

Potential Questions for EPA's Stakeholder Outreach on Carbon Pollution Standards for Existing Power Plants

The Georgetown Climate Center is serving as facilitator to a group of state agency leaders responsible for administering clean energy and greenhouse gas emission reduction programs. These states are already achieving significant carbon pollution reductions from the power sector, and are demonstrating different ways that such reductions can be achieved. Georgetown Climate Center's work with these states seeks to support EPA's development of emission guidelines under Section 111(d) that will allow states and the federal government to together establish a national program of carbon pollution regulation that:

- Achieves significant emission reductions from the electric power sector, in line with the President's commitment to achieve economy-wide carbon pollution reductions of 17 percent below 2005 levels by 2020.
- Allows for a variety of flexible options for states, recognizing that different pathways may be appropriate for different states.
- Encourages states with current carbon pollution reduction programs or clean energy programs to build on those programs as mechanisms of compliance under Section 111(d), including California's AB 32 programs, state programs that are part of the Regional Greenhouse Gas Initiative, and potentially other state clean energy and energy efficiency programs.
- Recognizes the carbon pollution reductions already achieved by states that have implemented clean energy and carbon pollution reduction programs, while still achieving significant additional carbon pollution reductions and creating an equitable national system.
- Minimizes compliance costs and burdens, maintains electricity reliability, and maximizes economic and environmental benefits.

The Georgetown Climate Center urges EPA to seek input on the following questions, developed in collaboration with state agency leaders, as EPA begins engagement with states and other stakeholders on standards for existing power plants pursuant to President Barack Obama's June 25 Memorandum.¹

¹ Presidential Memorandum from Barack Obama to the EPA, June 25, 2013, <http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards>.

I. Central Framing Issues

The Georgetown Climate Center and participating state agency leaders recognize that EPA will be requesting input on a range of issues from stakeholders, and that key issues include the following:

- ***The form of emissions standard EPA will require states to set and achieve. Should EPA require, or allow as an alternative, states to articulate the standard as a rate-based standard, a mass-based standard, or in some other form?*** Performance standards under Section 111(d) have typically been specified in the form of allowable emission rates (e.g., emission per unit of electricity output), but in the case of carbon pollution regulations, could potentially be specified as a limitation on the quantity of pollution emitted over a period of time (e.g., tons per year), either for individual sources or an aggregation of sources, or could potentially be articulated in some other form as well.
- ***Applying the emission guideline to states. Should EPA establish a uniform national standard, or establish standards differentiated by state but based on a common methodology?*** For example, EPA could establish a single rate-based standard for all regulated sources in the nation, or could develop average or aggregate emission limits covering all regulated sources in each state, based on a uniform methodology that considers relevant factors, such as the mix of different types of covered electric generating units (EGUs) in each state (e.g., coal-fired, natural gas combined cycle, etc.).
- ***Best System of Emission Reduction. In developing its emission guideline to reflect the “degree of emission limitation achievable through the application of the best system of emission reduction” that has been adequately demonstrated, what systems should EPA consider as “systems of emission reduction?”*** For example, a “system of emission reduction” could potentially include systems that: encourage fuel switching or co-firing with cleaner fuels at a source; promote changes of dispatch order in the electricity grid to reduce emissions; promote reduction of emissions through increased energy efficiency investments and deployment of renewable energy; and use market mechanisms to achieve such changes.
- ***Baseline and business-as-usual. Where comparison with historic emissions or projected business-as-usual emissions is necessary for establishing a standard of performance or compliance program, how should baselines and business-as-usual scenarios be determined?***
- ***Early action. How should states’ recent and ongoing success in emission reduction be credited?***
- ***Flexibility for a diversity of state programs. What kind of guidance and criteria should EPA provide for approving state plans of different types, including state plans based on current carbon pollution reduction, clean energy, and energy efficiency programs? Should EPA should provide states with more than one potential compliance approach as a model rule (e.g., rate-based and mass-based)?***

II. Specific Questions

A. Best System of Emission Reduction and the Level of the Standard

In his June 25 speech on climate change, President Barack Obama called on EPA to develop standards in a way that “build[s] on the leadership that many states, and cities, and companies have already shown.”² The emission reduction programs already demonstrated by states and cities include, among others: state energy efficiency programs, renewable energy mandates, fuel-switching at existing plants to natural gas or biomass, utility planning efforts and state legislative initiatives aimed at clean energy investment (e.g., Colorado’s Clean Air Clean Jobs Act), averaging programs to achieve reductions in other pollutants (e.g., RACT), state emission-budget and trading programs (e.g., Regional Greenhouse Gas Initiative), and carbon-tax programs (e.g., programs in Boulder, Colorado; California’s Bay Area Air Quality Management District; and Montgomery County, Maryland).

