

Development of Potential Offsets Related to Conservation and Grazing Lands

Introduction

This paper explores the potential to develop meaningful carbon offsets in conjunction with voluntary landowner conservation programs. Historically, landowner conservation programs through federal, state, or private agencies such as the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP) have compensated landowners for establishing forests or grasslands on marginally productive agricultural lands or environmentally sensitive areas. Establishing a carbon offset program within new or existing conservation lands is specifically noted as an area for consideration under Section 3(g) of EESB2815.

Basis for Selection

The implementation of effective land management practices, especially through stewardship activities such as the Conservation Reserve Program and the Conservation Reserve Enhancement Program can in addition to enhancing water quality, wildlife habit, and landscape aesthetics result in increased above ground carbon sequestration and increased soil organic carbon. Generally speaking there are positive interactions between carbon sequestration and various recommended land management practices related to increased land cover and diversity and progressive, grazing techniques.

In Washington, significant acreage is preserved and protected through enrollment in conservation contracts, leases, agreements or other similar mechanisms. In 2007, 1,539,250 acres of land were enrolled in CRP, 11,045 riparian acres were restored under the CREP, and considerable acreage was set aside for other public and private conservation programs and actions. Washington's Department of Natural Resources (DNR) leases approximately 1 million acres of grazing lands in Washington. Other publicly held and privately held grazing lands add several million additional acres.

The carbon sequestration potential for Washington state lands enrolled in conservation programs varies by climate and soil type. Sequestration potential ranges from a high of 0.5 tons/acre to a low of 0.1 tons/acre¹. The Washington State Department of Agriculture (WSDA) estimates 0.32 MMT of carbon or 1.13 MMTCO₂e is sequestered yearly as a result of CRP, EQUIP, and CREP lands. It is estimated that through progressive grazing management practices .3 to .7 tons/ac/yr C can be sequestered in soils from these improved grazing practices². Using only grazing lands leased through the DNR a potential of 2.29 MMTCO₂e potentially may be sequestered annually.

Although the agreements protecting these lands may be in perpetuity, the more common term for the agreements is for a limited period of years. For example, CREP leases cannot extend beyond 15 years. We are entering a period when many of the terms of the agreements will be expiring, and the landowner can return to managing these lands for production. Because of changes in regional and global economics related to food production and governmental policies, a considerable portion of the land currently in conservation programs may return to agricultural production in the near future. As a result

¹ The Chicago Climate Exchange currently uses a carbon sequestration rate for permanent grasslands of 1.0 metric ton carbon/acre/year in western Washington and 0.4 metric ton carbon/acre/year in eastern Washington

² USDA-ARS, 2007

of this return, there is a strong potential for carbon historically stored in these lands to be released. This release represents not only a reduction in the potential amount of carbon stored but also in a new source of greenhouse gas (GHG) emissions.

The continued enrollment of lands currently in conservation programs and the addition of new conservation acreage coupled with implementation of progressive grazing management techniques will increase the potential for carbon sequestration. This expansion may have a significant positive impact in the reduction of GHG in Washington and also provide a mechanism for carbon offsets within a cap and trade system.

Potential Barriers to Inclusion

Additionality

The determination of additionality or actions that go beyond “business as usual” is a cornerstone element to the quantification of carbon offsets potentially generated as a result of agricultural projects. The determination of additionality is an approximate process which lends itself to consideration of projects for which there are co-benefits such as those considered in this paper. It is generally recognized that many agricultural activities including establishment of conservation lands and enhanced grazing methodologies do result in increased carbon sequestration both in above and below ground biomass/soil carbon. Whether, the co-benefit aspects of conservation and grazing lands related to carbon sequestration are to be considered eligible for offset development will depend on public policy decisions within a regional cap and trade system. There is strong sentiment among members of the Agricultural Carbon Sector Market Workgroup that aspects exist of conservation and grazing lands that meet the additionality test.

The question of additionality as applied to conservation and grazing lands focuses on the establishment of those lands primarily to enhance water quality, wildlife habit, and landscape aesthetics with the co-benefit of carbon sequestration. Previous contracts for federal programs (CRP, CREP, EQUIP, etc.) and other actions taken under state or private agency oversight generally, did not consider the benefits of carbon sequestration when originally implemented even though sequestration is assumed to have occurred. Later federal contracts have begun to cite carbon sequestration as a benefit of the action(s). Consideration of the potential release of stored carbon if conservation lands reverted back to active agricultural lands and continued sequestration of carbon in existing conservation lands that continue beyond contracted timeframes are examples of additionality pertinent to potential offsets within the agricultural sector.

Baselines

The question of establishment of valid baselines is applicable to all potential offset projects within the agricultural sector. Currently the use of a base year approach appears to be most in favor. This is the approach taken by the Chicago Climate Exchange and to some extent in Washington State by basing future emission goals on 1990. This may serve well in the context of charting the overall progress of a state as far as quantification of overall emissions are concerned but may not provide sufficient data by which to base development of project specific offsets. Initial baselines for offsets derived from

conservation lands can be determined based on data collected nationwide in similar climate, soil, and historical regimes. While developing a baseline(s) on “similar” circumstances is likely to introduce an additional level of uncertainty, it is debatable whether that level of uncertainty will lie outside the variation expected due to natural factors existing within a proposed project area using conservation lands to generate offsets.

