

Policy Options Involving Offsets

Sticking Points in Offsets Policy

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As the U.S. congressional debate about climate policy matures, the design of a carbon offsets program has become increasingly central to the debate. Offsets have attracted the support of a number of stakeholders because of their promise to provide low-cost, flexible compliance in a carbon trading scheme. They have also, however, evoked a number of concerns in the political discourse, as stakeholders have made different judgments about how to balance the assurance of performance with the efficient administration of the program. As policymakers need to understand and evaluate these tradeoffs, this primer is intended to outline and compare a range of policy options that would address key issues in offsets policy in a greenhouse gas cap-and-trade system.

Why offsets are important for a climate policy

A number of activities that remain uncapped in domestic policy or international agreements (e.g., reducing deforestation, changing agricultural management, capturing methane from waste or leaks) can potentially provide mitigation at a lower cost than capped entities. Many of these activities do not require new technology and can begin immediately. As a result offsets may provide a bridge, keeping costs down until new low-carbon technology and infrastructures come online. Models suggest that offsets can provide market liquidity and substantially reduce the cost of the proposed climate policies (e.g., 90% lower cost).¹ Some key constituencies—agriculture, developing carbon businesses, and industry (capped sectors)—see offsets as an important part of a climate policy. Some environmental groups are opposed, but many are supportive of a cautious offsets policy. Below we discuss a variety of specific policy issues:²

USDA vs EPA

One controversial issue is whether an offsets program should be led by USDA or EPA. Both agencies have expertise and resources that would be beneficial. At minimum EPA will need to establish some aspects of the policy framework for agricultural and forestry offsets to make sure that they meet the requirements of the national cap-and-trade policy and the national accounting system established under the United Nations Framework Convention on Climate Change (UNFCCC). USDA has the network and expertise to engage landowners in a voluntary program, which will likely be critical for scaling up and building a successful compliance program. On activities such as methods development, either agency could take the lead, but ideally both would be engaged.

¹ EPA analyses of H.R. 2454. The Institute is grateful for funding support from the Linden Trust for Conservation.

² Policies regarding the stacking of carbon (GHG) payments with other federal or state payments or programs have not been fully explored or addressed in existing legislation. The Nicholas Institute and others are currently working on these issues. J. Baker and C. Galik explore the integration of GHG payments with other programs in “Policy Options for the Conservation Reserve Program in a Carbon-Constrained Economy” (Climate Change Policy Partnership, 2009, http://www.nicholas.duke.edu/ccpp/ccpp_pdfs/low.carbon.policy.pdf), and N. Bianco provides a nice overview of the issue in “Fact Sheet: Stacking Payments for Ecosystem Services” (World Resources Institute, 2009, <http://www.wri.org/stories/2009/11/fact-sheet-stacking-payments-ecosystem-services>).

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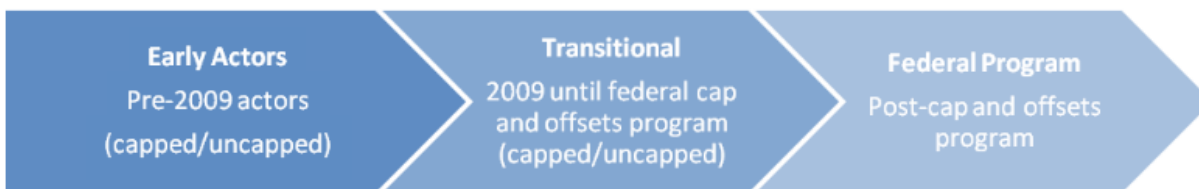
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Evolution of the offsets program

In the following sections we will be working backward on the timeline of offsets policy. First, we will discuss aspects of the final federal program, then move on to issues about the transition period, and finally discuss early actors.



Project lists

One issue of concern to policymakers is how to define which projects, initiated now, and should be provided the certainty that they would be acknowledged under a federal system. Congress is considering various levels of guidance to the federal agencies regarding, in particular, whether certain activities are de facto eligible rather than giving the agencies leeway to consider eligibility for activities when developing the final federal offsets program.

