



March 29, 2016

Submitted via email

Thomas Carpenter
Designated Federal Officer
EPA Science Advisory Board
United States Environmental Protection Agency
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Re: National Alliance of Forest Owners' Comments to the Science Advisory Board

Dear Mr. Carpenter and Science Advisory Board Members:

The National Alliance of Forest Owners ("NAFO") welcomes the opportunity to submit these comments to the Environmental Protection Agency's ("EPA's") Science Advisory Board ("SAB") in advance of its March 31, 2016, meeting to discuss the SAB Biogenic Carbon Emissions Panel's ("Panel's") Draft Report on EPA's *Framework for Assessing Biogenic CO₂ Emissions from Stationary Source* (Nov. 2014) ("*2014 Framework*"). NAFO's mission is to protect and enhance the economic and environmental values of private forests through targeted policy advocacy at the national level. At the time of this submission, NAFO's members represent 80 million acres of private forests in 47 states. NAFO was incorporated in February 2008 and has been working aggressively since then to sustain the ecological, economic, and social values of forests and to assure an abundance of healthy and productive forest resources for present and future generations.

NAFO and its members are key stakeholders who contribute to the solutions that private forests and forest biomass bring to lowering greenhouse gas ("GHG") emissions and, in turn, are keenly impacted by any controls or regulations on biogenic GHG emissions. NAFO—as the party that filed the Petition for Reconsideration with EPA that led to EPA's *2014 Framework* and the present SAB process—is an acutely interested stakeholder in EPA's reconsideration of the treatment of biogenic CO₂ emissions from stationary sources and the scientific analysis EPA will utilize in making ultimate policy and regulatory decisions on how to treat biogenic CO₂ emissions.

NAFO has been an active participant in virtually all regulatory matters involving biogenic CO₂ emissions before EPA and state regulatory agencies and in litigation related to the

appropriate treatment of biogenic CO₂ emissions under the Clean Air Act. NAFO submitted comments to the Panel in response to EPA's 2014 Framework and EPA's 2011 Framework, which are incorporated by reference,¹ as well as oral testimony at several of the Panel's meetings to date.

Summary

As NAFO and its members have explained in earlier comments and presentations to the SAB, the Panel, and EPA, critical to NAFO's mission in reducing GHG emissions is supporting the use of biomass as a renewable energy supply that offers important climate and energy security benefits. EPA's decision to reconsider its approach to regulating biogenic CO₂ emissions from stationary sources offers an opportunity to encourage the continued development of climate-beneficial biomass energy capacity. Developing a final policy that recognizes the climate benefits of biomass energy is critical as EPA continues to move forward with significant GHG regulations that affect biomass energy production. NAFO has consistently urged EPA to adopt an approach to biogenic CO₂ emissions that can inform sound policy and regulatory decisions by accurately and fully reflecting the climate benefits offered by biomass, encouraging its continued development, and promoting appropriate distinctions between biomass energy and other types of energy such as fossil fuel combustion.

In response, EPA has taken steps to recognize the climate benefits of biomass energy. See, e.g., EPA, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric

