

Archive of Substantive Email Comments Received 2/18/09 during the Public Meeting on Biomass Reporting

Pacific Forest Trust (PFT)

Thank you very much for the opportunity to provide input early on in the process. Overall, the framing of this issue and the questions ARB will need to answer over the coming months would greatly benefit from additional work. The provided feedback questions skip important steps in setting up the task at hand, and combine questions with very different ramifications (e.g. in question #1, setting up a definition of biomass that is the foundation for reporting is different than having a definition determine whether or not biomass emissions are included under the cap).

From our perspective, there are three main areas for ARB to address:

- A. Definition of renewable biomass
- B. Reporting requirement
- C. Cap requirement

A. Definition of renewable biomass

The definition of renewable biomass helps set the boundaries within which different materials can be used for energy and considered renewable. Largely implicit in such a definition is the setting of parameters for what kind of material is also considered sustainable, will not cause other forms of environmental harm, and whose GHG impact is at least no greater than fossil fuels. However, that is a lot for a single definition to accomplish. In addition to defining what feedstocks can be used for biomass energy, ARB should develop further standards for sustainability specific to fuel source, and, applying those sustainability standards, GHG lifecycle analysis for each biomass feedstock.

For the underlying definition of renewable biomass, per feedback question #2, it is entirely appropriate for ARB to review other working definitions. Especially where there are associated sustainability guidelines or GHG lifecycle analysis to draw on, existing work can provide useful assistance to ARB. A useful example is the national RFS guidance that, beyond the definition, sets standards for GHG benefits as compared to fossil fuels. The 2008 federal Farm Bill also contains a good definition for renewable biomass. On the other hand, WCI does not have a comprehensive definition to draw from, and thus is not a very strong source. We look forward to the opportunity to provide further specific input on the definition of renewable biomass, in particular biomass from forest resources. If it would be helpful at this point, we would be happy to share and discuss a working definition we've been developing that is based on a combined reworking of the federal 2007 Energy Bill and 2008 Farm Bill definitions.

What a definition cannot do alone is answer the questions involved for the following two areas: reporting and the cap. While related, those are separate and subsequent steps in the process.

B. Reporting Requirement

Unlike renewable energy such as wind or solar, burning biomass directly releases GHG emissions. In addition to GHGs, many forms of biomass emissions also involve particulate matter that can cause other environmental and public health problems if not dealt with appropriately. For complete and accurate accounting, it is hard to see how ARB could not require full reporting of biomass emissions, regardless of feedstock. WCI also has kept biomass emissions in reporting requirements.

It would be helpful for ARB to clarify whether or not the reporting of all emissions is actually in question. From the initial workshop, it was a little unclear. We thought the main question still in need of public review was the last area below: the cap.

C. Cap Requirement

After emissions are reported, the area of debate is then how those emissions are treated under the cap. Are they equivalent to fossil fuel emissions and require the same level of allowances? Do they have a lower GHG factor and require fewer allowances to cover them? Can they be considered “carbon neutral” and thus not require allowances at all? In regard to this final question, it should be noted that no form of biomass energy emission is necessarily carbon neutral – the WCI provision leaving this question up to individual jurisdictions does not say that they must find certain sources neutral, only that sources determined to be neutral would not require allowances. Further, before any source could be determined carbon neutral, the definition of carbon neutral would need to be developed.

The first challenge in answering the above questions is unpacking different kinds of biomass emissions. All potential biomass feedstocks are not created equal. As was mentioned at the workshop, for example, there are different considerations for biomass that is truly waste and that which is harvested. Within harvested biomass, there are different considerations for biomass grown as a dedicated agricultural crop and biomass derived from more complete ecosystems, such as forestland. For forests, some of the important boundaries that need to be set can already be in the definition, such as by restricting harvested biomass to logging slash and pre-commercial thinning, and other guidelines could be established as state best management practices (for example, that prevent conversion of natural forests to plantations) and sustainability criteria (such as initially included in AB118 implementation). But again, such guidance is not the same as a lifecycle GHG assessment.

