United States Department of Agriculture

Climate Change Program Office
Office of the Chief Economist
1400 Independence Avenue, SW
Washington, D.C. 20250-3810

May 25, 2012

Dr. Holly Stallworth, Designated Federal Official
Science Advisory Board
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460
(Transmitted via email)

Dear Dr. Stallworth and members of the Biogenic Carbon Emissions Science Advisory Board,

As director of USDA's Climate Change Program Office (CCPO), I am submitting these comments regarding the Environmental Protection Agency's draft *Accounting Framework for Biogenic CO2 Emissions from Stationary Sources* (hereafter *The Framework*) on behalf of USDA. As an office with a long history of coordinating climate change issues and research across USDA agencies, CCPO recognizes and appreciates the work of EPA and the Science Advisory Board (SAB) in clarifying many of the complex issues underlying *the Framework*. Our knowledge in this arena is growing as both the science and the feedstock markets themselves continue to evolve.

I would like to express my appreciation of the extent to which the SAB has addressed the issue of scientific uncertainty. There is minimal uncertainty when it comes to the greenhouse gas benefits of using biomass feedstocks from existing land uses with shorter recovery rates and feedstocks derived from wastes, agricultural and forest residues, and thinnings for the purposes of reducing fire risk. The SAB's draft reports, the case studies provided by EPA, and USDA's own experience demonstrate that the utilization of these feedstocks for energy production has beneficial impacts on greenhouse gas concentrations. There is less clarity on the extent of the greenhouse gas benefits of utilizing long-rotation forests or shorter-rotation feedstocks from newly converted land for energy production. Studies being considered by the SAB indicate that the net effect of these feedstocks on atmospheric GHG concentrations is ambiguous and likely highly contextual. Anticipatory investments in biomass feedstock production could very well increase existing carbon stocks, but it is also plausible that increasing demand for biomass feedstocks could draw down existing carbon stocks for some period of time.

In contrast to the scientific uncertainty regarding biogenic emissions, it is clear that markets for bioenergy, bioelectricity, and the associated feedstocks require greater certainty if businesses are going to invest in biomass energy technologies. Economic issues, including uncertainty about administrative and implementation costs, are perceived to be the biggest barrier to adoption of these technologies[1]. *The Framework* does not provide this certainty as it leaves many key issues

[1] Sundstrom et. al. 2012 Woody Biomass Use Trends, Barriers, and Strategies: Perspectives of US Forest Service Managers. *Journal of Forestry*, Volume 110 #1, p.16-24.

unresolved and relies on annually updated calculations that are likely to capture volatility in carbon stocks that are unrelated to bioenergy feedstock demands.

In light of these concerns, USDA's offers the following general comments:

- USDA prefers the IPCC accounting framework, which addresses biogenic feedstocks within the land sector. Since the production of these feedstocks occurs within the land use sector, policies addressing the emissions and sequestration should be pursued within that sector. The IPCC approach would represent a categorical exclusion under the Clean Air Act (CAA) insofar as it excludes biogenic emissions *from the energy sector*; the IPCC approach is not equivalent to an a priori assumption that these feedstocks are produced in a carbon neutral manner or an assertion that land use activities contributing feedstocks to the energy sector can be managed without consideration of atmospheric outcomes.[2] While USDA shares the SAB and EPA view that the IPCC approach would not work for facility-level BAF calculations, USDA suggests that the EPA and the SAB reconsider the scientific validity of the IPCC approach under general, feedstock-specific BAF calculations.

- Alternatively, if on further consideration EPA and SAB continue to reject the IPCC approach of categorically excluding biogenic emissions from consideration within the energy sector, then USDA suggests that EPA and the SAB consider the merits of conditional exclusions for given feedstocks. Conditional exclusions could be considered as an alternative to a blanket categorical exclusion for three reasons: policy interactions, scientific uncertainty, and existing scientific evidence.
    - First, the exclusions from energy sector regulation of major feedstocks is conditioned on the fact that other policy frameworks are already in place or could be developed to address major sources of land use emissions and carbon sinks.
    - Second, the scientific uncertainty for some feedstocks warrants exclusion at this time given existing GHG inventory results, but future inventory observations may require reconsideration of this decision. The feedstocks that have generated the greatest debate within the SAB are not yet being utilized as energy feedstocks on a large scale. We do not yet know where and how these feedstocks will be produced, and how they might influence our net national GHG emissions. A conditional exclusion under *the Framework* would provide EPA's future CAA regulations with the adaptive capacity to allow the markets and the science on their net impacts to develop.
    - Third, as noted in the following point, for many feedstocks where the science is relatively clear, it appears that these feedstocks are approximately carbon neutral or substantially beneficial relative to fossil fuels. A conditional exclusion for these feedstocks would give certainty to bioenergy markets about the costs and potential regulatory burdens associated with these feedstocks and encourage adoption of the GHG beneficial technologies.

- USDA would like EPA and/or the SAB to clearly identify feedstocks for which the science supports biogenic accounting factors (BAFs) of 0. The EPA's case studies show that for many potential feedstocks, the BAF calculation is zero or close to zero. Having assessed the available science, it would be better to give these feedstocks an exclusion, either categorical or conditional, at this stage rather than to encumber stationary sources

[2] See Gomez, D.R., *et al. (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, "Chapter 2: Stationary Combustion." (section, 2.3.3.4).

and feedstock producers with a complex and costly accounting framework that is likely to arrive at the conclusion these feedstocks are reasonably close to being carbon neutral.

