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EPA Scientific Advisory Board (SAB) Biogenic Carbon Emissions Panel
c/o Dr. Holly Stallworth
Designated Federal Officer (DFO)
SAB Staff Office
via email at stallworth.holly@epa.gov

Re: Comments on *Draft Advisory (3-13-12) on EPA's Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources*

Dear EPA SAB Biogenic Carbon Emissions Panel,

Your second Deliberative Draft report (p. 10) states, *...any harvesting of biomass for bioenergy or any other purpose that results in the release of carbon dioxide will have minimal effect on peak warming if the biomass is regrown within a roughly 100-year timescale.*

However, the paper,

Jacobson, M. Z., The short-term cooling but long-term global warming due to biomass burning, *J. Climate*, 17 (15), 2909-2926, 2004, www.stanford.edu/group/efmh/jacobson/Articles/VIII/bioburn/index.html.

concludes in the abstract,

“It is also shown analytically that biomass burning always results in CO₂ accumulation, even when regrowth fluxes equal emission fluxes and in the presence of fertilization. Further, because burning grassland and cropland yearly, as opposed to every several years, increases CO₂, biofuel burning, considered a ‘renewable’ energy source, is only partially renewable, and biomass burning elevates CO₂ until it is stopped.”

suggesting that an equilibrium state of burning and regrowth always leads mathematically to a net CO₂ increase in the atmosphere, regardless of the time frame.

Further, the 100-year time frame is not the relevant time frame to consider. The Arctic sea ice is expected to disappear in 20-30 years, and this is the time frame that needs to be considered to avoid catastrophic climate consequences. Your report acknowledges (p.12)

“For the case where carbon is recovered within 100 years Cherubini et al. (2012) have shown that at 20 years, the average temperature increase (over 20 years) from biogenic fuel is 97% of the temperature increase caused by an equivalent amount of fossil carbon...”

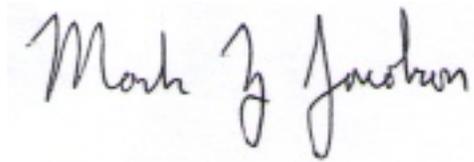
suggesting that the use of biomass will contribute to the destruction of Arctic sea ice. The solution to this problem over this time frame is not biomass, but the large-scale conversion to clean, renewable, and efficient energy systems powered on wind, water, and sunlight, as outlined in the papers,

Jacobson, M.Z., and M.A. Delucchi, Providing all Global Energy with Wind, Water, and Solar Power, Part I: Technologies, Energy Resources, Quantities and Areas of Infrastructure, and Materials, *Energy Policy*, 39, 1154-1169, doi:10.1016/j.enpol.2010.11.040, 2011, www.stanford.edu/group/efmh/jacobson/Articles/I/susenergy2030.html.

Delucchi, M.Z., and M.Z. Jacobson, Providing all global energy with wind, water, and solar power, Part II: Reliability, System and Transmission Costs, and Policies, *Energy Policy*, 39, 1170-1190, doi:10.1016/j.enpol.2010.11.045, 2011, www.stanford.edu/group/efmh/jacobson/Articles/I/susenergy2030.html.

These solutions eliminate both air pollution and global warming while providing energy security; the combustion of biomass contributes to both air pollution and global warming. Thank you for considering these comments.

Sincerely,

A handwritten signature in black ink that reads "Mark Z. Jacobson". The signature is written in a cursive, slightly slanted style.

Mark Z. Jacobson