March 23, 2016

Dr. Peter Thorne, Chair
Chartered Science Advisory Board

Dr. Holly Stallworth, EPA Designated Federal Officer
Biogenic Carbon Emissions Panel

Dr. Thomas Carpenter, EPA Designated Federal Officer
Chartered Science Advisory Board

Re: Comments on Science Advisory Board (SAB) Draft Report (2-8-16) on the SAB Review of *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources (2014)*

Dear Dr. Thorne, Dr. Stallworth, and Dr. Carpenter,

The Clean Air Task Force (CATF)[1] appreciates the opportunity to comment on the Science Advisory Board (SAB) Draft Report (2-8-16) on the SAB Review of *Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources (2014)* (hereinafter "Draft Report"). These comments fully incorporate and supplement the comments that CATF separately submitted on March 23, 2016 in conjunction with Partnership for Policy Integrity, Center for Biological Diversity, Southern Environmental Law Center, National Wildlife Federation, Dogwood Aliance, Sierra Club, Pivot Point, and Natural Resources Defense Council (hereinafter "NRDC et al March 2016 Comments").

As expressed in the NRDC et al March 2016 Comments, CATF appreciates the role of the Chartered Science Advisory Board (SAB) in conducting a quality review of the Panel's draft report before it is finalized and transmitted to the Environmental Protection Agency (EPA) Administrator, and would also like to acknowledge the significant commitment made by members of the Biogenic Carbon Emissions Panel ("Panel") to addressing the many complicated issues surrounding biogenic emissions accounting. As noted previously,[2] CATF

[1] The Clean Air Task Force (CATF) works to help safeguard against the worst impacts of climate change by catalyzing the rapid global development and deployment of low carbon energy and other climate-protecting technologies through research and analysis, public advocacy leadership, and partnership with the private sector. (http://www.catf.us/)

[2] *See, e.g.*, CATF Comments to SAB Panel on Biogenic CO_2 (March 16, 2015) (http://www.catf.us/resources/filings/biomass/CATF%20Comments%20to%20SAB%20Panel%20on

particularly appreciates the steps the Panel has taken to point out that "carbon neutrality is not an appropriate a priori assumption" and that "[e]stimating additionality, *i.e.*, the extent to which forest stocks would have been growing or declining over time in the absence of harvest for bioenergy, is essential … [and] requires an anticipated baseline approach."

The comments below focus on the Draft Report's treatment of the critically important issue of the appropriate timeframe for assessing biogenic CO_2 emissions. The "temporal scale" of an emissions accounting framework can affect the outcome of an emissions analysis so significantly as to be determinative. CATF is concerned that the "emissions horizon" approach presented in the Draft Report considers net CO_2 emissions over such a long time period—roughly 100 years—that it is incapable of distinguishing biomass-based power systems that may help mitigate climate change from those that would exacerbate the problem.

As described in more detail below, the Draft Report's "emissions horizon" approach to the timeframe issue is problematic for a range of legal/regulatory, procedural, and scientific reasons:

- The emissions horizon approach is incompatible with the emissions reduction requirements established by federal statutes and EPA regulations, and it would raise the level of uncertainty already inherent to policies that seek to reduce net greenhouse gas emissions through the increased use of bioenergy;
- The Draft Report's description of the "emissions horizon" approach fails to adequately reflect concerns about it raised by some members of the Panel; and
- The focus on cumulative emissions over a 100-year period largely ignores the potential threat posed by emissions spikes in the interim and assumes that the effects of exceeding the planetary "carbon budget" in the first half of the century are fully reversible if/when bioenergy-related emissions reductions occur in the second half of the century.

CATF respectfully urges the SAB to clarify that the timeframe over which EPA should determine a cumulative Biogenic Accounting Factor (BAF) depends on the policy in which the BAF is being utilized. The SAB should also ensure that the final report reflects the legitimate findings in the peer-reviewed literature of threats from short-term emissions.

%20Biogenic%20CO2_Mar16%202015.pdf); CATF-NRDC-PFPI-Greenpeace Comments on EPA Accounting Framework for Biogenic CO_2 Emissions (October 18, 2011) (http://www.catf.us/resources/filings/biomass/CATF-NRDC-PFPI-Greenpeace%20Comments%20on%20EPA%20Accounting%20Framework%20for%20Biogenic%20CO2_101811.pdf).

