

## DOMESTIC AND INTERNATIONAL OFFSETS



# FORGING THE CLIMATE CONSENSUS

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**Offsets can and should** play a critical role in a U.S. climate policy.

However, an offsets program by itself **is unlikely to provide** an adequate mechanism for managing economic risks in a **cap-and-trade program.**

## INTRODUCTION

Emission offsets play a prominent role in recent legislative proposals to establish a cap-and-trade system for limiting U.S. greenhouse gas emissions. Under the Waxman-Markey bill recently passed by the House of Representatives, most of the emission reductions called for in the early years of the program could theoretically come from offset credits. Other proposals, such as the Lieberman-Warner bill introduced in the Senate last year, likewise allow for substantial reliance on offsets (up to 30 percent) to meet future compliance obligations. These provisions have a major impact on estimates of the economic consequences of a greenhouse gas cap-and-trade program—in fact, modeling analyses conducted by the U.S. Environmental Protection Agency (EPA) find that expected per-ton allowance costs in 2020 vary nearly two-fold between scenarios that exclude international offsets, on the one hand, and scenarios that allow for their unconstrained use on the other. Similar results emerge from modeling analyses conducted by the U.S. Energy Information Administration (EIA), which has likewise evaluated the economic impacts of different cap-and-trade proposals.<sup>1</sup>

Offsets reduce program costs and increase regulatory flexibility by allowing companies to take advantage of low-cost abatement opportunities outside the cap-and-trade system. Domestic sources of offsets in the context of a U.S. program could include otherwise unregulated sources of emissions as well as soil or forest-based carbon sequestration. Because many of these abatement opportunities are in

the agricultural sector, domestic offsets could provide a significant source of income to farm communities. International offsets could come from emission abatement activities (such as efficiency or renewable energy projects) in countries that have not yet adopted greenhouse gas regulations and from land-use-based carbon sequestration (e.g. projects that avoid deforestation or promote afforestation). In particular, the benefits of avoiding tropical deforestation could be substantial, as deforestation contributes about 20 percent of global greenhouse gas emissions.<sup>2</sup> Thus, international offsets could provide a critical source of private-sector financing for measures that will help preserve forests and transform energy systems around the world. Eligibility to participate in an international offsets program could also create incentives for other countries to open their markets to U.S. technologies, and for key developing nations to strengthen their own climate commitments.

Because they have the potential to lower program costs and offer multiple other benefits, offsets enjoy support from a broad range of stakeholders—including the business community and environmental advocates—and will almost certainly be part of final U.S. climate legislation. The more controversial and interesting questions concern what role—and how large—this alternate compliance option will play, and what the practical implications of implementing a major offsets program might be. More specifically, to what extent does the inclusion of offsets provide adequate protection against the potential for adverse economic impacts related to cost and price volatility in carbon markets? And what provisions for monitoring, evaluation, and

<sup>1</sup> Environmental Protection Agency. *Analysis of H.R. 2454, the American Clean Energy and Security Act of 2009*. June 2009. Energy Information Administration. *Energy Market and Economic Impacts of H.R. 2454, the American Clean Energy and Security Act of 2009*. August 2009.

<sup>2</sup> N. Purvis, R. Kopp, and A. Stevenson. "Managing Climate-Related International Forest Programs," Issue Brief #09-07. June 2009.



## DOMESTIC OFFSET OPPORTUNITIES



Unregulated emission sources



Soil sequestration or management programs



Forest-based sequestration

## INTERNATIONAL OFFSET OPPORTUNITIES



Renewable energy and efficiency



Avoided deforestation; afforestation



Destruction of strong greenhouse gases

verification need to be in place to assure the environmental integrity of an offsets program, while still promoting innovation and capturing the potential benefits of robust participation?

This paper outlines the Commission's most recent thinking on offsets in the context of current proposals before Congress. In the process, we provide some background on offsets generally and review the main offset provisions of the Waxman-Markey bill and recent Senate bills. We begin by summarizing the chief insights and recommendations that have emerged from our own exploration of these issues.

## KEY POINTS AND RECOMMENDATIONS

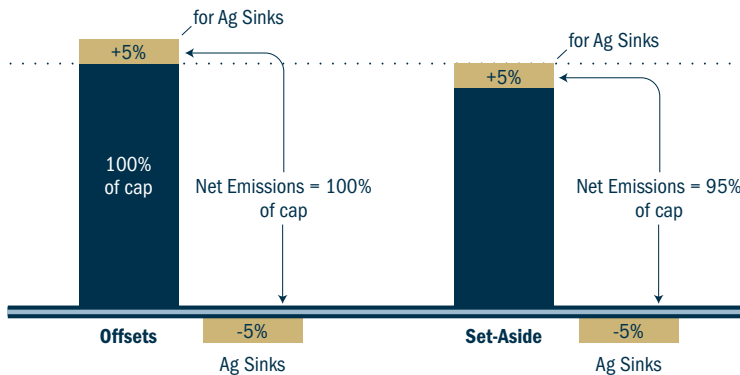
- ▶ Offsets can and should play a critical role in a U.S. climate policy. However, an offsets program by itself is unlikely to provide an adequate mechanism for managing economic risks in the critical early years of a cap-and-trade program. The Commission's specific recommendations concerning cost containment, along with a more complete discussion of related issues, are the subject of a separate paper in this series.<sup>3</sup>
- ▶ It is impossible to predict with accuracy how many offsets will be available in the early years of a U.S. cap-and-trade program. This is