Essentially, there may not be a single answer for all types of biomass and appropriate treatment under the cap. Given the variety of issues that need to be addressed in a lifecycle GHG analysis for different feedstock categories, breaking down the meeting schedule further to deal with different types of biomass energy could be helpful. Public stakeholders with specific areas of expertise can help comment on needed variables to include in lifecycle analysis (e.g. land use change, regeneration, energy use, etc.), and highlight other considerations such as baseline activity (e.g. what happens if a GHG-creating activity is increased in order to get the material for bioenergy use?).

Until there is a clear process for doing comprehensive analyses, and until that work can be completed, it would make the most climate sense to count all biomass energy emissions under

the cap. Assumptions of carbon neutrality will only serve to delay needed emissions reductions as well as valuable development of systems for ensuring low-carbon, sustainable biomass energy. Such assumptions are also unnecessary for creating demand for renewable biomass energy; demand will exist regardless because of the independent requirements for switching to renewable sources (however we recognize that cost issues may need to be addressed in a full auction system). LCA work is already well underway for a variety of biofuels through the LCFS, however we are not currently aware of similar analyses being done for sources allowed under the RPS (we would be happy to be corrected). Ideally, analyses would be completed prior to initiation of the cap & trade program in 2012, and demonstrated GHG benefits of biomass energy could be appropriately recognized in allowance requirements for energy producers. However, it's likely that ongoing adjustments and monitoring would be required throughout the lifetime of the program to ensure analyses are accurate and incorporate new information and changing circumstances.

ARB Feedback Questions

1. What principles and criteria should guide California's biomass definition for the purpose of reporting and inclusion/exclusion of fuels under the cap?
2. Should the ARB definition take into account other working definitions?
Consistency across RPS, RFS, LCFS, and WCI
3. What reporting provisions should be considered regarding data collection, measurement, emission factors, etc.?
4. Other Comments

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Waste Management (WM)

Thank you for the opportunity to initiate discussions with you on the issue of Biomass GHG Emissions and how they should be addressed in AB 32 plans and programs. I wanted to take this opportunity to further express my initial thoughts as was briefly discussed at the workshop on February 18th.

There are at least 3 major GHG issues associated with the management of biomass:

- GHG emissions from the combustion of biomass used as a source of energy or fuel.
- Storage of sequestered carbon in harvested biomass.
- How GHG reduction offsets may be generated by alternative energy sources using biomass fuels (and other non-biomass sources of renewable energy) to displace the use of fossil fuels.

The workshop on 2/18 really only addressed the first of the above 3 bullets. WM believes that all three will need to be addressed.

GHG Emissions from Combustion of Biomass for Energy

As I mentioned on 2/18, there seems to be 2 basic categories of Biomass Energy:

- Waste derived biomass
- Harvested biomass

With respect to waste biomass, the solid waste industry believes that the combustion of waste biomass should be viewed as *carbon neutral*. That is, CO₂ emissions from the combustion of waste biomass should not be viewed as contributing in any way to climate change. These CO₂ emissions from waste biomass are part of the near term carbon cycle and when diverted from traditional waste management methods are a source of biomass combustion for energy that do not generate anthropogenic CO₂ emissions. Rather, emissions from these sources should be viewed as an extension of the near term carbon cycle and not subject to inclusion in caps. Further, waste biomass to energy should be eligible to generate offset credits due to the displacement of fossil fuel energy production. Sources of carbon neutral waste biomass include landfill and sewage digester gas, biomass to energy facilities, that portion of waste-to-energy combustion that processes biomass, anaerobic digestion, and the thermo-chemical conversion of waste biomass to fuel or energy.

We strongly urge you to familiarize yourselves with the IPCC protocols on waste combustion (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_5_Ch5_IOB.pdf). In particular, please note the following excerpts from this document.

