Recommendations to Enhance the Biological Sequestration Provisions of the American Clean Energy and Security Act of 2009
25x'25 Carbon Work Group
Sept. 9, 2009

Introduction

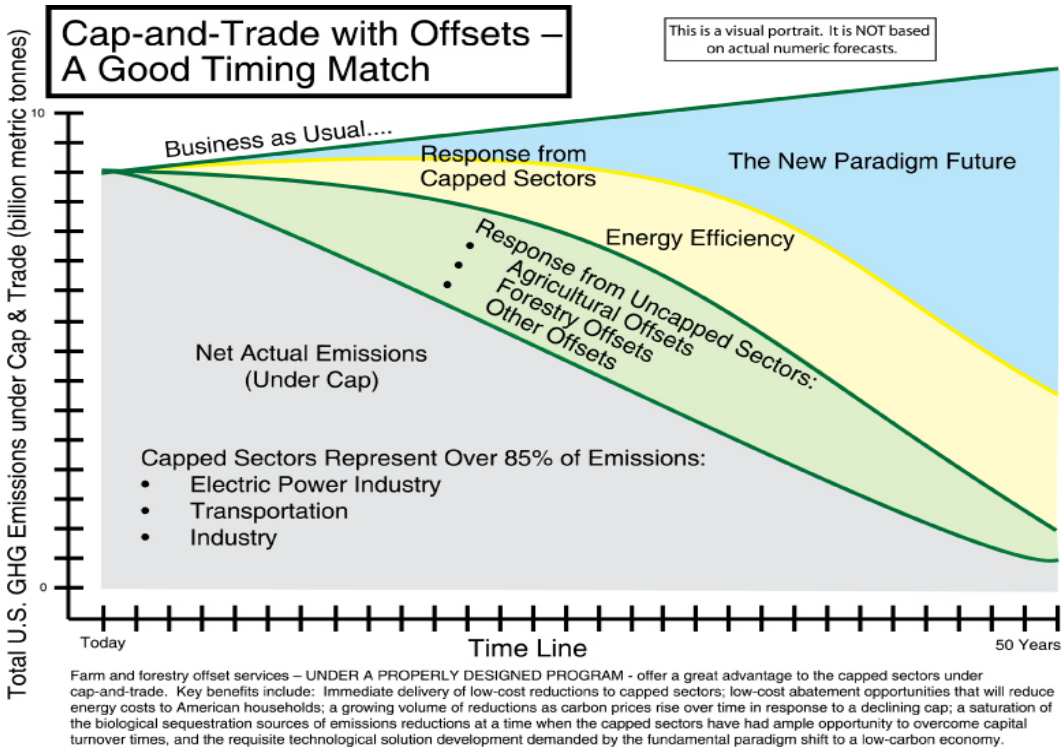
The 25x'25 Carbon Work Group (CWG) has been engaged for more than a year in a process of identifying key policy options for delivering climate change solutions from the land and allowing the agricultural and forestry sectors to be rewarded for their contributions to emissions reductions via direct reductions, avoidance, and sequestration. One of the Work Group's principal conclusions was that the agriculture and forestry sectors are well positioned to offer solutions to counter climate change and *with the correct enabling policy* farm, ranch and forestland owners have much to gain.

As cap and trade legislation emerged in the House, the CWG identified key policy components in the American Clean Energy Security Act of 2009 (ACES) that can optimize agriculture and forestry's contributions and opportunities under the proposed cap-and-trade system for reducing GHG emissions. While a number of the CWG's recommendations were accepted and integrated into the final bill that was passed, several critically important recommended changes were not made and, if left unaddressed, could compromise the effective functioning of proposed offset markets.

Since the ACES Act was passed by the House, the Carbon Work Group has identified a number of areas within the bill (listed in *Appendix One*) that must be modified before final adoption to optimize the role of agriculture and forestry in delivering GHG reduction services. This brief outlines details about the biological sequestration (bio-seq) areas in need of modification and identifies bio-seq provisions of the offset title (Title V) of the ACES Act that can be enhanced.