<sup>3</sup> Multiple prior Commission reports and staff papers can be found at [www.bipartisanpolicy.org](http://www.bipartisanpolicy.org).

particularly true for international offsets. The number of these offsets used for compliance will depend on a variety of factors, including rules for "additionality," administrative procedures for reviewing projects, policies in host countries, and the ability to negotiate agreements for broader, sectoral offsets. Based on past experience with offset programs, however, we would expect the international offset market to ramp up slowly compared to some of the more optimistic estimates associated with the recent House-passed climate legislation. We therefore believe it is unlikely that U.S. purchases of international offsets would exceed 300 million tons of carbon dioxide-equivalent credit per year during the first several years of the program.

- ▶ The inclusion of a price ceiling or a robust allowance auction reserve in the early years of a cap-and-trade program for greenhouse gas emissions would ease the pressure for short-term reliance on international offsets as the primary mechanism for managing program-related economic risks. This, in turn, should make it less likely that there will be design and implementation decisions that prioritize quick approval of large quantities of offset credits over the objectives of maintaining environmental integrity and promoting the strategic engagement of developing countries.
- ▶ Regarding domestic offsets, we believe there should be a "set-aside" program that dedicates

## OFFSET AND SET-ASIDE OPPORTUNITIES FOR AGRICULTURAL SEQUESTRATION



A side-by-side depiction of an “offsets” system and an “allowance set-aside” system and the role of agricultural soil sinks within those systems, as described in this report. Sequestration practices on agricultural or forested lands would be able to apply for credit under the domestic offset or the set-aside provision.

a percentage of allowances—say 2 percent to 5 percent—to reward eligible agricultural sequestration practices. Using emission permits to, in essence, “insure” new and innovative sequestration activities will make it possible to create a more streamlined approach than under a traditional offset regime, one that can be used to reward early action and promote experimentation while avoiding burdensome administration and accounting rules and reducing uncertainty as new measurement and verification protocols are being developed.<sup>4</sup> Depending on the type of project, farmers and other owners or managers of agricultural or forested lands would be able to apply for credit under either the domestic offset or the set-aside provision. We believe that having this set-aside option available for soil carbon sequestration *in addition* to a domestic soil carbon offset provision would ensure that activities receiving domestic soil carbon offsets would be evaluated more rigorously.

► By reducing the pressure to process huge numbers of offsets in the early years of a

cap-and-trade program, the cost containment mechanisms and soil carbon set-aside discussed above will help preserve the integrity and ultimately the viability of international and domestic offset provisions. At the same time, key questions remain to be resolved concerning the methodologies used to assess offset credits and the rigorous monitoring and baseline rules needed to ensure that offsets can be an enduring mechanism to address the costs of a climate program. Past offset programs have shown that even a small number of imperfectly documented offset credits could significantly undermine confidence in the emerging offset market. There is every reason to expect continued controversy, critical media attention, and a high degree of scrutiny by NGOs and oversight bodies. This dynamic has the potential to stifle innovation and slow the learning that is needed to realize the full potential of domestic and international offsets. If and only if these types of safeguards are in place, the Commission would support removing quantity limits on offsets during the first decade of a cap-and-trade program.

► In addition to reducing costs, an international offsets program should engage developing

<sup>4</sup> For example, set-aside credits could be awarded to farmers to continue conservation tillage practices that began prior to the implementation of the cap-and-trade program.

countries in ways that induce more significant commitments on greenhouse gas emissions. The Commission believes that the development of sectoral offset programs and “offset aggregator” institutions are potentially important innovations and should be explored as part of a U.S. climate program. At the same time, these approaches raise a number of questions and may take time to develop. Thus, we don’t support an approach that would rely solely on these types of mechanisms at the beginning of the program and believe that a robust project-based offset program should go forward while sectoral or aggregated offset options are being developed.

► Finally, the Commission recommends that Congress establish guidelines for an international offsets program and authorize the appropriate federal agencies to periodically review and, if necessary, modify the details of program design and implementation to be responsive to evolving economic, policy, and diplomatic developments.

## BACKGROUND AND CONTEXT

This section provides a brief overview of offsets, summarizing their potential advantages and disadvantages, reviewing experience with offset programs to date, and highlighting key issues in the current Congressional debate.

### **RATIONALE FOR INCLUDING**

**OFFSETS:** Put simply, offsets substitute a lower-cost emission reduction from sources or sinks outside of an emission cap for a higher-cost reduction at sources covered by the cap. The result can be significant cost savings with the same environmental results. A report commissioned by NCEP in 2007 pointed out some of the ways that offsets can lower

compliance costs for emission sources under a cap.<sup>5</sup> These include:

- Allowing covered sources to continue utilizing economic assets until the end of their useful lives, thereby avoiding the premature retirement of such assets;
- Providing covered sources with low-cost compliance options in the near term while lower-carbon technologies are developed;
- Avoiding deployment of long-lived capital assets using only marginally better technologies; and
- Stimulating innovation in sectors that are not usually subject to emission reduction requirements, thus providing important environmental benefits that may not occur otherwise.