Table 1. Options for project lists.

Options	Variations
Positive list	Guarantees eligibility and additionality for specified activities; agencies must develop methodologies but additionality will be assumed.
Mandatory pre-approved eligibility list	Agencies are required to develop methodologies <ul style="list-style-type: none"> • long, fully inclusive list • short list where there is the most experience or clearest additionality
Recommended review list	Agencies are asked to review and consider activities (can involve advisory committee in process) <ul style="list-style-type: none"> • inclusive list • cautious list
No list	Leaves decisions to agencies

By guaranteeing eligibility and additionality a positive list will be ideal for investors and may be appropriate for a small subset of offset-generating activities. However, it causes significant concern regarding environmental integrity for most

activities that would be available for offsets under a cap-and-trade bill given uncertainties in the science or insufficient data.

A *pre-approved list* is beneficial because it provides certainty for investors and relevant constituencies and potentially helps gain political support. One concern is that constituencies will push to have everything included on a list, even activities where there is little experience and insufficient science. Another concern is that a long list that includes untested activities could overwhelm agency processes as they try to establish dozens of complex methodologies at once, which may result in less environmental integrity.

A **recommended list** tries to strike a balance by providing some investor and constituency comfort without overwhelming the system, which could potentially lead to failures. Asking agencies to consider activities and giving them some discretion whether or in what priority to develop methodologies would ease agency work flow.

Having **no list** leaves decisions to the administering agency, thus providing the agency greater flexibility. Investors and stakeholders will likely want more certainty. Setting up an advisory committee to help agencies sort through activities under a recommended or no-list strategy could add confidence in science-based decision making, but will slow the process.

Investor certainty and constituency support will also be significantly impacted by the interim or transition strategy described on page 5. If the interim strategy consists of a suite of clearly acceptable activities, the list for the final federal program may reflect that to provide continuity for investment.

Permanence and liability

One of the requirements of federal offset project methodologies is that sequestration produced and sold as offsets account for permanence. One question is how permanence is defined. Does it mean that the sequestered carbon is stored forever, for 100 years, or just until the end of the contract? Scientific estimates of the residency time of CO₂ in the atmosphere vary widely. The Intergovernmental Panel on Climate Change (IPCC) offers estimates of residency ranging from 5 to 200 years, but stipulates a central estimate of 100 years³; others suggest it would need to be much longer.⁴ Or instead we could look at —permanence as determined by the time horizon of the policy regime itself. If emission targets extend to 2050, then permanence could require maintenance until 2050, at which time another set of rules could be established dealing with emissions, storage, and all other aspects of the initial regime. Since impermanence is an inherent feature of land

use-based sequestration projects, a policy approach to address the risk and associated liability for premature loss of stored carbon is needed. There are a variety of options (Table 2)

³ IPCC, Climate Change 2001: The Scientific Basis; Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change, ed. J.T. Houghton et al. (Cambridge, UK and New York: Cambridge University Press, 2001).

⁴ Archer et al., — Atmospheric Lifetime of Fossil Fuel Carbon Dioxide, Annual Review of Earth and Planetary Sciences 37 (2009): 117–134.

Table 2. Approaches for addressing liability and risks of carbon release from sequestration-based offsets projects.⁶

Liable party	Description	Advantages	Disadvantages
Seller	Originator responsible for replacing reversed credits	Strongest reversal prevention incentive	Small sellers may not be able to bear risk
Buyer	Liability travels with the credit holder – like default risk	Natural extension of compliance performance – easier to monitor	Complicates transaction by keeping unresolved liability on books for buyers
Negotiated between seller and buyer	Liability specified explicitly in contract between seller and buyer	Flexible – can be assigned more efficiently	Adds transaction and monitoring costs, though can be minimized if standard contract terms used
System	Liability shifts from transactions to system, possibly absorbed/ignored	Risk-pooling, insurance, reduces transaction costs	Moral hazard potential, inefficient cost-shifting

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⁵ B.C. Murray and L.P. Olander, —Addressing Impermanence Risk and Liability in Agriculture, Land Use Change, and Forest Carbon Projects,| Nicholas Institute Policy Brief NI PB 08-01C (2008), <http://www.nicholas.duke.edu/institute/offsetseries3.pdf>.

