



**Treatment of biomass power plants and waste incinerators under the Final  
Clean Power Plan: First Observations (working draft)  
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**Mary S. Booth  
Partnership for Policy Integrity**

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## Links

*New Source Rule:*

<http://www2.epa.gov/cleanpowerplan/carbon-pollution-standards-new-modified-and-reconstructed-power-plants#rule-summary>

*Clean Power Plan:*

<http://www2.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants#federal-plan>

## The NEW SOURCE rule:

### ***The NSPS does not include biomass co-firing as a way to "reduce" emissions***

While natural gas co-firing is mentioned a number of times, biomass co-firing is not mentioned in the final NSPS.<sup>1</sup>

### ***The applicability standard of an EGU has not really changed***

While changes have been made on paper, allowing facilities that burn up to 50% fossil fuels to escape regulation under the NSPS, the NSPS still effectively covers only those facilities that burn more than 10% fossil fuels, thus allowing biomass units that burn fossil fuels for startup and flame stabilization to avoid regulation. A facility must have a permit condition specifying this 10% limit, which is assessed annually, for it to escape regulation under the EGU rule.

## The EXISTING SOURCE rule/Clean Power Plan:

### ***Biomass can still serve as compliance under the CPP***

Biomass energy is still considered a potentially eligible means of compliance under the final CPP. It is included under Building Block 3, which is defined as<sup>2</sup>

*"Substituting generation from new zero-emitting RE generating capacity for reduced generation from affected EGUs in specified quantities."*

The rule acknowledges that bioenergy and waste-burning aren't really "zero"-emitting,<sup>3</sup>  
*"(4) Non-zero-emitting RE generating technologies.*

*Generation from new or expanded facilities that combust qualified biomass or biogenic portions of municipal solid waste (MSW) to produce electricity can also replace generation from affected EGUs and thereby control CO<sub>2</sub> levels in the atmosphere. While the EPA believes it is reasonable to consider generation from these fuels and technologies to be forms of RE generation, the fact that they can produce stack emissions containing CO<sub>2</sub> means that a section 111(d) plan seeking to permit use of such generation to serve as the basis for issuance of*

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<sup>1</sup> <http://www2.epa.gov/cleanpowerplan/carbon-pollution-standards-new-modified-and-reconstructed-power->

<sup>2</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>, page 426

<sup>3</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>, page 492

*ERCs must include appropriate consideration of feedstock characteristics and climate benefits. Specifically, the use of some kinds of biomass has the potential to offer a wide range of environmental benefits, including carbon benefits. However these benefits can only be realized if biomass feedstocks are sourced responsibly and attributes of the carbon cycle related to the biomass feedstock are taken into account."*

***Although biomass is not "zero"-carbon, it is still treated as a zero-carbon compliance option, once it's approved as "qualifying"***

To be considered as compliance under the rule, bioenergy is required to jump through some hoops to be determined "qualifying"(see below). However, once it's approved, it's treated as a zero-emissions generation. This is stated in the new "goal computation" technical support document released with the rule,<sup>4</sup> which states:

***" All incremental building block 3 RE is assumed to emit zero tons of CO2. "***

The reason biomass is treated as zero-emissions, rather than, for instance, having part of its emissions added into the state's total, is that biomass power plants are not defined as EGU's and therefore not "covered sources" under the Clean Power Plan, meaning that the rule, which regulates emissions from EGU's only, *can't* count their emissions. That means that if EPA is going to approve bioenergy as compliance under the CPP, the agency must treat that electricity as if it emits zero carbon. This in turn means the agency needs a really strong argument that burning the biomass will produce less CO2 than if it is not burned.

Since EPA acknowledges that burning biomass emits more CO2 per unit energy than other fuels, this is a high bar to clear. Here for instance are a few emissions factors taken from the larger table that EPA provides in the "Goal Computation" technical support document<sup>5</sup> at page 44.

