

**Summary Minutes of the  
U.S. Environmental Protection Agency  
Science Advisory Board  
Biogenic Carbon Emissions Panel  
Hyatt Regency, 400 New Jersey Avenue, N.W.  
Washington, D.C. 20001  
October 25 – 27, 2011**

Biogenic Carbon Emissions

Panel Members:

Dr. Madhu Khanna, Chair  
Dr. Robert Abt  
Dr. Morton Barlaz  
Dr. Richard Birdsey  
Dr. Marilyn Buford  
Dr. Mark Harmon  
Dr. Jason Hill  
Dr. Stephen Kelley  
Dr. Madhu Khanna  
Dr. Richard Nelson  
Dr. Lydia Olander  
Dr. John Reilly  
Dr. Charles Rice  
Dr. Daniel Schrag  
Dr. Roger Sedjo  
Dr. Ken Skog  
Dr. Tristram West  
Dr. Peter Woodbury

Purpose: The Science Advisory Board (SAB) Biogenic Carbon Emissions Panel reviewed EPA's *Accounting Framework for Biogenic CO<sub>2</sub> Emissions from Stationary Sources (September 2011)* (available at: [http://www.epa.gov/climatechange/emissions/biogenic\\_emissions/study.html](http://www.epa.gov/climatechange/emissions/biogenic_emissions/study.html).)

Designated Federal Officer: Dr. Holly Stallworth, Designated Federal Officer

Other EPA Staff: Joe Goffman, Suzanne Kocchi, Bill Irving, Jennifer Jenkins, Sara Ohrel, Angela Dickens, Reid Harvey, Rona Birnbaum, Vincent Camobreco, Jia Li, Heather Klemick, Jeneva Craig, David Evans

Public: Joel Visser, Sidley Austin; Paul Noe, American Forests and Paper Association (AF & PA); Stan Lancey, AF & PA; Jerry Schwartz AF & PA; Mike Jostrom, Plum Creek Timber Co.; Reid Miner, National Council for Air & Stream Improvement; Steve Prisley, Virginia Polytechnic Institute; Thomas Buckholz, Spatial Informatics Group; Charles Canham, ICF; Mark Flugge, ICF; Neil Sampson, The Sampson Group; Gregg Marland, Appalachian State University; Chris Bliley, Growth Energy; Tom Walker, Manomet; Chip Murray, National Alliance of Forest Owners; Steven Wallender, U.S.

Department of Agriculture; Bob Cleaves, Biomass Power Association; Ed Repa, National Solid Waste Management Association; Marchant Wentworth, Union of Concerned Scientists; Maria Hegstad, Inside EPA; David Ailor, National Oilseed Processors Association; Chris Farley, USDA, Ruben Lubowski, Environmental Defense Fund; Cynthia Finley, National Association of Clean Water Agencies; Steve Hamburg, Environmental Defense Fund; Tiffany Tecker, ClimateWise; Andrew Harker, Russell and Barron; Andrew Bolton, Hunton and Williams; Stephanie Batchelor, Biotechnology Industry Association; Sarah Canwell, Biotechnology Industry Association; Dawn Reeves, Inside EPA; Joshua Martin, Environmental Paper Network; John Barnwell, Society of American Foresters; Brian Siu, Natural Resources Defense Council; David Garman, Decker Garman Sullivan; Dave Tenley, National Alliance of Forest Owners; Roger matella, Sidley Austin LLP; Diana Pape, ICF; Sallie Gilbert, International paper Company; Bob Harris, Nutter & Harris; Greg Krissek, ICM/Growth Energy

Meeting Materials and Meeting Webpage:

The materials listed below may be found on the meeting webpage at:

<http://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/d1d833dbf27626a6852578f600610ac5!OpenDocument&Date=2011-10-25>