Overview of the Draft Report's Cumulative Emissions-Focused Timeframe Recommendation

EPA originally indicated to the SAB that the BAF approach and the overarching biogenic CO_2 accounting framework would be used in the context of the Clean Air Act's Prevention of Significant Deterioration (PSD) program. EPA subsequently removed the PSD-specific policy context and instead requested general guidance on biogenic emissions accounting in "a policy-neutral context." According to the Draft Report, "This change hampered the ability of the SAB to assess the suitability of the 2014 Framework."[3]

Without a specific policy context to constrain its review, the Panel decided to analyze "*all* direct and indirect contributions of harvesting [a] feedstock for bioenergy on the atmosphere."[4] The timeframe for such a comprehensive analysis—referred to in the Draft Report as the "emissions horizon"[5]— is lengthy:

> Defining the emissions horizon to be long enough to achieve a state where the difference in carbon stocks between the policy and the reference case stabilizes or approaches stabilization will ensure that all positive and negative changes in carbon stocks attributable to increased use of a bioenergy feedstock have been accounted for, to the extent tractable.[6]

The Panel determined that all of the carbon stocking effects of a policy-driven change in biomass power demand might be accounted for after 100 years, which coincided with several studies cited in the Draft Report that "conclude that it is cumulative emissions over roughly a 100-year period that lead to a climate response."[7] There is no precedent for pursuing environmental policy where the success or failure of the policy hinges on events that will take a century to unfold, but according to the Panel "the effects of a policy should not be limited to an arbitrary policy horizon that may be shorter than the emissions horizon."[8]

Timeframe Recommendation Is Incompatible with Controlling Statutes and Regulations

Perhaps because it was developed without the benefit of actual legal and policy context, the "emissions horizon" approach to the timeframe issue is incompatible with applicable emissions reduction requirements established by federal statutes and EPA regulations. In addition, the Draft Report's recommended approach would increase the level of uncertainty already inherent to policies that seek to limit net greenhouse gas emissions through greater use of bioenergy.

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[3] SAB Draft Report at 1.
[4] *Id.* at 3 (emphasis added).
[5] *Id.* at 16. Emissions horizon is described as the full "period of time during which the carbon fluxes resulting from actions taking place today actually occur."
[6] *Id.*
[7] *Id.* at 14.
[8] *Id.* at 17.

While there are several regulatory settings to which the final SAB report might apply, none is more important or more pressing than the Clean Power Plan (CPP) that EPA finalized in October 2015. Utilizing its authority under Section 111(d) of the Clean Air Act, EPA designed the CPP to achieve a 32 percent reduction in annual CO_2 from existing US fossil fuel-fired power plants by 2030. President Obama described the rule as "the single most important step America has ever taken in the fight against global climate change,"[9] and EPA identified the CPP as its "top priority."[10]

CATF submitted extensive legal and technical comments on the proposed CPP and on related proposals for regulating CO_2 emissions from new and modified/reconstructed fossil power plants,[11] and has participated in numerous workshops and briefings concerning the rulemaking, both at EPA and in a variety of outside stakeholder forums. Currently, CATF attorneys represent five public interest groups that are working with EPA and others to defend the legality of the CPP against an assortment of legal challenges from states and industry groups that hope to invalidate the rule.[12]

The experience and insight that CATF has gained throughout its engagement in the CPP rulemaking process is incorporated in the various comments CATF has submitted on EPA's proposed treatment of biomass combustion under the CPP. In CATF's most recent CPP-related comments addressing EPA's proposed CPP Model Trading Rule and Federal Plan, CATF analyzed the limited extent to which biomass combustion might be used to comply with the particular emissions reduction requirements of Clean Air Act Section 111(d) and EPA's other CPP regulations.

As a general matter, CATF found that most if not all forms of biomass-based power generation cannot meet the eligibility criteria established by EPA for emissions reduction credits or emissions allowance set-asides—two key mechanisms that regulated facilities may use to comply with the CPP.[13] For example, the currently available methods for tracking, allocating, and regulating biogenic CO_2 emissions fall far short of EPA's requirement that emission reduction measures be amenable to "rigorous, straightforward, and widely demonstrated"

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[9] Remarks by the President in Announcing the Clean Power Plan (August 3, 2015) (www.whitehouse.gov/the-press-office/2015/08/03/remarks-president-announcing-clean-power-plan).

[10] FY 2017: EPA Budget in Brief (https://www.epa.gov/planandbudget/fy-2017-epa-budget-brief).

