



December 2, 2013

Ms. Regina McCarthy
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC, 20460

Re: Emission Standards Under Clean Air Act Section 111(d)

Dear Administrator McCarthy:

We applaud the commitment of the United States Environmental Protection Agency (EPA) to tackle head-on the challenge of reducing carbon emissions from existing power plants, which comprise the nation's largest source of greenhouse gas emissions. We write to you as commissioners, secretaries and directors of environmental or energy agencies of states that participate in the Regional Greenhouse Gas Initiative (RGGI) to offer our preliminary recommendations as EPA develops guidelines for state programs to reduce carbon dioxide (CO₂) emissions from power plants under Clean Air Act section 111(d). Given the dramatic success of the RGGI states in lowering carbon emissions from power plants while at the same time growing our economies, we believe that we have a unique perspective to offer.

We recommend that EPA use its authority under section 111 of the Clean Air Act to ensure significant overall reductions in carbon emissions, but to apply the standard in a flexible manner that empowers states to develop market-based greenhouse gas (GHG) emission reduction programs designed to work for their region(s). Our experience with RGGI demonstrates that regional cooperation can achieve the most cost-effective emission reductions, enable a transition to a lower-emitting and more efficient power sector and create economic benefits and jobs across the United States. We urge EPA to recognize these multiple benefits of RGGI, allow our states to use RGGI as a compliance mechanism, and encourage other states to follow suit by participating in RGGI or other regional programs.

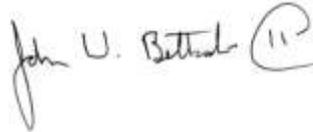
In the attached report and recommendations, we respond to several of the questions posed by EPA on September 23, 2013. We also explain the benefits to regional economies, the power sector and the environment that can be reaped by allowing a flexible market-based compliance mechanism such as RGGI. Finally, we make seven specific recommendations for EPA to develop guidelines under section 111(d) that will enable all states to achieve significant emission reductions in a cost-effective manner.

Please let any of us know if you have any questions about the information provided. We look forward to continuing this dialogue as EPA develops an effective set of emission guidelines.

Sincerely,



Daniel C. Esty
Commissioner
Connecticut Department of Energy and
Environmental Protection



John W. Betkoski III
Vice Chairman
Connecticut Public Utilities Regulatory Authority



Collin P. O'Mara
Secretary
Delaware Department of Natural Resources and
Environmental Control



Dallas Winslow
Chairman
Delaware Public Service Commission



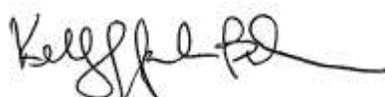
David Littell
Commissioner
Maine Public Utilities Commission



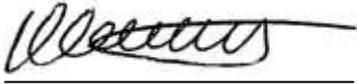
Patricia W. Aho
Commissioner
Maine Department of Environmental Protection



Robert M. Summers, PhD
Secretary
Maryland Department of the Environment



Kelly Speakes-Backman
Commissioner
Maryland Public Service Commission



Ken Kimmell
Commissioner
Massachusetts Department of Environmental
Protection



Mark Sylvia
Commissioner
Massachusetts Department of Energy Resources



Thomas S. Burack
Commissioner
New Hampshire Department of Environmental
Services



Robert R. Scott
Commissioner
New Hampshire Public Utilities Commission



Joseph Martens
Commissioner
New York Department of Environmental
Conservation



Audrey Zibelman
Chair
New York Public Service Commission



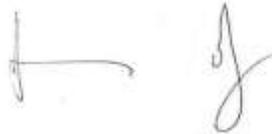
Janet Coit
Director
Rhode Island Department of Environmental
Management



Marion S. Gold
Commissioner
Rhode Island Office of Energy Resources



Justin Johnson
Deputy Secretary
Vermont Agency of Natural Resources



James Volz
Chairman
Vermont Public Service Board

Report on Emission Reduction Efforts of the States Participating in the Regional Greenhouse Gas Initiative and Recommendations for Guidelines under Section 111(d) of the Clean Air Act

Introduction

The states participating in the Regional Greenhouse Gas Initiative (RGGI) have successfully achieved substantial reductions in greenhouse gas (GHG) emissions from the power sector in a cost-effective manner, while promoting economic growth and vitality. The experience of the RGGI states provides a particularly relevant demonstration of the effectiveness of a multi-faceted suite of programs in reducing GHG emissions from the power sector. It also illustrates the potential for the power sector to reduce emissions by substantially more than 17% from 2005 levels, which will help the United States to achieve the targeted economy-wide reductions of 17% by 2020.

Experience of the RGGI States in Reducing Emissions¹

The states involved in RGGI are demonstrating that environmental protection can go hand-in-hand with economic development and job creation. In operation since 2009, RGGI is the first *cap-and-invest* program in the United States – it *caps* GHG emissions from the power sector and reduces those emissions over time. The states participating in RGGI are *investing* the proceeds generated from auctioning emission allowances to further reduce emissions, lower the cost of compliance, and develop the clean energy economy in the region.