Measurement, Monitoring, and Verification

Development of carbon offsets using conservation lands is a challenge due to the difficulty in attributing carbon sequestration to a clearly identifiable, specific physical location(s). Significant financial obstacles exist in measuring and monitoring the amount of carbon sequestered in a field or region and to date there is a lack of comprehensive protocols providing accurate measurability or verifiable results.

In order to develop environmentally-based policy for carbon offsets, modeling approaches must be designed for application in varied climatic and soil conditions. Initially, depending on the extent to which the carbon offset market will require measurement, monitoring and verification, the model(s) will need to be carefully calibrated. Calibration must include the collection and application of site specific data over time until sufficient information exists that will allow application over numerous climatic and soil conditions.

In the near term, carbon sequestration decisions tied to conservation lands and lands under which progressive grazing practices are employed are likely to establish carbon offset development based on land-use practices. For example, regional ranges created for other areas of the U.S. or other similar indicators of carbon sequestration activities.

Specific Policy and Technical Recommendations

Overall Recommendations

There exists a significant potential of the development of marketable carbon offsets resulting from conservation lands. If the acreage currently in conservation set aside were to return to active agricultural production, the rate of overall GHG emissions would likely increase within Washington state. There also exists a significant future potential for offsets to be generated from the implementation of progressive grazing practices; however, less data is available on which to develop acceptable baselines.

The co-benefits derived from conservation lands and potentially from grazing lands are significant in terms of environmental protection and habitat restoration. The fact that carbon sequestration also occurs as a result of this action should not preclude designation as additionality. Issues regarding additionality are addressed through applying the following recommendations:

- Offsets are valid for current conservation lands kept in conservation status that would otherwise revert to actively worked agricultural lands following termination of contract or agreement after July 1, 2008. Current financial benefits to landowners should not be a consideration.

- Offsets are valid for the voluntary conversion of actively worked agricultural lands to conservation lands regardless of primary purpose as long as carbon sequestration is a recognized co-benefit.
- For current set aside lands that have more than 5 years left on the contract, offsets should be considered beginning as of July 1, 2008. Using the July 1 date may prevent the early termination of conservation contracts due to market conditions that compel a land owner to return the land to active agricultural activities.

Measurement, Monitoring, and Verification

In order to avail the State of the offset potential generated through conservation lands the ASCMW recommends the development of a complementary policy that addresses the short term need for offsets with a reasonable approach to achieving measurement, monitoring, and verification activities for offset projects related to conservation and grazing lands.

In order to accomplish this, there must be agreement that initial projects contemplated for conservation or grazing lands will use standardized assessment based on the best available data not only from Washington State but from similar areas nationwide. During the course of the project(s) measurement, monitoring, and verification will move towards project-specific assessments with the ultimate goal of establishing uniform hybrid assessment methodologies for future projects using modeling approaches to define levels of uncertainty.

Baselines

Agricultural offsets need to have well-developed baselines to gauge progress, draw comparisons, and calculate carbon offsets. Many conservation lands have been in effect for 10 – 15 years which affects the development of an acceptable baseline.

Developing an acceptable baseline may take either of two courses:

- 1) Develop a site-specific baseline measuring initial soil carbon within a project area at the time of implementation; or
- 2) Develop an anecdotal baseline established using the state inventory of conservation lands. The Washington state inventory for conservation lands was established in 1990 using the “Century” model.

Developing a site-specific baseline measuring initial soil carbon within a project area at the time of implementation would not occur until sufficient data was collected at the project location. Once the data is collected, the concerns about validity and measurability would be addressed at the beginning of the project resulting in full credit for the carbon offset, if generated.

Developing an anecdotal baseline established using the state inventory of conservation lands will require the development of short term gross estimates of tons/acre/year for various areas of Washington state.

The short-term estimates could be applied effective July 1, 2008. However, their use should be limited and they should remain in effect only until an accurate measurement of the current state inventory of conservation lands is complete.

Data Development Needs

Several elements needed for data development are outlined in this paper. These elements are based on the need for as much data about carbon sequestration measurability and validity as possible.

Chief among the data needs is the development of a uniform model or series of models that can be used to establish the potential for carbon offsets on conservation set aside lands and managed grazing lands as well as any agricultural land being considered for its carbon offset. There is also a need to calibrate the model for use over the large and varied land types and agricultural conditions in Washington State. The calibration will provide data standardization, quality and confidence in the modeling.

The gathering of this data should not adversely impact the financial benefits to a land owner from carbon offset payments. This would create a financial disadvantage for potential participants.

Managed grazing practices may generate substantial carbon offsets with minimal impact to agricultural land owners. Recent data indicates the benefits of managed grazing on both conservation lands and non-farmed lands may increase sequestration of carbon. While these studies appear to be promising, there is a need for additional study since additionality may also factor into the management of livestock grazing on conservation program lands.