Bio-Seq Offsets are Critical

Biological sequestration represents upwards of 90 percent of the expected total offsets during all timeframes outlined in the ACES legislation. Thus from a macro perspective, biological sequestration is the linchpin of an effective domestic offsets program for the agriculture and forestry sections. Bio-seq offsets are the only means by which domestic offsets can deliver low cost, near term and high volume GHG reductions, all critical requirements in allowing the uncapped sectors of the economy to facilitate the capped sectors' transition to a low-carbon future.



Farm and forestry offset services – UNDER A PROPERLY DESIGNED PROGRAM - offer a great advantage to the capped sectors under cap-and-trade. Key benefits include: Immediate delivery of low-cost reductions to capped sectors; low-cost abatement opportunities that will reduce energy costs to American households; a growing volume of reductions as carbon prices rise over time in response to a declining cap; a saturation of the biological sequestration sources of emissions reductions at a time when the capped sectors have had ample opportunity to overcome capital turnover times, and the requisite technological solution development demanded by the fundamental paradigm shift to a low-carbon economy.

Recommendations for an Effective Bio-Seq Offset Program

The 25x'25 Carbon Work Group offers the following recommendations to enhance the effective functioning of the climate change legislative proposal (ACES) which passed the House and is pending action in the Senate. The recommendations are structured to suggest ***what*** is needed in the legislation to optimize the contributions agriculture and forestry can make in a climate change regulatory program, not ***how*** the outcomes will be achieved. The latter will be determined by the Secretary of Agriculture, when the rules are promulgated to implement the legislation that the Congress adopts.

The following six bio-seq recommendations all affect Title V – Agricultural and Forestry Related Offsets – Subtitle A – Offset Credit Program from Domestic Agricultural and Forestry Sources – Sec. 504, Requirements for domestic agricultural and forestry practices.

Topic	Biological Sequestration Offsets Recommendations (HR 2454 Section 504)
Environmentally Acceptable Duration (as substitute for "permanence")	**Instead of asking for permanence, the legislative language must specify a finite, environmentally acceptable duration period (a certain number of years) for biological sequestration projects.**
Environmentally Acceptable Duration Contract Periods	**Under a system of contracted duration, the legislation must allow contract lengths to be either the full period or sub portions such as 5 year terms. Note that this is NOT a term offset (see Risk Management below).**
Buyer and Seller Risk Immunization	**Legislative language must be altered to fully immunize both offset sellers and buyers from all consequences of unintentional reversals and of leakage. The central, pooled risk management function will manage all risks without subsequent consequences for either the buyers or sellers. It is understood that the offset program must include a mechanism to hold offset providers accountable for any and all intentional reversals.**
Risk Management Behind the Registry (RMBR)	**To achieve seller and buyer risk immunizations, offsets must be credited by the program Administrator at a discounted rate (lower payment rates or lower offset crediting rates both can work). The discount is the source of funds to manage all pooled risks. The discount rate will cover these pooled risks: unintentional reversals, leakages, and temporal adjustments for contract periods less than the full environmentally acceptable duration contract period.**
Fungibility	**The legislative language must be reflect the intention that all offsets are fully fungible with each other and with allowances. This affirmative declaration of fungibility is fully consistent with and possible because of the RMBR system of pooled risk management and the related risk immunization for both sellers and buyers of offsets. Note that offsets, once issued by the registry, which is after RMBR, can be serial numbered, but must not convey any association with the underlying source project.**
Program Cost Containment	**Program cost containment must be an explicit objective and can be addressed, at a minimum, in the areas of central risk management (RMBR), risk immunization, market transaction costs (fungibility), and offset protocol requirements (for operating practices, data collection, reporting, and verification).**

Background

This section details the reasoning behind the previously listed recommendations. There is at the end of this section an "Offset Solutions" flow chart that provides a useful visualization of how offsets flow from project owners, into a risk management pool, into a registry, and into the marketplace as fungible, one-tonne credits fundamentally indistinguishable from each other and from allowances.

1. Environmental Integrity and Delivery of Sequestration Services.

Bio-seq helps to alleviate the build-up of atmospheric greenhouse gasses. Over time, the global economy must fundamentally move to a low or zero carbon fuels future and bio-seq can contribute to the interim solutions which facilitate this long-run transition.