The RGGI cap-and-invest program is just one of the tools the RGGI states utilize to reduce emissions. The RGGI states are promoting renewable energy through some of the nation's most aggressive renewable portfolio standard programs and supporting investments in energy efficiency that have reduced the amount of electricity consumed and lowered bills paid by electricity consumers. The RGGI states are also implementing various regulatory programs directed at pollutants other than GHGs that, along with RGGI, are fostering the transition from high-emitting coal and oil to renewable energy and lower-emitting natural gas as a fuel for generating electricity.

1 This section responds to many of the questions posed by EPA under heading number 1 (“What is state and stakeholder experience with programs that reduce CO₂ emissions in the electric power sector?”)

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

In this context, the RGGI cap-and-invest program plays three integral roles in achieving emission reductions. The declining cap and corresponding change in the cost of allowances provides a market signal that supports fuel switching, on-site efficiency improvements, the retirement of high-emitting plants, the construction of new more efficient plants, and other measures that reduce emissions. The auction mechanism provides a source of funding for complementary energy efficiency and renewable energy investments that further reduce emissions. The enforceable emissions cap ensures that the combined effect of the RGGI program and the suite of supporting policies is to actually reduce emissions to below the cap level.

The experience in the RGGI states shows the magnitude of emission reductions possible from the power sector: a projected 50% decline in tons of carbon dioxide (CO₂) emissions and a fossil fuel-fired generation fleet that is projected to achieve emission rates on par with the recently proposed new source performance standard for new electric generating units. Between 2005 and 2012, CO₂ emissions from the power sector in the nine participating RGGI states dropped more than 40%, from 162.5 million tons in 2005² to 92 million tons in 2012. The RGGI states are locking in this reduction by reducing the regional cap to 91 million tons in 2014, and reducing it an additional 2.5% each year thereafter to 78 million tons in 2020. In 2020, the RGGI emissions cap will ensure that regional emissions are 50% below 2005 emission levels (See Figure 1).

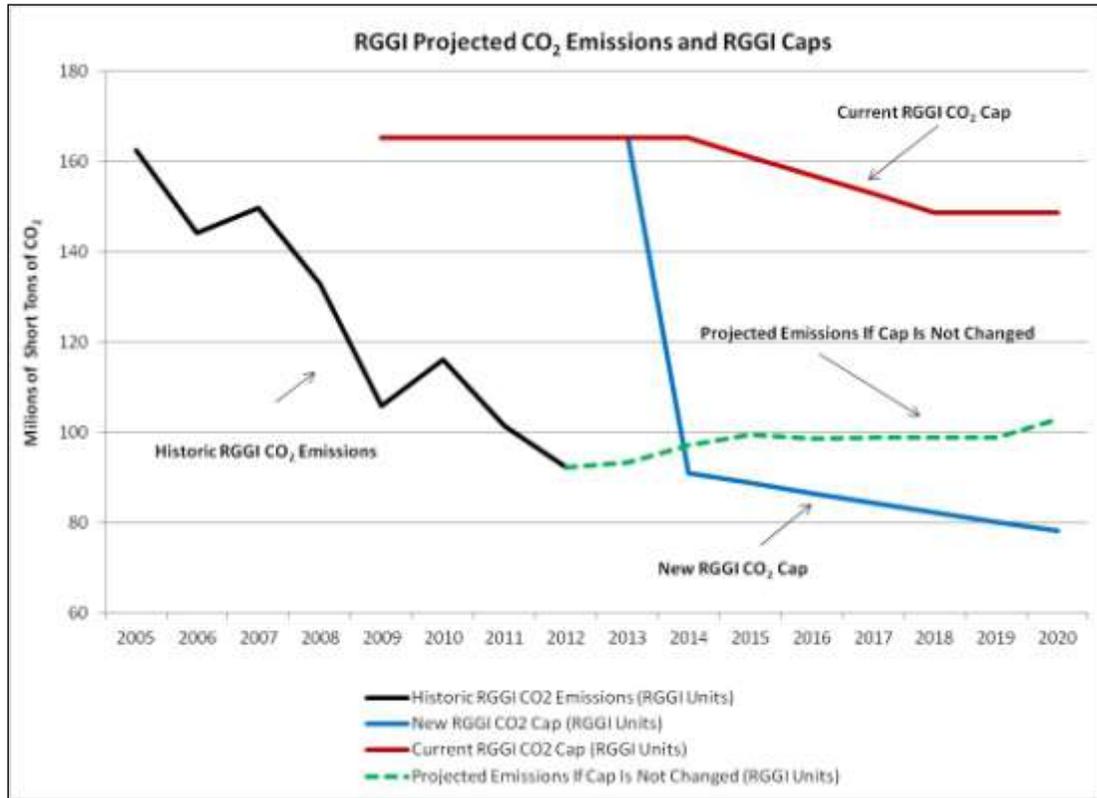
Some of this reduction is attributable to the successful energy efficiency programs implemented by each of the RGGI participating states. For example, New York's energy efficiency programs have reduced electricity use in New York by a cumulative total of 6.5% in 2012. As a result, CO₂ emissions associated with New York's electricity use are estimated to be 2.68 million tons lower in 2012 than they would have been otherwise. In the four years since it began in 2009, Maryland's EmPOWER program has reduced electricity consumption by 3.25%, reducing CO₂ emissions by 1.17 million tons. Massachusetts projects that its investment in energy efficiency will accelerate the reduction in electricity demand to approximately 2.5% each year from 2013-15. From 2005 through 2015, these energy efficiency investments will reduce Massachusetts' electricity demand by 17.1%, for a total annual reduction of 3 million tons of CO₂ in 2015. Similarly, Connecticut's energy efficiency programs have reduced electric consumption by over 10% since 2001, resulting in a total reduction of over 2 million tons of CO₂ emissions.

