EPA Issues Clean Power Plan to Reduce Power Plant Carbon Emissions

08/27/15

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On August 3, 2015, the U.S. Environmental Protection Agency (EPA) issued its final regulation, known as the Clean Power Plan (CPP), establishing carbon dioxide (CO_2) emission guidelines for existing affected electric utility generating units (EGUs) pursuant to Section 111(d) of the Clean Air Act, 42 U.S.C. § 7411(d).[1] Subject to certain exceptions set forth in the final rule, affected EGUs are steam-generating units, integrated gasification combined cycle units or stationary combustion turbines that: (i) were in operation or commenced construction on or before January 8, 2014, (ii) serve a generator connected to a utility distribution system with a nameplate net capacity of 25 megawatts or greater, (iii) have a baseload rating of 250 MMBtu per hour of fossil fuel, either alone or in combination with other fossil fuel, and (iv) if a stationary combustion turbine, meet the definition of either a combined cycle or combined heat and power combustion turbine. The final rule requires states to submit their plans to implement the emission guidelines to EPA by September 6, 2016, although the regulation also allows states to make an initial submittal to EPA by that date and obtain an extension for the submittal of a final plan by September 6, 2018.

If a state does not submit a plan that meets the requirements of the emission guidelines, EPA will issue a regulation known as a "federal implementation plan" that will directly regulate the affected EGUs in that state. EPA issued a proposed federal implementation plan and model rule concurrently with the Clean Power Plan and will be accepting comments on the proposal for 90 days following publication of the proposal in the Federal Register.[2]

Changes in the Final Rule

The basic framework of the final CPP is similar to the proposed CPP.[3] As in the proposed rule, EPA established the emissions targets applicable to affected EGUs by focusing on the interconnected nature of the production and delivery of electricity. EPA analyzed emissions reductions that affected EGUs could achieve by applying three "building blocks," which EPA concluded met the statutory standard "best system of emission reduction" (BSER):

- Building Block 1: Improving heat rate at existing coal-fired steam EGUs;
- Building Block 2: Shifting electricity generation from higher-emitting coal-fired steam EGUs to lower-emitting existing natural gas combined cycle generation (NGCC); and
- Building Block 3: Shifting generation from affected fossil fuel-fired EGUs to new zero-emitting renewable energy generation.[4]

In the proposed regulation, EPA also had included demand-side energy efficiency measures as Building Block 4 but did not include reductions that could be achieved by such measures in the final rule.[5] Although such measures were not used as a basis for establishing the guidelines' emission targets, states can implement these measures (and others that were not included as part of BSER) in order to achieve compliance.

[1] An unofficial, prepublication version of the final rule can be found at: http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule.pdf.

[2] An unofficial, prepublication version of the proposed federal plan and model rule can be found at: http://www.epa.gov/airquality/cpp/cpp-proposed-federal-plan.pdf.

[3] The proposed CPP was published on June 18, 2014. *See* 79 Fed. Reg. 34,830.

[4] The types of renewable energy generation included for the purpose of establishing the BSER emission rates include onshore wind, utility-scale photovoltaic solar, concentrating solar power, geothermal and hydropower.

[5] EPA's rationale for deleting Building Block 4 was that demand-side energy efficiency is not an action that affected EGUs (the supply side) could take to achieve compliance with an emissions standard and therefore was outside the bounds of what was allowed by Section 111(d).

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Besides the deletion of Building Block 4, EPA made other notable changes in the final CPP. In the proposed rule, the interim compliance period began in 2020, but in the final CPP, the interim compliance period begins in 2022, with a "glide path" toward the final compliance date of 2030. This was done in part to provide states with additional time to promote non-NGCC based measures to reduce CO_2 emissions.

EPA also changed its approach to calculating the emissions targets. In the final CPP, EPA promulgated nationwide "sub-category" CO_2 emission performance standards applicable to affected steam EGUs (1,305 lbs/MWh) and stationary combustion turbines (771 lbs/MWh).[6] States can, if they so choose, simply require affected EGUs to meet these emission rate standards. This is new. As in the proposed rule, EPA also calculated statewide target emission rates,[7] although the method used to calculate the state targets was different in the final rule. EPA also included equivalent mass-based limits (in short tons) for each state, in order to make it easier for states to adopt intrastate or interstate allowance-based emissions trading programs.