Bio-seq offsets are particularly challenged by the need for “permanence”. If the sequestered carbon does not stay out of the atmosphere for an acceptable period of time it fails to deliver the needed environmental service. "Permanence" is an ideal objective that is operationally unachievable. However, offsets can be defined as holding the sequestered carbon out of the atmosphere (where it will be CO_2) for an environmentally “acceptable duration,” a prescribed number of years.

The environmental objective is to progressively and substantially raise the amount of carbon sequestered, with the cumulative effect being a permanent shift upward in average carbon stocks. To reach that necessary level of carbon stocks, individual projects, and forests and soils, should be allowed acceptable fixed duration periods of sequestration. Program rules for offset agreements that guarantee the sequestration of carbon for an "acceptable duration" must be written so that they are operationally and financially compelling enough for farm and forestry interests to alter practices in order to earn carbon offset market revenues. Failure to implement a manageable bio-seq offset system, starting with an effective definition of “acceptable duration,” will result in programs that will not produce the changes, will not sequester the needed carbon, will not produce low cost offsets to support the larger cap-and-trade objectives, and will not satisfy farm and forestry interests.

As well as environmental integrity of outcomes, other objectives that need to be met are: insuring that offsets-allowances are fungible (freely interchangeable); that program operational costs are minimal; and that the rules provide full risk immunization and pooling for both buyers and sellers.

2. Minimize Costs.

Experience has shown that the quickest way to overwhelm the effectiveness of a program and discourage the launch of offset projects is to structure the bio-seq system in a way that entails too much cost and too many responsibilities. It's important to maximize efficiency and minimize costs for both offset buyers and sellers. There are three program elements that have an enormous impact on program costs and effectiveness: protocols and practices; risk immunization for buyers and sellers; and fungibility and market transaction costs.

Protocols and Practices.

Offset sources need clear, simple, protocols, or rules, which define eligible practices and associated record keeping. The cost of perfect information is usually too high. So, reasonable compromises, including conservative carbon accumulation rules, must be employed.

Risk Immunization of Buyers and Sellers.

If an offset buyer knows that all risks are managed by the central risk managers and if the offset buyer is awarded a fungible (freely interchangeable) instrument wholly separate from the performance of the project that provides the credits, then the buyers have been fully immunized. The CWG refers to this as Risk Management behind the Registry (RMBR). Under RMBR all offset transactions can occur at a uniform, fungible, market price for one ton of emissions, regardless of whether it's an offset or an allowance, and regardless of the nature or details of the project that's earning the offset credit. With RMBR, the buyer is able to manage their own carbon footprint - and their own business - *without* the otherwise costly necessities of having to evaluate the risk characteristics of each offset project, calculate a fair offset price given those risk characteristics, and negotiate a bilateral transaction (brokered or not).

Similarly, if an offset seller can receive a known price and then have the central risk manager responsible for all outcomes (except voluntary reversals), they also can be fully immunized against risks and uncertainties. This

immunization frees sellers to focus on running their businesses and properly executing the approved carbon accounting protocol associated with their business practice that is generating the offset credit.

For sellers, the offset price will need to be a percentage of the known, fungible, market price at which buyers and traders transact business. Under RMBR, the program central risk manger will calculate and publish the applicable percentage discount from the market price at which each type of offset will be purchased from the project owner.

The risk manager by definition will pool risks so that unintended reversals and system leakage issues are all properly accounted for in the posted, discounted purchase prices for offsets. Each type of practice, whether it's no-till soil carbon or reforestation of a given type, must have its own pooled risk of reversal and leakage discount factors specific to that type of practice.

Beyond reversal and leakage discounts, a third "temporal" discount would apply to the issue of time. If, for example, an environmentally acceptable duration of sequestration is set at 50 years, in order to minimize costs and facilitate a working program, some offset sellers will need the flexibility to commit to shorter periods of time, probably in five-year increments. The central risk managers will calculate the appropriate discount factor for each of those increments based upon several factors, including the time value of money and the relative valuation of bio-seq services based upon when they occur.