² http://rggi.org/historical_emissions;
https://rggi-coats.org/eats/rggi/index.cfm?fuseaction=search.rrgi_summary_report_input&clearfuseattrs=true

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

Figure 1: New RGGI Cap and Projected CO₂ Emissions Without Cap Reduction



Much of the reduction in power sector emissions is attributable to better utilization of a cleaner power system, resulting in a substantially reduced system-wide emission rate. Between 2005 and 2010, the overall CO₂ emission rate of the fossil fuel-fired power sector in the RGGI states declined from 1,694 lbs/MWh to 1,393 lbs/MWh (1026 lbs/MWh to 841 lbs/MWh, including zero emission sources).³ By 2020, modeling of the new RGGI cap indicates that the fossil fleet emission rate will decline further to 1,028 lbs/MWh (568 lbs/MWh for all sources).⁴ Thus, in the 15 years between 2005 and 2020, the RGGI states will have achieved a 39% reduction in the emission rate from fossil fuel-fired power plants and a 45% reduction in the emission rate of the entire power sector.

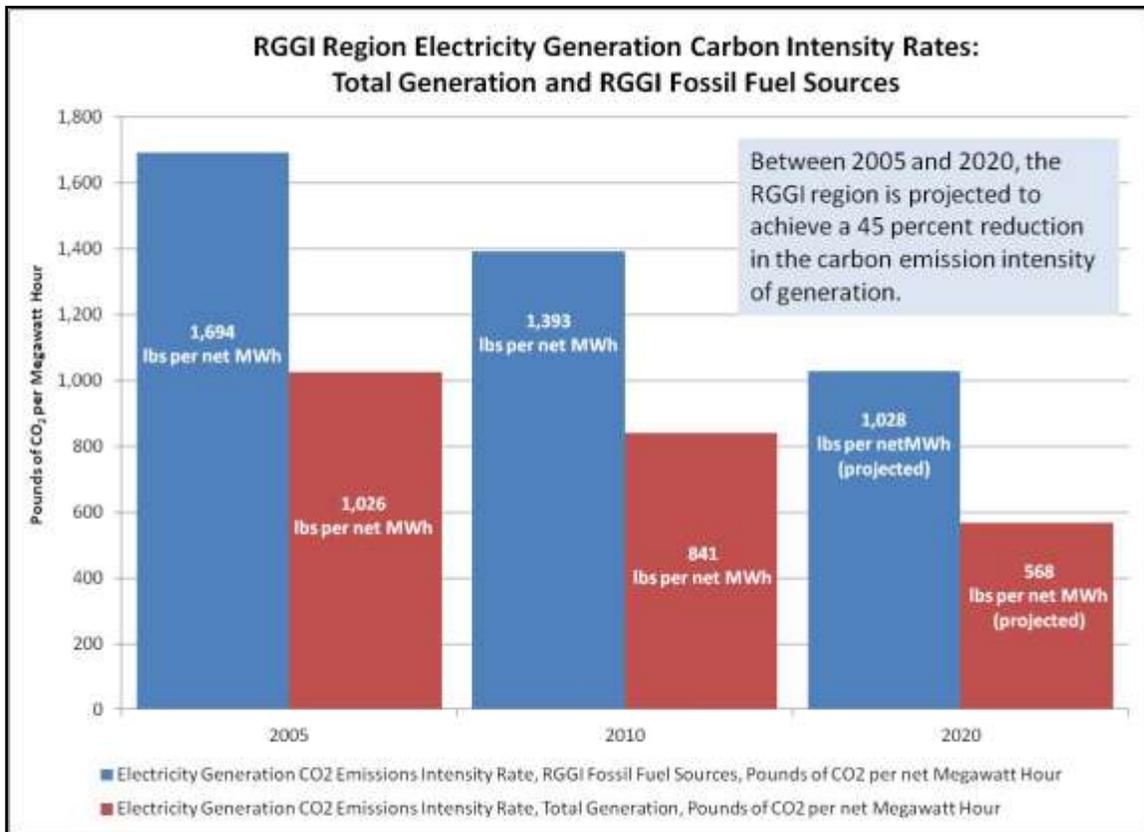
3 From data used to produce: http://rggi.org/docs/Documents/Elec_monitoring_report_2011_13_06_27.pdf

