

Agricultural Mitigation Opportunities and Provisions in S. 2191, The Lieberman-Warner America's Climate Security Act of 2007

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General Comments:

The agricultural sector can provide valuable GHG emissions reductions and enhanced soil carbon sinks on behalf of society as a means of helping to provide a source of low-cost, readily implemented, high-impact offsets credits. Offset credits are a viable, important cost-containment mechanism for cap-and-trade approaches to mandatory GHG emissions reductions programs. As a non-capped sector, the agricultural sector can participate in GHG emissions reductions programs by creating emissions reductions or enhanced soil sinks, thus keeping the economic impacts of the program as low as possible for society and capped sectors, while also providing important income-generation opportunities for the sector. A cap-and-trade program must take advantage of these high-impact GHG mitigation opportunities from the agricultural sector by providing a comprehensive, rigorous, yet streamlined approach that allows agricultural producers to participate without onerous or unduly complicated requirements that might hamper participation.

Virtually every major economic analysis of how the US can begin to slow, stop, and reverse its growing emissions of GHG relies upon the agricultural sector, and soil carbon sinks, in particular, as a near-term, low-cost pool of reductions to atmospheric emissions of GHG. These comments are intended to help achieve these goals in the context of a cap-and-trade program.

Subtitle D – Offsets (pp. 260-287 of S.2191)

Section 2401. Outreach initiative on revenue enhancement for agricultural producers (pp. 260-262 of S.2191)

Comments:

The outreach initiative is an excellent concept, and critical to prepare agricultural producers to participate in carbon markets. If the Federal government is going to establish mandatory policies to reduce nationwide GHG emissions, USDA should be obligated to prepare its constituents to participate in these markets. Because agricultural offsets are a cost-containment measure within a cap-and-trade policy¹,

¹ When EPA modeled the McCain-Lieberman bill in 2007, for instance, they ran scenarios with limited offsets to see the impact on program costs. EPA found that if the 30% limit on the use of offsets in that bill were lifted, the allowance price would fall by 35% every year, and the effect on GDP and consumption was

and because they additionally represent income generation potential for agricultural producers, any lag-time in the availability of agricultural offset allowances in carbon markets will have negative cost impacts for society, for the capped sectors, and for agricultural producers.

Thus, a near-term deadline is needed for implementation of this Outreach Initiative as quickly as possible after bill enactment but *prior* to the start of mandated carbon markets. Once familiar with the policy or program and opportunities available to the sector, it will take time for producers to go through all the requirements to research, prepare, and register a project, receive approval, and then implement the project – and no offsets allowances are even awarded until *after* emissions reductions or increased sequestration are actually achieved and measured – which, in the case of soil carbon credits, for example, will not occur until *at least* one year after initiation of the project. So unless USDA undertakes a significant advance effort to prepare producers, there will be a lag time before agricultural offset allowances even enter the marketplace. Delays in the availability of agricultural offsets will have negative economic impacts on the policy and producers.

Recommendations:

- establish a deadline of 12-months post-enactment for USDA to implement the outreach initiative;
- section (D), page 261, lines 4-7, and section (3) pge. 261, lines 14-19 of S.2191 should be merged into one section that establishes an appropriate number of regional centers that have sufficient technical expertise and can provide information on the process, the application package, as well as information on the availability, costs of, and access to measurement tools, aggregation networks, and regional marketing centers, for example. These centers should be the designated places that provide the outreach materials and workshops and technical assistance also referred to in this section;
- the 2-year deadline for the Handbook (page 261, lines 20-17 of S.2191) might be fine – but must include precise descriptions of a suite of available USDA-certified, standardized measurement, monitoring and verification (MMV) protocols for use in project development and implementation, whether for soil carbon sequestration or manure management projects, for instance.
- A suite of USDA-certified, standardized protocols should be developed by USDA in collaboration with the Consortium of Agricultural Soils Mitigation of Greenhouse Gases (CASMGs)² and made available before the Handbook is finalized. A full description of these protocols should be included in the

reduced by about 1/3 in 2030 and 2050. Alternatively, if offsets are not allowed in the program, allowance price costs would increase by over 150% in all years. *Source:* US EPA, Office of Atmospheric Programs: EPA Analysis of the Climate Stewardship and Innovation Act of 2007: S.280 in the 110th Congress, July 16, 2007 (PowerPoint presentation).