Fuel Code	Fuel Type	Prime Mover	Emissions Factors (Tons CO <sub>2</sub> /mmBtu)
AB	Agricultural byproducts	ST	0.13027
BFG	Blast furnace gas	ST	0.05844
BG	Bagasse	ST	0.13027
BIT	Bituminous coal	ST	0.10282
BLQ	Black liquor	ST	0.10448
IGCC	Integrated gasification combined cycle burning BIT	IG	0.10282
MSB	MSW biomass component	ST	0.10339
NG	Natural gas	ST	0.05844
WDS	Wood solid	ST	0.10339
WND	Wind	WS	0

<sup>4</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>, page 12

<sup>5</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>

Note that agricultural byproducts, bagasse (waste from sugarcane), black liquor (waste from papermaking) and wood solids - all forms of biomass - have much higher emissions on a heat input basis than natural gas. Emissions on a heat input basis are similar to or greater than coal, but this is the "raw" emissions rate of CO<sub>2</sub> per unit energy inherent in the fuel, not the actual facility emissions rates, which for biomass facilities is much higher due to their relative inefficiency.

### ***It's up to States to demonstrate why biomass is a useful compliance measure***

The plan states (page 1159)

*"these final guidelines provide that states can include qualified biomass in their plans and include provisions for how qualified biomass feedstocks or feedstock categories will be determined. The EPA will review the appropriateness and basis for determining qualified biomass feedstocks or feedstock categories in its review of the approvability of a state plan."*

In promoting the types of biomass that states might want to consider, however, the CPP makes erroneous statements about what has been "agreed" upon by the EPA's Science Advisory Panel, for instance stating at page 1161,

*"The SAB peer review panel agreed that the use of biomass feedstocks derived from the decomposition of biogenic waste in landfills, compost facilities or anaerobic digesters did not constitute a net contribution of biogenic CO<sub>2</sub> emissions to the atmosphere. And further, information considered in preparing the second draft of the Framework, including the SAB peer review and stakeholder input, supports the finding that use of waste-derived feedstocks and certain forest-derived industrial byproducts (such as those without alternative markets) are likely to have minimal or no net atmospheric contributions of biogenic CO<sub>2</sub> emissions, or even reduce such impacts, when compared with an alternate fate of disposal."*

However, the Science Advisory Board peer review panel has not "agreed" that these uses of biomass don't contribute net CO<sub>2</sub> to the atmosphere, because the SAB has not yet conducted or published any carbon modeling that would permit them to come to this conclusion - not in their first report, published in 2012, and certainly not in their current work, which is not yet completed.

It is interesting that EPA appears to have removed landfill gas as a compliance option for Building Block 3,<sup>6</sup> given that this was one of the forms of bioenergy that the CPP claims the SAB has found beneficial. We have not yet identified why EPA decided to remove it.

### ***State-level promotion of biomass does not cite carbon benefits***

EPA references the putative benefits of bioenergy in the rule, and mentions that many states employ bioenergy, but does not point to any states where the carbon "benefits" of biomass have been demonstrated, rather focusing on "energy" benefits. The draft Implementation Plan states<sup>7</sup>:

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<sup>6</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>, page 422

<sup>7</sup> <http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>, page 149

*"Many states have already recognized the importance of waste-derived feedstocks via mandatory and voluntary programs supporting such efforts. Some states have also acknowledged the potential role of certain forestry and agricultural industrial byproducts (such as black liquor) in energy production."*

In fact, for the two renewable portfolio standards that have addressed this question - in Massachusetts<sup>8</sup> and Washington DC<sup>9</sup> - standalone biomass plants were explicitly taken *out* of the RPS because of excessive carbon emissions. In Vermont, a wood-burner was denied a certificate of public good on the same basis.<sup>10</sup>

***EPA still thinks "sustainability" is relevant, but distinguishes this from "carbon neutrality"***

In November 2014, when EPA published the "McCabe memo," which appeared to state that the agency would treat "sustainably harvested" biomass as a compliance measure under the CPP, there was a strong reaction from the environmental community, on the basis that "sustainability" in a forestry context has little if anything to do with bioenergy CO2 emissions. Despite having received considerable comment on this topic, EPA still appears determined to demonstrate the relevance of "sustainable" harvesting to provision of biomass fuels, allocating several paragraphs in the final CPP (starting at page 1162) to a discussion of forestry programs in various states. Not one of these forestry programs considers carbon emissions from bioenergy.