4 http://rggi.org/design/program_review

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

Figure 2: RGGI Region Electricity Generation Carbon Intensity Rates



This reduction in the emission intensity of electricity generation in the RGGI states is due in part to the ramping up of renewable energy sources, pursuant to state renewable portfolio standards that provide for steep increases in the percentage of renewable energy sold in each state, as the table below illustrates:

Table 1: RGGI State Renewable Portfolio Standards or Goals

State	Target Renewable Portfolio Standard or Goal	Target Year
Connecticut	27%	2020
Delaware	25%	2025
Maine	40%	2017
Maryland	20%	2022
Massachusetts	15%	2020
New Hampshire	24.8%	2025
New York	30%	2015
Rhode Island	16%	2019
Vermont	20%	2020

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

As the foregoing demonstrates, the RGGI states' experience can be an effective model for state programs under section 111(d):

- *It is extremely cost-effective.* RGGI enables compliance through market mechanisms that seek out the least expensive emission reductions across the region.⁵
- *It provides economic benefits.* According to an independent analysis, the RGGI states' investment of auction proceeds from just the first three years of the program (2009-2011) is creating thousands of jobs, reducing energy bills by over \$1 billion and adding a net of \$1.6 billion to the economies in the RGGI states.⁶
- *It aligns with the regional nature of the electricity grid.* The nation's regional electricity grids allow electricity to flow from the cheapest, most efficient producer to meet consumer demand, wherever located. As a result, generation and emissions within a region may not always trend in unison, such that emission increases in some locations due to market fundamentals may be offset by emission decreases elsewhere. The RGGI cap ensures that emissions decrease across the region, even as it allows increases in some locations in order to reap the benefits of more efficient sources in those locations.
- *It provides a simple, transparent, verifiable compliance system.* It can be difficult to document and verify the emission reductions attributable to programs that support renewable energy and energy efficiency. Under RGGI, the emissions are limited by the allowances that are distributed, providing certainty that the projected emission reductions will be achieved, including reductions attributable to energy efficiency and renewable energy.

The RGGI market-based model for achieving emission reductions is a well-established system of emission reduction. It is based on the models for reducing the pollutants that cause acid rain and ozone that are embodied in Title IV of the Clean Air Act and in the nitrogen oxide

5 This is consistent with recent analysis of the Organisation for Economic Co-operation and Development (OECD) that concludes that carbon markets are a highly efficient mechanism to mitigate carbon emissions. See OECD, Climate and Carbon, Aligning Prices and Policies, OECD Environment, Policy Paper, October 2013.

6 The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States, *Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period*. The Analysis Group, November 15, 2011.

http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf

trading program established by EPA in 1995 and 2003. But RGGI improved on those models by auctioning allowances and using the proceeds from those auctions to support complementary efforts to further reduce emissions and decrease compliance costs, such as investment in renewable energy and energy efficiency. This innovation has reduced the cost of complying with the cap and provided net economic benefits to the economies of the participating states.

Implications of RGGI for Development of EPA Guidelines under Section 111(d)⁷

EPA should recognize that the RGGI model is an effective system of emission reduction for GHG emissions from the power sector that combines various policy tools with an enforceable cap. Under the RGGI regional cap, the RGGI states will achieve a 50% reduction in CO₂ emissions from the power sector from 2005 levels by 2020. This reduction in emissions is projected to be realized in part through a 45% reduction in emission rates across the electricity system in the participating states, while the rest of the reductions come from complementary policies that reduce demand. Relying on an emission budget trading system, the RGGI states are ensuring that this level of reduction will in fact be achieved. The specific lessons of the RGGI experience include the following:

1. A system of emission reduction that is focused on the electricity system as a whole achieves the greatest emission reductions.

The RGGI states implement a suite of programs to pursue the best opportunities for emission reductions from the power sector. Programs within the system of emission reduction adopted by each RGGI state, such as energy efficiency goals and renewable energy standards, do not require emission reductions at any specific plant but focus on system-wide emission reductions. The price signal provided by the cost of RGGI allowances raises the relative cost of higher-emitting plants, leading to increased generation at lower-emitting, more efficient plants, even as overall system-wide emissions have declined substantially. A system-based approach is not only best-suited to realize the emission reduction potential of cleaner energy supplies and energy efficiency, it fits precisely within section 111(d)'s mandate to EPA to develop guidelines for states to implement the "best system of emission reduction."

⁷ This section responds to EPA's questions under heading number 2 ("How should EPA set the performance standard for state plans?")