Promotion of Clean Energy Generation

The emission guidelines are designed to shift generation from higher-emission steam-generating units to lower-emitting generation and zero-emission renewable generation, including other types of renewable generation beyond those used to set the BSER standard. (For example, off-shore wind or distributed solar generation could be used as part of a compliance plan, so long as such generation met other qualifying requirements.) Demand-side measures also are encouraged. But renewable energy generation would appear to be a prime beneficiary of this regulation.

Emission Rate Credits

An important compliance mechanism for states that target compliance on the achievement of subcategory or statewide emission rates is the issuance and use of "Emission Rate Credits" (ERCs). An ERC represents one MWh of actual energy generated or saved with zero associated CO_2 emissions. Clean energy projects such as renewable energy or nuclear energy that commenced operation after 2012 can, once qualified by the state, be issued ERCs for the energy generated by such projects beginning in 2022.[8] Affected EGUs subject to an emission rate compliance requirement (lbs/MWh) can purchase ERCs and adjust their emission rates by adding the MWh represented by the ERCs to their own generation, thus reducing their effective emission rate. Further, ERCs created by renewable energy or other projects located in one state may be traded to affected EGUs in a second state, provided that such trading is authorized by each of the states and other requirements are met.[9] EPA indicated that it would work with states that are interested in allowing the use of renewable energy from outside the United States to adjust CO_2 emission rates, provided that such energy is connected to the U.S. grid and is delivered to an entity in the U.S.

Allowance Set-Asides

Shifting generation to zero-emission renewable energy (or reducing energy production through demand-side measures) also will assist affected EGUs in states adopting mass-based limits achieve compliance. One concern that EPA identified in the CPP is that the use of a mass-based emissions cap could result in the shifting of energy generation to new NGCC facilities that are not subject to the cap on emissions from existing affected EGUs. The CPP includes suggested measures to address this "leakage," including the option of including new sources under a state-based cap. Such an approach would expand the emissions budget with a new source allowance complement (either the complement included in the CPP or one proposed by a state) to reflect these new sources. Another method of addressing leakage is to encourage additional renewable generation (in lieu of new NGCC generation) by allowing states to set aside a percentage of their allowance caps to be issued to qualifying renewable energy or energy efficiency projects. In the proposed federal

[6] These are the final standards that become applicable in 2030. In contrast, the new source performance standard (NSPS) for CO2 emissions for new coal-fired electric generating units, also issued by EPA on August 3, 2015, is 1,400 lbs/MWh-gross, based on a new supercritical pulverized coal unit that employs carbon capture and storage to capture 20 percent of its carbon emissions. The NSPS for baseload stationary combustion turbines (new or reconstructed) is 1,000 lbs/MWh-gross, based on new and reconstructed NGCC technology. The NSPS also includes standards for nonbaseload stationary combustion turbines and modified or reconstructed steam-generating units. These NSPS apply to units that are newly constructed, modified or reconstructed on or after January 8, 2014. An unofficial, prepublication version of the final NSPS can be found at: http://www.epa.gov/airquality/cpp/cps-final-rule.pdf.

[7] Vermont and the District of Columbia are not subject to the rule because no affected EGUs are located in these jurisdictions. EPA is not requiring Alaska, Hawaii, Puerto Rico or Guam to submit plans at this time because it does not currently have sufficient information to quantify the BSER emission rate in these jurisdictions.

[8] Capacity uprates to renewable energy projects or nuclear plants that are made after 2012 to existing projects also can be used to generate ERCs. ERCs also can be generated by demand-side efficiency measures; affected steam-generating units or stationary combustion turbines that install pollution control measures to reduce emissions below their respective reference CO_2 emission rates; and increased generation from existing NGCC units (as compared to generation during the 2010-12 baseline period).

[9] For example, states that develop "ready for interstate" trading programs for their rate-based programs must base their plans on the subcategory emission performance rates. States that participate in direct multistate trading programs must all use the same emission rates for compliance, either the subcategory emission performance rates or a weighted average goal rate based on all of the states involved in the trading plan.

