These documents provide an internationally recognized basis for the elaboration of detailed accounting standards for

[15] The concept of emission offsets originated under the "New Source Review" program established by the United States Clean Air Act of 1977. Under this program, offsets are required to be "real, creditable, quantifiable, permanent, and federally enforceable." These basic criteria have been modified and adopted in general form under a variety of other offset programs, including programs for carbon offsets. The "surplus" criterion is generally added to distinguish offset reductions from reductions that would occur for other reasons. The criteria that carbon offsets must be "real, surplus, permanent, verifiable, and enforceable" are now the most frequently cited and are, for example, enshrined in the Memorandum of Understanding establishing the Regional Greenhouse Gas Initiative in the northeast United States. See, for example, Liepa, I., 2002. *Greenhouse Gas Offsets: An Introduction to Core Elements of an Offset Rule.* Climate Change Central, Alberta, Canada.

[16] Greenhalgh, S., D. Broekhoff, and F. Daviet, 2005. *The Greenhouse Gas Protocol for Project Accounting*. World Resources Institute and World Business Council for Sustainable Development, Washington, D.C. and Geneva.

[17] Greenhalgh, S., F. Daviet, and E. Weninger, 2006. *The Land Use, Land-Use Change, and Forestry Guidance for GHG Project Accounting.* World Resources Institute, Washington, D.C.

[18] Broekhoff, D., 2007 (forthcoming). *Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects*. World Resources Institute and World Business Council for Sustainable Development, Washington, D.C. and Geneva.

specific types of projects.[19] The largest body of standard accounting methodologies established to date exists under the Kyoto Protocol's Clean Development Mechanism. Very few of the carbon offsets sold in the voluntary market, however, explicitly follow the WRI/WBCSD Project Protocol or CDM methodologies.

Probably the most important part of offset project accounting is making a determination about "additionality" – that is, whether the purchase of emission reductions really enabled (or induced) a project to happen, or whether the purchase is essentially being wasted on a project that would have happened anyway (in which case its emission reductions effectively have zero value for the purpose of offsetting emissions). Many would say that "additionality" is the key to the environmental integrity of an offset purchase – but it is also vexingly hard to determine in many cases. It has proven very difficult to establish true standards for additionality, and even the CDM requires regulators to make essentially subjective judgments about it on a case-by-case basis. Two recent reports on the voluntary carbon offset market suggest that many providers do not clearly indicate how they determine the additionality of their projects.[20, 21] A standard set of guidance or criteria would aid the credibility of offset markets tremendously.[22]

2. Monitoring and Verification Standards

Monitoring and verification standards are required to ensure that offset projects perform as expected and to quantify their actual emission reductions. Monitoring protocols are generally developed in conjunction with accounting protocols. Verification usually requires the services of a third-party professional verifier, or a government regulator. If third-party verifiers are used, they need to meet minimum qualifications and have some expertise related to the types of projects they are verifying. This is one of the biggest gaps in the voluntary carbon offset market right now. Although there is a generic international standard for the accreditation of verifiers (ISO 14065), and there are certainly verifiers with well-established reputations for competence and integrity, a publicly accountable certification process for verifiers could greatly enhance the credibility of the voluntary offset market.

Finally, verification does not mean very much without clear accounting and monitoring standards against which to verify. This emphasizes the need to adopt common accounting and reporting standards.

3. Registration and Enforcement Systems

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[19] The WRI/WBCSD *GHG Protocol: A Corporate Accounting and Reporting Standard* is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. For more information, see http://www.ghgprotocol.org.

[20] Clean Air-Cool Planet, 2006. *A Consumers' Guide to Retail Carbon Offset Providers*. Clean Air-Cool Planet, Portsmouth, New Hampshire.

[21] Kollmuss, A., and B. Bowell, 2006. *Voluntary Offsets for Air-Travel Carbon Emissions: Evaluations and Recommendations of Voluntary Offset Companies*. Tufts Climate Initiative, Boston.