² CASMGs is a consortium of land-grant universities and DOE national laboratories that was established in 2002 by Congress to provide information on a comprehensive program of agricultural practices that support greenhouse gas mitigation. The overall goal of CASMGs is to provide tool sand information to implement mitigation options for agriculture and provide market opportunities for farmers. (www.casmgs.colostate.edu/)

Handbook. (see also *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil carbon sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects*, on page 6 of this document).

- the Handbook should be updated at regular intervals, as warranted by changes in science, practices, methodologies, or measurement protocols, for instance; and should be electronically available.

Section 2402. Establishment of Domestic Offset Program (pp. 262-265 of S.2191)

Comments:

The participation of the agricultural sector in a cap-and-trade program to reduce US GHG emissions is important to provide ample offset credits into the cap-and-trade system and GHG markets. Offset credits provide cost-containment for the capped sectors and the cap-and-trade system, and an additional income stream for agricultural producers. However, any limitation on the amount of offsets rewarded within the program will hamper project development by producers, since any uncertainty that exists regarding whether a producer will be paid for offsets presents an unnecessary risk to the producer and project developer. To fully incentivize agricultural emissions reductions and increased sequestration as a source of offset credits, no limitation should be placed on the amount of credits to be generated or rewarded by the agricultural sector.

Recommendations:

Agricultural emissions reductions and increased sequestration projects should be guaranteed offset credits within the legislation, either by ensuring that all agricultural offsets be awarded credits prior to other offset projects, or by developing an ‘overflow’ mechanism in the bill to ensure that no producer or project developer who delivers certified offsets to the system will be denied offset credits. Any ‘overflow’ mechanism should not decrease agricultural offset opportunities in the future, or reduce payments for agricultural producers, or otherwise reduce the economic benefits of offset credits to the cap-and-trade program or to agricultural producers. One possible approach is to award offsets in excess of the 15% annual pool of offsets from the Allocations in Subtitle G.

Section 2403. Eligible Offset Project Types (Pg 267 lines 5-8 of S.2191)

Comment:

This language would preclude other promising technologies being demonstrated and on the technology horizon.

Recommendation:

Suggest adding the following language: “...and (C) other management practices that reduce GHG emissions attributed to manure management practices.”

Section 2404. Project Initiation and Approval (pg. 267 of S.2191)

Comments:

This section can be streamlined and simplified by omitting tasks that can be standardized in advance by USDA (in collaboration with CASMGS and/or other experts), including, for instance, the multiple tests for and levels of discounts, and by establishing certified standards, protocols and procedures for measurement and monitoring (as previously proposed) and other aspects of project initiation and implementation that are currently approached on a case-by-case basis. In determinations where tools are utilized to determine measurement values, and by extension, the associated reward rates (e.g., measurement tools or methodologies used to measure soil sinks, as well as to establish discount values related to measurement certainty) USDA should be required to establish, prior to the start of mandatory emissions reductions regulations, a suite of USDA-certified, standardized protocols for agricultural producers to choose from prior to establishing emissions reductions or sequestration projects (see also *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil C sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects*, on page 6 of this document), and each protocol should have a standardized discount level established, based upon the level of certainty/uncertainty associated with the tool or methodology, as established by CAMSGS and USDA.

Recommendation:

Each certified protocol should have, at a minimum, an established discount value, so that project developers will know the discount rate that will be applied to their measured carbon stocks or other emissions reductions prior to even undertaking the project or choosing a particular measurement tool. (Note that currently, the way the legislation is written, the uncertainty values are decided on a case-by-case basis after the fact, which is an unnecessarily time-consuming and costly approach to what is a factual, science-based determination that can and should be established beforehand. Additionally, it should not be left to individual agricultural producers to research and choose a measurement instrument or technology – these should be identified, researched, described, and certified by USDA for use by producers.)

Pg. 268, lines 14-15 of S.2191, the “*greenhouse gas initiation certification*”

Comments:

This certification should *also* be offered as a preliminary step or pre-requisite that can be ascertained by USDA prior to a project owner or developer undertaking a project and completing the entire petition for offset approval (i.e., in addition to the certification being conducted upon submission of the full project package, a preliminary step should be offered to allow pre-certification, which a project developer might pursue if they feel any chance that their project might not be certified, or is an unusual or atypical project). Adding this preliminary step might

cut down on paperwork for project developers as well as for government certifiers.

Recommendations:

A project developer should be able to describe the proposed project and estimate the GHG flux (utilizing USDA-certified, readily-available tools) in a pre-proposal to get a determination that the project is consistent with the goals of this title, or not consistent with the goals of this title – and should be able to get this determination prior to preparing the entire package. Thus, a process should be added in which this step is streamlined for pre-certification, to result in a preliminary certification which can then be submitted as part of the entire package.

