

ADDITIONALITY

Jan Lewandrowski
Economist
USDA, Global Change Program Office

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Based on bills introduced in the 110th Congress, the greenhouse gas (GHG) mitigation approach with the most legislative support is some form of a cap-and-trade system.¹ The bills that have been introduced generally do not include agriculture under the cap but would allow farmers to voluntarily participate in the system. Specifically, farmers who can demonstrate that they have reduced emissions or increased carbon sequestration in accordance with specified criteria can receive offset-credits, which can then be sold to entities in covered sectors to help them meet their emissions reduction obligations. One criterion included in several draft bills but not clearly defined is “additionality.”

The additionality criterion for crediting or rewarding economic entities for undertaking actions or projects that reduce emissions or increase carbon sequestration attempts to distinguish between actions or projects that are motivated by a given policy from actions or projects that have already happened or will occur anyway (i.e., without the policy). The criterion requires that to be credited or rewarded, actions or projects must be taken as a result of the policy being implemented. Actions or projects that have already been taken or will be taken even if the policy is not implemented are not credited or rewarded because their GHG benefits exist, or will exist, independent of the policy.

Farmers and ranchers have a number of options for changing production practices and/or land uses in ways that lower GHG emissions or increase carbon sequestration (for example, adopting no-till crop systems and shifting cropland to permanent grass or trees). A number of studies have concluded that given appropriate incentives to adopt these practices and land uses, agriculture could provide significant quantities of GHG mitigation at relatively low cost.² The additionality issue has been central to the debate over how agricultural offsets should be included in a national greenhouse gas mitigation policy because many farmers have already adopted these practices and land uses and so their ability to participate in a GHG mitigation program will depend on how additionality is treated.

Key issues related to additionality:

Choice of Baseline

To determine whether an action or project that reduces GHG emissions or increases carbon is a response to a GHG mitigation policy (i.e., is additional) it is necessary to have a baseline (or point of reference). The baseline serves to establish what would have happened in the absence of the GHG mitigation policy. Two common choices are a “historical” baseline and a “business as usual” (BAU) baseline. A “historical” baseline compares current and future GHG emissions with emissions at some time in the past. This could be a specific point in time, such as a given year, or a representative period of time, such as an annual average over a period of several years. In contrast, a BAU baseline is an assessment of future conditions and incorporates anticipated trends in key variables as well as the effects of existing policies and expected policy changes. By comparing an alternative scenario with a BAU scenario, one can assess the additional impacts from the alternative over and above what is anticipated will happen anyway. A common BAU scenario for agriculture is the official USDA baseline.

¹ As of June 30, 2008, 13 bills have been introduced in the 110th Congress that, if enacted, would establish a regulatory framework for reducing U.S. GHG emissions. Of these, nine would establish a cap-and-trade system and 10 either explicitly allow or include an option for agriculture and forestry to provide offset credits.

² As a recent example, a 2005 study by EPA estimated that if CO₂ was priced \$15 (\$30) per metric ton, actions in the agriculture and forestry sectors could offset 10 (25) percent of U.S. GHG emissions.

While a baseline is needed to determine what actions or projects are additional in the context of a given policy, there is no scientific basis for using any particular year or scenario as a benchmark for mitigating GHG emissions. Hence, any baseline for GHG mitigation will be to a degree subjective. In historical baselines this means that the distinction between actions and projects that are additional from those that are not can be somewhat arbitrary. BAU baselines have the additional challenge of having to specify what would have happened in a future that never occurred. Trying to assess or verify what is additional in this situation is at best guessing and at worst gaming.

Penalizing Early Actions

A point often raised in discussions about GHG mitigation policy is that any approach chosen should not penalize entities that undertake desired activities or projects prior to the policy being implemented. The point is often characterized as not “penalizing good actors for doing the right thing early.” If additionality is applied strictly, future climate change mitigation policies will not credit or reward early actions. Simply put, past decisions on the part of farmers to adopt production practices or land uses that reduce GHG emissions or increase carbon sequestration have been completely voluntary and based on economic and policy conditions that existed at the time. Hence, these decisions reflect what farmers felt was in their best economic interest and crediting or rewarding them under a new climate change mitigation policy would be submitting the policy to a form of rent seeking—in this case, providing payments for benefits that already exist.

Avoiding Moral Hazard

While it may be desirable not to reward entities for actions or projects they have already done or plan to do anyway, policies with additionality requirements run a moral hazard risk. Specifically, an additionality provision can create an incentive for entities who are already behaving in ways that would be rewarded under a new policy to change their behavior to position themselves to respond to the policy when it is implemented.

For example, consider a cap-and-trade framework that allows farmers who adopt permanent no-till cropping systems after a specified date to sell the resulting increases in soil carbon sequestration as off-set credits to entities in other sectors. If this date can be anticipated, farmers who have practiced continuous no-till since before that date will have an incentive to switch to conventional tillage in order to be able to “adopt” no-till in response to the program. If this happens the effect is to encourage farmers to take actions that emit carbon from soils and then to reward them to take actions that puts the carbon back in soils.

Potential policy approaches to additionality:

There are several relatively straight forward approaches to address additionality in the context of including agricultural offsets in a GHG cap-and-trade system. These approaches are briefly discussed below. As is often the case, the optimal approach, or combination of approaches, will involve a trade-off between program cost and the need for high quality of offsets (i.e., it will cost more to produce more accurately measured, verified and tracked offset credits).