There is one clarification from the proposed plan, however. In the draft Federal Implementation Plan,<sup>11</sup> EPA demonstrates that it does not consider carbon neutrality to be an *automatic* outcome of sustainability, stating

*"As another example, the EPA could also recognize biomass feedstocks from sustainably managed forests lands, provided that these feedstocks meet certain requirements such as demonstration that the feedstock is sourced from sustainably managed lands (for example, feedstocks from forest lands **with sustainable practices like improved management to increase carbon sequestration benefits**) and therefore helps control increases of CO2 in the atmosphere."*

***Biomass co-firing is allowed, but isn't part of the Best System of Emission Reduction***

The rule states,<sup>12</sup>

*"(4) Fuel switching to biomass at affected EGUs.*

*Some affected EGUs may seek to co-fire qualified biomass with fossil fuels. The EPA recognizes that the use of some biomass-derived fuels can play an important role in controlling increases of CO2 levels in the atmosphere. As **with the other non-BSER measures** discussed in*

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<sup>8</sup> <http://www.pfpi.net/massachusetts-issues-first-in-the-nation-limits-on-biomass-energy>

<sup>9</sup> <http://www.pfpi.net/wp-content/uploads/2015/03/DCBiomassLaw2015B20-0418-SignedAct.pdf>

<sup>10</sup> <http://www.pfpi.net/vermont-biomass-power-plant-denied-approval-on-basis-of-greenhouse-gas-emissions>

<sup>11</sup> <http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf>, page 151

<sup>12</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>, page 486

*this section, the EPA expects that use of biomass may be economically attractive for certain individual sources even though on a broader scale it would likely be more expensive or less achievable than the measures determined to be part of the BSER."*

### ***How does the CPP determine which bioenergy is qualifying?***

Burning biomass in a power plant emits more CO<sub>2</sub> per megawatt-hour than burning coal or gas - so how can this be considered a technology that will reduce emissions? EPA states that not all biomass will be considered eligible, stating at page 1165:

*"Not all forms of biomass are expected to be approvable as qualified biomass (i.e., biomass that can be considered as an approach for controlling increases of CO<sub>2</sub> levels in the atmosphere)."*

States will be responsible for justifying their choices to EPA (page 1165):

*"State plan submissions must describe the types of biomass that are being proposed for use under the state plan and how those proposed feedstocks or feedstock categories should be considered as "qualified biomass" (i.e., a biomass feedstock that is demonstrated as a method to control increases of CO<sub>2</sub> levels in the atmosphere). The submission must also address the proposed valuation of biogenic CO<sub>2</sub> emissions (i.e., the proposed portion of biogenic CO<sub>2</sub> emissions from use of the biomass feedstock that would not be counted when demonstrating compliance with an emission standard, or when demonstrating achievement of the CO<sub>2</sub> emission performance rates or a state rate-based or mass-based CO<sub>2</sub> emission goal)."*

Given efforts by pro-biomass legislators in Congress to legislate biomass as carbon neutral,<sup>13</sup> we hope EPA hasn't just handed these forces an even longer stick to beat the agency with. Will EPA really be able to stand up to bullying states during the state plan approval process when they claim, backed by their Congressional delegation, that even though biomass emits more CO<sub>2</sub> per megawatt-hour than coal, these "special" biogenic molecules don't warm the atmosphere? Expect more of this kind of bullying language, from the National Alliance of Forest Owners' statement on the Clean Power Plan.<sup>14</sup>

*"It's time for Congress to step in and affirm the carbon benefits of renewable forest biomass once and for all so forest owners, energy producers and states can have the certainty they need."*

When all else fails, the biomass industry turns to legislating the science - not unlike legislators who want to ban all discussion or action on climate change.