- USDA recognizes that *the Framework* needs to allow for the fact that a given feedstock can have different recovery/regrowth rates in different regions. However, the SAB's draft report often discusses regions that are defined with respect to the stationary source, i.e.: as "fuelsheds". These conflicting definitions of regions are a problem, particularly when it is unclear how these feedstock markets will ultimately evolve. Wood chips and pellets are already being shipped internationally, suggesting that the idea of regional "fuelsheds" is probably inappropriate within *the Framework*. To the extent that EPA refines its definition of regions, it should reflect clear and broad differences in feedstock production characteristics rather than differences in the location of feedstock demand.

Observations on the science and use of regulatory of baselines

When it comes to the issue of using reference point (historical) baselines or anticipated (business-as-usual) baselines, USDA recognizes that neither type of baseline is ideal, and both have strengths and significant weaknesses. The main reason that is it difficult to choose between these two very different baseline approaches is that EPA has chosen to develop the Accounting Framework separately from, and prior to, the rulemaking process. If it was clear how the BAF baselines would be used in a regulatory setting, it would probably be easier to choose the more appropriate baseline approach.

The anticipated baselines proposed by the SAB are calculated using models that, particularly over the long-run, are highly sensitive to both structural and parametric assumptions.[3] In other words, different models come up with widely differing baselines (and net effects on carbon). Also, the same models often generate widely differing baselines with only modest variation in a few key parameters. Newer models like the Forest Dynamics Model used by in the forthcoming 2010 Resource Planning Act projections and Southern Forest Futures report[4] explicitly include stochastic/probabilistic variations in their projections, meaning there is no single "correct" or precisely replicable estimate of the projected baseline.[5] At best a "representative" baseline for the aggregate of model results can be chosen, but claiming such a sample is indicative for regulating individual operators would not seem appropriate. For this reason, USDA prefers the historic baseline approach that EPA has proposed in *the Framework*.

However, USDA also recognizes that there are situations in which historic (or reference point) baselines do not capture the underlying trends in carbon stocks, such as in areas that have declining forest carbon stocks due to either the nature of the age class distribution, the loss of forest land to competing uses such as urbanization, or uncontrollable natural disturbances. Balancing these concerns in implementation of the regulations is likely to be a key challenge for EPA.

[3] Marshall, E., *et al.* 2011. Measuring the Indirect Land-Use Change Associated with Increased Biofuel Feedstock Production: A Review of Modeling Efforts. USDA Economic Research Service. (AP-054 http://www.ers.usda.gov/Publications/ap/ap054/).

[4] http://www.srs.fs.usda.gov/futures/reports/draft/Frame.htm

[5] M. F. Acevedo, D. L. Urban and M. Ablan. 1995. Transition and Gap Models of Forest Dynamics. Ecological Applications. Vol. 5, No. 4, Nov., 1995 (1040-1055) and Poylakov, M., D.N. Wear, and R. Huggett. 2010. Harvest choice and timber supply models for forest forecasting. Forest Science 56(4):344-355.

Observations on our understanding of and the regulation of leakage effects

Leakage estimates should not be included in *the Framework* for a number of reasons. First, addressing leakage in the BAF calculations for biogenic feedstocks would result in an inconsistent treatment of biomass compared to other sources of energy under the CAA. Further, we do not believe it is feasible to develop reliable estimates of leakage due to the scientific uncertainty regarding the magnitude and even the directionality of these impacts, for the same reasons we are hesitant about using modeled estimates for regulatory baselines.[6] Past attempts to quantify leakage in the form of indirect land use change have proved difficult and early estimates of these effects are difficult to reconcile with recent historical evidence. Though additional research will reveal better empirical data and estimates of such effects, the directionality and magnitude are unlikely to ever be certain or fixed overtime, as they will be heavily dependent on interactions with other policies (land use restrictions, etc.), other markets (forest products, transportation costs, fossil fuel prices, etc.) and evolving technology alternatives that are constantly changing. As such, while thinking about indirect effects is extremely important from a scientific and broad-based policy perspective, managing those specific effects may in many cases be better managed by policies directly targeted at where the emissions occur.

Observations on SAB proposed alternatives to the proposed BAF approach

USDA is concerned that such a certification system based on the net carbon emissions of woody biomass production would be cumbersome and costly to implement, as it would likely require chain-of-custody and segregation of feedstocks by source, without clear greenhouse gas benefits. Adding additional economic costs to the feedstock production chain is especially problematic, as many of the most beneficial feedstocks (e.g. currently unused material from forest health treatments, etc.) are perhaps those that are the most economically marginal. Administrative costs of forest carbon certification can be substantial, potentially exceeding $20 per ha depending on the protocol and the size of project being certified[7].

Again, thank you to EPA and the SAB for leading this effort to bring clarity to the challenging issues surrounding the use of renewable biomass for energy generation and the degree to which that lowers US CO_2 emissions.

Sincerely,

William Hohenstein
Director, Climate Change Program Office
USDA

[6] See, for example, Djomo, S.N., and R. Ceulemans. 2012. "A comparative analysis of the carbon intensity of biofuels caused by land use change." Bioenergy. (Available online, volume and page not yet listed.)

[7] Galik et. al. 2009 Transaction Costs and Forest Management Offset Potential, Working paper, Climate Change Policy Partnership. Duke University, Durham NC. 16p. Online at http://www.nicholas.duke.edu/ccpp/ccpp_pdfs/transaction.07.09.pdf; last accessed May 17, 2012.