[22] For further insight into establishing "additionality" standards, see Trexler, M., D. Broekhoff, and L. Kosloff, 2006. "A Statistically-Driven Approach to Offset-Based GHG Additionality Determinations: What Can We Learn?" in *Sustainable Development Law & Policy,* Volume VI, Issue 2, Winter 2006.

One concern about the voluntary offset market as it continues to grow is the possibility that suppliers may sell the same reductions to multiple buyers, because there is no central authority to track their transactions. Related to this, questions can arise in some instances about who "owns" emission reductions and who in fact has the right to sell them. In some cases, multiple parties may conceivably lay claim to the same reduction. For example, both the manufacturer and the installer of energy efficient lightbulbs might want to claim the emission reductions caused by the lightbulbs – as might the owners of the power plants where the reductions actually occur. Right now, establishing the right to an offset reduction largely consists of making public marketing claims and trying to exclude others from doing the same.

This is another area where some kind of oversight and public accountability may be desirable. Key requirements (which might be established either though federal policy, or more realistically, through non-profit or commercial enterprises) are:

1. A registry (or registries) containing publicly available information that can be used to uniquely identify offset projects.
2. In the same registry system, a mechanism to assign unique identifiers (e.g., serial numbers) to offset credits generated by each project, and a system to transparently track their ownership and status (i.e., whether they've been "used" to offset emissions by someone).
3. Contractual or legal standards that clearly identify the original "owner" of emission reductions, and that specify compensation mechanisms for GHG removals or reductions that are reversed (e.g., re-emitted from destroyed forests) or not actually achieved.

Is anyone trying to create standards for the voluntary carbon offset market?

To address the current shortcomings in the voluntary carbon offset market, a number of organizations involved in the industry have initiated efforts over the last two years to develop voluntary standards. The first such standards were the WRI/WBCSD Project Protocol (noted above) and the ISO 14064 standard.[23] The WRI/WBCSD Project Protocol is a set of guidance documents for offset project accounting, while the ISO 14064 standard is a checklist of essential accounting elements. Neither is a full-fledged standard for determining the emission reductions for specific technologies or practices – although both together provide a toolkit for policymakers to create such standards. Furthermore, while the ISO standard does cover verification (and accreditation of verifiers under ISO 14065), neither the WRI/WBCSD Project Protocol nor the ISO standards cover all three of the required elements for a fully standardized carbon offset commodity noted above.

Other standard-setting efforts have tackled different pieces of the puzzle. The California Climate Action Registry (CCAR) is developing a series of accounting standards for

[23] ISO 14064, International Organization for Standardization, Geneva, Switzerland, 2006.

specific types of offset projects, compatible with the WRI/WBCSD Project Protocol. So far they have approved protocols for forestry sequestration projects and agricultural methane digesters.[24] Projects can be registered with CCAR, and CCAR maintains a list of accredited verifiers. CCAR does not yet have a facility for tracking trades or retiring offset credits, although this may be developed in the future (possibly as part of the recently announced multi-state Climate Registry).[25] Similarly, the U.S. Environmental Protection Agency Climate Leaders Program has begun developing a set of standards for quantifying emission reductions for several types of projects. [26] These standards are still in draft form, however, and would need to be supplemented with monitoring and verification standards and a registry to establish a credible carbon offset commodity.

The Center for Resource Solutions (CRS) has recently completed work on a "Green-e GHG Product Standard."[27] Under this standard, CRS will certify carbon offsets that are created under programs that already have credible accounting and verification standards in place. The CRS standard does seek to provide an enforcement mechanism (by requiring offset marketers to disclose information to buyers) but relies on other programs for accounting and verification rules.

The Climate Group (based in London), the International Emissions Trading Association, and the World Economic Forum are currently developing (with stakeholder input) a global "Voluntary Carbon Standard" (VCS) that will in principle cover accounting rules, verification standards (including accreditation of verifiers), and the establishment of a registration and enforcement system.[28] Initially, the VCS will most likely reference CDM accounting and verification standards, although it may incorporate other standards over time. Its credibility will largely rest on the decisions of designated verifiers, which will effectively be responsible for its enforcement in place of a central regulatory authority.

