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The Clean Power Plan (CPP): The Treatment of Biomass

The Clean Power Plan

On August 3, 2015, the Obama Administration issued its final rule for carbon dioxide (CO₂) emission reductions from existing fossil fuel-fired electric power plants, commonly referred to as the Clean Power Plan (CPP). The U.S. Environmental Protection Agency (EPA) administers the CPP under an authority granted to the agency in Section 111(d) of the Clean Air Act (CAA; 42 U.S.C. 7411). In general, the CPP requires states to devise a plan that—by reducing CO₂ emissions from the affected facilities in accordance with guidance established by EPA—allows them to reach a state-specific emission reduction goal by 2030. States are required to submit their plans by September 6, 2016, although they may request a two-year extension. A federal plan will be used to implement the CPP for states that do not submit a plan. Further, states are required to implement their plans in 2022. EPA says the CPP offers states “broad flexibility and latitude in complying with their obligations” by providing multiple strategies that states may undertake to meet their goal, including increased use of non-fossil fuel energy sources, such as renewable energy. On February 9, 2016, the Supreme Court granted a stay of EPA’s CPP, pending the Court’s consideration of whether to hear the case.

How Is Biomass Accounted for in the CPP?

EPA specifies that “qualified biomass” may be included in a state’s plan. EPA defines *qualified biomass* as a biomass feedstock that has been demonstrated to be a method to control increases of CO₂ levels in the atmosphere. EPA defines *biomass* as biologically based material that is living or dead above and/or below ground and is available on a renewable or recurring basis. EPA states that it will “review the appropriateness and basis for determining qualified biomass feedstocks or feedstock categories in its review of the approvability of a state plan.” While EPA explicitly states that “not all forms of biomass are expected to be approvable as qualified biomass,” it gives some indication as to what exactly may qualify (e.g., waste-derived feedstock, certain forest and agriculture-derived industrial byproducts).

One reason EPA may be unable to give additional information about the specific biomass types that may qualify could be the agency’s ongoing efforts to determine the carbon status of biomass (e.g., carbon neutrality). One such effort referred to in the final rule is the EPA Science Advisory Board (SAB) draft 2014 report *Framework for Assessing Biogenic Carbon Dioxide for Stationary Sources* (Framework). The Framework maintains that it is “not scientifically valid to assume that all biogenic feedstocks are carbon neutral, but that the net biogenic CO₂ atmospheric contribution of different biomass feedstocks can vary and depends on various factors, including feedstock type and characteristics, production practices,

and, in some cases, the alternative fate of the feedstock.” It is not known when a final Framework may be released. Another effort is the proposed federal plan for the CPP—the federal plan to be implemented if a state does not submit an approvable plan by the assigned deadline. It was released concurrently with the CPP final rule. The proposed federal plan requests comments on the inclusion of biomass and its treatment within the federal plan (e.g., a list of preapproved qualified biomass fuels). Comments received may impact which biomass types the EPA deems eligible for the CPP or why the use of biomass should be restricted.

The CPP final rule requires additional accounting and reporting requirements should a state decide to use qualified biomass. For instance, states will have to submit the biomass type they propose to use and explain why this biomass should be considered qualified biomass, along with biomass monitoring, reporting, and verification measures. For some biomass types, the plan must include measures the state will take to verify the biomass type, its origin, and any associated sustainability practices. EPA asserts that the approval of biomass for a state plan is contingent upon whether the “measures for qualified biomass and related biogenic CO₂ benefits are quantifiable, verifiable, enforceable, non-duplicative and permanent.”

Clean Energy Incentive Program

In the final rule, EPA announced a Clean Energy Incentive Program (CEIP)—an optional program in which states may participate. EPA says it is establishing the CEIP to encourage early investments in renewable energy (RE) and demand-side energy efficiency (EE) by the states. Biomass is excluded from the CEIP. While details about the program are forthcoming, EPA specifies that the only RE options available to states are power from wind and solar resources (see **Figure 1** and **Figure 2**). Demand-side EE—generally described as a technique to affect consumer behavior that results in a reduction in electricity use—does not apply to energy supply activities such as producing power.

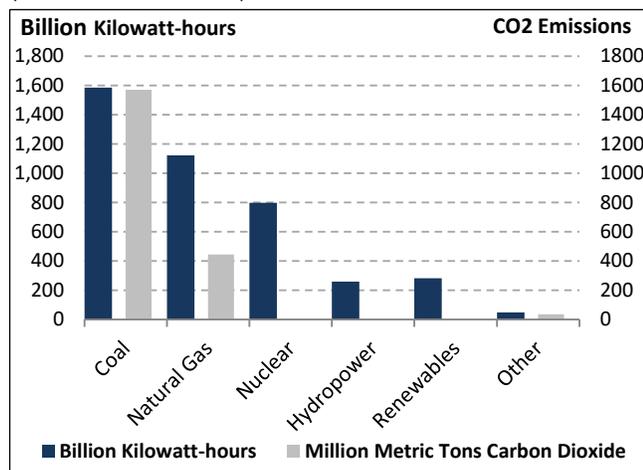
The Role of Biopower in the CPP

It is not clear how pronounced a role biopower—the generation of electric power from biomass feedstocks—will play in state plans to meet state-specific emission reduction goals. First, EPA has placed the onus on states to demonstrate the eligibility of biomass for the CPP, with EPA making the final decision. Thus far, EPA has provided little direct guidance on biomass in the final rule. This could be due to multiple reasons, including a wait-and-see approach to find out what states propose, to review comments received about biomass for the proposed federal plan, or to obtain additional information from the SAB. The many requirements states must adhere to in order to include biomass in their plans, without clear direction on what will and will not be approved, may deter some states from