Consistent with the *1996 Guidelines* (IPCC, 1997), only CO₂ emissions resulting from oxidation, during incineration and open burning of carbon in waste of *fossil origin* (e.g., plastics, certain textiles, rubber, liquid solvents, and waste oil) are considered net emissions and should be included in the national CO₂ emissions estimate. **The CO₂ emissions from combustion of biomass materials (e.g., paper, food, and wood waste) contained in the waste are biogenic emissions and should not be included in national total emission estimates.** However, if incineration of waste is used for energy purposes, both fossil and biogenic CO₂ emissions should be estimated. **Only fossil CO₂ should be included in national emissions under Energy Sector while biogenic CO₂ should be reported as an information item also in the Energy Sector.**

This language clearly indicates that the intent is only to recognize the components of fossil origin in GHG emission inventories. The biomass fraction of waste should be view as "biogenic" and part of the near-term carbon cycle. Our sector does not mind reporting biomass emissions from combustion -- but they should not be included in inventories or regulated under cap and trade. Also note the following:

The common method for estimating CO₂ emissions from incineration and open burning of waste is based on an estimate of the *fossil carbon* content in the waste combusted, multiplied by the oxidation factor, and converting the product (amount of fossil carbon oxidized) to CO₂. The

activity data are the waste inputs into the incinerator or the amount of waste open-burned, and the emission factors are based on the oxidized carbon content of the waste that is of *fossil origin*. Relevant data include the amount and composition of the waste, the dry matter content, the total carbon content, the fossil carbon fraction and the oxidation factor.

As an example of the apparent misunderstanding of waste biomass I suggest you look at the recent report posted on the CARB's LCFS web site regarding, "**Landfill Gas to CNG**" (http://www.arb.ca.gov/fuels/lcfs/100808lcfs_lfg.pdf). Although the source is totally waste biomass fuel (landfill gas) the report still counts the CO₂ emissions from the displaced flaring of the landfill gas as well as the CO₂ emissions from the combustion of the produced CNG that is used as a fuel. Although the overall carbon intensity is very low, it still mischaracterizes the fact that the waste biomass source of the fuel should be considered "carbon neutral" and the CO₂ emissions derived from the combustion of landfill gas and CNG derived from landfill gas should not be counted at all. Only the portion of fossil energy used to produce the LFG to CNG fuel (if any) should be included in determining the overall carbon intensity of CNG produced from LFG.

With respect to **harvested biomass** should be differentiated from **waste biomass** -- although we acknowledge that, in some cases, the distinction may be difficult to clearly define. Biomass that is derived from a totally waste derived source, such as landfill gas or waste digester gas, should be treated as carbon neutral and simply an extension of the near-term carbon cycle. Harvested biomass, such as mid-western corn ethanol which has been shown by the CARB LCFS staff to have very high overall carbon intensity should be treated differently. The carbon intensity of some harvested biomass fuels, such as Midwestern corn ethanol, is very high due to the reliance on fossil fuels for crop production, transportation and refining of the fuel -- even though the fuel itself is biomass derived. Crops that are harvested specifically to produce a fuel should be evaluated to determine their overall carbon intensity. *However fuels that are totally derived from materials that would otherwise be "wasted" should be viewed as carbon neutral.* Examples of waste derived biomass fuels include: *landfill gas, sewage digester gas, and food and green waste digester or gasifier gas.* Forest and agricultural debris that would otherwise be wasted should be recognized as carbon neutral waste materials including: *forest product mill wastes and residues, dead trees, and agricultural wastes that would otherwise decompose to produce CO₂ or CH₄.* **CO₂ emissions from totally waste derived biomass should be viewed by CARB as carbon neutral and simply an extension of the natural near-term carbon cycle.**

GHG Reductions from the Storage of Biomass Sequestered Carbon

The CARB should also consider the impact that stored sequestered carbon has on GHG emissions and global warming. There are several activities that involve the continued storage and preservation of sequestered carbon in biomass materials. These activities include 1) the continue maintenance of in-use forest products (e.g., tables, chairs, books, wood frame houses, etc.), 2) soil carbon storage that can be enhanced by compost and mulch, and 3) landfill carbon storage. In the case of landfills, as much as 50% of the biomass materials that goes into the landfill never decomposes into a greenhouse gas such as CO₂ or CH₄. These materials are permanently stored in the anaerobic conditions of a landfill and the sequestration of carbon is permanently maintained -- thereby removing this portion of the biomass as a source of CO₂ emissions. Some recognition must be afforded those activities that continue to store significant

quantities of sequestered carbon -- and thus preventing and lowering GHG emissions from these biomass sources that would otherwise occur.