As we have already noted, economic analyses of various climate bills have consistently illustrated this cost-saving potential. To the extent that the inclusion of offsets reduces program costs, it helps address concerns about the potential adverse impacts of a greenhouse gas cap-and-trade system on consumers, energy-intensive industries, and the U.S. economy as a whole. Put another way, offsets make tighter emission caps more affordable and can help win political support for a more stringent policy. As we also noted in the introduction, international offsets in particular can provide important additional benefits by creating incentives for the adoption of low- and no-carbon technologies and forest preservation in key developing countries.<sup>6</sup>

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<sup>5</sup> Natsource. “Realizing the Benefits of Greenhouse Gas Offsets: Design Options to Stimulate Project Development and Ensure Environmental Integrity,” January 2007.

<sup>6</sup> The developing countries with the most cumulative forestry mitigation potential by 2030 are Brazil, Indonesia, Mexico, India, and China. See Sathaye, J. A. et al. “Carbon Mitigation Potential and Costs of Forestry Options in Brazil, China, India, Indonesia, Mexico, the Philippines and Tanzania” *Mitigation and Adaptation Strategies for Global Change*, 2001, Vol. 6. Nos. 3-4, pp. 185-211.

**INHERENT CHALLENGES:** Despite the potential benefits of offsets, efforts to apply this concept in practice have encountered a series of implementation challenges. Experiments with offsets under the U.S. Clean Air Act date back more than 30 years and have been characterized by limited volume, lengthy review processes, and in some cases questionable environmental integrity.<sup>7</sup> Most recently, the Clean Development Mechanism (CDM) set up under the Kyoto Protocol to promote greenhouse gas abatement activities in developing countries has had mixed results. (We return to some lessons from the CDM experience below.)

Why have offsets not lived up to their potential? In part, because it is often difficult to establish precisely how much abatement value they provide. To qualify for offset credits, it is generally necessary to demonstrate that emission reductions are additional—that is, the reductions would not have occurred absent the project or measure being credited. If credits are granted for emission reductions that would have happened anyway and if these credits are used to substitute for otherwise mandated reductions, the result will be higher-than-intended overall emissions—effectively undermining program objectives. As one report notes, calculating offsets necessarily entails “estimating the unknown”—in other words, establishing an emissions baseline or counterfactual, in which the project does not exist and against which project benefits can be measured.<sup>8</sup> This can

be difficult under the best of circumstances. Other qualifying criteria commonly applied to offsets include permanence, verifiability, and enforceability, each of which can present its own practical and analytical challenges.

The need to establish additionality and meet other project criteria creates difficult tradeoffs. For example, a program with a simplified test for additionality could lower administrative and transaction costs and could facilitate the approval of more projects, thus generating more credits and lowering the costs of a cap-and-trade program. But for some project types, a simpler, more streamlined approach could also increase the chance that projects that are not truly additional make it through the review process. On the other hand, if the rules are overly tight, legitimate projects may get screened out even if they do result in true emission reductions beyond what would otherwise have occurred. Excessive administrative costs, a complex approval process, and uncertainty could also discourage investors from going forward with projects in the first place, reducing the supply of offsets and foregoing the cost-reducing benefits they would otherwise provide. Ultimately, there is no perfect test for additionality and no perfect compromise between program rigor and environmental certainty on the one hand, and maximum cost-reduction and administrative simplicity on the other hand. A balance must be struck and this requires a policy, rather than a technical decision.<sup>9</sup>

## **ISSUES SPECIFIC TO DOMESTIC OFFSETS:**

For any cap-and-trade program, the supply of domestic offsets is limited to those emission sources that are not already underneath the cap. Broader coverage of

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<sup>7</sup> For example, see Ellerman, A. D., Joskow, P., and Harrison, D., “Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases,” prepared for Pew Center on Global Climate Change, May 2003. *Environmental Law Institute* (2002). “Emission Reduction Credit Trading Systems: An Overview of Recent Results and an Assessment of Best Practices.” *Environmental Law Institute*. Robert H. Hahn and Gordon L. Hester. *Marketable Permits: Lessons for Theory and Practice*, *Ecology Law Quarterly*, Vol. 16, No. 2, 1989.

<sup>8</sup> Organization for Economic Cooperation and Development (OECD) and International Energy Agency (IEA). “Emissions Baselines, Estimating the Unknown.” 2000.

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<sup>9</sup> M.C. Trexler, D.J. Broekhoff, and L.H. Kosloff, “A Statistically-Driven Approach to Offsets-Based GHG Additionality Determinations: What Can We Learn?” *Sustainable Development Law and Policy*, *Climate Law Special Edition 2006*, Vol. VI, Issue 2.





sources under the cap leaves fewer sources that might be candidates for offsets. For example, Waxman-Markey covers approximately 85 percent of total U.S. emissions. This includes energy-related emissions from the electric power, transportation, industrial, residential, and commercial sectors. Thus, none of the sources in these sectors would be eligible for offsets. In addition, to the extent that sources outside of the cap are regulated by other means, they would not be available for offsets. In the Waxman-Markey bill, landfill methane and coal bed methane emissions would ultimately be covered under the Clean Air Act through source-specific standards. With those two sources not eligible for offsets, EPA analysis of Waxman-Markey indicates that the majority of domestic offsets will come from domestic afforestation, forest management, utilization of animal waste methane, and other agricultural methane and nitrous oxide management strategies.