- Agenda
- Federal Register Notice
- Charge Questions
- Agency Briefing Material:
  - Office of Atmospheric Programs Presentation on Case Studies
  - Office of Atmospheric Programs Presentation on the Accounting Framework
- Committee Member Comments:
  - Draft Comments from Panel --- for discussion purposes only, 10-27-11.
  - Dr. John Reilly's Presentation on Question 6
  - Dr. Ken Skog Presentation
  - Dr. Morton Barlaz's Presentation on Question 5
  - Dr. Roger Sedjo Presentation
  - Dr. Steve Rose's Presentation on Question 4
  - Dr. Steve Rose's Subgroup Presentation on Question 4
  - Dr. Tristram West Presentation on Question 3
- List of public speakers
- Public Comments (written):
  - American Forest and Paper Association
  - American Forest and Paper Association slide presentation
  - American Forest and Paper Association (additional comments)
  - Bruce Lippke, University of Washington
  - Bruce Lippke, "Sustainable Biofuel Contributions to Carbon Mitigation and Energy Independence"
  - Center for Biological Diversity
  - Clean Air Task Force, Environmental Working Group, Friends of the Earth, Greenpeace, National Wildlife Federation, Natural

- Resources Defense Council, Partnership for Policy Integrity, Southern Environmental Law Center, The Wilderness Society, Union of Concerned Scientists
- Clean Air Task Force, Natural Resources Defense Council, Partnership for Policy Integrity and Greenpeace
- David Garman
- Dovetail Partners
- Dupont
- Environmental Defense Fund
- Environmental Paper Network
- National Alliance of Forest Owners Comments
- National Alliance of Forest Owners Presentation
- National Council for Air and Stream Improvement
- Reid Miner, National Council for Air and Stream Improvement
- Society of American Foresters
- The Wilderness Society
- Roster

### Meeting Summary

The discussion followed the plan presented in the meeting agenda.

### **TUESDAY, OCTOBER 25, 2011**

Dr. Stallworth convened the meeting and explained that the Science Advisory Board operates under the Federal Advisory Committee Act. Dr. Vanessa Vu, Director of the SAB Staff Office welcomed everyone and thanked panelists for travelling to the meeting. Dr. Madhu Khanna reviewed the agenda and asked everyone to introduce themselves.

Mr. Joe Goffman, Chief Council to EPA's Assistant Administrator for Air and Radiation (OAR), explained EPA's responsibility to regulate CO<sub>2</sub> emissions from stationary sources under the Clean Air Act. Mr. Goffman said EPA would undertake a legal and policy analysis following the Panel's report.

Dr. Jen Jenkins and Ms. Sara Ohrel, both from EPA's OAR, presented an overview of the *Accounting Framework for Biogenic CO<sub>2</sub> Emissions* (posted on the meeting webpage). Dr. Jenkins and Mr. Bill Irving (OAR) explained to the panel that EPA's policy context limited the scope of its inquiry; that the bounding of EPA's regulation of CO<sub>2</sub> emissions from fossil fuels at stationary sources imposed similar limits on their consideration of biogenic carbon emissions. Specifically, OAR does not look at upstream fossil fuel emissions in a traditionally regulatory context for stationary sources therefore when measuring CO<sub>2</sub> emissions from fossil fuel combustion at stationary sources, EPA did not look at these upstream emissions, e.g. those from production and transport of biomass. One panelist challenged EPA's choice of an annual timestep when, in fact, climate change is a function of cumulative emissions that remain in the atmosphere for decades to centuries. Another panelist said that without a long-lived timescale, you would have