1. Systems of Emission Reduction Demonstrated by States, Cities, and Firms

- a) Clean Air Act Section 111(a)(1) defines a standard of performance to reflect the “degree of emission limitation achievable through the best system of emission reduction ... [that] has been adequately demonstrated. . .” What examples are there of “systems of emission reduction,” including those identified above, that have been demonstrated by states, cities, and firms to achieve carbon pollution reductions from the power sector?
 - i. What levels of emission reduction have these systems achieved?
 - ii. At what cost and with what benefits (including other air quality benefits and non-air health and environmental benefits)?
- b) How should these programs inform EPA’s identification of the “best system of emission reduction” for the purpose of establishing an emission guideline (i.e., the minimum level of emission standard that states will be required to establish)? Should EPA identify more than one best system of emission reduction?
 - i. How should EPA account for emission reduction potentials, costs, and other factors?

² Remarks by President Barack Obama on Climate Change, June 25, 2013, <http://www.whitehouse.gov/the-press-office/2013/06/25/remarks-president-climate-change>.

2. Potential for Establishing a Declining Standard

- a) Should EPA establish an emission guideline that ramps down to a future date, for example a standard that declines annually, or a standard that must be achieved at some point in the future with requirements for regular demonstrations of progress toward such a standard?
 - i. For example, should EPA permit a longer compliance timeline to reach a more stringent standard? Alternatively, if EPA determines that there are systems of emission reduction that will reach specific performance or demonstration benchmarks at a future date, should it require incremental improvements toward that date?

3. Effect of Flexible Compliance Measures on the Level of the Standard

- a) How should EPA consider the availability of flexible compliance measures, such as averaging, trading, or crediting for energy efficiency or renewable energy deployment, in establishing the level of the emission guideline given the additional level of emission reductions that are achievable through these flexible compliance methods?
- b) What methodologies should be used to evaluate the potential additional level of emission reduction available through flexible compliance methods, and should this evaluation be conducted nationwide or at the state level?

B. Compliance Options for States

1. Specific Compliance Options that Build on Current State Programs

A number of states have clean energy and greenhouse gas (GHG) reduction policies that are already directly or indirectly achieving reductions of carbon pollution from the power sector, or could potentially drive emission reductions in the future. In his June 25 speech on climate change, President Obama directed EPA to build on the leadership that states have shown, and specifically referenced state market-based programs to reduce carbon pollution, state energy efficiency programs, and state renewable energy targets. Similarly, in his June 25 Presidential Memorandum to EPA, President Obama directed EPA to engage directly with states in developing standards for existing power plants and to develop approaches that allow for the use of market-based instruments and other regulatory flexibilities.

- a) How could states use the following types of programs or policies as the basis for approvable state programs under Section 111(d) and how would states provide for the enforcement of such standards:
 - i. State policies projected to achieve emission reductions in the power sector through market responses, such as renewable portfolio standards, energy efficiency standards, carbon-tax programs, or economy-wide cap and trade programs.

1. How could states be credited for renewable and energy efficiency programs that result in emission reductions from the power sector in a way that is not tied to compliance obligations on regulated sources?
 - ii. An aggregate emission budget program for the power sector. This could include a cap-and-trade program for the power sector, such as the Regional Greenhouse Gas Initiative; or a program where a state establishes emission budgets for individual regulated sources or entities owning regulated sources (i.e., utilities or merchant generators).

2. Equivalent Mass-based Programs

Some states have current GHG emission reduction programs that are structured around achieving reductions in annual quantity of emissions from the power sector (i.e., mass-based emission standard), as opposed to an improvement in the carbon-intensity of electricity generation (i.e., rate-based emission standard).

- a) If EPA articulates the emission guideline as a rate-based standard, how could EPA allow for approval of state plans that will achieve equivalent mass-based emission reductions?
 - i. Should EPA propose a specific methodology for translating to an equivalent mass-based state emission budget? If so, what should this methodology be?
 - ii. Should EPA include as part of its regulatory materials a conversion table that articulates state emission budgets so that states may consider what kind of state plan would be most appropriate (i.e., a plan based on achieving a rate-based standard or a plan based on achieving an emission budget).

3. Ensuring Consistent Evaluation and Quantification of State Plans

- a) If EPA's guidelines allow for multiple compliance pathways, or create a pathway for an "equivalency" determination, what methodology or metrics should be used to ensure accuracy, reliability, and comparability in evaluation and measurement across different types of state programs?
 - i. How should EPA structure reporting requirements to allow for effective monitoring?
- b) How should EPA ensure that different flexible mechanisms are evaluated with the same degree of rigor?

4. Enforceability, Measurement, and Verification

Clean Air Act Section 111(d) requires state plans to provide for the implementation and enforcement of the standards of performance. Some of the current state clean energy and GHG emission reduction programs that could potentially serve as the basis of state Section 111(d) plans do not necessarily impose emission limitations on individual electric generating units.