Under the program design we envision, all three types of bio-seq offset seller risk discounts - unintended reversal, leakage, and temporal - would be folded into a single, simple percentage discount for each bio-seq offset project type. This allows an offset provider or potential provider to observe current and expected future market prices and be able to calculate the monies to be received as a percentage of that price. At that point, the seller’s sole responsibility is to meet protocol accounting rules for data collection, monitoring and verification, leaving them fully immunized against events outside their control.

RMBR is aimed at simplifying the process for buyers and sellers. The central risk manager takes in discounted offsets, pools them and then posts them onto the offset registry, sending fungible offsets into the marketplace. While the sellers and buyers are immunized, the central risk manager must constantly monitor results and raise or lower the percentage discounts over time for forward purchases in order to keep the risk pool whole. Central risk management must be comprised of able analysts capable of sophisticated calculations and assessments. For offset providers and sellers, prices will be known, eliminating surprises or costs for risks and reasons outside of their control. Under RMBR, by immunizing the buyers and sellers, and centralizing risk management, program costs are dramatically reduced, offset volumes are maximized, and environmental integrity is maintained.

Fungibility and Market Transaction Costs.

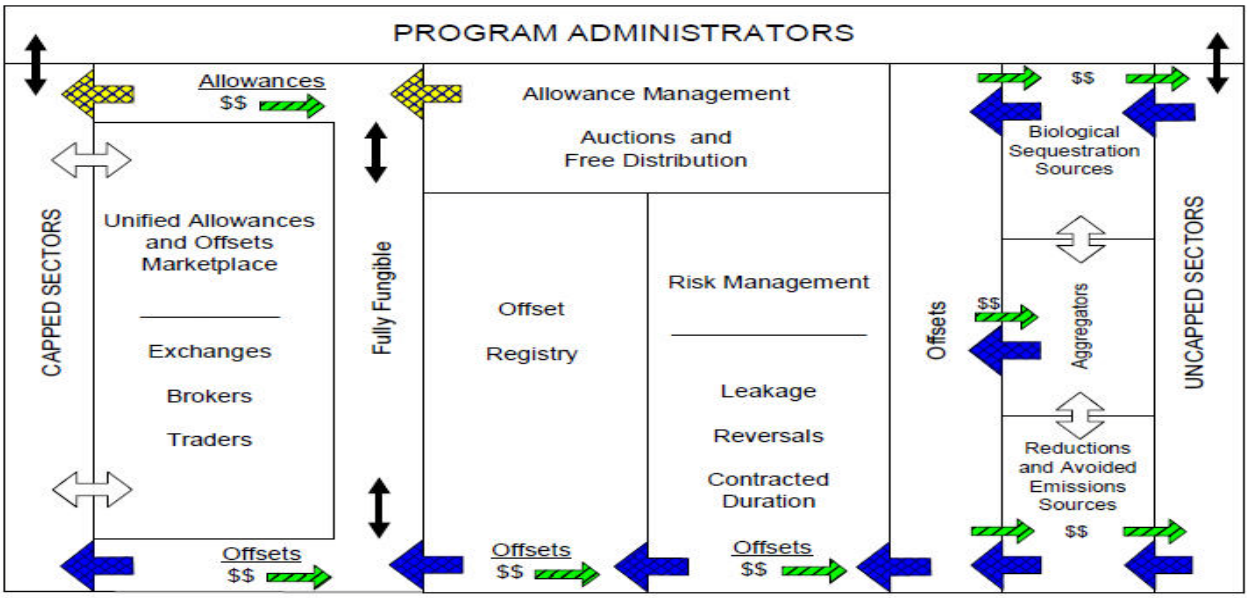
With a well crafted risk immunization structure and a central risk management function that ensures that all offsets are fungible (readily interchangeable) with each other and with allowances in the marketplace, the cost of carbon credit market transactions for speculators (traders) and capped sector buyers is minimized. Buying and selling carbon credits (offsets or allowances) will thus have low transaction costs. The unfavorable alternative is high transaction costs from the special handling for project risk assessment and tracking.