leakage over time and without complete spatial coverage, you would have leakage outside your boundaries. Dr. Jenkins explained that OAR chose to take a regional spatial scale and look at the dynamics that occur over that landscape over a short period of time. In response to a question from a panelist, Ms. Ohrel explained that the biogenic accounting factor (BAF) could exceed one if there were land use changes that cause additional emissions as captured by the SITE\_TNC variable. In response to a question about why EPA's Greenhouse Gas Inventory was not sufficient, Dr. Jenkins explained that they were trying to attribute particular pieces of those emissions to a stationary source. Dr. Jenkins also explained that the SITE\_TNC variable was the delta between the previous land use and the new land use while LAR captures the dynamics of feedstock regrowth. Panelists also discussed the L variable, the proportion of feedstock lost in conveyance and storage. In response to an inquiry about why other greenhouse gases were not included in EPA's Accounting Framework, Dr. Jenkins reminded the panel that the Framework is trying to capture the ability of the land based system to offset emissions, a phenomenon that does not happen to the same degree with other greenhouse gases. One panelist warned of a large "gerrymandering" exercise to create regions that are carbon positive. Another warned that the issue of defining the regions would be exacerbated because of EPA's choice of a reference point baseline, a choice that will create winners and losers.

Panelists discussed how a downstream regulatory approach (regulating smokestack emissions) is far less effective and efficient than upstream regulation. Ms. Ohrel spoke about the Framework's treatment of waste materials as having a BAF equal to 0 because of the natural decay of waste. Panelists voiced different opinions on the value of storing waste (and preventing CO<sub>2</sub> emissions) for a century, with some believing that storage was of little consequence.

During the public comment period, fourteen (14) speakers presented comments to the panel. All comments are posted on the meeting webpage.

Joshua Martin of the Environmental Paper Network criticized the Accounting Framework for not capturing the biomass carbon "belch" from using trees today that will not be regrown for decades. Mr. Martin also criticized EPA for failing to capture the opportunity cost of burning trees, i.e. the loss of potential carbon storage in the forest.

Steve Hamburg of the Environmental Defense Fund endorsed the basic Accounting Framework but felt that it was too complex. In his view, any blanket exclusion of biomass as carbon neutral was not sensible and the accounting framework should be designed to affect the marginal facility in the future. The Accounting Framework should be based on a regional approach and not a national approach in order to provide any signal of the net emissions implications of using biomass and address leakage. Dr. Hamburg stressed the importance of distinguishing between working and non-working lands and suggested that reserved lands be excluded when accounting for emissions.

Paul Noe of the American Forest and Paper Association presented an overview of the pulp and paper industry. Mr. Noe pointed out that a large portion of the residues

generated by making paper was used to generate onsite electricity, thus reducing fossil fuel use. Mr. Noe voiced support for the Accounting Framework's treatment of emissions associated with energy use from these residues as 'anyway' emissions and asked that the final report confirm that CO<sub>2</sub> emissions associated with forest residues generated by logging or by the processing of wood are an intrinsic byproduct of making pulp, paper and wood products and therefore should be treated as "anyway emissions," whether or not the region has a growth/drain ratio above 1. He supported the use of the reference point baseline.

Reid Miner of the National Council for Air and Stream Improvement said the Accounting Framework should clarify that "anyway emissions" from manufacturing residues include those from kraft black liquor solids and other manufacturing residues from pulp, paper and wood products manufacturing. Dr. Miner referred the panel to his revision of Case Study 3 (a pulp and paper mill harvesting roundwood) in which he treated kraft black liquor solid and other materials removed from the wood as manufacturing residues.

Brian Siu of the Natural Resources Defense Council criticized the Accounting Framework for ignoring the possibility that regrowth of biomass may not occur. Mr. Siu said the Accounting Framework cannot achieve EPA's objective of "accurately reflecting the carbon outcome" of biomass use by stationary sources because it includes non-working lands, rewards regions with net growth of forest biomass and does not consider additionality in the change in carbon stocks.

Roger Martella, on behalf of the National Alliance of Forest Owners, summarized the regulatory history of EPA's consideration of biogenic CO<sub>2</sub> emissions. Mr. Martella suggested there was not a regulatory body anywhere in the world that treated biogenic emissions as anything other than carbon neutral.

Dave Tenny of the National Alliance of Forest Owners asked the panel to consider NAFO's comments in response to EPA's Call for Information. Mr. Tenny also directed the panel's attention to the letter to Administrator Jackson from five senators. Mr. Tenny said that increased bioenergy demand will likely increase forest growth and thus, sequestration.