The Chicago Climate Exchange (CCX) has operated a voluntary trading system since 2003 that includes a carbon offset component. In principle CCX offsets can be used to voluntarily offset emissions for companies and individuals who are not CCX members, just as CDM offsets can (some retail providers already offer to retire CCX offsets on behalf of customers). The CCX program includes proprietary accounting rules, verification standards, and a registry to track credits and project information. One of the criticisms of the CCX, however, is that little information is publicly available about its standards and individual projects.

Other voluntary carbon offset standards, including the "CDM Gold Standard," primarily reference the CDM's accounting and verification requirements. They do not provide separate accreditation of verifiers, nor have they established strong registry or enforcement systems.

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[24] See http://www.climateregistry.org/PROTOCOLS/.
[25] See http://www.wri.org/climate/topic_content.cfm?cid=4460.
[26] See http://www.epa.gov/stateply/resources/optional.html#offset.
[27] See http://www.green-e.org/getcert_ghg_standard.shtml
[28] See http://www.v-c-s.org/

In short, most of the "standards" developed under voluntary initiatives to date do not incorporate all of the elements of a true carbon offset commodity standard. Some of these initiatives could develop into full-fledged standards and oversight programs, but are not there yet (e.g., CCAR or Climate Leaders). The VCS may cover all the bases when it is launched, but it may also have a loose oversight structure. The CCX currently has a functioning offset commodity standard, but suffers from lack of transparency and public accountability.

Might these efforts eventually be sufficient, or is there a need for government oversight?

One answer to this question is "time will tell." Pieces of a full voluntary offset standard are coming together under various initiatives, and it is possible that the market will sort itself out as these pieces either fall away or become incorporated into a single program or set of programs. Currently, however, the proliferation of standards – many of which are incomplete – is creating more confusion than clarity.

This risk with a "wait and see" approach is that the market may never cohere around a single standard or program. Even fully established standards are not all alike. Differences in accounting and verification rules – especially with respect to additionality – can significantly affect the "quality" of carbon offsets offered to the market. Many would argue that it is not necessary to have unified quality standards, and that buyers should be able to discriminate between different quality offsets according to their needs. But given the complexity of carbon offsets as a commodity, it is not clear that typical consumers could effectively distinguish "good" quality from "bad" – especially unsophisticated buyers in the retail offset market. Allowing multiple standards of varying quality could just as easily sow confusion and skepticism among the buying public, a process that already seems to be underway.

The consequences of skepticism about the voluntary offset market are hard to predict. In the extreme case, the risk is that it could cause the voluntary market to dissolve and foster opposition to the development of mandatory offset programs. This could mean the loss of significant low-cost opportunities for mitigating climate change. Avoiding this outcome may require some kind of government oversight to ensure a minimum level of consumer protection in the voluntary carbon offset.

Ultimately, the government's focus should be on developing strong mandatory offset programs that incorporate all three required elements of a standard. As mentioned above, the true value of the voluntary market may be as a proving ground for innovative project types not incorporated in a mandatory regime. At the end of the day, however, we are still talking about a commodity whose primary purpose is to benefit the public good by helping to mitigate climate change. This alone argues for public oversight in shaping the standards that define the commodity's quality.

Why should the government regulate voluntary carbon offset markets when future mandatory programs (e.g., a federal cap-and-trade system) could supersede them?

In principle, there is no reason why voluntary carbon offset markets and mandatory regulatory programs cannot coexist. The real question is whether mandatory regulations might render unnecessary the standards and systems established under a voluntary market – and whether that would be a bad thing.