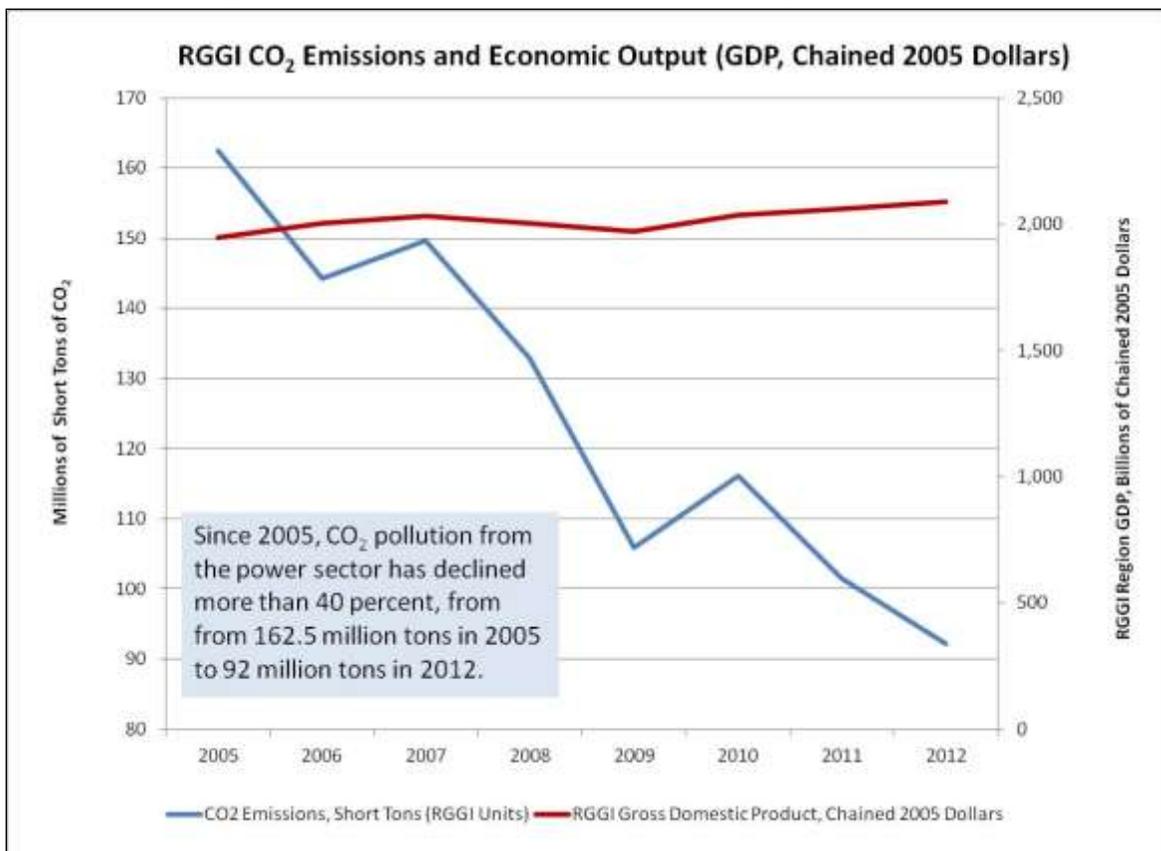
Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

2. The RGGI states are demonstrating the feasibility of reducing emissions by 50%.

Since 2005, CO₂ emissions from the power sector have declined more than 40% across the RGGI region, as energy efficiency programs have contributed to reduced demand and generation has shifted from coal and oil to gas and renewable power. Some states, like New York, achieved this level of reduction even though the energy system was already relatively clean in 2005, with nearly half of electricity provided by carbon-free sources. Even greater reductions should be achievable in states that rely more heavily on coal because of the low-cost alternatives that remain available. By reducing the cap to approximately 50% below 2005 levels by 2020, the RGGI states are ensuring that this transition to a lower-emitting power sector will continue. The RGGI states are achieving this reduction while continuing to grow the regional economy by more than 7% since 2005.⁸

Figure 3: RGGI CO₂ Emissions and Economic Output (2005-2012)



⁸ Bureau of Economic Analysis (BEA), Gross Domestic Product by State (chained 2005\$); <http://www.bea.gov/regional/index.htm>

As mentioned above, the reinvestment of auction proceeds is contributing to this economic growth and analyses prepared for the RGGI states predict that over \$8 billion and more than 125,000 job-years will be added to the RGGI states' economies as a result of the cap reduction through 2040.⁹

3. *An emissions cap is a reliable system for monitoring and verifying compliance.*

For states that rely on a suite of policies to reduce emissions, like the RGGI states, an emissions cap is a simple but rigorous method of ensuring and verifying that the policies have achieved the emission reductions targeted. Significantly, even though the required emission reductions are achieved on a regional basis, the point of compliance is with the source. Because sources cannot emit more than the number of allowances they hold at the relevant compliance deadline, the RGGI system ensures compliance. Verification is simple and routine: at the end of each compliance period, the amount of allowances in each source's compliance account must be adequate to cover that source's emissions. The measurement of CO₂ emissions at sources covered by the cap is easily accomplished utilizing existing emissions monitoring equipment and protocols already in place at these sources, and covered sources report CO₂ emissions in accordance with 40 CFR Part 75. If a source does not have adequate allowances to cover its emissions, enforcement can be taken directly against that source. Because of the simple and straightforward nature of determining whether the cap is met, budget trading programs obviate the need for EPA or states to conduct a complex analysis to determine whether a state meets its compliance requirements, as described below.