Ruben Lubowski of the Environmental Defense Fund said the Accounting Framework is on the right track in terms of creating a system to adjust smokestack emissions for sequestration that is happening on the land. In his view, the use of the reference point baseline was appropriate if applied to working lands and if the baseline was expected to be relatively stable; but if there was a trend then that should be accounted for. Dr. Lubowski reminded panelists that bioenergy will add the biggest incremental change in smokestack emissions given the projections of increased demand.

David Garman, former Undersecretary of Energy said EPA was needlessly complicating regulatory treatment of biogenic emissions and was attempting to restrain the scope of the panel's deliberations. Mr. Garman was very critical of what he termed a horrendously complex and hopelessly unworkable regulatory regime. Mr. Garman asked the panel to

feel free to discard the Accounting Framework rather than just tweak it. Mr. Garman concluded that EPA should grant biogenic emissions a categorical exclusion until such time as forest carbon stocks are declining in the U.S.

Edie Hall of Weyerhaeuser spoke by phone to tell the panel about the potential for biomass, particularly pulpwood surplus, to replace fossil fuel consumption. Ms. Hall said that approximately 75% of Weyerhaeuser's energy needs were met by using bark and other side products. Ms. Hall reiterated Mr. Garman's request that the panel not feel constrained to tweaking the Accounting Framework.

Marchant Wentworth of the Union of Concerned Scientists applauded EPA for taking the first step and considering whether biomass energy should be regulated. Mr. Wentworth urged the panel to develop its own methodology to capture biomass emissions. He criticized the Accounting Framework because the level of smokestack emissions that must be offset depends on the definition of the landscape boundaries, not the carbon content of the feedstock or the rate at which the harvested forest regrows. Mr. Wentworth cautioned against considering large diameter whole trees as carbon neutral.

John Barnwell of the Society of American Foresters (SAF) called the panel's attention to the SAF report entitled "Managing Forests because Carbon Matters: Integrating Energy, Products, and Land Management Policy." Mr. Barnwell said that biomass for energy production provides a carbon benefit to the atmosphere equal to that of the avoided emissions of fossil fuels minus the small amount of fossil fuel required to produce energy from the biomass feedstock.

Bob Cleaves of the Biomass Power Association expressed his concern that the complexity of the proposed Accounting Framework could reduce the incentives for using sustainable biomass for biofuels and bioenergy. He told the panel that all bioenergy technology is superior to fossil fuels when waste wood is used. Mr. Cleaves stressed the difficulty of calculating indirect land use change resulting from biofuel demand and asked for clarification on the methodology used to identify the time scale of carbon cycles and the methodology for creating a baseline for each feedstock.

Chris Bliley of Growth Energy challenged the evidence for indirect land use change and referred the panel to comments by Bruce Dale of Michigan State University which criticized the scientific basis for linking land use change with the U.S. corn ethanol or soybean biodiesel industries.

After lunch, panelists shared thoughts on the charge questions, specifically whether they should confine their comments to the charge questions or go beyond it. One panelist pointed out that even if the equations are correct, the Accounting Framework amounts to setting a  $BAF = 0$  for all biogenic carbon given that forest stocks are increasing. Another panelist noted that the reference point baseline doesn't account for rising forest stocks that would have occurred in the absence of using biomass feedstocks for energy. Panelists generally agreed that their comments could extend beyond the charge questions.