In fact, the prospect of mandatory regulations creates real risks for the voluntary market. If a CO_2 emissions cap is placed on power plants, for example, no offset projects claiming to reduce emissions from the power grid (e.g., renewables or energy efficiency projects) could continue to make that claim (because a ton of emissions reduced would simply free up an allowance that another power plant could use to emit more). Moreover, a mandatory emissions trading program could establish carbon offset rules and compel voluntary offset purchasers to abide by those same rules.

Of course, one response to these risks is to say "let the buyer beware." There are several reasons, however, why active regulation of the voluntary market today may make sense:

- *Buyers are looking for offsets now.* As the market data cited earlier indicate, demand in the voluntary carbon offset market is growing rapidly. The desire among consumers to voluntarily contribute to climate change mitigation is something that should be harnessed and encouraged. Waiting until a full-fledged mandatory trading program before establishing offset standards could stunt the market before it has a chance to develop and undermine receptivity to offsets in the future. And given that a public good is at stake, there may be sound reasons for intervention on the grounds of consumer protection.
- *Voluntary offsets can inform the development of mandatory trading systems*. Initiating an oversight process for the voluntary offset market could actually assist with the development of a future mandatory program, by giving regulators hands-on experience with the evaluation and establishment of accounting standards, verification requirements, and registry systems.
- *Mandatory and voluntary markets won't necessarily be redundant*. It is not necessarily the case that a mandatory program will fully supersede voluntary offset programs. Under a mandatory program, for example, the government might decide to allow only a limited number offset project types, leaving other more experimental emission-reducing opportunities open to voluntary demand. While government oversight of the voluntary market could be less restrictive (and should not discourage innovation), there may still be some need for minimum quality standards.
- *Current oversight could provide certainty for the future*. One reason for government oversight today is to provide some assurance about the interaction of voluntary offset markets and mandatory programs in the future. Official endorsement of projects in certain sectors, for example, could indicate to voluntary offset buyers and sellers where they can safely invest their money to avoid conflict with future regulations. Oversight of the voluntary offset market

could even form the basis of an "early action" crediting program for potentially regulated businesses. Policymakers must decide, however, whether they are willing to establish such precedents before a mandatory program is fully developed.

What form should government regulation or oversight take?

There are basically two ways the federal government could help bring consistency and credibility to the voluntary carbon offset market. The first would be to officially endorse offset credits from a particular program or trading system with its own credible oversight and enforcement mechanisms. The second would be to provide guidance, oversight, and/or enforcement for the voluntary market directly.

Endorsing a Particular Program or Trading System

The United Kingdom Department for Environment, Food, and Rural Affairs (DEFRA) floated a "best practice" guideline for voluntary offsets earlier this year recommending that only officially certified CDM credits, or allowances issued under the European Union Emissions Trading System, should be used for voluntary offsets. DEFRA's argument was essentially that only offset credits (or tradable allowances) from these mandatory programs currently meet all the required elements for a credible carbon offset commodity.

Something similar could make sense for the United States. The question would be which program(s) to endorse or certify. Currently, only the Chicago Climate Exchange meets the basic requirements for a full standard, but its lack of transparency has raised questions about its credibility. Another alternative might be to endorse carbon offsets credits issues under the Northeast Regional Greenhouse Gas Initiative (RGGI), a multi-state cap-and-trade program for greenhouse gases. The RGGI program, however, will not be operational until 2009. Other programs mentioned above might qualify as well as they are further developed or launched.

A "best practice" guideline like this would of course not be binding, but could serve as a kind of quality benchmark for the market and promote consistency.

Establishing Guidance and Oversight for the Voluntary Carbon Offset Market

Direct oversight of the voluntary carbon offset market could take several forms, with varying degrees of involvement. In essence, however, it would involve ensuring that a consistent set of basic building blocks for a credible carbon offset standard are in place: accounting standards, verification standards, and registration and enforcement systems.

The objective of government oversight should be to bring clarity and consistency to how voluntary carbon offsets are defined and guaranteed. Any regulation or guidance should build off the work of existing standards and programs.