¹ NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (Oct. 18, 2011) ("October 2011 Comments"), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/F0AA98F4E5C1A7BF8525792D0071D595/\\$File/NAFO+Comments.pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/F0AA98F4E5C1A7BF8525792D0071D595/$File/NAFO+Comments.pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (Dec. 21, 2011) (December 2011 Comments"), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/4A5629FDE5A06E538525796F00667D15/\\$File/NAFO+Comments+to+the+SAB+Panel+12.21.11.pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/4A5629FDE5A06E538525796F00667D15/$File/NAFO+Comments+to+the+SAB+Panel+12.21.11.pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel ("January 2012 Comments"), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/83AC53EC30FF4E9D85257991005AF5F7/\\$File/NAFO+Comments.+1-25-12.pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/83AC53EC30FF4E9D85257991005AF5F7/$File/NAFO+Comments.+1-25-12.pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (Mar. 16, 2012) ("March 2012 Comments"), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/CB0E5D774E356B3E852579C6004BFD05/\\$File/NAFO+comments+3-16-12.pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/CB0E5D774E356B3E852579C6004BFD05/$File/NAFO+comments+3-16-12.pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (May 18, 2012) ("May 2012 Comments"), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/29E142890DBA573D85257A06005AA1F5/\\$File/NAFO+Comments+5-21-12.pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/29E142890DBA573D85257A06005AA1F5/$File/NAFO+Comments+5-21-12.pdf); NAFO, Comments to the Science Advisory Board (Aug. 24, 2012) (August 2012 Comments), available at [https://yosemite.epa.gov/sab/SABPRODUCT.NSF/8841A9446401C88A85257A64006BC1EC/\\$File/NAFO+Comments+to+the+SAB+8.24.12+\(unsigned\).pdf](https://yosemite.epa.gov/sab/SABPRODUCT.NSF/8841A9446401C88A85257A64006BC1EC/$File/NAFO+Comments+to+the+SAB+8.24.12+(unsigned).pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (Mar. 16, 2015) ("March 2015 Comments"), available at [https://yosemite.epa.gov/sab/sabproduct.nsf/9A3A3F0FF5DA4A0D85257E0B00509467/\\$File/NAFO+-+FINAL+SAB+Panel+Comments+3+16+15.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/9A3A3F0FF5DA4A0D85257E0B00509467/$File/NAFO+-+FINAL+SAB+Panel+Comments+3+16+15.pdf); NAFO, Comments to the Science Advisory Board Biogenic Carbon Emissions Panel (Sept. 8, 2015) ("September 2015 Comments"), available at [https://yosemite.epa.gov/sab/sabproduct.nsf/0D45A2880BE7D50085257EBA006D942D/\\$File/NAFO+-+FINAL+SAB+Panel+Comments+9+8+15.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/0D45A2880BE7D50085257EBA006D942D/$File/NAFO+-+FINAL+SAB+Panel+Comments+9+8+15.pdf).

Utility Generations Units, Final Rule 80 Fed. Reg. 64,662, 64,884-87 (affirming that “biomass-derived fuels can play a role in controlling increases of CO₂ levels in the atmosphere”); Memorandum from Janet McCabe, Acting Assistant Administrator, EPA Office of Air and Radiation to Air Division Directors, Regions 1-10, re: Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources, at 3 (Nov. 19, 2014) (stating that EPA “plans to propose revisions to the PSD rule” that would exclude certain biogenic CO₂ emissions).² The agency’s charge to the Panel to help develop concepts that can support an affirmative policy fully capturing the climate benefits of biomass energy is another step in the right direction.

NAFO has thoroughly explained its position with respect to the *2014 Framework* and the deliberations of the Panel in previous comments. In several important respects, the Draft Report responds to those concerns. First, the Draft Report appropriately recognizes that biogenic CO₂ emissions are best addressed through a stocks-based approach that relies on data sets that are already collected for other purposes. NAFO has long-advocated for the use of the U.S. Department of Agriculture’s Forest Inventory and Analysis (“FIA”) data. Second, the Draft Report appropriately recommends that the effects of biogenic CO₂ emissions be addressed over a 100-year time period. Such an approach is consistent with both climate science and forestry practices and ensures that the long-term substitution effects of biomass energy are accounted for. Third, the Draft Report recognizes that predictions of future impacts of biomass energy must incorporate the economic and market forces that influence forestry management decisions and the role that a strong market for biomass products can have in promoting investment in forests. Fourth, the Draft Report recognizes that biogenic CO₂ emissions should be evaluated at broad spatial scales rather than on a stand- or facility-based level. Again, such an approach is consistent with landscape-based forestry practices and is consistent with how forest inventory data is collected and evaluated.

In addition, it is important to recognize the limitations of the Draft Report and of the *2014 Framework*. Over-reliance on complex models applying speculative assumptions with high potential for error as a potential basis for policy is a significant shortcoming. As EPA makes policy decisions, it will have to weigh the tradeoffs between simplicity, accuracy, reliability and other considerations. These and other implementation-based concerns may require policy to deviate from the recommendations in the Draft Report. The SAB should clarify in the final report to EPA that alternatives such as a reference point baseline and a data-driven stocks-based accounting approach are scientifically viable options that EPA may also consider when developing policy.

² Available at <https://www3.epa.gov/climatechange/downloads/Biogenic-CO2-Emissions-Memo-111914.pdf>.