4. *Regional systems of emission reduction best reflect the regional nature of the electrical grid.*¹⁰

A program that corresponds with the borders of an electricity grid is potentially more efficient than programs that are constrained by state borders. If EPA only allows for compliance on a state-by-state basis, without regard to the scope of the electricity system, it may create inefficiencies and unnecessary complications for EPA, states, and regulated sources. A regional program like RGGI helps to ensure that the most cost-effective emission reductions occur across the region. For example, since the program was commenced, generation has shifted from coal-fired plants within the six state New England region covered by ISO New

⁹ http://rggi.org/design/program_review

¹⁰ This subsection responds to questions about how EPA should account for the regional nature of the electricity grid.

England to natural gas and renewable sources located elsewhere in that region. Indeed, emissions in Rhode Island actually increased because it is home to some of the more efficient natural gas-fired power plants in the region that had excess capacity. If Rhode Island's generation had been constrained by a Rhode Island-specific cap, one or more of the coal-fired plants that closed elsewhere in New England may have had to remain open to meet demand, thereby increasing emissions and costs to consumers.

Even if a program that encompasses an entire regional program is not feasible, a multi-state regional program like RGGI provides greater efficiency by allowing for the most cost-effective emission reductions among the states participating in the program.

Recommended Principles for EPA Guidelines¹¹

The RGGI states offer the following recommendations for EPA's development of guidelines for state programs that would deliver the emission reductions needed as cost-effectively and equitably as possible.

1. EPA's Guidelines should achieve meaningful nationwide emission reductions.

In structuring its guidelines, EPA should take account of the emission reductions that are being achieved from the electricity system nationwide through a variety of programs, including RGGI and California's similar program, investments in energy efficiency, renewable energy programs, and switching to lower-carbon fuels, and also consider the potential for contributions from available technologies that are not yet widely deployed in the United States, such as offshore wind and carbon capture and sequestration technology. EPA should recognize that the best system of emission reduction considers the electricity system as a whole, and utilizes all the opportunities for reducing emissions from this system.

Conceptually, the methods of reducing emissions from the fossil fuel-fired electricity system can be grouped into two categories. The first category consists of systems of emission reduction that reduce the amount of electricity needed from fossil fuel-fired power plants, such as energy efficiency programs that reduce the demand for electricity, demand-side

¹¹ This section responds generally to EPA's questions under heading numbers 2 ("How should EPA set the performance standard for state plans?") and 3 ("What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?").

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

management, and investments in renewable energy that displace fossil fuel-generated electricity. Second, emissions can be reduced by lowering the carbon intensity of the electricity generated by fossil fuel-fired power plants. This is done through shifting generation from high-emitting plants to new or under-utilized lower-emitting plants, and using the latest technology to reduce emissions at existing plants.¹²

Combined, these two categories, or *wedges*, of emission reductions can be substantial. The RGGI states' 40% emission reduction is due to a suite of actions that address both *wedges*, including the RGGI mechanism, investments in energy efficiency and other demand-side programs, support for renewable energy, and regulatory programs directed at criteria air pollutants and air toxics that have reduced the amount of electricity generated by higher-emitting plants. These programs have combined with market forces that have supported a major shift in electricity generation from coal-fired to natural gas-fired plants to transform the regional electricity system in the past eight years.

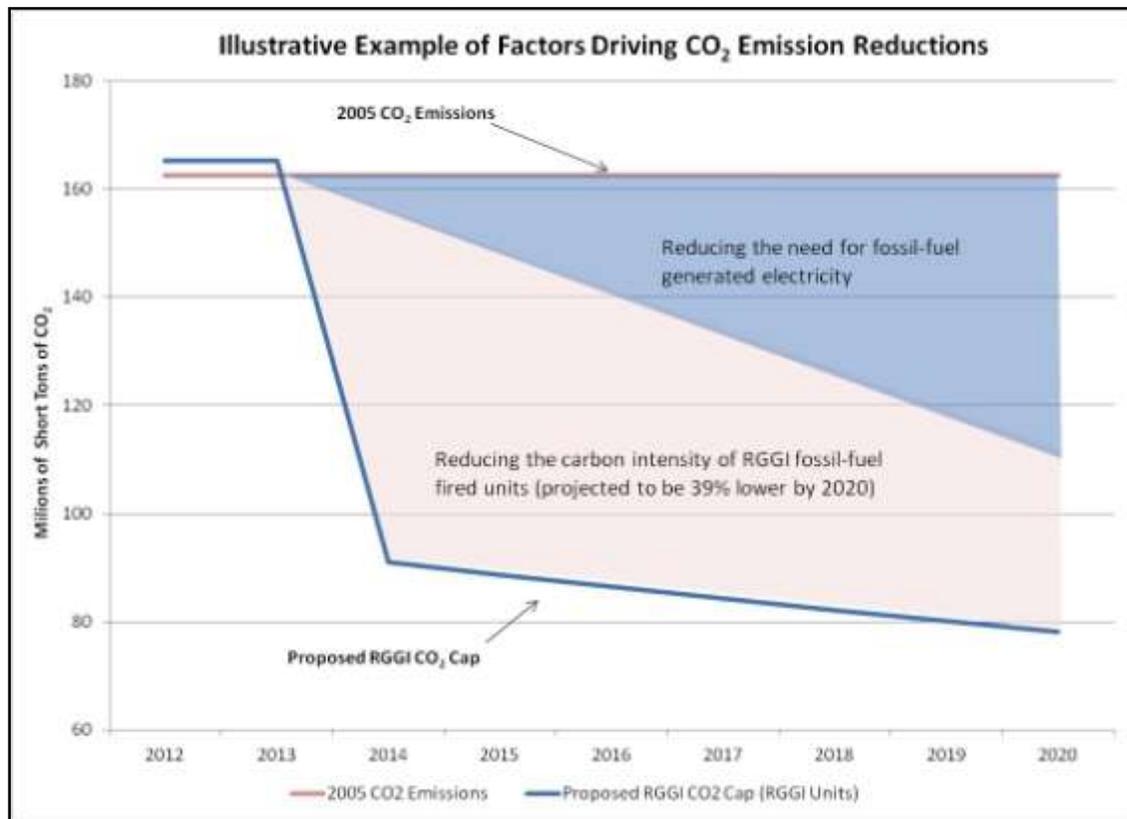
By investing in energy efficiency and renewable energy and shifting generation to more efficient plants, other states and regions should be able to approach the level of performance that the RGGI states are already demonstrating. EPA should evaluate whether and when this level of performance can be achieved throughout the United States using the various tools at the disposal of the states. While it may take longer for some regions of the nation to achieve comparable levels of performance, EPA should structure the emission guidelines to require that states make significant progress in the next decade toward achieving the reductions and performance level demonstrated by RGGI to be readily achievable by the best systems of emission reduction.