Current legislative proposals use a combination of seller, system, and flexible negotiated approaches.

- **Term credits.** Apart from assignment of liability, there are other policy mechanisms considered by legislation to help address impermanence risk: term credits. Term credits, or temporary credits, have a short but defined lifetime during which they must follow regular permanence rules. Once the project lifetime is exceeded, the offsets associated with the project expire and the buyer must purchase other credits to make up the difference. The project can renew for an additional term to produce credits for the same or a different buyer.
- **Discounting or set-asides.** A conservative estimate of reversal probability is used to discount the number of credits a project can receive (e.g., 100 tons are generated by a project determined to have a risk rating of 30%, thus leaving 70 tons available for crediting). When you peel off 30% of credits (in the example) these can be used to settle out any losses from reversals in the system (like an insurance pool).
- **Discounting/set-aside with refunds.** This is the same approach as above, but it includes an incentive for good behavior, where some portion of discounted credits are returned in later years periodically if carbon is still in place or the project remains in good standing.

Supplemental Program

Recent legislation set up the federal offsets program to run in parallel to some sort of complementary non-market-based funding program, a —supplementall program. Supplemental financing can produce mitigation beyond what is required by the cap or achieve complementary objectives that won't necessarily increase mitigation. In most recent legislation supplemental programs are designed to do both.

Table 3. Objectives for supplemental programs.

Objective	Action	Example Options
Supplemental mitigation	Financing mitigation activities that do not fit well into a market system	Primarily for activities that do not meet criteria for offsets for one reason or another, such as those that are difficult to monitor, or feature an untested protocol
Complementary objectives	Supporting the development and functioning of an offsets market	<ul style="list-style-type: none"> • Financing to develop and maintain capacity and infrastructure and educate participants • Research to support innovation • Support for moving activities through demonstration to market phases • Supplement insurance or liability coverage for impermanent activities • Buffer to help cover possible system leakage or other imperfections
	Support complementary activities that do not fit well into a market system	<ul style="list-style-type: none"> • Reward early actors (helps politically with transition) • Funding to help maintain high-carbon landscapes (forests, grasslands, wetlands) where they are not at immediate risk, but may be at future risk or GHG emissions due to leakage • Support for adaptation activities • Programs to leverage co-benefits and avoid negative co-effects

There is widespread support for these types of activities and the use of supplemental funds. The primary problem is finding sufficient funding. Supplementary financing usually comes from allocating a portion of allowances for a specific purpose, which means taking funding away from other stakeholders and tightening the cap. It could also come from a within-program tax or fee, reprogramming other existing funds or appropriating new funds; each of these options also creates losers. To date international activities have received significantly more supplemental funding than domestic activities, given that the U.S. is more prepared by orders of magnitude. Most developing countries need to develop measurement and monitoring capabilities and educate people to play these roles; they also need to develop the government institutions and legal structure sufficient to manage a market program.

Another issue in designing supplemental programs is drawing the line between those activities allowed in the market versus those that receive supplemental financing, given that the supplemental is usually expected to provide less revenue per ton of mitigation; however the program may also be designed to be less stringent.

Interim rules/transition strategy

Given the nature of administrative rulemaking procedures, it will likely require in the realm of 1.5 years for agencies to establish initial rules for an offsets program after passage of

a climate bill. If offset project methodology development calls for an additional administrative procedure, such as the establishment of advisory boards, an additional year or so (for total 2.5 years at minimum) may be needed before federal methodologies would be approved for use. If no action is taken to address the interim period, investment and innovation in the uncapped sectors are expected to slow significantly. Low investment in this period would slow the creation of offsets and result in low offset supply in the early years of a cap-and-trade program.