Limit Entry

A relatively cost-effective approach to implementing an additionality criterion in a cap-and-trade system is to limit entry. There are a number of options for limiting entry but a common choice has been to specify a threshold date, typically in the recent past, by which actions that occur after that date are considered additional and those that occur before it are not. By way of an example, lands put into no-till systems prior to the threshold date cannot produce additional offset credits and lands put into no-till after that date can. Putting the threshold date in the past effectively addresses the moral hazard issue because entities cannot change their behavior retroactively. Limiting entry also allows for flexibility in acknowledging early actions since more early actions can be recognized as additional by simply pushing the threshold date further back in time.

There are two weaknesses with using limiting entry as an additionality criterion for agricultural offsets. First, the large majority of farmers who have already adopted practices and land uses that would generate offset credits have done so in the absence of an offset market. Hence, specifying a threshold date in past will reward some farmers for actions that have already happened. To the degree this occurs, limiting entry in this way can be viewed as assuming away the requirement that offsets be additional. The second weakness is that any form of limiting entry will be to a degree arbitrary and thus subject to influence by parties with a stake in where or how it is determined.

Document Justification

The approach most likely to ensure that agricultural offsets are truly additional is to require each offset to be adequately documented. The purpose of the documentation is to assure potential buyers that agricultural offsets actually exist (i.e., they are accurately measured, verified and tracked) and have been generated as a result of implementing a policy.

The documentation approach has several benefits. First, provided the documentation requirements are sufficiently rigorous, the offset credits will be of high quality and hence of most interest to entities that must reduce emissions under the cap. A second benefit is that the focus of the program can be on demonstrating GHG mitigation rather than on identifying reductions associated with specific actions and projects. If this is the case, the approach will encourage farmers to look at their entire operation for innovative ways to mitigate GHG emissions. The likely result will be the broadest set of offset generating activities and projects. Finally, there will almost certainly be significant economies of scale in developing the procedures, tools and expertise needed to adequately document agricultural offset credits (including those related to the measurement, verification and tracking). For single applications, the costs of developing these procedures, tools and expertise may well be prohibitive. With additional applications, however, the fixed costs get spread out over more actions and projects and experience will reduce the time needed to produce and process the documentation. These economies mean that the approach can be designed to encourage private sector participation in developing and marketing documentation products and services.

The main drawback of the documentation approach is that it is likely to be the most costly in time and resources to implement—at least to start. Specifically, it will be necessary to develop the requirements and procedures to govern the measurement and verification of offsets and to establish a system for tracking offsets over time. A second weakness of the documentation approach is that it does not address the moral hazard issue, although, this could be addressed by incorporating some form of limiting entry.

Discount Credits

A third approach to the additionality issue is to let the market determine the degree to which the operating rules of a cap-and-trade system ensure that agricultural offsets are actually the result of the policy. Presumably entities in covered sectors will have to meet hard emissions reduction targets but the operating rules of a cap-and-trade system can still allow for agricultural offsets of varying qualities. As noted above, with respect to additionality, the process of establishing a baseline is unavoidably subjective, there is a bias against early actions, and there is a bias toward moral hazard. In balancing these considerations policymakers will also have to contain program costs and consider the views of interested stakeholders.

Given the above considerations, it is likely that a cap-and-trade system that includes agricultural offsets will include at least some that are not strictly additional. It is also likely that additionality would be easier to prove for some offsets (say those related to installing an anaerobic waste digester) than others (say those related to changes in tillage systems).

If this is the case, the market for agricultural offsets would discount agricultural offsets to reflect their value relative to actual emissions reductions in the covered sectors. The actual discount, or set of discounts, would depend in part on the operating rules of the system. For example, if the rules allowed farmers to provide documentation to establish additionality, the related offsets could be equivalent to an emissions reduction. If the rules relied on rules-of-thumb, then there might be coefficient to indicate how many offsets unit are, on average, equivalent to unit of emissions reduction.

The fundamental limitation of this approach is that it does not distinguish between activities that would have happened in absence of the offset credit and activities that require the offset credit to be profitable. By discounting all activities, the activities at the margin of economic viability will be made uneconomic. Activities that would have happened anyway, will still occur. The end result is that fewer additional actions will be taken and a greater proportion of the offset pool will be associated with actions that would have occurred in absence of the offset credit.

Accept It and Adjust National/Project Goals

A final approach to the additionality issue in GHG mitigation policy is to accept it and to adjust national mitigation goals to accommodate the consequences. If the overall policy objective is to mitigate GHG emissions, then one option is to implement a cap-and-trade system that simply encourages entities to change their behavior in ways that, on average, reduce emissions or increase sequestration. The focus would be on achieving a national GHG mitigation goal and the cap-and-trade system would be the instrument chosen to achieve the goal. It would not be necessary, however, that each emission reduction and offset credit generated within the system actually exists.

Such an approach would require an independent assessment of whether or not the mitigation goal was being achieved. In the United States, the annual EPA inventory of GHG emissions and sinks could serve this function. If the annual inventory indicated that the national GHG mitigation goal was not being reached, the cap could be adjusted.

The benefits and weaknesses of this approach are largely a matter of perspective. The approach explicitly accepts that entities will be rewarded for offsets that do or will exist in the

absence of a GHG mitigation policy. Those who favor a strict linkage between the number of offset credits in a cap-and-trade system and the actual units of emissions reduction and carbon sequestration created will see the approach as ignoring the additionality issue. Those who do not feel a strict linkage is necessary will see the main benefit as the time and resources savings associated with not having to specify relative to what an action or project is additional. Also, this approach addresses the moral hazard issue because farmers who have already adopted production practices and land-uses that reduce emissions or sequester carbon would be eligible to receive offset credits.

References:

United States Environmental Protection Agency. 2005. Greenhouse Gas Mitigation Potential in U.S. Forestry and Agriculture. EPA 430-R-05-006, (November).