¹² Currently available options for reducing carbon dioxide emissions through measures implemented "on-site" at existing fossil fuel-fired power plants have the potential to reduce emissions from individual power plants by 20% or more, especially if used in combination. In addition to improving the efficiency or "heat rate" of the plant, these options include, but are not limited to, co-firing or re-powering with lower-carbon fuels such as sustainable biomass and natural gas; utilizing renewable energy sources such as solar power to provide supplemental steam heating; implementing combined heat and power (CHP) systems at plants near industrial facilities or district heating systems; and carbon capture technology.

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

Figure 4: Illustrative Example of Factors Driving CO₂ Emission Reductions



2. EPA should provide equitable treatment to early movers.

Many states, including the RGGI states, have already made substantial progress in reducing emissions from their power sector. EPA should structure the guidelines in a way that recognizes this progress and provides equitable treatment to those states. EPA should avoid any approach that imposes inequitable or disproportionate burdens on early mover states and fails to recognize their substantial progress. For example, requiring an equivalent percentage reduction for state A, which has already achieved most cost-effective reductions, and state B, which has taken little action and finds many inexpensive emission reduction opportunities still available, would effectively disadvantage state A for having taken early action.

One approach that EPA should consider is setting a single emission intensity target (e.g., a system-wide average of 1100 lb/MWh) that would apply to each state, individually or as part of a region. That approach would require all states to reduce emissions but it would be equitable to those states that have already made progress toward meeting the emission

intensity target. EPA could consider providing more time to states that have more work to do to meet the target.

3. EPA should allow states to use a mass-based system of compliance.

A mass-based approach has a number of advantages, including simplicity and its ability to accommodate many emission reduction strategies, including energy efficiency and renewable power, and add-on controls should they become technically and economically viable. An emission rate target, in contrast, does not easily provide credit for energy efficiency investments that reduce energy demand without reducing the emission rate of the units operating. Thus, requiring the regulated fossil fuel-fired power plants to meet a specific emission rate, or achieve a set reduction in their emission rate, does not credit investments in energy efficiency.

Therefore, EPA should allow states to utilize a mass-based system of compliance, applied to the energy system as a whole. Indeed, if EPA does not establish mass-based targets in its guidelines, it should provide the states with clear direction in developing mass-based emission budgets based on emission rates designated by EPA. That direction could include designation of factors (e.g., rate of economic growth) and consistent data sources that would allow for conversion of an emission rate target into an emission budget.

4. EPA should allow states to demonstrate compliance on a regional basis.

EPA should allow and encourage compliance on a regional basis, while providing individual states the opportunity to determine how to achieve compliance with each state's emission budget within its state implementation plan. Under a mass-based regional system of compliance like RGGI, states would pool their individual state emission budgets and comply with those emission budgets on a regional basis, while still allowing for enforcement by states against their own sources that do not have sufficient allowances. As long as the overall regional emissions cap complies with the guidelines, it should be immaterial to EPA how the participating states elect to apportion the regional emissions cap among the states. Although a particular state's actual emissions could theoretically exceed its individual state emission budget in a particular year, this should not affect EPA's willingness to accept a regional program as a pathway for compliance. As long as the regional program demonstrates that emissions from sources within the region will collectively meet EPA's emission guideline, it can still serve as the basis for each state's implementation plan.