For example, the solid waste industry recognizes that it is unlikely that any marketable "credits" will ever be generated for the storage of sequestered carbon in landfills. However, the solid waste industry suggests that an overall carbon balance be performed to evaluate the net GHG performance of landfill operations. In this fashion, landfills would be responsible for their net emissions of methane (GWP = 21-25), and at the same time recognized for the amount of sequestered carbon storage that is maintained and preserved in the landfill (in CO₂e with a GWP = 1) that can be used to partially offset methane emissions. CARB should consider this issue further.

GHG Reductions from Biomass Derived Energy that Reduces or Offsets Fossil Fuel Energy

CARB should also consider ways that biomass and other renewable energy sources can be further encouraged by recognizing how biomass and renewables offset the need for a like amount of fossil fuel energy generating capacity. As far as we are aware, the only imperfect tool to recognize the value of renewable energy is through the RPS program in California -- which imperfectly values the GHG benefits of biomass and other renewable energy sources. The CARB should evaluate ways that biomass and other renewable energy sources can be further encouraged and incentivized by mechanisms that recognize their full fossil fuel offsetting capability.

Summary

In summary, we recommend that CARB consider the following courses of action with respect to the GHG implications of biomass management in California:

- GHG emissions from the combustion of biomass or biomass derived fuels for energy
 - CO₂ from the combustion of waste biomass or waste biomass derived fuels should be considered carbon neutral
 - CO₂ from the combustion of harvested biomass should be evaluated for its overall carbon intensity as a fuel (e.g., similar to LCFS).
- GHG Reductions from the Storage of Biomass Sequestered Carbon
 - CARB should evaluate ways that biomass sequestered carbon can be reasonably and responsibly recognized as a GHG reduction strategy
- GHG Reductions from Biomass Derived Energy that Reduces or Offsets Fossil Fuel Energy
 - CARB should evaluate ways that biomass and other renewable derived energy can be directly recognized and credited for reducing dependence on fossil fuel energy

In view of the time constraints of getting this information to you, I have not had a chance to have the issues outlined in this email fully vetted with all the members of the Solid Waste Industry for Climate Solutions (SWICS) -- which are cc'd to this email. However, I have tried to articulate

the issues of concern to the SWICS members as best I understand them. There may be some SWICS members that may offer further clarifying comments.

Please let me know if you have any questions about the information provided in this note.
Thanks.

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I argue that the combustion of biomass derived fuels does contribute to global warming when compared to the natural carbon cycle that biomass usually undergoes. In particular, the carbon in combusted biomass is not made available to re-enter the soil and be sequestered, as is normal in a natural cycle. It would be great to take into consideration the difference of emissions from combusted biomass compared to biomass that decomposes allowing for the capture of some C in the soil to replace the C lost during the growing of the biomass.

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RMT

1) In the pulp & paper industry, black liquor from the pulp digestion process is frequently burned in a recovery furnace to generate steam and/or electricity. Is black liquor considered biomass for the purposes of ARB's mandatory reporting regulation?

2) The list of industries covered by ARB's mandatory reporting rule is: cement, refineries, hydrogen plants and power plants. The WCI list includes oil & gas production and distribution, pulp and paper, lime, glass, and electronics. How will the two different lists be resolved? Is ARB looking for input on this?

Sincerely,
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BALANCE

Barbara Barkovich

If an industrial facility has its own generation which is under its control but operates to supply power on a regular basis and not for backup, would it be exempt from reporting? Is the distinction backup vs. routine operation? If not, what is the basis for the exemption? Thank you.

Lynn Ross

Can you comment on how the pending EPA mandatory reporting rule will impact this process?
Thanks.

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AMEC

- 1) Please elaborate on source testing. What is the type of source testing is being considered? Would this source testing be optional?
- 2) Please explain how you will handle "minor" changes to the ARB MR regulations between now and 2010 when the ARB MR regulations will be revised.

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Air Products and Chemicals, Inc.

Extensive discussions were held with CARB to protect confidential business information that can be revealed through "reverse engineering" when process emissions are reported from some sources (e.g. hydrogen production). Additionally, where CO2 emissions are determined through CEMS, a source cannot distinguish between combustion and process emissions. How will these concerns be addressed?

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