- a) Comment on how state plans that build on current state programs could meet the requirements for implementation and enforcement of standards of performance under Section 111(d).
 - i. Could a state make use of contingent emission limitation requirements on regulated sources to provide for enforcement if regulated sources did not meet an interim projected level of emissions or emission reduction?
 - ii. Would it be sufficient to require submission of a state “contingency” plan to be implemented if the projected reductions are not fully realized?
 - iii. How should state plans treat offset or cost-containment reserve elements of current state programs?
- b) Given the diversity of methodologies and programs for measuring and verifying GHG emission reductions due to displacement of fossil-fuel generation from energy efficiency and renewable energy, how should EPA ensure accurate, consistent, and comparable measurement of such programs within and across states?
 - i. For example, how should EPA ensure consistent methodologies for determining the benefits from energy efficiency programs, including what methods and protocols are used to determine the quantity of electricity saved per measure, and what method is used to translate that into a quantity of avoided carbon pollution?
 - ii. How should EPA address differences in the state administration and evaluation of different programs?

5. Interstate Coordination

The electricity system functions as interconnected interstate networks for the generation, transmission, and distribution of electricity. Some state clean energy and carbon pollution programs also have provisions for interstate cooperation and accounting. This raises a number of important issues related to how EPA’s guidelines, as well as state standards and plans, should recognize and accommodate these inter-relationships. These include the following:

- a) The Regional Greenhouse Gas Initiative is an example of one group of state programs that have explicit interstate compliance mechanisms, where each state accepts allowances from other states under a regional cap-and-trade program. The participating states have found that such interstate trading promotes economy-of-scale efficiencies and improves cost-effectiveness. How could such

interstate trading of compliance instruments (e.g., either allowances or credits under a rate-based system) be included within Section 111(d)'s state plans?

- b) How should the import and export of electricity between states, and internationally (i.e., imports from Canada), be treated?
 - i. For example, how should EPA address circumstances where state policies or programs (e.g., renewable portfolio standards or energy efficiency programs) result in emission reductions from sources in other states.
- c) In developing emission guidelines, are there specific issues that EPA should consider related to the possibility that different states may implement different forms of standards, types of state plans, or compliance mechanisms (e.g., rate-based programs in some states, and mass-based programs in other states)? If there are potential adverse effects from such differences among states, are there ways in which such adverse effects could be avoided or mitigated?

6. Establishing a Baseline or Business-as-Usual Scenario

Some Section 111(d) approaches may require the establishment of a baseline or business-as-usual scenario. For example, EPA's Section 111(d) guidelines or a state's standard of performance may require a level of improvement in an emission rate average or aggregate emissions relative to current or recent conditions. Similarly, a state may need to establish a business-as-usual (BAU) scenario in order to demonstrate the equivalence of a mass-based program with rate-based guidelines, or to calculate effectiveness of energy efficiency programs.

- a) In such circumstances, what would be the appropriate year(s) to use as a baseline?
- b) In a mass-based emission budget compliance scenario, what methodology should be used to construct a business-as-usual scenario? How should accuracy, consistency, and comparability be ensured? How can or should BAU scenarios, and the resulting state mass-based budgets, be adjusted to reflect exogenous (economic, demographic) changes in subsequent years?
- c) How should BAU scenarios be calculated for the purposes of measuring avoided emissions due to energy efficiency programs?

7. Crediting for Early Action

Related to baseline/BAU issues, a number of states have implemented policies or taken actions that have achieved significant emission reductions in recent years. Recognizing these voluntary, early actions increases the cost-effectiveness of any given level of emission reductions and promotes an equitable national program.

- a) How can emission guidelines be structured to recognize this early action while creating an equitable federal system that achieves significant emission reductions?
- b) Would the following mechanisms /contexts be appropriate for addressing early action?

- i. Should all states be required to achieve the same average emission rate standard after some period of time (e.g., X pounds CO₂ per megawatt hour in year XXXX)? If so, what would be the appropriate period of time to require all states to achieve the same standard, and on what basis should that standard be set?
 - ii. Should the standards account for emission reductions attributable to a state's energy and emissions policies and programs (a) adopted since the baseline period, and (b) adopted earlier but achieving results since the baseline period?
- c) Are there other mechanisms for crediting early action that should be considered?

8. EPA Model Rule(s)

In the past, EPA has developed model rules that many states have used as the basis for their plans.

- a) Given that there are already different types of current state clean energy and GHG programs that are achieving emission reductions from existing power plants, and that other models may be developed that may be preferable to some states, should EPA consider developing more than one model rule, so that states have multiple compliance pathways to choose from? If so, what compliance pathways should EPA consider as model rule(s)?