In response to charge question 1 (whether the SAB supports EPA's characterization of the underlying science), it was noted that the velocity of climate change could alter the impacts and that climate change itself would alter forests, increasing dieback and reducing their sequestration capacity. One panelist stressed that the harvest of roundwood would change the sequestration trajectory significantly and that the response of different woods in different regions will vary, a phenomena not captured in the Accounting Framework. Another panelist said that the scientific literature on the impact of harvesting on soil carbon and growth was not well captured in the Accounting Framework. Panelists discussed how markets would respond to different incentives and how that might alter the Accounting Framework. It was noted that the reference point baseline would have to be updated quickly to stay up to date and that there was no recognition of uncertainty in the accounting framework. The subject of other greenhouse gases arose again when one panelist noted that the application of more N<sub>2</sub>O to grow more crops to increase sequestration would have a self-defeating result. It was mentioned that regions may differ in the rate of carbon uptake and the effects of harvests on forest regrowth; the framework did not consider these heterogeneous responses because it was using a reference point baseline that required information only about net rates of growth. The choice of baselines was discussed.

Mr. Irving (OAR) suggested that the panel consider both a review of EPA's framework within the specific policy context given ("inside the box") and what kind of analytical framework would be useful if EPA were not bound by its policy and legal considerations ("outside the box").

With respect to charge question 2 (evaluation of accounting approaches), panelists agreed that the Accounting Framework explains why the Intergovernmental Panel on Climate Change (IPCC) approach is not appropriate for linking what's happening on the land with stationary sources. One panelist noted that the IPCC approach was an inventory of stocks when EPA actually needed to capture a flow. Panelists discussed the possibility of EPA granting a categorical exclusion to facilities that were sourced to a certified sustainable grower as a way of creating a self-organizing system with the appropriate incentives. Panelists agreed it was important to distinguish between different kinds of biomass and the different ways in which biomass could be used. Panelists indicated they were not ready to conclude that the Accounting Framework was preferred to a categorical inclusion or categorical exclusion. It was noted that any accounting system is a policy construct and needs to be consistent, accurate and practical.

There was a short initial discussion about charge question 3. It was noted that the framework does not take time dynamics into account or consider what would happen anyway. Panelists questioned whether residues should be treated as losses anyway because it takes time to decay and the appropriateness of substituting space for time in accounting for releases.

**WEDNESDAY, OCTOBER 26, 2011**

Panelists began the morning by asking questions about the Net Biogenic Emissions (NBE) equation. EPA representatives explained that SEQP is a factor added in to account for any portion of the feedstock that may be incompletely combusted or turned into long term capture of carbon that leaves the facility. Panelists were told that BAF could be greater or less than 1 but that LAR was bounded from 0 to 1 in the Accounting Framework. It was also explained that SITE\_TNC would capture management changes such as going from corn to short-rotation woody crops and that the delta would be the soil carbon change and the difference between the sequestration power of the feedstocks. One panelist noted that the Accounting Framework drew artificial boundaries around the supply chain. The difficulty of calculating SITE-TNC on a facility by facility basis was thought to be problematic. Dr. Jenkins said the AVOIDEMIT term was applied to residues and nothing else.

Dr. Jenkins and Ms. Ohrel presented an overview of the case studies. Slides for their presentation are posted on the meeting webpage.

Panelists queried the EPA representatives about the time frame for updating terms like SITE\_TNC. Panelists discussed the difference between the marginal and the average accounting method for allocating the shortfall in feedstock growth among facilities and the possibility of perverse incentives being triggered by the marginal method. One panelist pondered the possibility of a housing boom causing a sudden change in a facility's BAF but EPA representatives clarified that when using an averaging accounting approach, a particular facility may be only responsible for a small percent of the deficit. Using a marginal approach, a particular facility would be responsible for 0% of the deficit. One panelist said there was a confusion of scale between a facility and its fuelshed versus a facility in a region. Dr. Jenkins said PRODC was the carbon that enters the facility but exits the facility as products and is therefore not emitted from the smokestack. The panel was told that all variables except LAR were facility-specific. Panelists again bemoaned the inefficiency of targeting only bioenergy producers rather than all users of biomass.

