

Framework for Agricultural Offsets and Credits and Priorities for Workgroup Attention

This document provides both background and a framework to the Agriculture Sector Carbon Market Workgroup (ASCMW) for developing recommendations regarding how owners of agricultural lands and practices may participate in a greenhouse gas credit program in the regional multi-sector market-based system being designed in association with the Western Climate Initiative. The Workgroup's charge is specified in ESSHB 2815, Section 4(3)(g). Specifically that charge is:

- Develop recommendations regarding how agricultural lands and practices may participate voluntarily as an offset or other credit program in the regional multi-sector market based system being designed in association with the Western Climate Initiative.
- These recommendations must ensure that the baseline for this offset credit program does not disadvantage this state in relation to another state or tribe.
- These recommendations shall address:
 - ❖ Agricultural products
 - ❖ Agricultural land and practices
 - ❖ Agricultural lands set aside for conservation as of, after July 1, 2008

I. Areas of Focus

As a starting point, the ASCMW should direct their attention to the Washington Climate Advisory Team's recommendations of 2007, where policy options developed by the Ag Sector Technical Work Group are described. Six of the eight recommendations will be considered as areas for focus by the ASCMW. Two focus areas will be discussed in depth at each of the next three monthly meetings (July, August, and September) of the SWCMW, with the goal of reaching consensus on draft recommendations for each area at the meeting in which they are discussed (See Section V). The six broad focus areas are:

AW-1	Manure Digesters/Other Waste Energy Utilization
AW-2	In-State Production of Biofuels and Bio Feedstocks
AW-4	Agricultural Carbon Management
AW-5	Agricultural Nutrient Management
AW-6	Reductions in On-Farm Energy Use and Improvements in Energy Efficiency
AW-7	Preservation of Open Space/Agricultural Land

Recommendations should address specific practices/systems/technologies within each of the broad focus areas that may currently be implemented or may be implemented on a larger basis that mitigate GHG emissions and/or could act as an offset (See Section III). The ASCMW should also identify those actions that are considered promising, but currently lack supporting research or implementing policy.

In considering each of the areas listed above it is important to remember that language within ESSHB 2815 does not preclude recommendations for offsets or other credits targeted for other greenhouse gases other than C or CO₂ such as N₂O or CH₄.

II. Framework

In considering each of the areas outlined above the ASCMW should systematize and organize their recommendations as follows:

1. Identify those practices / systems / technologies for which there is currently sufficient baseline data and analysis capabilities to support carbon trading;
2. Identify practices / systems / technologies that are promising, but for which there are data gaps / analysis capabilities;
 - Identify what those data gaps are;
3. Identify those practices / systems / technologies that may need a “complementary” public policy to support implementation,
 - Identify what these policies might be / look like;
4. Identify those practices / systems / technologies that are important, but unlikely to be marketable as they would need substantial “complimentary” public policy support to implementation,
 - Identify what these policies might be / look like;

The following examples are provided to the ASCMW in considering the above four points.

Example 1.

The adoption of precision agricultural techniques result in a reduction of field equipment passage over a field or fields resulting in a reduction of fossil fuel used. The decrease in use of those fuels resulting in a lowering of GHG emissions is easily quantified and may be eligible for carbon credit(s) depending on economy of scale. Additionally, reductions in nitrogen based fertilizer use are likely thereby reducing N₂O emissions, again potentially eligible for carbon credit(s) based on CO₂ equivalency reductions.

Example 2.

The baseline data and analysis capabilities to evaluate soil carbon storage from the suite of “no-till” cropping systems practices for the high-rainfall dryland grain producing region exist. However, depending on how the WCI protocols interpret offsetting N₂O emissions, soil carbon storage may either be:

- (a) Easily traded through WCI, or
- (b) Difficult to trade through WCI based on difficulty in validation and therefore needing additional public policy mechanisms to encourage implementation of soil carbon storage practices.

This working group could choose to suggest types of complimentary public policies that could be implemented (and where possible assessment of cost-benefit) to achieve implementation of the goal.

Example 3.

The baseline data for assessing the soil carbon storage, N₂O emission reduction potential for biochar (or substitute other biomass material) are not currently sufficient to support validation and trading through the WCI. Efforts are underway to establish baselines, but additional assessment will be necessary to create a credible database. The workgroup could prioritize "investments" in augmenting databases and assessment capabilities for biochar relative to other practices and technologies that are in a similar condition (ie. compost, biosolids, orchard understory cover crops, etc.).

III. Practices

Following are a list of specific practices/systems/technologies within each of the broad focus areas for Workgroup consideration. Due to the tight timeline for finalizing recommendations, it is assumed that not all activities will be discussed to the extent necessary for reaching consensus. Therefore, the ASCMW will be asked to define their priority discussion list at the July meeting.