While this could increase costs of the program until sufficient offsets supply develops, modeling suggests that in the early years many offset credits will be banked for later use. Thus a lag in their creation has a relatively small impact on overall cost of the climate program if there is certainty that sufficient supply will be generated in the near term. However, a lull in investment and innovation in offsets may reduce certainty in offset supplies.

There are options for a transition strategy to keep investment and innovation in offsets moving forward if that is desired. A number of these options involve the use of existing offsets programs that have been developed in the precompliance period (RGGI, CCX, CAR, VCS, ACR, Gold Standard; see Appendix for more detail). Practices covered by these programs that are producing mitigation in uncapped sectors/activities— agriculture, forestry, waste

management— could potentially generate offsets in a federal program.⁶ These programs are producing GHG mitigation now, and with the right incentives, they could continue to do so, perhaps at an accelerated rate and with a clear indication that they could be used for compliance under the coming federal program.

⁶ Some of the activities promoted under these pre-compliance programs (e.g., energy efficiency and renewable energy) may be considered for early action for capped entities rather than as offsets .

Table 4. Options for transitional strategy.

Approach	Variation	Issues	
Speed rulemaking	Producing initial federal offset program in 1.5 years	Speeding rulemaking may exclude the possibility of using an advisory committee to provide input to the process and may push agencies to move too quickly in developing a complex program	Slows investment in near term
	Producing an interim program by approving existing registries or protocols in 1 year	If a bill passes in 2010, the interim offsets program would be set up in 2011 – this would mean investors would have to wait until 2011 to have clarity for investment	
Approach	Variation	Issues	
Approve existing registries (and all their protocols) until federal program is in place	Unlimited – allow all registries that are in place by certain date	Benefits: <ul style="list-style-type: none"> • supports early investments • allows an evolving and growing list of projects types during interim period • supports innovation and learning Concerns: <ul style="list-style-type: none"> • possible low quality offsets produced for a limited time • criteria that leave out comparable quality registries that include important activities that other registries do not (e.g., VCS) • important constituencies will push hard for registries and activities that have been favorable for them (e.g., CCX) • this may create a de facto pre-approved list of activities for which federal agencies will need to develop methodologies 	Supports investment, short term quality risk
	Limit registries to those that meet key criteria, such as <ul style="list-style-type: none"> • authorized under state or tribal law (RGGI, and likely CAR) • managed by a nonprofit organization (ACR) 		
	Limit certain activities/protocols under these registries (e.g., no landfill projects)		
Approve existing registries (and all their protocols) until federal program is in place	Limits on use of selected registries <ul style="list-style-type: none"> • limit length of program, and/or • total credit production (e.g., 1 billion tons of CO₂e)? 	If limiting program length (e.g., can use for 3 years or until federal protocols in place), a guaranteed crediting period sufficient for investment will be needed (7–10 for most; longer for forestry) Limiting total number of credits produced under this transitional program could restrict investment if limit is too low – would probably want a high limit to provide some comfort that long term integrity of cap would not be irreparably damaged	Some investment support, limit risks

Early Actors

Entities that took early action to mitigate greenhouse gases, whether they are capped or uncapped activities, are asking to be compensated in some manner for credits that have not already been sold/used to offset emissions elsewhere. For uncapped entities there are two issues:

1. how past action will affect their additionality, and thus their eligibility for crediting in the new system, and
2. whether they will receive credit for their past actions.

The main concern for capped entities has been whether they would receive credit for past actions.⁷

The primary approach for addressing eligibility and crediting is to set a baseline date. For capped entities the baseline has been 2005.⁸ For uncapped activities a different date (e.g., Jan 1,2001) may be selected, after which all activities will be considered additional if they meet other

Nicholas Institute Policy Brief NI PB 08-01B (2008), <http://www.nicholas.duke.edu/institute/offsetseries2.pdf>

⁸ Unlike offset sellers, capped sector actors are not concerned about eligibility for post-compliance crediting for their early actions because their internal efforts to reduce emissions will fall under the cap post-compliance. They are primarily concerned with pre-compliance crediting for their internal efforts and any offsets they have purchased and banked for future use. These entities would either like to have their baseline adjusted to account for their early actions (i.e., a pre-compliance baseline start date) or to be compensated for early actions including the purchase of early offset credits.