Agriculture and forestry sector offsets share many of the inherent challenges of offsets in other sectors, and raise several additional issues. The Bipartisan Policy Center's 21st Century Agriculture Project enumerated these challenges:<sup>10</sup>

▶ Lack of standardized, certified protocols for measuring, monitoring, and verifying soil carbon changes;

▶ Need for provisions to address the permanence of soil- or forestry-based carbon sinks given that biological sequestration can be reversed by natural disturbances (such as forest fires) or if mitigation practices (such as no-till farming) are abandoned;

▶ Lack of long-term experience with measuring, monitoring, and verifying emission reductions from agricultural projects and difficulty of establishing additionality in many cases. For instance, if mitigation measures are common practice in a given area or are deemed to represent “business as usual,” demonstrating that they are additional would be difficult and controversial;

▶ Concern about “leakage” in the context of biological sequestration. For example, if one assumes that demand for products like timber is constant, reducing harvests or avoiding deforestation in one area could mean that production simply shifts to another area;

▶ The need to clarify ownership and legal issues for soil carbon credits tied to land resources that may change ownership or management over the life of the credit.

**ISSUES SPECIFIC TO INTERNATIONAL OFFSETS:** The potential for lower-cost emission reductions in developing countries is large, and including international offsets in a domestic U.S. climate

<sup>10</sup> *Bipartisan Policy Center's 21st Century Agriculture Project. "The Role of Agriculture in Reducing Greenhouse Gas Emissions: Recommendations for a National Cap-and-Trade Program." April 2008.*

program could substantially reduce costs.<sup>11</sup> Unfortunately, the same practical and theoretical challenges that apply to domestic offsets also apply—and are often more problematic—in the international context. A brief review of experience with the CDM program, which is the largest and most significant international offsets program to date, illustrates many of the difficulties.

Under the CDM, developed countries (or private sector entities from those countries) can invest in projects that reduce emissions in developing countries and receive credit for these reductions toward meeting their targets under the Kyoto Protocol. Because credits have monetary value in countries that have adopted mandatory programs (such as the EU's Emission Trading Scheme or ETS), they create a financial incentive for undertaking greenhouse gas reduction projects and introducing low-carbon technologies in developing countries.

The requirements and procedures for awarding CDM credits are complex. Projects must have approval from the host country and from the investing country, and developers must follow specific procedures for evaluating environmental and social impacts, including submitting a detailed project design document that identifies the emissions baseline, monitoring plan, and methodology to be used for calculating impacts. Projects are verified by accredited independent third parties, called designated operational entities, and credits are issued by the CDM's Executive Board only after a designated entity has verified that emission reductions have been

calculated and monitored according to approved methodologies.

As of May 2009, after five years of operation, roughly 1,600 CDM projects had been registered, offsetting approximately 300 million tons of carbon dioxide annually.<sup>12</sup> An additional 2,900 projects have been proposed and are at various stages of approval.

Despite demanding project requirements and a lengthy review process, the CDM has drawn considerable criticism. By far the most common critique is that many claimed reductions would have occurred anyway; indeed, a number of studies have found that the extent of true additionality for a significant percentage of the reductions claimed is debatable.<sup>13</sup> The CDM has also been criticized for its expensive and time-consuming approval and crediting process, as evidenced by a substantial backlog of projects awaiting approval for registration. Critics charge that this is due to a cumbersome project-by-project approach to defining and approving baselines and establishing monitoring requirements, estimation methodologies, and additionality. This results in high transaction costs, increases investment risk for project developers, and strains the program's administrative capacities.

Observers of CDM have noted that, understandably, many of the early types of projects to receive credits have been those with the lowest costs and highest returns. Yet, the CDM has been less successful at channeling

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<sup>11</sup> *The potential supply of international offsets is considerably larger than the potential supply of domestic offsets, in part because domestic offsets would be limited to emission sources that are not included in the cap-and-trade program or otherwise regulated (whereas all sources could theoretically generate offsets in countries that have no mandatory greenhouse gas policy) and in part because offset opportunities related to forest preservation and land use are generally much larger in developing countries.*

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<sup>12</sup> *All statistics in this section are from "UNEP Risoe CDM/JI Pipeline Analysis and Database. May 2009.*

<sup>13</sup> *See for example, Wara, M.W., Victor, D.G., 2008, A Realistic Policy on International Carbon Offsets, Working Paper 74, Stanford Program on Energy and Sustainable Development, Stanford University, Stanford, CA. Schneider, L., 2007. "Is the CDM fulfilling its environmental and sustainable development objectives? An evaluation of the CDM and options for improvement", *Oko Institute, Report prepared for WWF, November, 2007.**



investment to projects that could transform energy use in key sectors. For example, a small number of projects involving gases with high global warming potential, such as hydrofluorocarbons and nitrous oxide, are responsible for a disproportionate share—more than 25 percent—of total CDM credits awarded. Meanwhile, potentially transformative technologies such as coal plants with carbon capture and storage are not eligible for CDM credits. Finally, critics have noted that most of the benefits of CDM have been garnered by only a few developing countries. Most notably, projects in China have been responsible for 37 percent of CDM credits issued thus far.