including biomass. Second, the final rule primarily focuses on feedstock types and not technologies, and it appears tethered to the idea that the predominant biopower technologies will be direct combustion or co-firing with fossil fuels. For instance, the CPP regulatory impact analysis contains a CO₂ emission factor for biomass that accounts for combustion only. But other biopower technologies exist (e.g., gasification, pyrolysis)—albeit some may argue that these technologies are not as fully established as combustion and co-firing—where biomass could be the sole or primary feedstock and that could yield lower CO₂ emissions. Therefore, it is not clear if EPA is concerned only with biopower technologies that are widely used at present or also with forthcoming biopower technologies that with certain incentives could have less of a carbon impact. It could be argued that, given the CPP implementation time frame, it is unlikely to expect certain biopower technologies (not yet proven at commercial scale) to ramp up to the levels needed to meet a final state-specific goal.

Figure 1. 2014 U.S. Electricity Generation Portfolio and CO₂ Emissions

(billion kilowatt-hours)



Source: U.S. Energy Information Administration (EIA), *Monthly Energy Review July 2015*, Table 7.2a and Table 12.6, DOE/EIA-0035(2015/07), Washington DC, July 2015.

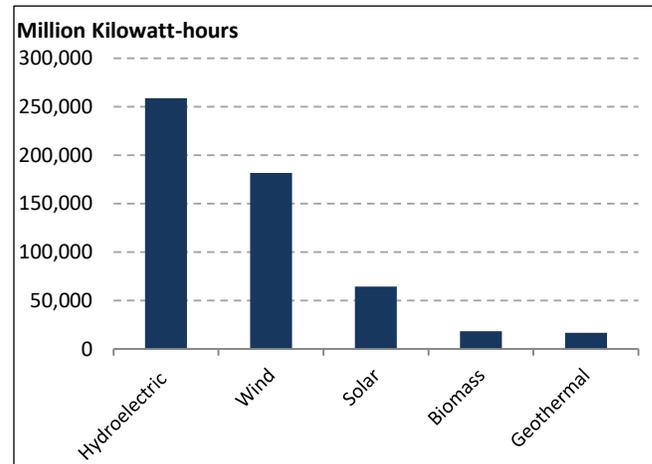
Notes: 2014 Total Production = 4.09 billion kilowatt-hours; 2014 Total Emissions = 2.05 million metric tons CO₂.

Competing Interests

The inclusion of biomass in the CPP could lead to competing interests among the different forms of bioenergy (i.e., biopower, biofuels, and biothermal). As the fuel for all bioenergy, biomass feedstock supply may be a concern to some. However, not all biomass can be used or is readily accessible for all bioenergy types. Market forces also will likely continue to partially determine which feedstock goes to which energy application. Further, demand for bioenergy via any federal program may help some regions where biomass loads are abundant (e.g., wildfire-prone areas). In addition, multiple programs and tax incentives exist for the different bioenergy types (e.g., the Renewable Fuel Standard). Federal support—financial and technical—could be stretched thin or bolstered by a new focus on biopower under the CPP.

Figure 2. 2014 Renewable Electricity Generation

(million kilowatt-hours)



Source: EIA, *Monthly Energy Review July 2015*, Table 7.2a, DOE/EIA-0035(2015/07), Washington DC, July 2015.

Notes: 2014 Total Renewable Production = 539.8 million kilowatt-hours.

Congressional Interest

Congress has expressed interest in many biomass-related issues, particularly biopower and biomass carbon neutrality. For instance, some Members in both chambers have expressed to the executive branch their support for consistent federal policies pertaining to biomass and argued that certain biomass feedstocks should be deemed carbon neutral. Proposed legislation addresses EPA handling of carbon emissions from forest biomass.

Congressional support for and opposition to biopower differs for many reasons. Biopower can contribute to economic growth, environmental improvements, and energy independence. It also can be cost and energy intensive, may be susceptible to encouraging the use of unsustainable management practices, and may be difficult to produce at commercial scales similar to the fossil fuel industry. Some assert that biopower offers the opportunity to protect and revitalize existing markets and to stimulate support for new markets in regions of the country that could benefit from such activity. Others maintain that biopower may cause environmental harm if robust measures are not enforced to protect natural resources and human health. Congressional oversight regarding biomass and its inclusion in environmental, energy, agricultural, and natural resources policies and programs may continue in the 114th Congress.

For more information, see CRS Report R41440, *Biopower: Background and Federal Support* and CRS Report R44145, *EPA's Clean Power Plan: Highlights of the Final Rule*.

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