Pg. 268 lines 21-25 of S.2191, “Approval and Notification”

Comments:

6 months for approval of project proposal is far too long. USDA will need to devote the resources to review and approve (or reject, if appropriate) project proposals in a shorter time-frame than 6 months. Otherwise, the lag time between bill enactment and the availability of offset credits on the market will be unduly long, which will impact the costs of the entire cap-and-trade system, as well as the economic impacts of the system to the agricultural sector.

Recommendation:

The entire process will be enhanced if more of it is standardized. USDA should develop a suite of ‘off-the-shelf’ case studies as prototype projects for agricultural producers whenever appropriate, to streamline the project development and application approval process, to the extent possible. USDA must also devote adequate resources to the approval process to ensure the timely awarding of offset credits for completed projects.

Pg. 269, lines 10-11 of S. 2191, “issue offset allowances for approved projects”

Comments:

This refers to the issuance of offset allowances for approved projects; it is unclear how this differs from page 281, lines 15-17, which regards the issuance of offset allowances.

Recommendation:

The distinction between these two activities must be clarified, including how they differ, and whether they are two separate steps related to the same projects, for instance, or whether one process refers to a certain set of projects, and the second refers to different projects.

Pg. 271, lines 7-13 of S. 2191, “determination of uncertainty”

Comments:

Discounts based on the accuracy of measurement methods should be an inherent function of the USDA-Certified standardized protocols for measurement, monitoring, and verification (see also *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil C sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects*, on page 6 of this document), and should not be determined on a case-by-case basis for all projects.

Recommendation:

Standardized protocols should each have a discount factor based on the level of certainty/uncertainty associated with utilization of that methodology, so that project developers know prior to choosing a particular protocol or methodology what the associated discount will be.

Pg. 273, lines 20-25 of S. 2191 “(f) Development of Monitoring and Quantification Tools for Offset Projects”

Comments:

It should be noted here that agricultural sinks and forestry sinks have very different protocols and should be addressed separately in this legislation. These comments are specific to agricultural sinks, and may or may not apply to forestry sinks. Currently, the way the legislation is written, the uncertainly values are decided on a case-by-case basis after the fact, which is an unnecessarily time-consuming and costly approach to what is a factual, science-based determination that can and should be established beforehand. Additionally, it should not be left to individual agricultural producers to research and choose a measurement instrument or technology – these should be identified, researched, described, and certified by USDA, prior to the start of the mandatory GHG reduction program, for use by producers.

Recommendations:

- *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil carbon sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects* will be developed and regularly revised and updated, as changes in technology or science warrant. A suite of USDA-certified, standardized protocols should be developed by USDA in collaboration with CASMGS. These protocols should clearly define accepted measurement technologies for use in agricultural offsets projects, and should be precisely described, clear and transparent, and should include, at a minimum:
 - information on where to access, purchase or lease the equipment, tool, or software as described in the protocol;

- the costs of purchasing or leasing the instrument (if it is a piece of equipment) or software (if it is an electronic methodology, such as a model or the COMET-VR, for instance);
- clear instructions documenting how to properly use the instrument or technology for project documentation and acceptance, including where to go (or who to call) for specific questions not answered by the instructions;
- an estimate of the time required to utilize the instrument or software to perform the necessary function for the project (e.g., measure changes in soil carbon);
- each USDA-certified measurement, monitoring, and verification protocol should have, at a minimum, an **established discount level** that will be utilized for awarding offset credits. The discount levels should be established by USDA and CASMGS, and should be science-based and derived from the level of certainty/uncertainty attributed to its use. Producers should know the exact discount rate that will be applied to their measured carbon stocks or other emissions reductions prior to even undertaking the project. Note that for some methodologies, such as the CENTURY or EPIC models, discount rates may vary by region due to differences in the underlying data sets. Any such differences should be clearly identified and documented in the protocols.
- USDA and CASMGS should establish a suite of protocols, to include, for instance, the following methods or technologies:
 - **COMET-VR** – The Carbon Management Evaluation Tool for Voluntary Reporting, an on-line tool developed by the USDA Natural Resources Conservation Service (NRCS) to allow agricultural producers to consider how changes in management and conservation practices will affect soil carbon levels as well as fuel and fertilizer use on their lands. COMET-VR estimates can currently be used to construct soil carbon inventories for the DOE 1605(b) voluntary reporting of GHG emissions reductions program.
 - Colorado State University and USDA/NRCS have pilot tested a ***national soil carbon measurement and modeling network*** that combines the CENTURY and DayCent models with a subset of National Resource Inventory (NRI) points to collect 1,000 actual soil samples per year over a 5-year cycle, so that 5,000 soil measurements are taken every 5 years and input into the models. The 5-year length of time between re-measurement for each sampling site would allow sufficient time to accurately measure soil carbon changes over time. The system was designed as a long-term sustainable inventory activity, and would provide improved accuracy of and reduced uncertainty estimates of soil carbon sequestration at multiple scales, from field-scales to national scales. This system should be implemented by USDA in collaboration with CSU and included as a standardized protocol in the certified system of measurement protocols.