## DESIGNING AN EFFECTIVE OFFSETS PROGRAM

**STRIKING A BALANCE BETWEEN RIGOR AND COST:** Any offsets program must balance the need for investor certainty, reasonable transaction costs, and administrative simplicity with assurance that offset projects have environmental integrity. One option for resolving this tension is to establish a tiered system whereby the types of offset projects that are most easily verified (both in terms of quantifying emission reductions and in terms of establishing additionality, permanence, etc.) could use a streamlined procedure when

applying for credit. This top tier could include an initial “positive list” of categories of projects that would generally be considered eligible for credit (for example, animal waste methane use projects). Over time, additional categories could be added to the list through administrative rulemakings as experience grows with more complicated types of projects.

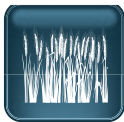
The use of standardized methods represents another option for reducing investor uncertainty and streamlining verification and approval processes. Under this approach, similar projects could be considered together rather than individually. Performance-based benchmarks could further standardize the calculation of project baselines and assessments of additionality. While such benchmarks could be data- and resource-intensive to develop, once in place they would greatly ease the analytical burden of assessing benefits from individual projects. Performance standards or other objective criteria could also serve as proxies for “pure” additionality and thereby minimize the need for case-by-case administrative decisions.

**ADDRESSING ISSUES SPECIFIC TO DOMESTIC SOIL-BASED AGRICULTURAL OFFSETS:** Dedicating—or “setting aside”—a percentage of allowances from within the emissions cap or overall budget

## A HYBRID APPROACH FOR AGRICULTURAL SEQUESTRATION PRACTICES



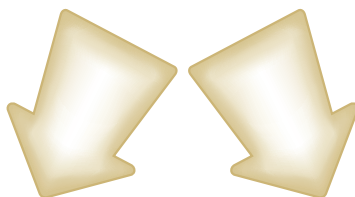
- Conservation tillage
- Land retirement



- Crop rotation
- Cover crops & eliminate fallow periods



- Organic solids management
- Rangeland management



Regular Offset Credits

Set-aside Program

*A hybrid approach to domestic soil-based agricultural offsets could award regular offset credits to projects that are able to meet rigorous standards for measurement, additionality, and permanence. New and innovative sequestration activities may have difficulty meeting such performance standards, and would instead be eligible to participate in a set-aside program.*

under a cap-and-trade program could allow the U.S. to essentially undertake a large-scale demonstration program to resolve some of the issues specific to awarding offset credits for carbon sequestration in agricultural soils, while both allaying concerns about program integrity and creating new economic opportunities in rural communities. A variation on this approach would be to have provisions for both regular offset credits and set-aside allowances for soil carbon sequestration. Regular offset credits would only be available for soil carbon projects that can meet rigorous standards for measurement, additionality, and permanence. Set-aside allowances that are taken from under the cap could reward projects that provide important carbon benefits, but that may have more difficulty meeting these tests—an example might be no-till practices undertaken before the cap-and-trade program goes into effect (so-called “early action” projects). A hybrid approach can respond effectively to the twin goals of maximizing environmental benefits and maximizing participation by the agricultural sector. A requisite for awarding set-aside credits

would be careful monitoring and evaluation so as to determine benefits with more confidence and learn from the experience.

### **OPTIONS FOR AN IMPROVED INTERNATIONAL OFFSETS PROGRAM:**

Given the concerns that have emerged about the CDM, there has been ongoing discussion and debate about how to design an improved program, whether that involves reforming the CDM or creating an entirely new U.S. program. The solutions that have been proposed are often guided by competing views of the primary purpose of an international offsets program. According to one view, international offsets are primarily a cost-containment mechanism intended to access low-cost greenhouse gas abatement opportunities.

The competing view is that international offsets are primarily a tool for promoting broad developing country engagement in activities to reduce emissions and for helping poor countries transition to a less carbon-intensive path of



# “ A HYBRID APPROACH CAN RESPOND EFFECTIVELY TO THE TWIN GOALS OF MAXIMIZING ENVIRONMENTAL BENEFITS AND MAXIMIZING PARTICIPATION BY THE AGRICULTURAL SECTOR. ”

economic development.<sup>14</sup> Ultimately, the hope is that this would lead to more significant greenhouse gas reduction commitments. Adherents to this view are more concerned with accelerating overall progress toward low-carbon technologies and policies, rather than ensuring that every individual project is additional. Seen from this perspective, international offsets could generate substantial financial resources for economic development assistance, technology transfer, and forest conservation. If for example, all of the international offsets allowed under Waxman-Markey materialize, the total amount spent to purchase these offset credits would average roughly \$16 billion per year from 2012 through 2030 according to EPA's analysis.<sup>15</sup>

In line with this approach, a number of proposals have been advanced that would provide offset credits for activities or technologies implemented across an entire sector—most likely a high-priority sector, such as energy production and energy-intensive industry. This type of “sectoral CDM” approach has also been suggested as a possible option for supporting initiatives to reduce emissions from deforestation and forest degradation in developing countries.<sup>16</sup> In both cases, offsets could be calculated based on a national-level commitment to, for example, reduce rates of deforestation or emissions in a specific sector. Sectoral offset approaches have

a number of potential benefits, including the ability to deliver offset credits (and financing) on a much larger scale. They could also facilitate a transition to sector-by-sector emission caps in developing countries.