### ***EPA isn't assuming that even "waste" biomass is approved - yet***

At page 1166, the rule says that even if states are proposing to use the types of wood waste that

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<sup>13</sup> <http://www.pfpi.net/white-house-threatens-veto-of-epa-appropriations-bill-due-to-riders-including-bioenergy-carbon-neutrality-provision>

<sup>14</sup> <http://www.nafoalliance.org/media-room/nafo-news-releases/508-forest-owners-ask-congress-to-help-provide-certainty-over-federal-biomass-policy>

EPA likes to portray as climate-friendly, states will still have to demonstrate accountability:

*"The use of such waste-derived and certain industrial byproduct biomass feedstocks would likely be approvable as qualified biomass in a state plan **when proposed with measures that meet the biomass monitoring, reporting and verification requirements discussed below and other measures as required elsewhere in these emission guidelines.**"*

And at 1167, it states that all types of biomass will be tracked:

*"**Regardless of what biomass feedstocks are proposed**, state plans must specify how biogenic CO<sub>2</sub> emissions will be monitored and reported, and identify specific EM&V, tracking and auditing approaches for qualified biomass feedstocks. As discussed in section VIII.D.2, state plan submittals must include CO<sub>2</sub> emission monitoring, reporting and recordkeeping measures. In the case of sustainably-derived forest- and agriculture-derived feedstocks, this will also include measures for verifying feedstock type, origin and associated sustainability practices."*

***Biomass benefits must be "quantifiable, verifiable, non-duplicative, permanent and enforceable"***

Most importantly, like all emissions reductions under the plan, biomass-related biogenic CO<sub>2</sub> "benefits" must be re "quantifiable, verifiable, non-duplicative, permanent and enforceable."<sup>15</sup>

These provisions are so central to the rule, they are worth reprinting here, even though the section is long. The provisions look a lot like those that are required for enforceability of limits on power plant emissions of "conventional" air pollutants like particulate matter and nitrogen oxides, which is exactly what one would hope for if EPA wishes to write a legally defensible plan for controlling CO<sub>2</sub> emissions under the Clean Air Act. From page 1479:

§60.5775 What emission standards must I include in my plan?

*(a) Emission standard(s) for affected EGUs under your plan must be **quantifiable, verifiable, non-duplicative, permanent, and enforceable with respect to each affected EGU**. The plan must include the methods by which each emission standard meets each of the following requirements in paragraphs (b) through (f) of this section.*

*(b) An affected EGU's emission standard is quantifiable if it can be reliably measured in a manner that can be replicated.*

*(c) An affected EGU's emission standard is verifiable if adequate monitoring, recordkeeping and reporting requirements are in place to enable the State and the Administrator to independently evaluate, measure, and verify compliance with the emission standard.*

*(d) An affected EGU's emission standard is non-duplicative with respect to a State plan if it is not already incorporated as an emission standard in another State plan unless incorporated in multi-State plan.*

*(e) An affected EGU's emission standard is permanent if the emission standard must be met for each compliance period, or unless it is replaced by another emission standard in an approved plan revision, or the State demonstrates in an approvable plan revision that the emission reductions from the emission standard are no longer necessary for the State to meet its State*

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<sup>15</sup> Plan, page 1168

level of performance.

*(f) An affected EGU's emission standard is enforceable if:*

*(1) A technically accurate limitation or requirement and the time period for the limitation or requirement are specified;*

*(2) Compliance requirements are clearly defined;*

*(3) The affected EGUs responsible for compliance and liable for violations can be identified;*

*(4) Each compliance activity or measure is enforceable as a practical matter; and*

*(5) The Administrator, the State, and third parties maintain the ability to enforce against violations (including if an affected EGU does not meet its emission standard based on its emissions, its allowances if it is subject to a mass-based emission standard, or its ERCs if it is subject to a rate-based emission standard) and secure appropriate corrective actions, in the case of the Administrator pursuant to CAA sections 113(a)–*

*(h), in the case of a State, pursuant to its plan, State law or CAA section 304, as applicable, and in the case of third parties, pursuant to CAA section 304.*

