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California Air Resources Board
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CARB has maintained a leadership position in managing GHG emissions over the decades and the 2022 scoping plan provide a critical opportunity to act on managing greenhouse gases in an environment of unprecedented awareness and urgency over global warming. Public comment at the June 23 Board meeting regarding the scoping plan illustrate the broad range of views on potential actions needed to control global warming. Several topics related to biomass require further consideration.

Critical to successful implementation of California's carbon neutrality strategy is alignment of carbon accounting methods employed to measure the desired outcomes. Such alignment is considered to be more straightforward for biomass with relatively short annual growth cycles, such as agricultural crops, and more challenging for woody biomass that have longer growth cycles. Methods that focus on different greenhouse gases, varied timing for emission release and uptake, and alternative methods of aggregating emissions can have very different outcomes. The diversity of approaches to biogenic carbon accounting and lack of scientific consensus represents a challenge for incorporating such biomaterial into programs reducing emissions, such as the California Low Carbon Fuel Standard (LCFS) and the federal Renewable Fuel Standard (RFS). This report summarizes different approaches implemented to account for carbon in woody biomass life cycles and provides recommendations for policies and programs designed to help achieve the state's goal of carbon neutrality by 2045.

The Biomass Gap

The scoping plan addresses a wide range of options but requires additional detail to accommodate evolving energy options related to forestry materials and biomass. The primary approach in biofuel policy is to model biogenic carbon based on a carbon neutral approach. The diversity of approaches to biogenic carbon accounting represents a challenge for incorporating such feedstocks into LCFS programs. I co-authored CARB's report on forest residue to fuel 13 years ago and the accounting for biomass to fuels and process heat has yet to be resolved¹.

To date, CARB has not formally identified an approach to quantifying emissions associated with certain types of biomass residues, including those from wood and nutshells (Figure 1). The lack of such transparent guidance impinges the ability to plan and execute biofuel projects that can deliver alternative biomass residue fates for hard-to-decarbonize sectors such as sustainable aviation fuel. As a result, these types of biomass residues may continue to emit GHG emissions associated with business-as-usual conventional fates, e.g., burning and decomposition, as uncertainty of their treatment in the LCFS increases perceived investor risk.

¹ CARB. (2009). Detailed California-Modified GREET Pathway for Cellulosic Ethanol from Forest Waste. Stationary Source Division, Version 2.1.



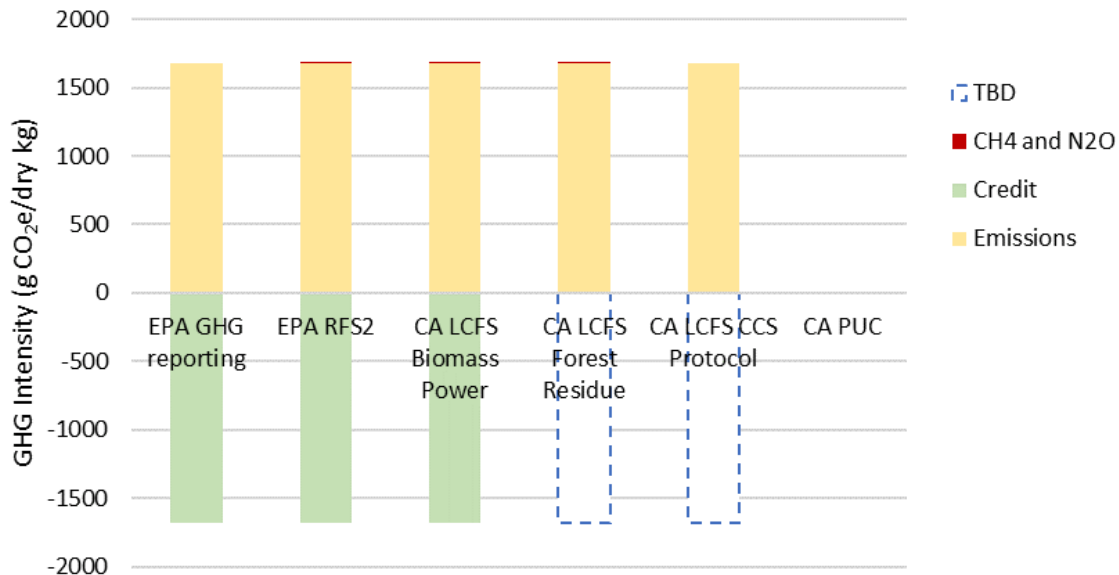


Figure 1. Treatment of biogenic carbon in fuel policies (excluding collection and end-use emissions).

I have seen the consequences of inaction on biomass some of them are well known.

- Air pollution remains a problem in logging communities due to controlled burns.
 - The logging communities depend on forestry activities for income and the treatment of residuals often results in particular emissions and as well as the release of CO₂ from decomposition and burning. CARB needs to develop a better understanding of forestry activities. Visiting managed forests and overserving slash piles as well as studies on the subject would help advance this understanding.
- AB1383 has led the challenges in the handling of urban biomass including wood chips. I don't need to look far to see the consequences. Alongside the roads everywhere you see piles of wood chips, no doubt the consequence of AB 1383 and landfill fees that have risen. Better enforcement cannot force the round wood chip into the square hole. Technologies such as the utilization of biomass need to be actively considered and cannot wait another decade. Biomass provides an ideal carbon source for synthetic aviation fuel, hydrogen, and other fuels and this resource needs to be examined.





Figure 2. Slash piles from commercial lumber operations are not stored for long periods of time as new trees must be grown.



Figure 3. Biofuel policies could eliminate illegally dumped woodchips which accumulate along CalTrans freeway interchanges. High tipping fees and the challenges associated with composting make biomass energy an attractive option. No integrated polies are in place to deal with the fire hazards such as the Eucalyptus tree that overlooks the scene.

Recommended Actions

Biomass is a key resource for energy production identified in the scoping plan and its role could be strengthened through the following actions.

1. Categorize biomass types used in energy production including residues from agriculture, forestry, and urban sources as well as purpose grown energy crops.
2. Develop an indirect land use (iLUC) analysis for purpose grown energy crops that is applicable for a broad range of energy applications.
3. Examine and disclose the energy and GHG balance and underlying assumptions associated with biomass options including the C-BREC model used in the scoping plan.
4. Align all California GHG policies with a consistent treatment of biogenic carbon including: Cap and Trade, Reporting to EPA, LCFS fuel pathways, LCFS CCS protocol, LCFS grid power, and AB1383 reporting.
5. Align the GWP of methane and N₂O between policies and consider the impact of black carbon from avoided forest fires.
6. Direct CARB staff to hold a workshop on biomass used in energy applications to resolve decade old issues.

Thank you for your consideration.

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Best Regards,



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