On the other hand, sectoral approaches are not immune to some of the same challenges as project-based offsets. As with project-based offsets, it would be necessary to develop methodologies for establishing the business-as-usual baseline or counterfactual and to put in place effective monitoring, reporting, and verification protocols and processes. Moreover, a sectoral offset approach would likely require long and contentious negotiations with developing country governments to come to agreement on an approach that would cover an entire sector. Developing countries would need to have the institutional mechanisms and capacities to effectively set and enforce policies or regulations across entire sectors.<sup>17</sup> Finally, appropriate roles of government and private sector actors will need to be sorted out in any sectoral offset program. Because of all these uncertainties, we believe that the development of sector-based offset programs should not delay the early implementation of project-based programs.

Questions concerning the appropriate role of governments in an international offset market are also relevant to proposals that would have government entities involved in the procurement of offsets, particularly in the forestry sector.<sup>18</sup> Proponents of this approach argue that a government entity would have more buying power to negotiate prices closer to the actual cost of

<sup>14</sup> A.G. Keeler and A. Thompson, “Industrialized-Country Mitigation Policy and Resource Transfers to Developing Countries: Improving and Expanding Greenhouse Gas Offsets,” Discussion Paper 08-05, Harvard Project on International Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School, September 2008.

<sup>15</sup> Of course, capital outflows of this magnitude could also generate domestic political liabilities, as we have already noted.

<sup>16</sup> A wide range of activities are underway on this issue as part of the United Nations Framework Convention on Climate Change. These activities are generally referred to as “reducing emissions from deforestation in developing countries.”

<sup>17</sup> Project Catalyst, “Towards a Global Climate Agreement, Synthesis Briefing Paper, ClimateWorks, June 2009.

<sup>18</sup> Purvis, et al., 2009.



abatement (e.g., \$5/ton) rather than closer to the allowance price (e.g., \$20/ton). The benefit of this approach is that it might produce more offsets per dollar. Offset tons could then be resold to regulated entities at prices below the allowance market price. Alternatively, these emission reductions could be supplemental to the reductions achieved by a cap on U.S. emissions, such as in the forestry provision in Waxman-Markey discussed below.

Although the idea that government could participate as a direct purchaser of forestry offsets is an innovative one, the Commission notes that it raises significant questions and uncertainties. For example, do government agencies have the resources and expertise to take on this role? Should Congress establish a new government entity for this purpose? How long will it take to negotiate agreements, and how would delays affect the domestic allowance market price? What sort of coordination will be required with other nations that may also wish to purchase forestry tons? Are there ways to structure this approach that would create a partnership between the public and private sectors? Despite these uncertainties, the Commission believes that a pilot program to explore the use of this

mechanism to implement the supplemental forestry reduction provision in Waxman-Markey could be appropriate. The value of using this approach more broadly could then be evaluated during the five-year review process outlined below.

In our view, the U.S. approach to international offsets should emphasize both engaging developing countries *and* reducing the overall costs of a greenhouse gas program. U.S. policy should aim to build the capacity and institutions—both here and in developing countries—needed to support sectoral approaches while still guaranteeing that in the shorter term, project-based offsets can contribute to lower costs in a U.S. program. International offsets could play a critical role as part of a broader transition to level the playing field by inducing developing countries to take on stronger mitigation commitments. As part of this strategic approach, the United States should consider making access to our domestic greenhouse gas markets contingent on certain activities or levels of commitment by other countries.

Ultimately, U.S. policy concerning international offsets must be responsive to evolving discussions with key developed and developing countries. It should also recognize the benefits of a harmonized approach to setting standards for international offsets.<sup>19</sup> As such, it may be prudent for Congress to provide guidelines on how to develop an international offset plan and to allow the executive branch to review and possibly revise its approach to offsets periodically. For example, five years into the program, Congress could require a strategic review of international offsets that would consider issues such as:

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<sup>19</sup> Note that support for harmonized standards should not be confused with accepting the rules of the CDM program in its current form.



► Whether international offsets could be used to encourage fundamental changes in the energy systems of China and other key developing countries. This may include generating offsets from fewer but more significant projects (e.g., carbon capture and sequestration) or from broader sectoral initiatives.

► Whether the United States should utilize the CDM as the primary mechanism for international offsets or whether it should develop an independent program.

► Whether and how international offsets can be part of a strategic combination of incentives and sanctions that puts key developing countries on a pathway to adopting their own emissions targets.

► Whether the United States should condition access to its greenhouse gas market on benchmarks for developing country greenhouse gas commitments.