Following the break, the Chair directed the panelists to think about the framework as a whole before discussing specific components of it as specified under charge question 3. Dr. Steve Rose presented his thoughts as shown in his slides posted on the meeting webpage. Dr. Rose noted that the reference point baseline approach meant EPA would not actually be estimating gains/losses from biomass usage but rather whether carbon has gone up or down. Dr. Rose articulated several concerns about implementing the proposed BAF. Dr. Ken Skog also presented slides on question 4 (posted on the meeting webpage). Dr. Skog presented graphs that depicted alternative carbon recovery time paths over 50 years. Dr. Skog noted that EPA's objectives should be to measure the difference in CO<sub>2</sub> concentrations over some time frame as a result of wood use for energy. Dr. Skog's presentation demonstrated how BAF does not reflect how forests recover over time after harvesting. Panelists discussed the difficulty of estimating the "counterfactual" (or BAU) given the human influences on forest stocks that may arise from economic incentives and other government policies. The Chair noted there was an imperfect choice between using a BAU projection with high uncertainty or a reference

point approach with the deficiencies cited by Dr. Skog. One panelist noted that Dr. Skog's presentation implied the LAR term would have to be viewed over time rather than as the running average for the last 5 years. Dr. Skog stated that the current LAR reveals nothing about the carbon consequences of harvesting a piece of land.

In discussing charge question 3 (methodological issues), Dr. Roger Sedjo presented slides (posted on the meeting webpage) that demonstrated a phenomenon of anticipatory investment in response to increased biomass demand. Dr. Sedjo described this phenomenon as a "positive leakage." The Chair pondered whether this phenomenon would be captured in the SITE\_TNC variable. Another panelist speculated that anticipatory investment would affect the LAR term and cause it to rise above 1. Dr. Skog said he did not think his suggestion for distinguishing among sources was inconsistent with Dr. Sedjo's research on anticipatory planting.

After lunch, panelists returned to question 3 and discussed whether Equation 3 contained all the necessary factors to calculate Net Biogenic Emissions (NBE). One panelist noted that it had all the appropriate variables but whether those variables could be accurately measured was a different matter altogether. Another panelist again pointed out that PRODC needs to be made scale independent and should come from all users of the feedstock.

Returning to question 4 (evaluation of the framework), panelists commented that if LEAK is going to be included, there should be a lot more scientific support for its existence. It was also noted that there was a lack of consistency in treatment of different fuels since no leakage was being considered for fossil fuels. This component was not well defined in the framework and was not easy to understand or implement. The data needed to implement the framework was not a trivial issue. One panelist said he didn't think the Framework represented an accurate model of greenhouse gas fluxes as they would occur over time. The Chair commented that EPA's need was to create a signal that biomass is not completely carbon neutral and that, without an accounting framework, the signal would be 0 by default, meaning biogenic emissions would be treated as carbon neutral. Panelists pondered the possibility of creating coefficients for different feedstocks to reflect their carbon content but then it was pointed out that the first 10% of stover taken off the land would have very different carbon implications from the last 10%.

During an afternoon opportunity for additional public comment, Cynthia Finley of the National Association of Clean Water Agencies presented commented that supported the Accounting Framework's treatment of wastewater as having a BAF equal to 0. Dr. Finley's comments are posted on the meeting webpage.

Panelists then turned their attention to discussing the case studies. One panelist said he would like to see more case studies where BAF is somewhere between 0 and 1, where small swings in the data make a difference. Panelists wondered whether there was an opportunity to do a case study that incorporated Dr. Skog's suggestion for capturing carbon recovery profiles after harvest. It was also noted that there was a lot of emphasis on forest biomass in the case studies and having more cases studies on agricultural

biomass would be useful for understanding the issues with broad implementation of the framework.

A panelist noted that he knew of no examples of corn stover being used to generate electricity. Another panelist pondered how the removal of 60% of residue from an agricultural field would affect the calculations of NGE and BAF. The difficulty of capturing soil carbon levels was discussed and the availability of public data was explored. Panelists worried about the burden of collecting data on individual parcels and tracing a biomass-burning facility's sources to particular timber sheds. It was pointed out that if the Accounting Framework could not rely on observable and measured changes captured in public media, then it would not work.