1. Accounting Standards

As noted above, several organizations are developing offset project accounting protocols applicable to specific types of projects in the United States. These protocols and others could be tapped to form the basis of a federal government "best practice" standard for voluntary carbon offsets. Protocols to evaluate for inclusion would include those developed by CCAR, the U.S. EPA Climate Leaders Program, RGGI, and the CCX. CDM accounting methodologies could also be considered, particularly for projects located in other countries, where protocols designed for the United States may not apply. There is some overlap in coverage among these programs' various protocols (each of them, for example, has a separate protocol for agricultural methane projects), and any differences will ultimately have to be reconciled. Federal guidance designating "best practice" protocols for the voluntary offset market could be tremendously helpful.

As noted above, one of the most critical carbon offset accounting issues involves making determinations about "additionality." U.S. programs have adopted a fundamentally different approach to additionality than the CDM, based on setting benchmarks against which projects can be objectively evaluated, rather than asking regulators to make subjective judgments about individual projects. Both approaches are potentially legitimate, but a standard set of guidance for additionality would greatly aid the credibility of the voluntary market.

2. Monitoring and Verification Standards

Of existing U.S. standards and programs, only CCAR and the CCX maintain lists of accredited verifiers. Other standards rely primarily on CDM-accredited verifiers. The VCS will formally accredit verifiers once it is launched. Nevertheless, the credibility of the voluntary carbon offset market would be enhanced by an official government accreditation program, identifying qualified verifiers for specific types of projects in the United States. A publicly accountable accreditation process could lend confidence to the voluntary market, and would not have to preempt or conflict with lists of verifiers maintained by existing programs.

3. Registration and Enforcement

Various registries are being developed that could perform essential disclosure and tracking functions for the voluntary carbon offset market. CCAR is one such registry (although it does not yet track the trading and retirement of credits), and the nascent multi-state Climate Registry will be another. The VCS plans to certify a registry (or multiple registries) to handle disclosure and tracking functions. The CCX maintains a registry, but does not publicly disclose information.

It would not make sense to create an entirely new registry for the voluntary carbon offset market. Nevertheless, there may be a compelling government interest to certify registries to ensure that they disclose essential information, and also to ensure that a proliferation of

independent registries does not lead to the double registering and selling of the same GHG emission reductions.

Finally, the voluntary offset market would benefit from a clarification in law or regulation of who owns the "property" rights to specific types of emission reductions.

Are there certain types of projects that should or should not be used to offset GHG emissions?

The universe of potential carbon offset projects is both large and varied. If the goal of carbon offset markets is to achieve emission reductions at the lowest possible cost, then it makes sense to cast a wide net and include as many project types as possible. Nevertheless, most carbon offset programs expressly forbid projects with potential adverse social or environmental impacts (including, in nearly all cases, projects involving nuclear power), and it makes sense to adopt this as a minimum standard.

Some observers argue that carbon offsets should only come from projects whose emission reductions are easy to quantify and verify. This is a good general rule, but it should not be interpreted too strictly. Generally, there is a tradeoff between projects that are "slam dunks" for offset credibility, but have few other redeeming qualities (e.g., HFC destruction), and those whose effects are difficult to quantify or verify, but have many secondary benefits (e.g., forestry). As noted previously, the ultimate value of the voluntary offset market may be as a tool for demonstrating innovative types of projects in areas that would otherwise be unexploited. The role of government oversight should be to ensure that accounting and verification methods follow basic standards for quality, without categorically excluding projects that may have multiple positive benefits.

Ultimately, a "portfolio" approach makes sense. Currently, the voluntary carbon offset market appears dominated by forestry projects, which tend to face significant quantification uncertainties. This points up the need for credible accounting guidelines, such as those developed under the WRI/WBCSD Project Protocol. The CDM market has faced an opposite problem, however, where a large quantify of offsets have come from projects whose reductions are easily quantified, but whose sustainable development benefits are minimal.