► Whether critical issues relating to monitoring and reporting for international offsets are being adequately addressed.

► Whether or how an international forestry set-aside—as included in Waxman–Markey and discussed later in this paper—could be transitioned to an offsets program. (Or, alternatively, whether both types of programs might co-exist by targeting activities in countries at different levels of development.)

► Whether there should be limits on the total number of international offsets allowed after the first decade of the program.

At the conclusion of this review, the President could authorize revisions to an international offsets program such that the program is consistent with evolving economic, policy, and diplomatic objectives.

## CURRENT LEGISLATIVE PROPOSALS

The Waxman–Markey bill recently passed by the U.S. House of Representatives allows capped sources to use offsets to acquire up to 2 billion tons of emission credits annually. Half of these credits must come from domestic

### OFFSET PROVISIONS IN RECENT LEGISLATIVE PROPOSALS

#### Waxman-Markey

► Allows up to 2 billion tons of offsets annually (up to 1.5 billion from international offsets)

► The Department of Agriculture will design and implement a program for domestic agriculture and forestry offsets

► After 2018, international offsets are discounted 5/4 for each emissions allowance

#### Lieberman-Warner

► Domestic agriculture and forestry offsets may satisfy 15 percent of compliance obligation

► 15 percent of compliance obligation may come from allowances purchased on foreign GHG trading markets (5 percent from project based; 10 percent from international forestry protection; and foreign GHG trading markets like the EU ETS)

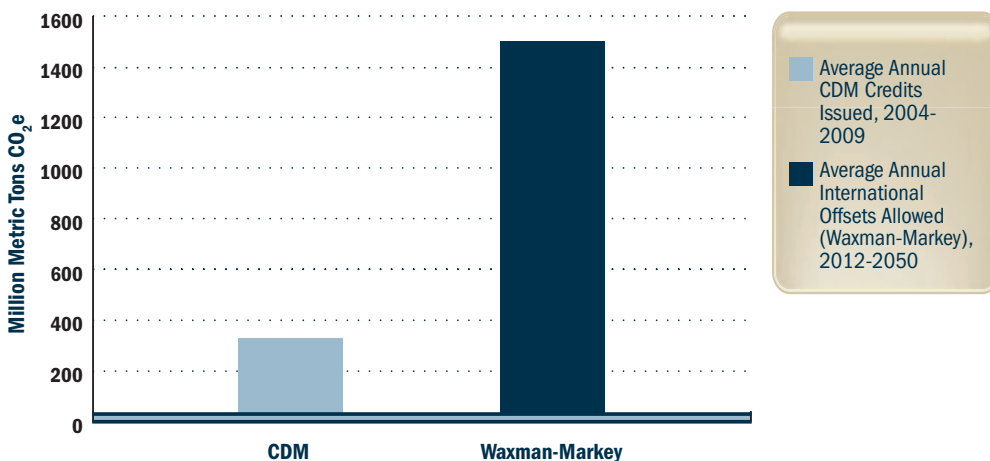
#### Bingaman-Specter

► Imposes no limit on domestic offsets that qualify for streamlined procedures for broadly accepted offset practices

► Allows discounting of domestic offset projects that do not meet these accepted standards

► The President may implement an international offset program to satisfy up to 10 percent of compliance after an initial 5-year review

## ACTUAL CDM CREDITS VS. ASSUMED INTERNATIONAL OFFSETS IN WAXMAN-MARKEY



sources, though if insufficient domestic offsets are available, up to 1.5 billion tons of emission credits can be obtained from international offsets. Starting in 2018, the bill requires capped sources to turn in 5 tons of international offsets to receive 4 tons of emission credits. The EPA would determine the list of eligible offset projects based on recommendations from an independent scientific panel. The bill would also allow for offsets based on reductions from sector-wide baselines and provides a variety of criteria that would guide the development of these types of offset activities. Finally, the bill has an allowance set-aside provision from 2012 through 2025 that allocates 5 percent of allowances to fund activities to prevent tropical deforestation and build capacity to generate international deforestation offsets in developing countries. The allowances allocated to this program are reduced to 3 percent from 2026 through 2030 and to 2 percent thereafter.

There are a number of uncertainties about how these offset provisions will work and how many offsets will be available. In the EPA analysis, regulated entities in the United States are projected to purchase, on average, 1.1 billion

metric tons of international offsets annually under the Waxman-Markey bill. By comparison, from its inception in 2004 through May 2009, the CDM has registered projects that now yield a total of roughly 300 million metric tons of carbon dioxide-equivalent offset credits annually.<sup>20</sup>

Developing the administrative capacity to review and process the number of projects implied by these figures would be a challenge. Assuming an average project size of 100,000–150,000 tons per year, this would require the approval of 7,000–11,000 projects in the early years of the program.<sup>21</sup> This is several times the 1,600 projects that have been registered under the CDM since its inception.<sup>22</sup> In part because of concern about these administrative and practical challenges, the Waxman-Markey bill allows for sector-wide crediting for offsets. However, it will undoubtedly take some time to resolve the

<sup>20</sup> Clean Development Mechanism website <http://cdm.unfccc.int/Statistics/index.html>. Accessed June 4, 2009.

