

March 18, 2019

Comments on the Treatment of Biomass Co-Firing in EPA's Proposed Rule Titled "Review of Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources; Electric Utility Generating Units," 83 Fed. Reg. 65424 (December 20, 2018).

Docket No. EPA-HQ-OAR-2013-0495

Submitted via regulations.gov

Biomass combustion cannot be used to establish the best system of emission reduction (BSER) standard nor can it be used by newly built coal-fired electric steam generating units to comply with Section 111(b) of the Clean Air Act

Environmental and public health organizations Clean Air Task Force, Sierra Club, Clean Air Council, and Conservation Law Center ("Environmental Commenters") hereby submit the following comments on the treatment of biomass co-firing in EPA's proposed rule titled "Review of Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources; Electric Utility Generating Units," 83 Fed. Reg. 65424 (December 20, 2018).

In separately filed comments, Environmental Commenters demonstrate that EPA's proposal to overturn its 2015 determination that a 1,400 lbs. CO₂/MWh standard based on partial carbon capture and sequestration is the best system of emission reduction for coal-fired power plants is unlawful. Our comments show that the Agency's proposal runs counter to the purpose and requirements of the Clean Air Act,¹ fails to overcome the robust record underlying the current standard, and lacks the type of reasoned decision-making demanded from expert agencies.²

¹ The Clean Air Act requires EPA to identify the best system of emission reduction (BSER) that is adequately demonstrated, considering costs and health, environmental, and energy impacts, and set a standard that "reflects the degree of emission limitation achievable through the application of" that system. 42 U.S.C. § 7411(a)(1).

² See, e.g., CATF & NRDC, *et al.* Comments on Review of Standards of Performance for Greenhouse Gas

These comments focus specifically on biomass-based power generation and the question of whether biomass co-firing qualifies as BSER at a newly built coal-fired electric steam generating unit (EGU). Biomass-based power generation receives only tangential attention in EPA's proposal; importantly, the proposal never expressly considers whether an emission standard for coal EGUs based on biomass co-firing would pass muster as BSER. Given that EPA has not attempted to show that biomass co-firing is the best system of emission reduction that is adequately demonstrated, considering costs and health, environmental, and energy impacts, it necessarily follows that, first, biomass co-firing does *not* qualify as BSER for new coal EGUs, and second, the technology cannot be used to meet any performance standard that EPA finalizes based on this proposal.³ Environmental Commenters agree on both counts, for the following reasons.

EPA cannot categorically assume that biomass combustion is “carbon neutral”

The assumption that biomass-based power generation is “carbon neutral” has been widely rejected in the scientific peer-reviewed literature, which has shown that most forms of forest-derived biomass increase CO₂ emissions to the atmosphere and that the net emissions from biomass energy systems are highly variable, depending upon biomass feedstocks, regions, forest management regimes and alternative fates of the biomass, among other factors.⁴

Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, Proposed Rule, 83 Fed. Reg. 65,424 (submitted March 18, 2019); Comments of Sierra Club, Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, Docket No. EPA-HQ-OAR-2013-0495 (submitted March 18, 2019).

³ An agency's obligation to “set forth the reasons for its actions” is “the fundamental requirement of nonarbitrary administrative decisionmaking.” *Northeast Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 949 (D.C. Cir. 2004), citing *Motor Vehicle Mfrs. Assn. of U.S., Inc. v. State Farm Mut. Automobile Ins. Co.*, 463 U.S. 29, 48-50 (1983). The Clean Air Act specifically requires proposed and promulgated rules to set forth a “statement of basis and purpose” that summarizes “the major legal interpretations and policy considerations underlying the proposed rule.” 42 U.S.C. §§7607(d)(3)(C), (d)(6)(A)(i). EPA has made no attempt to show that biomass co-firing is the best system of emission reduction at new coal EGUs, so BSER cannot be based on biomass co-firing.

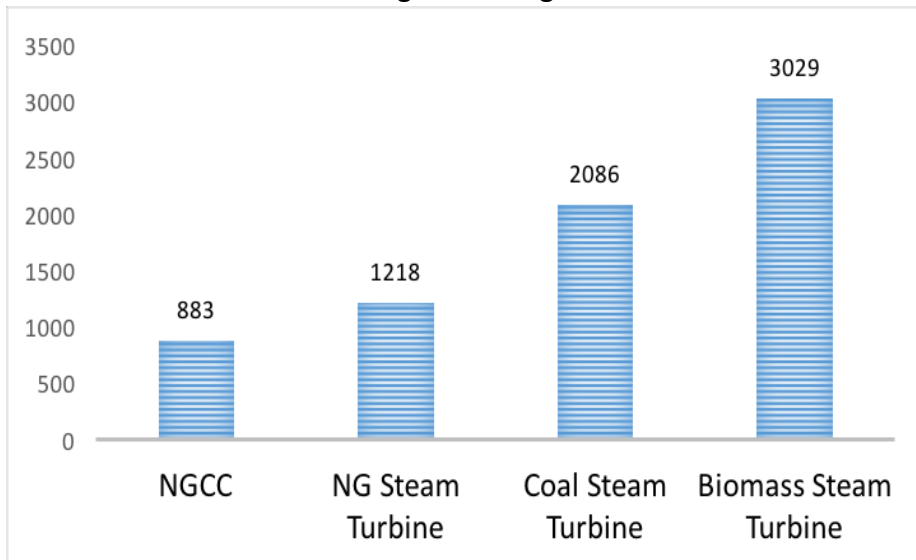
⁴ See Joint Comments of Clean Air Task Force *et al.*, on the Treatment of Biomass-Based Power Generation in EPA's Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (83 Fed. Reg. 44746; EPA-HQ-OAR-2017-0355) at 14-17 (submitted October 31, 2018; docketed at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0355-24037>) (“Joint Biomass Comments on 2018 ACE Proposal”).