### ***The plan does not allow existing biomass power plants to serve as compliance***

A significant change from the proposed rule is that in the final rule, only renewable energy capacity installed since 2012 - called "incremental" generation - is eligible for compliance. The following quote from the Goal Computation TSD<sup>16</sup> states this (although unfortunately it references another TSD, the "GHG Mitigation Measures" TSD, that EPA had not yet posted on the website as of the evening of August 3):

*"Building Block 3 is based on lower-emitting generation replacing higher emitting generation. The GHG Mitigation Measures TSD describes how the incremental RE generation potential for each region was derived. As explained in the TSD, the building block 3 potential is defined as only incremental RE generation (incremental relative to 2012 levels)."*

The rule<sup>17</sup> states this at page 384:

*"In the June 2014 proposal, RE generation was also quantified as generation from total — that is, existing and new — RE generating capacity, a formulation that was consistent with the formulation of most RPS, which are typically framed in terms of total rather than incremental generation. In response to the EPA's request for comment on this approach, commenters observed that the approach was inconsistent with the approach taken for other building blocks, and that generation from RE generating capacity that already existed as of 2012 should not be treated as reducing emissions of affected EGUs from 2012 levels. As just noted, we are not using the RPS-based methodology in the final rule, and we agree with comments that quantification of RE generation on an incremental basis is both more consistent with the treatment of other building blocks and more consistent with the general principle that the BSER should comprise incremental measures that will reduce emissions below existing levels, not measures that are already in place, even if those in-place measures help current emission levels be lower than would be the case without the measures. The final rule therefore defines the RE component of the BSER in terms of incremental rather than total RE generation."*

<sup>16</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>, page 12

<sup>17</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>



This is especially important given that in the proposed rule, the existing fleet of biomass burning units - among them some of the dirtiest, most polluting industrial power plants in the nation - were treated as having zero emissions. For instance, Maryland gets much of its renewable energy from some extraordinarily polluting bioenergy facilities. The emissions reported below are from burning wood and black liquor at biomass facilities that collected renewable energy subsidies from Maryland ratepayers in 2012,<sup>18</sup> as reported to EPA's E-GRID database.<sup>19</sup>

Facility	State	E-GRID Emissions in 2010			% of MD Tier I in 2012
		NOx (tons)	SOx (tons)	CO2 (tons)	
Luke Mill	Maryland	186	2,220	739,664	2.68%
P H Glatfelter Co -Chillicothe Facility	Ohio	176	2,339	926,360	1.34%
Stone Container Coshocton Mill	Ohio	248	143	369,234	0.88%
P H Glatfelter Spring Grove	Pennsylvania	134	1,879	751,097	1.33%
Viking Energy of Northumberland	Pennsylvania	91	31	223,343	0.72%
Covington Facility	Virginia	433	4,422	1,564,687	5.65%
International Paper Franklin Mill	Virginia	-	776	240,171	2.09%
Multitrade of Pittsylvania LP	Virginia	115	101	710,877	9.91%
Stone Container Hopewell Mill	Virginia	396	2,589	687,052	6.61%
West Point Mill	Virginia	546	3,832	1,547,483	4.82%
International Paper Kaukauna Mill	Wisconsin	87	853	400,027	0.29%
	<b>Total</b>	<b>2,412</b>	<b>19,183</b>	<b>8,159,994</b>	<b>36.32%</b>

Removing these facilities and the carbon-intensive energy they generate from the Clean Power Plan doesn't hurt the industries that burn biomass for onsite heat and power - they will continue to operate as before. It does however put the emphasis going forward on the kinds of renewable energy that will actually reduce carbon emissions, like wind and solar.

<sup>18</sup> Public Service Commission of Maryland. Renewable Energy Portfolio Standard Report, With Data for Calendar Year 2012. January, 2014. Baltimore, MD.

<sup>19</sup> E-GRID does not report particulate matter emissions, but the National Emissions Inventory of 2008 reports the Luke Mill in Maryland as emitting over 500 tons of particulate matter in the form of PM<sub>2.5</sub>.