[11] *See* http://www.catf.us/resources/filings/EGU_GHG_NSPS_Rule/.

[12] CATF represents Clean Air Council, Conservation Law Foundation, Clean Wisconsin, American Lung Association, and The Ohio Environmental Council, who are intervenor respondents in *West Virginia v. EPA*, 15-1363 and consolidated cases (D.C. Cir.), as well as other related litigation.

[13] CATF CPP MTR FP Comments at 47, 50-52 (http://www.catf.us/resources/filings/EGU_GHG_NSPS_Rule/CATF%20CLF%20-%20CPP%20FP%20MTR%20Comments.pdf).

emission monitoring and verification (EM&V) systems.[14] (Not surprisingly, given the broad nature of EPA's charge to the Panel, the recommendations put forth in the Draft Report do not fill this gap in EM&V capacity.)

With respect to the timeframe in which emission reductions must be achieved in order to comply with the relevant statutory and regulatory requirements, CATF determined that Section 111(d) of the Clean Air Act requires reductions be achieved during or just prior to the compliance period (2022-2030):

> The only way to credit biomass combustion with any reduction in GHG emissions is to use a lifecycle analysis that estimates net emissions over some extended timeframe. But EPA does not identify any CAA authority that would allow it to conduct a lifecycle analysis under Section 111, nor can it as no such authority exists. Congress has demonstrated elsewhere in the Clean Air Act that when it intends for EPA to regulate on the basis of lifecycle emissions, it transmits that authority clearly.[15]

Even if Congress *had* authorized EPA to allow net reductions in lifecycle CO_2 emissions to qualify as a compliance mechanism under the CPP, the length of the "emissions horizon" recommended in the Draft Report (100 years) differs significantly from the *analytic* horizons used in the lifecycle analyses required by other major policies that attempt to measure the net CO_2 emissions from bioenergy. Both the federal Renewable Fuel Standard and California's Low Carbon Fuel Standard analyze lifecycle emissions associated with the production and consumption of biofuels over a 30-year period.[16]

Finally, any reliance on the Draft Report's long-term "emissions horizon" approach would frustrate effective policymaking by dramatically increasingly the level of uncertainty surrounding policy-driven outcomes. According to Draft Report, near-term emissions increases can be overlooked "*if* biomass is regrown repeatedly and appropriately substituted for future fossil fuels over successive harvest cycles" for the next 100 years.[17] In order to credit a biomass-burning entity for future reductions, a regulator must therefore be justifiably confident that the harvested biomass will be "regrown repeatedly" and that it will be "appropriately substituted for future fossil fuels." That is a tall order—perhaps insurmountably tall. First, patterns of land use change have been notoriously difficult to project. Second, as the US energy sector becomes increasingly less dependent on fossil fuel-based power generation, it will also become increasingly unlikely that biomass combustion will be "appropriately substituted" for

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[14] *Id.* at 56-57.

[15] *Id.* at 52.

[16] EPA, Regulations of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14670, 14780 (March 26, 2010); California Code of Regulations, 17 CA ADC § 95480 *et seq*.

[17] SAB Draft Report at 14-15 (emphasis added).

fossil fuel combustion—and increasingly likely that biomass power will compete against far cleaner forms of renewable energy. In any event, regulators' ability to predict shifts in the US power generation mix (and then assess biomass power's role following those shifts) becomes less reliable over longer periods.

The Draft Report notably caveats its emissions horizon recommendation by acknowledging that "the net accumulation of forest and soil carbon over a 100-year period should not be assumed to occur automatically or to be permanent; rather, growth and accumulation should be monitored and evaluated for changes resulting from management, market forces, or natural causes."[18] That would indeed be ideal, but it is not at all clear that EPA or other regulators have the legal authority or the technical capability to conduct multi-decadal oversight on a disjointed amalgamation of industrial emitters and forest owners—especially in light of the fact that the former group is subject to Clean Air Act regulations and the latter group is not.