AW-1 Manure Digesters/Other Waste Energy Utilization

The use of anaerobic digestion of manure produced in dairy or confined animal feeding operations is currently a commercially available technology that may produce marketable credits in several ways. The 2007 CAT report estimates that by using these technologies significant GHG reductions could occur over the next 12 years. In this category we have included changes in livestock management to reduce CH₄ emissions. Areas of potential generation of carbon or other credits are:

- Capture of CH₄ that would otherwise be emitted to the atmosphere
- Thermal destruction of CH₄ to generate electrical power
- Creation of other fuels that would otherwise come from fossil sources
- Improvement in livestock feeding practices
- Improved use of livestock waste application practices

AW-2 In-State Production of Biofuels and Bio Feedstocks

Biofuel production in Washington State may be limited to non-traditional feedstocks such as switchgrass, hybrid poplars, and oil seed crops. Because of regional agricultural conditions it appears that large scale development of corn and soybeans feedstock may not be possible. However, this fact does not eliminate the development of biofuels and bio feedstocks as an area of investigation by the ASCMW. Areas of potential generation of carbon or other credits are:

- Promotion of sustainable production practices that include rotation of biofuel feedstocks

AW-4 Agricultural Carbon Management

Agricultural carbon management refers to those agricultural activities that result in an overall increase of soil carbon due to implementation of unique practices. It is generally agreed that soils represent a substantial reservoir into which carbon may be sequestered. The CAT report estimates that there is currently on the order of .2

MMtCO₂e which can be potentially sequestered on an annual basis. Other estimates provide larger annual estimates. Areas of potential generation of carbon or other credits are:

- Increase of no-till direct seeding practices in dryland and irrigated areas
- Increase of planting of cover crops
- Increase in high-biomass perennial crop (hybrid poplars, switchgrass)
- Re-direction of organic residuals for land application (manure, biochar)
- Use of innovative crop rotations

AW-5 Agricultural Nutrient Management

The use of nitrogen derived, synthetic fertilizers is generally considered to be one of the largest component of emissions from agricultural (1 Metric Tons of N₂O = 310 Metric Ton equivalents of CO₂).¹ There are several actions that may occur that can result in a reduction of nitrous oxide to the atmosphere, some are include in pervious sections (i.e. direct seeding and innovative crop rotations). This area in particular should be one in which the ASCMW explores as a "other credit" offset, focusing on N₂O as an CO₂ equivalent and not "carbon" specifically. Areas of potential generation of carbon or other credits are:

- Increased adoption and implementation of "precision nutrient management"
- Bio-mass nutrient applications

AW-6 Reductions in On-Farm Energy Use and Improvements in Energy Efficiency

Energy consumption in the production and transportation of food from farm to marketplace is estimated to consume 1/5 of US energy supply². A large fraction of this energy is consumed on farm through the use of fossil fuels. Reductions in the use of fossil fuels can be easily quantified, but requires the implementation of other practices some of which have been previously presented (precision nutrient management, no-till direct seeding, use of bio-fuels). An area of potential generation of carbon or other credit is:

- Demonstrated reduction in the use of fossil fuel consumption in production agriculture
- Improvement in electrical power use (irrigation equipment, first line dairy operations)

AW-7 Preservation of Open Space/Agricultural Land

It is generally agreed that moving working agricultural lands to conservation lands improves the soil carbon stocks over time. Additionally, grazing lands that are properly managed as to maintain adequate bio-mass also begin to act as soil carbon reservoirs. There are several ongoing programs that facilitate these actions and provide land owners with financial incentives to leave lands in conservation reserves. Areas of potential generation carbon or other credit are:

¹ IPCC 2001 Report

² 2007 CAT Report

- Manage CRP/CREP lands/ Managed conservation set-aside lands
- Conversion of marginal agricultural land to grasslands
- Limit development of existing agricultural lands
- Increase and improve grassland management practices

IV. Offset Design Considerations for Projects

Projects that may be eligible under criteria developed by Washington State and/or the Western Climate Initiative must be real, additional, verifiable, permanent, and enforceable. Other considerations that could be discussed, given available time, are additive value for credits that improve habitat or water quality and credits that may be offered at a reduced rate due to lifespan, or verification issues. The ASCMW should attempt to address the following topics as part of the framework discussions when considering specific offsets.

- Specific definition of terms
- Leakage avoidance
- Protocols for baseline calculations
- Accounting criteria and procedures
- Applicability of existing standards-based protocols

V. Timeline

Mtg #	Date	Discussion Topics	Products
2	July 14	<ul style="list-style-type: none"> ➤ Preservation of Open Space/Agricultural Land ➤ Agricultural Carbon Management 	Draft Recommendations
	<i>July 25</i>	<i>CAT Meeting</i>	
3	Aug 15	<ul style="list-style-type: none"> ➤ Agricultural Nutrient Management ➤ Digesters/Other Waste Energy Utilization 	Draft Recommendations
	<i>Sept 18-19</i>	<i>CAT Meeting</i>	
4	Sept 22	<ul style="list-style-type: none"> ➤ Reductions in On-Farm Energy Use and Improvements in Energy Efficiency Manure ➤ In-State Production of Biofuels and Bio Feedstocks 	Draft Recommendations
	<i>Oct 14-15</i>	<i>CAT Meeting</i>	
5	Oct 20	<ul style="list-style-type: none"> ➤ Review full set of draft recommendations ➤ Tabled items 	Final Recommendations