### ***Maine: the effect of removing existing bioenergy from baseline emissions***

The results of excluding existing biomass plants from serving as compliance under the rule are apparent for the state of Maine, which has a number of wood-burning and garbage-burning facilities contributing electricity to the grid. In the previous version of the CPP, where these facilities were treated as contributing power, but no CO<sub>2</sub>, Maine's calculated baseline emissions rate was as follows:

EPA's estimate for covered sources only - counts 1,795,630 tons of CO<sub>2</sub> from EGU's in numerator:

$$\frac{\text{lb CO}_2 \text{ (EGU's)}}{\text{MWh (EGU's)}} = \mathbf{873 \text{ lb CO}_2/\text{MWh}}$$

EPA's estimate for covered sources plus renewables in 2012 (doesn't count biomass and waste-incineration CO<sub>2</sub> in numerator; does count MWh in denominator):

$$\frac{\text{lb CO}_2 \text{ (EGU's)}}{\text{MWh (EGU's + renewables, incl. biomass \& waste combustion)}} = \mathbf{437 \text{ lb CO}_2/\text{MWh}}$$

Actual emissions for EGU's and renewables (includes 5,202,479 tons CO<sub>2</sub> from biomass and 749,191 tons CO<sub>2</sub> from waste incinerators in numerator):

$$\frac{\text{lb CO}_2 \text{ (EGU's + biomass \& waste combustion)}}{\text{MWh (EGU's + renewables, incl. biomass \& waste combustion)}} = \mathbf{1,255 \text{ lb CO}_2/\text{MWh}}$$

EPA's 2030 target rate for Maine in the proposed rule was 378 lb CO<sub>2</sub>/MWh, which clearly depended on the current day estimate of 437 lb CO<sub>2</sub>/MWh that excludes bioenergy and waste emissions.

In the final rule, EPA appears to have retained only the baseline emissions rate for EGU's (the sources covered by the rule). This is still 873 lb/MWh.<sup>20</sup> However, the baseline emissions rate that includes renewable energy does not appear in the documents that have been made available on EPA's website as of August 3, and the goal rate for Maine has now been updated to 779 lb/MWh,<sup>21</sup> a rate that does not include "zero carbon" energy from biomass and waste-burning.

### ***The rule no longer treats all waste-incineration as zero-carbon- just the biogenic portion***

The proposed rule treated all municipal waste burning - even fossil fuel-derived wastes like plastics and tires - as if it had zero emissions.<sup>22</sup> This problem has been partially corrected in the final rule. Like wood-based biomass, biogenic municipal waste is eligible to be treated as compliance, but states must justify their inclusion of this just like they are required to do for

<sup>20</sup> <http://www.epa.gov/airquality/cpptoolbox/maine.pdf>

<sup>21</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>, page 27

<sup>22</sup> <http://www.pfpi.net/municipal-waste-burning-more-polluting-than-coal-but-treated-as-zero-emissions-in-the-clean-power-plan>

wood-burning plants.

***Biomass is assumed to replace even relatively low-emitting fossil fuels***

It is often assumed that biomass displaces only coal (when in fact, what it competes with for subsidies is actually wind and solar). However, EPA has chosen to calculate the benefits of adding renewable energy - including the biomass energy that is "qualified" and is thus treated as having zero emissions - as if it replaces fossil fueled generation on a pro-rata basis that reflects the composition of the state's generation. EPA's own example is clear, so we repeat it here:<sup>23</sup>

*"For example, if a region had 100 MWh of potential building block 3 generation identified, and baseline fossil steam accounted for 70 percent of the region's generation from affected units and NGCC accounted for 30 percent, then the 100 MWh of incremental RE identified would be assumed to replace 70 MWh of fossil steam generation and 30 MWh of NGCC generation. The fossil steam generation and NGCC generation are decreased by the amount of RE MWh apportioned to that technology. The total baseline generation equals the total remaining generation and renewable generation reflecting that replacement of fossil sources by incremental RE generation."*

Since stack emissions of biomass power plants are typically around 3,000 lb/MWh, whereas NGCC plants can have emissions in the mid-700 lb/MWh range, this means that the impacts of EPA's decision to allocate renewables as displacing fossil fuels proportionately to their generation is potentially significant, magnifying the error that's introduced when a high-emissions fuel source like biomass is treated as having zero emissions.