<sup>21</sup> Over time, there has been a decline in the average size of CDM projects. Projects registered before January 1, 2008 achieved annual reductions of roughly 210,000 tons of carbon dioxide per year, whereas projects registered after January 1, 2008 only realized reductions of approximately 150,000 tons per year.

<sup>22</sup> UNFCCC. Clean Development Mechanism. 2008 in Brief. [http://unfccc.int/resource/docs/publications/08\\_cdm\\_in\\_brief.pdf](http://unfccc.int/resource/docs/publications/08_cdm_in_brief.pdf).



methodological, measurement, and political issues that must be settled to implement this approach, particularly since little practical experience exists with sectoral or policy- versus project-based offsets.

In contrast to Waxman–Markey, the Boxer–Lieberman–Warner Senate bill proposed to establish a percentage (rather than numeric) limit on offsets. As a result, maximum reliance on offsets under the proposal is more constrained, particularly in the early years of program implementation. Specifically, the Senate bill limited offset credits from domestic agricultural and forestry practices to 15 percent of submitted allowances, with up to another 15 percent of the overall compliance obligation coming from allowances purchased on foreign greenhouse gas trading markets (including up to 5 percent from project-based credits and up to 10 percent from international forest protection programs, with any demand not met by these two categories eligible to be met by purchases from foreign trading markets like the EU ETS). Another prominent Senate proposal in the previous Congress, Bingaman–Specter, proposed to limit international offsets to 10 percent of the overall compliance obligation.<sup>23</sup>

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<sup>23</sup> *Bingaman–Specter does not impose a numeric or percentage limit on domestic offsets. Rather it provides for a streamlined process to credit offsets that meet broadly accepted standards. Offset projects that do not meet the accepted standards could receive credit on a less than ton-for-ton basis.*

## CONCLUSION

The economic benefits of offsets are clear. By substituting lower cost emission reductions outside of a domestic emissions cap for higher cost reductions available under the cap, offsets can reduce the costs of a U.S. climate program. Offsets can also help fill the critical need for private sector financing of the large global investments that will be necessary to transition rapidly growing economies to lower carbon energy systems.

On the other hand, offsets raise a variety of policy, political, and implementation issues that cannot be ignored and that will contribute to significant uncertainty about their availability and impact on program costs. For this reason, the Commission does not believe that an offsets program is adequate, by itself, to effectively manage economic risks in the early years of a U.S. cap-and-trade program. An additional cost containment mechanism, such as a price cap or an allowance auction reserve should be available to manage these risks and limit the potential for extreme price volatility during the critical startup period of a U.S. program. Over time, we would expect offsets to play a larger role as implementation and policy issues are resolved.

The Commission believes that international offsets should be used to engage developing countries in greenhouse gas reduction activities as a bridge to more serious reduction



# “THE COMMISSION BELIEVES THAT PROPOSALS TO RECOGNIZE AND REWARD EMISSION REDUCTIONS AT THE SECTORAL LEVEL FOR INTERNATIONAL OFFSETS ARE PROMISING AND SHOULD BE ENCOURAGED.”

commitments. As a cost-reducing measure and as part of a package of incentives for greater participation by key trading partners, international offsets can help address the competitiveness concerns of energy-intensive U.S. industries.

Overall, the Commission believes that there should be some experimentation in the early years with institutions and mechanisms to manage offsets in ways that satisfy the need for careful evaluation. For example, the Commission believes that proposals to recognize and reward emission reductions at the sectoral level, while not a panacea, are promising and should be encouraged. This approach would provide the scale and focus necessary to make a significant impact on technology development in developing countries. Sectoral approaches for offsets may be particularly valuable if institutional, baseline, and measurement issues can be resolved.

In the shorter term, using allowances from within the cap to fund forestry measures in developing countries could achieve very substantial environmental benefits and could provide valuable experience concerning related measurement and administration challenges. We have also noted in our recent cost containment paper that the government could purchase forestry offsets with proceeds from the strategic auction reserve. These proceeds would be used to “pay back” the allowances borrowed from future years. Using a government agency as an “aggregator” for the supplemental forestry and strategic reserve provisions should be considered in the early years of an offset program. Ultimately, this new approach should be evaluated in the five-year review process outlined above and can be ramped up or phased out based on the initial results.

A variety of promising approaches should be explored and incorporated in a cap-and-trade program, in order to strike an appropriate balance between cost savings and environmental integrity and to maximize potential benefits from both domestic and international offsets. These include:

- ▶ A tiered approach to the qualifying requirements needed for different project types;
- ▶ Greater reliance on standardized protocols and measurement techniques; and
- ▶ A hybrid approach that combines a limited allowance set-aside with eligibility for regular offset credits to address the particular uncertainties inherent in soil-based carbon sequestration measures.





*“A VARIETY OF PROMISING APPROACHES CAN BE INCORPORATED IN A CAP-AND-TRADE PROGRAM TO MAXIMIZE POTENTIAL BENEFITS FROM BOTH DOMESTIC AND INTERNATIONAL OFFSETS.”*



# DOMESTIC AND INTERNATIONAL OFFSETS



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