Timeframe Recommendation Inconsistent with Concerns Raised by Some Panelists

The "emissions horizon" approach does not appear to represent a full consensus position of the Panel. To cite one example, meeting minutes taken during the Panel's teleconference July 6, 2015, indicate that "Dr. [Steven] Rose challenged the concept of a 100 year time frame, noting that the GWP100 convention was merely referring to the atmospheric lifetime of CO_2 (usually cited as 100 years), not the time period over which land carbon changes should be considered."[19] At that same meeting, another (unidentified) panelist "spoke about the need to be modest in making any statements about temporal weighting because it was an area of climate science not well represented on the Panel."[20]

These concerns are not adequately reflected in the Draft Report. The Draft Report includes a statement that cautions against reliance on unverified assumptions about carbon accumulation (discussed above), but that caution relates mainly to uncertainty. The Draft Report does not address Dr. Rose's doubts concerning the underlying basis for a 100-year timeframe, nor does it acknowledge the unidentified panelist's observation that the Panel lacks necessary expertise in climate science. These concerns should be examined in more detail.

Timeframe Recommendation Downplays Risk from Near-Term Emissions Spikes

The focus on cumulative emissions over 100 years explicitly discounts the potential threat posed by nearer-term emissions spikes[21] and assumes that any deleterious effects that result

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[18] *Id.* at 15.

[19] Meeting Minutes (July 6, 2015) (https://yosemite.epa.gov/sab/SABPRODUCT.NSF/MeetingCal/C0BA345DFF487DD785257E530045DED0?OpenDocument).

[20] *Id.*

[21] SAB Draft Report at 14-16.

from exceeding the planetary "carbon budget" in the next few decades are fully reversible if and when bioenergy-related emissions reductions occur later in the century.

According to the Intergovernmental Panel on Climate Change Fifth Assessment Report (IPCC AR5), Earth is likely to experience at least 2 degrees C of warming unless total historical anthropogenic carbon emissions are limited to less than 790 billion tonnes.[22] We have used up more than two-thirds of that budget by emitting approximately 545 billion tons of carbon.[23] At projected emission rates, total human emissions will exceed the 790 billion tonne threshold in the next three decades.[24] Increased reliance on power plants that are fueled by wood and other slow-growing biomass will accelerate our "progress" toward the 790 billion tonne threshold, mainly because such systems emit more CO_2 per unit of energy generated than comparable fossil fuel-fired power plants.

The Draft Report suggests that the additional CO_2 emissions from biomass combustion "will have a relatively small impact on peak warming" as long as the harvested biomass regrows over the next 100 years, because "it is cumulative emissions over roughly a 100-year period that lead to a climate response."[25]

A key limitation of the Draft Report's "emissions horizon" recommendation becomes apparent when the approach is followed to its logical conclusion. If cumulative CO_2 emissions tallied up 100 years from now matter much more than any interim fluxes—so much more, in fact, that fluxes over the next several decades can be ignored[26]—then it would hold that all of the wood in every forest could be immediately cleared and burned without jeopardizing our chances of limiting average global temperature increases to 2 degrees C or so—*so long as* the forests are regrown prior to 2116. Even assuming that the harvested forests regrow in their entirety by the end of the century, it is inconceivable that a CO_2 emissions pulse of that magnitude would not adversely affect the pace and intensity of climate change. Yet the Draft Report suggests that the net climate impact of this horror-cartoon scenario would be a wash. If there is a limiting principle associated with the "emissions horizon" approach that would preclude this sort of analytic result, it is not identified in the Draft Report.

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[22] Reto Knutti, IPCC AR5 Working Group I, *Projections of climate change—Climate sensitivity, cumulative carbon* at 17 (https://www.ipcc.ch/pdf/unfccc/cop19/2_knutti13sbsta.pdf).
[23] Global Carbon Project, *Global Carbon Budget-Highlights (Full)* (2015) (http://www.globalcarbonproject.org/carbonbudget/15/hl-full.htm).
[24] *See* World Resources Institute, *World's Carbon Budget To Be Spent in Three Decades* (September 27, 2013) (http://www.wri.org/blog/2013/09/world%E2%80%99s-carbon-budget-be-spent-three-decades).
[25] SAB Draft Report at 14.
[26] Or as the Draft Report puts it: "different scenarios of emissions pathways over the next several decades that have equivalent cumulative emission over the next 100 years are likely to lead to a similar global temperature response." *Id.*

Conclusion

Consistent with the recommendations in the NRDC et al March 2016 Comments, CATF respectfully urges SAB to take the following minimum steps to address some of the problems with the Draft Report's discussion of temporal scale by:

- Clarifying that the timeframe over which EPA should determine BAFs depends on the policy in which the BAF is being utilized.
- Ensuring that the final report reflects the legitimate findings in the peer-reviewed literature concerning threats from short-term emissions.

Sincerely,

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