A. EPA Should Adopt a Stocks-Based Approach to Accounting for Biogenic CO₂ Emissions

As NAFO has explained in prior comments to the SAB and its panels, a stocks-based accounting approach for biogenic CO₂ emissions offers significant advantages because it is both scientifically rigorous and can be implemented using existing measurement systems.³ Because carbon is sequestered by forests during tree growth and emitted through respiration, decomposition, and combustion, measuring changes in forest carbon stocks over time allows one to determine the net effect of the forestry sector on atmospheric CO₂ concentrations. Thus, as NAFO has explained, as long as forest carbon stocks are stable or increasing or, in other words, sequestering net carbon over time, forest biomass can be treated as carbon neutral. In addition, changes in carbon stocks can be measured effectively using existing data such as the Department of Agriculture's FIA program. A stocks-based approach that relies on FIA data would allow EPA or other regulators to confirm the climate benefits of biomass energy with very little additional cost to regulators or the regulated community and with much greater certainty.

In the Draft Report, the Panel endorses a stocks-based approach and recommends that EPA adopt "a BAF formulation based on changes in forest carbon stocks." Draft Report at 21. As the Panel correctly notes, a stocks-based approach can be based on data that is already collected by the scientific community, is consistent with core scientific principles such as the conservation of mass, and has flexibility to accommodate different spatial scales and types of greenhouse gases. *Id.* at ii. For these reasons, a stocks-based approach is preferable to the emissions-based approach favored by EPA in the *2014 Framework*. While any policy decision regarding biogenic CO₂ emissions must be straightforward and capable of cost-effective implementation, a forest carbon stocks-based approach should serve as the starting point for any policy affecting biomass energy. We are encouraged by the Panel's endorsement of a stocks-based approach and urge the SAB to adopt the Panel's recommendation for stocks-based accounting for biogenic CO₂ emissions.

B. A 100-Year Time Scale Is Required to Fully Evaluate the Climate Impacts of Biogenic CO₂ Emissions

As NAFO has previously explained, a 100-year time frame is necessary to fully account for the climate impacts of biogenic CO₂ emissions.⁴ Because trees are long-lived and are often harvested over long rotations, a long time scale is required to ensure that carbon accounting does not inadvertently exclude a portion of the rotation and, as a result, ignore a part of the

³ March 2012 Comments at 14-15, 17-18; May 2012 Comments at 15-16; March 2015 Comments at 2; September 2015 Comments at 7-8.

⁴ December 2011 Comments at 4; January 2012 Comments at 9-10; March 2012 Comments at 11-13; September 2012 Comments at 12-13; March 2015 Comments at 11-13.

carbon cycle. Further, because forests are a renewable resource that can substitute for fossil fuels over multiple rotation cycles, a longer time scale is needed to observe these multi-rotational benefits. Further, the scientific literature supports the use of a 100-year time scale to address the climate impacts of GHG emissions. As a result, a 100-year time scale is consistent with both existing forestry practices and with climate science.

In the Draft Report, the Panel appropriately concludes that biogenic CO₂ emissions should be accounted for on a 100-year time scale. Draft Report at 14-15. The Draft Report recognizes that changes in the forestry sector can result in short-term changes in biogenic CO₂ emissions that may disappear over the longer term as working forests regain equilibrium between harvest and growth. *Id.* at 14. In addition the Draft Report explains that a 100-year time scale is consistent with climate science, noting that “it is cumulative emissions over roughly a 100-year period that lead to a climate response and that different scenarios of emission pathways over the next several decades that have equivalent cumulative emissions over the next 100 years are likely to lead to a similar global temperature response.” *Id.* Thus, the Panel agrees with NAFO that both climate science and the nature of the forest management support the use of a long, 100-year time scale.

The Draft Report also recognizes that a 100-year time frame is necessary to reflect the key substitution benefits that are derived by biomass energy. Because forests are a renewable resource, the Panel explains that biomass can be “substituted for future fossil fuels over successive harvest cycles.” *Id.* at 15. The Panel appropriately recognizes that a narrow focus on short-term emission changes can exacerbate climate change by encouraging continued use of fossil fuel. *Id.* (“[C]ontinuing use of fossil fuels due to delays in their displacement by biogenic carbon is likely to result in higher cumulative emissions in the atmosphere in the long run.”). The Draft Report further explains that “[r]educing cumulative emissions will reduce the likelihood of crossing tipping points or thresholds in the climate system in the future, while reducing emissions in the short run through temporary storage in forest sinks may at best delay tipping points by a few years but not reduce their likelihood in the longer term.” *Id.* Thus, in light of the important climate benefits that biomass energy can offer over the long-term by substituting a renewable resource for fossil fuels, NAFO urges the SAB to adopt the Panel’s conclusions regarding a 100-year time scale.