- **Management practice-based look-up tables** (similar to the Chicago Climate Exchange method of awarding soil carbon credits) should be developed to estimate changes in soil carbon or reductions in GHG emissions.
- **The CENTURY model and DayCent** models -- The CENTURY model is a general model of plant-soil nutrient cycling used to simulate carbon and nutrient dynamics for grasslands, agricultural lands, forest and savannas. The CENTURY model is used by the U.S. and other countries to estimate soil C stocks for annual Inventories of GHG Emissions and Sinks.
- **The EPIC (the Environmental Policy Integrated Climate) Model** is a soil/crop model composed of several simulation components for weather, hydrology, nutrient cycling, pesticide fate, tillage, crop growth, soil erosion, crop and soil management, and economics.
- **“Classical” soil carbon measurement**, utilizing core sampling of soils and processing of the soils in a laboratory with either wet or dry combustion to measure soil carbon.
- **Inelastic neutron scattering (INS)**, a rapid, non-invasive, non-destructive, portable or stationary platform technology that works at local and large field scales, and is based on gamma-ray spectroscopy from neutrons directed into soil.
- **Laser-induced breakdown spectroscopy (LIBS)**: a rapid, “person-portable”, field-deployable, high-resolution technology, uses a 1-mm spot laser beam focused on a pressed soil sample, which emits a spectrum with soil C data.
- **Mid Infra-Red Spectroscopy (MIDR)**: rapid, portable, with scanning capabilities; can be used in the field. Irradiates soil samples with mid-infrared radiation and collects the reflected radiation.
- **Near-infrared Spectroscopy (NIR)**: an in-situ technique, beams near-infrared light into soil, where it is absorbed by molecular vibrations which are recorded and measured. The instrument can be affixed on tillage equipment.
- **Pyrolytic Molecular Beam Mass Spectroscopy (py-MBMS)**: a rapid, transportable (not suitable for field use) technology, can detect and differentiate between new and old C; complimentary to other measurement technologies.

This section should also require that **USDA establish a process to allow for additional measurement tools and methodologies to be certified and added to the suite of standardized protocols that can be utilized for project development and documentation**. A petition process is recommended, to establish minimum criteria that a petitioner must satisfy in order to have USDA consider a review of the new technology or methodology for certification.

Pg. 274 of S. 2191 “(g) Development of Accounting and Discounting Methods”

Comments:

USDA should clearly describe accounting methods as part of the *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil carbon sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects* on page 6. Discounts relative to certainty/uncertainty of measurement technologies should be an established, science-based number that is assigned to each USDA-certified measurement technology or methodology as also described in that section. For many projects there will not be a need to develop discounts on a project-by-project basis, as proposed. Also, leakage is most often associated with forestry projects, not agricultural projects, and should be stated as such here.

Recommendations:

Many agricultural offsets projects will be similar (e.g. soil carbon sequestration projects; methane reduction from manure management, etc.). To aid in project planning, documentation, implementation, and approval, USDA should develop “off-the-shelf” case studies as templates for utilization by project developers during project planning and project development, implementation, and documentation.

Pg. 275 lines 1-3 of S. 2191: “Additionality Determination and Baseline Estimation

Comments:

The baselines for soil carbon sequestration projects should be temporal, only. Any increases in soil carbon stocks or reductions in emissions from a baseline date should be rewarded. The function of the additionality determination here should be a decision regarding whether increases in soil carbon stocks or reduced emissions of GHG are awarded offset credits (for those projects meeting additionality requirements) or through the allocation mechanism (for those projects not meeting additionality requirements).

Recommendations:

All agricultural offsets projects should have temporal baselines consistent with baselines for other projects as a function of the legislation. A determination of project additionality will serve to decide whether agricultural projects are awarded offset credits (for those projects meeting additionality requirements) or through the allocation mechanism (for those projects not meeting additionality requirements).