ERCs generated by projects in a state that uses a mass-based emissions target cannot be transferred to affected EGUs in other states, with the exception of renewable energy projects where it can be demonstrated that the generation to be counted for the purpose of creating ERCs is delivered to the grid to meet electricity load in a state with a rate-based plan (for example, electricity delivered pursuant to a power purchase agreement).

implementation plan and model rule relating to mass-based plans, EPA proposed that 5 percent of allowances be set aside for qualifying renewable energy projects.[10]

Clean Energy Incentive Program

Early action wind and solar projects and energy efficiency projects in low-income communities also would be encouraged in states that implement the Clean Energy Incentive Program (CEIP) included in the final CPP. EPA designed the CEIP as a program that could be implemented in rate-based or mass-based state plans. Eligible projects are those that commence construction (in the case of renewable energy projects) or operation (in the case of energy efficiency measures) after: (i) the submission of a final state plan to EPA; or (ii) September 6, 2018, if the state does not submit a final plan by the September 6, 2016, initial deadline. Under the CEIP, states could issue "early action" ERCs (in rate-based states) or allowances to qualifying projects for energy generated (or end use energy demand reduced) in the following amounts:

- Wind or solar projects: one ERC for every two MWh generated in 2020 and/or 2021, or the equivalent number of allowances in states with mass-based standards.
- Energy efficiency projects: two ERCs for every two MWh in end-use demand savings in 2020 and/or 2021, or the equivalent number of allowances in states with mass-based standards.

The early action allowances or ERCs issued by the participating states would be borrowed from subsequent years so that there would be no increase in the aggregate emissions from affected EGUs. However, in addition to the early action allowances or ERCs, EPA will provide matching allowances or ERCs to the state to be awarded to qualifying projects. These matching allowances or ERCs are limited to a pool of 300 million short tons of CO_2 emissions (a portion to be reserved to eligible wind and solar projects and a portion to energy efficiency projects) to be allocated to the participating states. EPA is taking comments on the elements of the CEIP, including the size of the matching reserve in connection with the proposed federal plan, and will be addressing design and implementation details (including, for example, the definition of a low-income community for project eligibility purposes) in a subsequent action.

Potential Implications for Developers and Utilities

There is a great deal of uncertainty surrounding the implementation of the CPP. The rule itself provides the states with the initial authority and flexibility to determine how they will implement the emission guidelines, subject to the targets set by EPA and other limitations and requirements that are part of the CPP. Although promotion of renewable energy is inherent in the structure of the CPP and the final rule is designed to encourage the states to use flexible, market-based mechanisms that will provide incentives for renewable energy, the final regulations applicable to affected EGUs will not be known until the process of developing and approving state plans (or finalizing federal plans in states that do not choose to submit their own plans) has been completed. And finally, the CPP is a controversial regulation that already has been and will continue to be subject to multiparty litigation involving the federal government, energy regulators, the states, the power generation sector, other industrial sectors (including coal mining) and environmental groups. There are a number of potential outcomes to this litigation, including the possibility that the use of the "outside the fenceline" approach to setting emissions targets for existing fossil fuel electric-generating units is not authorized by Section 111(d) of the Clean Air Act.

Once the dust settles, the CPP could benefit developers of clean energy generation and traditional rate-regulated utilities. Because the owners and operators of affected EGUs are likely to rely upon clean energy projects to achieve compliance with the state plans developed pursuant to the CPP, this may make it easier for clean energy project developers to obtain the power purchase agreements necessary for project financing. Regulated utilities that make investments to upgrade their plants, develop lower-emitting replacement generation or expand transmission and distribution capacity in order to comply with the regulation also could benefit.

[10] EPA's current interpretation of its authority is that it is more restricted than the states with respect to the measures that can be used to achieve compliance with Section 111(d). Accordingly, states, unlike EPA, would have flexibility to set aside allowances for demand-side energy efficiency measures. EPA also apparently does not believe it has the authority to regulate new fossil fuel generation sources under Section 111(d), so its proposed federal implementation plan does not include the new source allowance complement option that was include in the final CPP.