C. Projections of Future Forest Conditions Must Incorporate the Role of Market Incentives in Promoting Investment in Forests

As NAFO has explained in prior comments, a reference point baseline should be used in any policy that seeks to account for the climate impact of biogenic CO₂ emissions.⁵ A reference point baseline is straightforward to implement and provides an unambiguous assessment of how forest carbon stocks change over time in response to changing policies. As long as forest carbon stocks are stable or increasing, there are no net biogenic CO₂ emissions to the atmosphere and biomass energy can be recognized as a renewable energy source. Adopting a reference point baseline would allow regulators to recognize and confirm the climate benefits of biomass energy at low cost. In contrast, an anticipated future baseline depends on the use of complex modeling in an effort to anticipate, *ex ante*, the types of market shifts that may occur in the future, the way in which the forestry sector will respond to those market shifts, and how those changes may impact net biogenic CO₂ emissions. While appropriate for theoretical analysis, such an approach is inherently uncertain and is not suitable to a regulatory context because inaccurate predictions about future conditions can create perverse incentives that stymie climate-beneficial investments. Therefore, it is imperative that EPA apply a reference point baseline in any policy it adopts to account for biogenic CO₂ emissions.

While a reference point baseline is most appropriate for regulatory policies, NAFO recognizes that researchers will continue projecting future scenarios for other purposes and has consistently urged the inclusion of land-owner responses in such modeling exercises. Forest owners make investment decisions based on both current market signals and in anticipation of future market conditions. When forest owners project strong market demand in the future, they will make investments to increase supply, thereby increasing both the production of biomass products and the supply of standing forest carbon stocks. Conversely, when forest owners project weak market demand, they may reduce investments in forests or even convert their forests to other uses. Because of the important role that forest owners play, any modeling of future forest conditions must account for the influence of economics on landowner behavior, including the impact of markets on forest investment, retention, and replanting.

As described above, NAFO opposes the Panel's recommendation that EPA adopt an anticipated future baseline when accounting for biogenic CO₂ emissions in a regulatory context. Nonetheless, it is imperative that projections of future forest conditions fully incorporate the economic behavior of forest owners. Thus, despite our opposition to the regulatory use of anticipated future baselines, NAFO agrees with the Panel's conclusion that modeling must take

⁵ January 2012 Comments at 14-15; March 2012 Comments at 8-11; May 2012 Comments at 11-16; September 2012 Comments at 16-19; March 2015 Comments at 13-15; September 2015 Comments at 8-10.

an integrated approach that “captures economic and biophysical dynamics and interactions.” *Id.* at 12. Working forests have long been subject to economic drivers, and the Draft Report appropriately recognizes that forest managers respond to market forces by making “changes in land use, land management, and production.” Any modeling—including the modeling of an anticipated future baseline—that ignores these economic responses will lack predictive power when applied in the context of specific policy changes that may promote biomass energy. Thus, to the extent that EPA uses such modeling for any purpose, it is imperative that EPA fully incorporate the economic responses of the forestry sector.

D. The Climate Impacts of Biogenic CO₂ Emissions Must Be Accounted for at Broad Spatial Scales

As NAFO has previously explained, a broad national scale is most appropriate when accounting for the climate impacts of biomass energy production.⁶ First, a broad spatial scale is necessary because it reflects the landscape level over which forests are managed and the simultaneous harvest and regrowth of trees over that landscape.⁷ Second, a broad national scale best reflects the fungible nature of many forest products where demand can be met from a variety of geographic locations. Third, a broad national scale best approximates the global nature of climate change. Fourth, a broad national scale reduces implementation burdens by allowing regulators and the regulated community to rely on existing data, such as FIA data, to implement accounting policies for biogenic CO₂ emissions. In contrast, smaller spatial scales can distort the carbon outlook of biomass energy. Furthermore, scales that focus on individual stands and require chain-of-custody accounting can dramatically increase implementation costs and could potentially make biomass energy economically infeasible for regulatory agencies, the regulated community, and forest owners.

Consistent with NAFO’s position, the Draft Report appropriately recognizes the challenges of small-scale accounting approaches, noting that “data needs for a facility-specific approach were daunting.” *Id.* at 10. Instead, the Panel endorses a regional scale of unspecified size as a preferred approach. Because of the lack of specificity, NAFO is unable to draw a conclusion as to the appropriateness of the Panel’s recommendation. However, we urge the SAB to adopt the Panel’s conclusion that a broad spatial scale is preferable to stand- or even facility-based accounting approaches.