***Under a rate-based system, biomass doubles emissions impacts***

EPA acknowledges that under a rate-based approach, states can continue increasing their emissions of CO<sub>2</sub> to the atmosphere, even as they stay under a target rate. The Goal Computation TSD states<sup>24</sup>,

*"In that rate-based compliance scenario, every zero-emitting MWh added to the denominator of an EGU's effective emission rate **would enable that EGU to add another MWh of generation with twice the emissions intensity** of the applicable rate-based standard, because the average intensity of that emitting MWh combined with the zero-emitting MWh would then equal the applicable rate-based standard and thus maintain that EGU's compliance."*

(A footnote states,

*"The assumption that one MWh of incremental RE enables one MWh of additional affected EGU generation is consistent with the historical performance of affected EGUs over time as well as expected future demand levels. Refer to the memorandum and accompanying spreadsheet 'Historical Fossil EGU Performance' for additional details, available in the docket.")*

This highlights the importance of ensuring that renewable energy is *truly* zero-carbon emitting,

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<sup>23</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>, page 13

<sup>24</sup> <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation.pdf>, page 24

rather than just on paper. Bioenergy emits about 3,000 lb/MWh; if adding a MWh of bioenergy that is treated as zero-carbon then enables an EGU to increase its generation by one MWh, this more than doubles the emissions impact.

***The rule does not permit carbon offsets as compliance***

We have argued that carbon neutrality claims for bioenergy are simply carbon offsetting by another name. The premise is that the stack emissions from burning biomass don't "matter" to the atmosphere, either because those emissions are offset by the fact that "would have happened anyway" (in the case of facilities burning waste that will surely decompose), or because emissions are taken up by new plant growth.

The final CPP does not permit actual offsets as compliance. At page 519, the rule states:

*"actions that a source owner or operator could take that would not have the effect of reducing emissions from the source category, such as purchasing offsets, would also not qualify as a "system of emission reduction."*

Additionally, in a footnote at page 1193, the rule states

*"Achievement of the state mass-based CO<sub>2</sub> goal would be determined based solely on stack CO<sub>2</sub> emissions from affected EGUs. Where a state program includes the ability of an affected emission source to use GHG offsets to meet a portion of its allowance compliance obligation, no "credit" is applied to reported CO<sub>2</sub> emissions by the affected EGU. The use of offset allowances or credits in such programs merely allows an affected EGU to emit a ton of CO<sub>2</sub> in the amount of submitted offset allowances or credits. In all cases, there is no adjustment applied to reported stack emissions of CO<sub>2</sub> from an affected EGU when determining compliance with its emission limit."*

However, elsewhere the rule appears to sanction use of offsets in trading programs like the Regional Greenhouse Gas Initiative in the Northeast. Perhaps the best touchstone for whether a measure can serve as an effective compliance measure under the rule is the requirement above, that measures be "quantifiable, verifiable, non-duplicative, permanent and enforceable."

***EPA appears to recognize the additional impacts of biomass energy.***

The rule states,<sup>25</sup>

*"Generation from wind turbines and solar voltaic installations, two common renewable technologies, **does not produce solid waste or require cooling water**, a better environmental outcome than if that amount of generation had instead been produced at a typical range of fossil fuel-fired EGUs."*

The reference to solid waste and cooling water could refer just as well to biomass power plants,

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<sup>25</sup> <http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf>, page 442

which can require hundreds of thousands of gallons of water a day for cooling, and can produce over a ton of ash per hour, sometimes contaminated with heavy metals, depending on the power plant's fuel source. A Covanta plant in California was prosecuted last year for distributing ash contaminated with high levels of heavy metals and dioxins as a "soil amendment."<sup>26</sup>

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<sup>26</sup> <http://www.newsreview.com/chico/settlement-reached-in-popi-case/content?oid=15836324>