⁷ L.P. Olander and B.C. Murray, — Treatment of Early Agricultural and Forestry Actors in a Federal Cap-and-Trade,

additionality criteria (e.g., Legal). Thus, when crediting starts under a new system (e.g., 2010), a project that started after January 2001 could gain credit if it is continuing to avoid emissions or sequester carbon. This will remove the incentive for sequestration projects to be purposely reversed to gain credit in the new system.

There are two main options for compensating past actions, both of which are based on the GHG mitigation achieved (Table 5).

Table 5. Options for compensating early actors.

Options	Benefit	Concern
Supplemental funds from <ul style="list-style-type: none"> • allocation • other fee or program 	Maintains integrity of cap	Limited source of funds (limited allocation) means that early actors may receive less value for their actions and/or other sectors or programs receive less funding
Generate offset credits limited by <ul style="list-style-type: none"> • time period • type of activity (e.g., capped or uncapped) 	Early actors are likely to receive higher value Offsets created can provide early supply to market	Damages integrity of cap (loosens the cap) which is based on actions forward in time

For a ballpark estimate of how much early action mitigation has occurred to date, if we focus on registered tons, activities that remain uncapped are cumulatively around 300 million tons today and activities that will be capped range cumulatively from 300 to 500 million tons.⁹ There has been some discussion of including agricultural tons even if they have not been registered in a qualified registry, which could perhaps add as much as 20 million tons/year (very rough estimate).¹⁰

⁹ Uncapped numbers are estimated from a combination of registries — CCX, CAR, RGGI; capped numbers are estimated from CCX, given better consistency and perceived accuracy of their registered activities, and thus the likelihood that they transfer to a federal program. However, there are significant difficulties with data and baseline assumptions in the industrial sector.

¹⁰ Back-of-the-envelope math suggests there may be as much as 40 million tons of CO₂ e/year in ongoing sequestration from changes in agricultural tillage practices, but for many reasons probably only around half that amount (20 million tons/year) would likely be creditable. For forestry there is much more, with net sequestration of 745 million tons expected in 2006, but again only some of that would likely be creditable.

For scale, the limit may be 1 billion tons of offsets from domestic sources each year. If we allow unregistered tons for early crediting from 2005 to 2009, we could have as much as 1.6 billion tons coming from the uncapped sectors. $([20 \text{ million} \times 4] + [400 \text{ million} \times 4]) = 1,680 \text{ million tons}$

APPENDIX

Table 6. Voluntary offset registries.

Registry	Full Name	Projects covered
RGGI	Regional Greenhouse Gas Initiative	Landfill methane capture and destruction, afforestation/reforestation, emissions reductions from end-use energy efficiency in building sector, SF ₆ emissions reductions in electric power sector
CCX	Chicago Climate Exchange	Landfill, agriculture, and coal mine methane collection and combustion, avoided emissions from organic waste disposal, agricultural best management practices, afforestation/reforestation, sustainable forest management, ozone-depleting substance destruction
CAR	Climate Action Reserve	Avoided conversion, sustainable forest management, landfill and livestock methane capture and combustion, afforestation/reforestation
VCS	Voluntary Carbon Standard	All project types eligible with VCS-approved methodology; current projects include reforestation, landfill methane capture and destruction
ACR	American Carbon Registry	All project types eligible that meet ACR Technical Standard; current projects include afforestation/reforestation, carbon capture and storage, landfill methane capture and destruction, livestock waste management
The Gold Standard	The Gold Standard	Renewable energy and efficiency projects

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Nicholas Institute for Environmental Policy Solutions

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