A *priori* assumptions about the categorical carbon neutrality of biomass have also been rejected by EPA’s Science Advisory Board, which recently confirmed that “not all biogenic emissions are carbon neutral nor net additional to the atmosphere, and assuming so is inconsistent with the underlying science.”⁵

Biomass combustion emits more CO₂ per kilowatt-generated than coal combustion

As illustrated in the table below, the CO₂ emissions rate from the combustion of woody biomass at a utility-scale power station is approximately 1.5 times higher than the CO₂ emissions rate from a coal EGU.

CO₂ Emissions Rate (in pounds of CO₂ per megawatt hour generated) for Select Fuels and Generating Technologies⁶



⁵ U.S. Environmental Protection Agency, Science Advisory Board, SAB review Framework for Assessing Biogenic CO₂ Emissions from Stationary Sources (2014), at 2 (transmitted March 5, 2019) ([https://yosemite.epa.gov/sab/sabproduct.nsf/0/B86C81BACFAF9735852583B4005B3318/\\$File/EPA-SAB-19-002+.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/0/B86C81BACFAF9735852583B4005B3318/$File/EPA-SAB-19-002+.pdf)).

⁶ US EIA, Carbon Dioxide Emission Coefficients (for NGCC, NG steam turbine, coal steam turbine; value for coal is for "all types") (http://www.eia.gov/environment/emissions/co2_vol_mass.cfm); Oak Ridge National Laboratory, Biomass Energy Data Book v. 4 (2011) (assumes wood has higher heating value of 8,600 MMBtu/lb, is bone dry, and is composed of 50% carbon) (<http://cta.ornl.gov/bedb>); see also Thomas Walker, et al. Biomass and Carbon Policy Study (report by the Manomet Center for Conservation Sciences) 103-104 (2010) (<https://www.manomet.org/publications-tools/sustainableeconomies/biomass-sustainability-and-carbon-policy-study-full-report>).

A shift to biomass co-firing at a coal boiler does not automatically reduce or limit the amount of CO₂ emitted from the source—rather, in almost every conceivable scenario, it increases the source’s CO₂ emissions.

Any action that results in an emission *increase* cannot be the basis of a standard that is defined as an emission limitation based on the best system of emission reduction. Biomass combustion emits more CO₂ per kilowatt-generated than coal combustion, so a shift from full coal combustion to coal-biomass co-firing does not produce an “emission reduction.” As such biomass combustion cannot be used to establish BSER for coal EGUs.

Nor can biomass co-firing be used to comply with CAA Section 111(b), regardless of the level at which EPA sets the BSER standard, because an EGU cannot comply with the standard by *increasing* its CO₂ emissions.

Biomass combustion does not reduce CO₂ emissions (even in theory) at coal EGUs

The CO₂ emission reductions that are sometimes nominally attributed to biomass-based EGUs occur in forests and on farmland when growth of additional plant matter absorbs more CO₂ from the atmosphere than would have occurred otherwise. The reductions do not happen at the affected EGU. (As explained above, EGUs that shift from full coal combustion to coal-biomass co-firing will register an *increase* in emissions.)

To the extent that a shift to biomass co-firing results in any additional sequestration of CO₂ in forests, farms, or other landscapes, that offsite sequestration would constitute an “offset” and are not an appropriate method of CAA Section 111 compliance.⁷

EPA cannot finalize a BSER standard based on biomass co-firing because such a standard would not represent a logical outgrowth of the Agency’s proposal

EPA’s proposal never expressly considers whether an emission standard for coal EGUs based on biomass co-firing would pass muster as BSER, or whether a new coal EGU could rely on biomass co-firing to comply with a Clean Air Act Section 111(b) standard

⁷ See Joint Biomass Comments on 2018 ACE Proposal, *supra* at 7-8 (noting that in *Center for Biological Diversity v. EPA*, 722 F.3d 401, 413-414 (D.C. Cir. 2013) (Kavanaugh, J., concurring), then-Judge Kavanaugh noted that biomass combustion is an “offsetting approach,” and as such cannot be used to comply with a statutory provision that “measures emissions from stationary sources” such as coal-fired EGUs.

of performance. A final performance standard based on biomass co-firing would not be "a logical outgrowth" of the proposed rule, because the proposal does not provide commenters with "occasion to offer new and different criticisms which the agency might find convincing."⁸ Consequently, EPA cannot finalize a BSER standard based on biomass co-firing because such a standard would not represent a logical outgrowth of the Agency's proposal.

Respectfully submitted,

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⁸ See *Fertilizer Inst. v. United States EPA*, 935 F.2d 1303 (D.C. Cir. 1991) (quoting *United States Steelworkers of America v. Marshall*, 647 F.2d 1189, 1225 (D.C. Cir. 1980)).