3. Maximize Offset Volumes

A steady supply of high quality offsets will only occur if the offset providers can profitably produce offsets at a cost below their net realized price. The realized price for an offset seller will be a percentage discount off the market price (representing three separate pooled risks as described above) less all costs to change operating practices to create the offsets and manage the recording keeping and reporting.

Offset programs are valuable because they induce changes in the uncapped sectors and because they help to ensure that the overall lowest cost reductions are made available to the capped sectors. The bottom line is that all energy users in all walks of life will have their costs minimized when presented with the necessity of implementing a comprehensive low-carbon future. A switch to a low carbon future holds costs – at least in the short run - and that cannot be changed. A well designed cap and trade offset title can reduce those costs dramatically.

OFFSET SOLUTIONS
FOR THE CAP AND TRADE MARKET
(Depiction by 25x25)



Appendix One

25x'25 Carbon Work Group Recommendations for Improvements to the American Clean Energy Security Act of 2009				
Issue	Significance	Problem Categor	Potential Negative Consequences	Possible Solution
sequestration #1 - permanence	"permanence" is an operational non-starter	Critical	precludes significant offset volumes	environmentally acceptable duration
sequestration #2 - term offsets	an operational failure (tCER) in the past	Critical	high system and transaction costs; low offset revenues	contracted duration; permanence=X years
sequestration #3 - offset prices	needs ag & forestry self-education	Critical	unrealistic expectations	model expected prices on simple assumptions
sequestration #4 - risk management	how risks insured, who is responsible	Critical	systemic failure as consequence of risk overhead/cost	risk management behind the registry (RMBTR)
sequestration #5 - reversals	how reversal risks are accounted for	Critical	systemic failure as consequence of risk overhead/cost	buyer & seller risk adjusted immunization
sequestration #6 - offset fungibility w/allowances, other offsets	trading market effectiveness and cost	Critical	transaction cost overhead immobilizes market	risk management behind the registry (RMBTR)
allowance distributions	transitional assistance if low offset potential	Important	lack of political support from ag&forestry subsectors	allocated allowance share
allowance distributions	biofuels value chain partners seek help	Important	raises cost of liquid biofuels vis-à-vis other sectors	allocated allowance share
allowance distributions	bio-based product partners seek help	Important	raises costs vis-à-vis petro chemical sources	allocated allowance share
allowance distributions or other support	small landowner eligibility: carbon; electricity	Important	failure to include small landholders' contributions	various bills; definitions;
additionality and baselines	balance between rigor and offset quantity	Important	eliminates supplemental reductions or allows bogus	appears about right as is
connection between renewable energy and low-carbon future	loss of C&T support by sector members	Important	lack of political support from ag&forestry subsectors	better articulation of the interconnections
crediting periods	incentivize and maximize reductions	Important	unintended consequences; reversals, under investing	retain W-M renewable crediting periods
early actors not disadvantaged (post 1.1.2012)	makes all supplemental reductions eligible	Important	potential for unintended consequences	fix may not be needed; additionality related.
early offset supply (1.1.09-12.31.2011)	sets eligibility and determines early supply	Important	failure to build offset supply in early years	needs specifications
exchange for early offset credits (1.1.2001-12.31.2008)	sets period reward level and eligibility	Important	uncertain eligibility; financial reward size	may be need to just wait
land use change confusion	will cap and trade push land into forestry	Important	potential cost structure shifts for food and livestock	clarification of consequences of W-M, other
management of carbon trading markets, especially derivatives	market pricing should reflect supply & demand	Important	markets may be driven by speculative forces	regulatory control of even OTC trading;
project type eligibility positives list	inclusion of all valid practice types	Important	early years of cap and trade do not allow valid projects	substitute "will include" for "such as"
allowance distributions	to avoid deforestation;	Minor	deforestation	finance permanent conservation easements
domestic offset parity for strategic reserve	allows domestic level playing ground	Minor	domestic offsets displaced by international	parity for both types
performance standards and CH4	uncapped sectors required to reduce	Minor	uncompensated mandatory reductions	clarify that ag CH4 exempt as written