In reference to question 6 (overall evaluation), one panelist pondered how regions would be defined and whether it should incorporate physiographic features. Someone pointed out that the PRODC term was inconsistent in that dried distiller's grain and ethanol would both end up as CO<sub>2</sub> in the near future. The Chair pointed out that if the Accounting Framework is going to be applied in broad policy contexts, then it has more flaws than it if it is reserved for EPA's narrow purpose. One panelist pointed out that the Accounting Framework could end up exempting one facility in a particular region (with increasing forest stocks) whose biogenic emissions were actually net positive while another facility in a region (with decreasing stocks) would suffer a penalty on its biogenic emissions that may be, on net, beneficial.

Before adjourning for the day, Dr. Vu asked panelists to make sure they answered each part of each charge question before sending their report to the chartered SAB for review.

#### **THURSDAY, OCTOBER 27, 2011**

Dr. Jason Hill presented slides on question 2 (evaluation of accounting approaches) as posted on the meeting webpage. Panelists debated Dr. Hill's proposed conclusion that the Accounting Framework was preferable to either a categorical inclusion or a categorical exclusion. Dr. Tristram West presented slides on question 3 (methodological issues) that presented divergent perspectives on the adequacy of the Accounting Framework. Dr. West's slides are posted on the meeting webpage.

Panelists discussed the differences between feedstock regrowth in agriculture as compared to forestry and it was pointed out that the SITE\_TNC variable would more likely capture carbon changes in agriculture whereas the LAR would capture carbon changes in forests. On the topic of PRODC, one panelist explained his idea of separating debits from credits as shown in Perspective 4 of Dr. West's slides.

In reference to question 1 (the science of the carbon cycle), Dr. Olander noted that the Accounting Framework failed to recognize that the climate system is not sensitive to changes in carbon over short time scales (less than 50 – 100 years). One panelist agreed that the Accounting Framework, as proposed, tries to grasp effects on climate in a 5 year running average rather than capturing the time profile of feedstock regrowth over 50

years. Dr. Olander noted that the Accounting Framework discounted carbon that stayed on the ground a bit longer, while the climate system would not recognize such credits. For example, the atmosphere is affected by the release from decomposing paper products the same way as emissions from smoke stacks. Dr. Olander also said there was no scientific justification for selecting regions.

Dr. Morton Barlaz presented slides on question 5 (case studies) which are posted on the meeting webpage. Dr. Barlaz described case studies 1 – 4 as marginal, at best, and case study 5 as unrealistic.

Dr. John Reilly's slides on question 6 (posted on the meeting webpage) presented the question of whether the Accounting Framework was better than a categorical inclusion (setting BAF = 1) or a categorical exclusion (setting BAF = 0). Dr. Reilly presented four possible responses to the question of whether the Accounting Framework was better than a categorical 1 or 0.

1. Yes
2. Yes, with some modifications
3. Possibly yes but with many unanswered questions
4. No. If no, categorical 1 or 0.

After much discussion, the panelists offered a show of hands to indicate their preferences. No one voted for option 1 (yes). Four people voted for option 2 (yes with modifications). Nine people voted for option 3 (possibly yes with many unanswered questions) and four panelists voted for option 4 (no).

Before adjourning the meeting Dr. Stallworth asked lead discussants to coordinate their subgroup's responses to charge questions and send them to her by November 11, 2011. For comments unrelated to one's assigned charge question, Dr. Stallworth asked that those be e-mailed to the relevant lead discussant by November 4, 2011.

On Behalf of the Committee,  
Respectfully Submitted,

Holly Stallworth, Ph.D. /s/  
Designated Federal Officer

Certified as True:

Madhu Khanna, Ph.D. /s/  
Chair, SAB Biogenic Carbon Emissions Panel

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by committee members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final

advisories, commentaries, letters, or reports prepared and transmitted to the EPA Administrator following the public meetings