Pg. 276, lines 13-24, and page 277, lines 1-10 of S. 2191 “(h) Uncertainty for Agricultural and Forestry Projects”

Comments:

Uncertainty is a function of the measurement protocol utilized, and should thus be ascribed to each certified protocol. Also, the “*exaggerated proportional discount that increases relative to uncertainty, as determined by the Administrator, in conjunction with the Secretary of Agriculture, to encourage better measurement and accounting*” is onerous and unnecessarily penalizes agricultural producers for the existing lack of certified, standardized protocols that USDA should establish on behalf of its constituents.

Recommendation:

Omit this section. This function should not be left to individual producers to research or decide, only to have a decision made later by a federal entity that unduly penalizes them even after they have followed the established rules and procedures. Discounts should be a function of certified, standardized measurement, monitoring and verification protocols, based on the level of certainty/uncertainty associated with each tool or methodology.

Pg. 277, lines 11 – 23 and pg. 278 lines 1-9 “(i) Acquisition of new data and review of methods for agricultural and forestry projects”

Recommendations:

Omit this section, and incorporate instead a comprehensive requirement for USDA to establish certified, standardized protocols for measurement, monitoring and verification of emissions reductions and soil sequestration increases (see also *Standardized, USDA-certified measurement, monitoring and verification protocols for measuring increases in soil carbon sequestration and reductions in GHG emissions from the agricultural sector and agricultural sector projects*, page 6), and a process for adding new and improved protocols to the established suite of certified protocols (see also *USDA establish a process to allow for additional measurement tools and methodologies to be certified and added to the suite of standardized protocols that can be utilized for project development and documentation* on page 8).

Pg. 279 lines 13-16 “calculation of leakage...assessment of permanence...discounting for uncertainty...”

Comments:

A calculation of leakage should only be required if it is appropriate – which it will not be, for many agricultural projects, since 90% of leakage in terrestrial sinks projects is associated with forestry projects. There should be no discounts for permanence, since permanence is later dealt with by requiring that any losses be completely replaced with new allowances (see section 2406, page 281 of S.2191),

and, annual reversal certifications are required to show that reversals have not occurred (see section 2406, pages 281-283 of S.2191).

Recommendations:

To line 13, add the words "...if appropriate;"
Omit lines 14-16.

Pg. 284 – "Pre-existing Projects"

Comments:

Rather than include these here, which will create issues with additionality and baselines, pre-existing projects should be reviewed and considered for credit, as described in this section, within **Subtitle G – Domestic Agriculture and Forestry Allocations**. Emissions reductions achieved through the allocations provision are redundant, anyway (they are being required in addition to the allowances provided – which in effect, lowers the cap), so rewarding pre-existing emissions reductions via this section allows proper rewards for those activities without accounting for them in the limited offsets provision.

Recommendation:

Move this section to **Subtitle G – Domestic Agriculture and Forestry Allocations**, and reward pre-existing projects (those that do not meet an additionality requirement) through this provision (see below).

Subtitle G – Domestic Agriculture and Forestry (pp 333-342 of S.2191)

Sec. 3702. ***Agricultural and Forestry Greenhouse Gas Management Research***. (page 333, lines 16-23, page 334, lines 1-13)

Comments:

This entire section should be moved to Subtitle D, since it is far more important that the research basis for these activities be established for offset projects, as opposed to allocations (which represent a redundant set of emissions reductions).

Recommendations:

Move this entire section to **Subtitle D – Offsets**.

Pg. 334 "(b) Standardized system of soil carbon measurement and certification for the agricultural and forestry sectors" (page 334, lines 14-23 and page 335 lines 1-13)

Recommendations:

This section should be omitted, and instead, allowances awarded via this provision to the USDA should be given to projects in the following categories:

- (1) pre-existing projects (see pages 284, lines 16-25, and 285, lines 1-9), to reward early actors;
- (2) projects that do not meet a strict additionality requirement; this would allow early actors to be rewarded for their activities and GHG emissions, and would prevent perverse incentives that might otherwise lead to activities that reverse some of these emissions reductions or enhanced sequestration;
- (3) carbon sequestration or GHG emissions reductions associated with conservation or other farm programs that occur as a result of these programs but which would not otherwise be rewarded; and
- (4) offset projects that utilize measurement, monitoring and verification protocols (certified and standardized by USDA) that do not meet a minimal certainty threshold, as decided by USDA in collaboration with CASMGS.