⁶ December 2011 Comments at 3-4; January 2012 Comments at 8-9; March 2012 Comments at 5-8; September 2012 Comments at 14-16; March 2015 Comments at 8-11.

⁷ See, e.g., Bowyer, J., *et al.*, *Carbon 101: Understanding the Carbon Cycle and the Forest Carbon Debate* at 6 (2012), available at http://www.dovetailinc.org/report_pdfs/2012/dovetailcarbon101jan2012.pdf.

E. Policy Choices Must Play a Role in Designing an Accounting Framework that is Scientifically Accurate and Capable of Implementation

Throughout the Draft Report, the Panel notes that the lack of a policy context “hampered the ability of the SAB to assess the suitability of the 2014 Framework for use as a science-based regulatory framework. *Id.* at 9. NAFO agrees that the policy considerations must play a central role in any final decision that EPA makes with respect to an accounting framework for biogenic CO₂ emissions. In this respect, it is imperative that the SAB expressly acknowledge its limited role in advising EPA on scientific issues related to accounting for biogenic CO₂ emissions and expressly disclaim any intention of influencing ultimate policy decisions that the agency must make. In this respect, the SAB must not discredit or reject scientifically defensible options simply because they are not the Panel’s or the SAB’s preferred scientific approach. In this respect, the Draft Report appropriately recognizes the “tradeoffs between simplicity, scientific rigor, and policy effectiveness” and notes that “practical considerations must weigh heavily in the agency’s decision making.” *Id.* at 11. In particular, it is imperative that EPA’s ultimate policy choices promote an accounting approach that is capable of implementation in a manner that supports EPA’s ultimate policy goals. Even if appropriate in theory, an accounting approach that is uncertain in practice or that is so costly to implement that it discourages biomass energy would be inappropriate in a regulatory context. Thus, to fully support EPA’s regulatory goals, the SAB must provide a fair and honest assessment of alternative options so that EPA a scientifically accurate accounting approach that is consistent with the Agency’s policy choices.

For example, the tradeoffs between simplicity, scientific rigor, and policy effectiveness must play a role when EPA selects a baseline for regulatory policies. Despite its theoretical appeal, an anticipated baseline raises several questions in practice. It requires complicated modeling and judgments about inherently uncertain future events. As a result, the scientific rigor of such a baseline may be limited in practices. Under these circumstances, EPA could determine that a reference point baseline offers similar scientific rigor while remaining simple and easy to implement. Thus, once a policy perspective and implementation issues are taken into account, EPA could determine that a reference point baseline is the best method to account for biogenic CO₂ emissions.

Likewise, in a variety of cases, EPA will have to evaluate the relative value of simplicity and scientific rigor when deciding how detailed its accounting policies should be. An overly complicated accounting framework could discourage participation, particularly by small landowners with fewer resources, and have the effect of diminishing the substitution of renewable biomass for fossil fuels. For example, the Panel’s proposed stocks-based approach

would potentially require separate tracking for live stocks, dead stocks, soil stocks, product stocks, waste stocks, and substituted fossil fuels. While this approach may be scientifically rigorous because it conserves mass, EPA could reasonably conclude that live stocks are an effective proxy for terrestrial carbon stocks and determine that biomass should have a BAF of zero as long as FIA data show that forest carbon stocks are stable or increasing. This simplified analysis may prove to be more valuable in a policy context by providing necessary data about changes in carbon stocks over time while limiting implementation costs and promoting biomass energy. Thus, for example, in the context of the Clean Power Plan, EPA could conclude that a streamlined, stocks-based approach that focuses on live carbon stocks is consistent with EPA's policy objective of reducing GHG emissions from the power sector.

Conclusion

NAFO appreciates the opportunity to comment on the Panel's Draft Report. As it formulates its final recommendations, we urge the SAB to keep implementation at the forefront and to ensure that its recommendations to EPA reflect the full range of carbon benefits that biomass energy offers and equip EPA to make policy decisions that are scientifically sound and capable of implementation.. NAFO is standing by to provide further information or answer any questions that the SAB may have.

Respectfully Submitted,

David P. Tenny

President and CEO

National Alliance of Forest Owners