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

A regional program has the benefit of addressing some of the interstate issues raised by EPA in its questions. For example, under a state-by-state approach, if an energy efficiency policy in State A leads to a reduction in emissions in neighboring State B, State A cannot necessarily take direct credit for those emission reductions outside its borders in its section 111(d) implementation plan. Likewise, because State B would have no basis for enforcing State A's energy efficiency program, State B cannot necessarily include State A's efficiency policy in its plan. For any state that is part of a multistate electricity grid, it may be challenging to make a rigorous demonstration that investments in energy efficiency or renewable energy result in any quantifiable level of emission reductions within the state. On the other hand, a regional program that encompasses both the state that invests in efficiency and the state in which emissions decline as a result would avoid these complications. In a regional budget trading program, emission reductions anywhere in the region reduce the overall demand for emission allowances, as regulated sources require fewer allowances for compliance. As a result, the cost of allowances, or the cost of complying with that regional emissions cap, is reduced.

Thus, allowing regional compliance can avoid market distortions that would result in less than optimal policy decisions. For example, a state that is not participating in a regional program might choose not to invest in energy efficiency or renewable energy if it would not be able to fully credit the benefits of doing so in its section 111(d) compliance plan. Instead, it might choose to make less than optimal investments in fuel-switching or plant-specific improvements in order to ensure that the emissions of its power plants are reduced. The result would be less than optimal allocation of limited resources and less reduction of emissions for a given level of effort. EPA should avoid that inefficient outcome by supporting (but not requiring) the development of regional compliance plans.

5. EPA should permit states to demonstrate compliance on a multi-year basis.

Emissions across an electricity system can vary between years depending on factors outside the ability of plant operators to influence, including weather, economic conditions, and unexpected shutdowns. EPA can require a more substantial level of cost-effective reductions if it allows states to average emissions over a multi-year period and enables states to bank, or carry-over, early reductions. Unlike other pollutants that may have short-term impacts, the environmental harm caused by CO₂ and other GHG pollutants have much longer periods of impact. Therefore, allowing compliance on a multi-year basis would not reduce the environmental benefits of the program.

The RGGI program uses a three-year compliance approach. The RGGI states' experience is that this approach has the benefit of allowing sources to take advantage of multi-year compliance strategies. By allowing sources three years, the regulated units have flexibility to address variations in emissions, unexpected shutdowns, or uneconomic dispatch orders, without impacting the enforceability or environmental effectiveness of the program's requirements.

6. EPA's should provide clear guidelines for a rigorous demonstration of equivalency of state programs.¹³

EPA should provide clear direction to the states regarding demonstrating equivalency of state programs. EPA's guidelines should identify the tools that states can use to demonstrate that state emission reduction programs will achieve equal or greater reductions in pollution than the base standards set by EPA. For a mass-based budget trading program like RGGI, that process is straightforward. As long as EPA provides a mechanism that enables states to potentially have an annual mass-based emissions budget under section 111(d), then determining whether a regional budget trading program like RGGI is equivalent to EPA's emission guideline will be a simple matter. In particular, the participating states will have to demonstrate that the annual regional emissions cap under the regional program achieves emission reductions equal to or greater than those allowed by EPA's guidelines.

To evaluate programs that are not mass-based, EPA should build on current program evaluation guidance such as the "Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans" or the "State and Local Energy Efficiency Action Network. 2012. *Energy Efficiency Program Impact Evaluation Guide.*" These guides describe the terminology, structures, and approaches used for evaluating energy and demand savings as well as avoided emissions and other non-energy benefits resulting from energy efficiency programs that are implemented by local governments, states, utilities, private companies, and nonprofits. These guides provide context, planning guidance, and discussion of issues that determine the most appropriate evaluation objectives and best practices approaches for different efficiency portfolios. By using standard evaluation terminology and structures and best practices approaches, evaluations can support the adoption, continuation, and expansion of effective efficiency actions for consistent inclusion in State Plans.

¹³ This section responds to EPA's questions under heading number 3 ("What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?").

7. EPA should ensure that state plans are enforceable.

EPA should require state plans to demonstrate that the requirements are legally and practically enforceable. Under a budget trading program like RGGI, enforceability, measurement, and verification are already incorporated into the program in a straightforward manner. Based on consistent regulations adopted in each RGGI state, sources subject to RGGI are required to obtain and hold a sufficient amount of allowances by the relevant compliance deadline to cover emissions over the relevant compliance period. Under the existing terms of RGGI states' respective implementing regulations, this regulatory requirement is generally incorporated as a condition of each source's operating permit. Thus, RGGI is enforceable directly against individual sources by the state where the sources are located, and the failure of a source to hold sufficient allowances constitutes violations of the state's program and of the source's permit. Under an approved section 111(d) plan, this obligation of each individual source to comply with RGGI would become a federally enforceable condition of an individual source's Title V permit. At the end of the compliance period, the "true-up" process, in which states deduct allowances to cover sources' emissions, provides verification that the emission reductions included as part of the participating states' section 111(d) plans are actually achieved.

State plans that rely on a suite of strategies including energy efficiency, renewable energy, and changes in dispatch should be encouraged, as long as a mechanism is available to ensure that the promised emission reductions are achieved. If the emission reductions anticipated from those strategies are encompassed within a federally enforceable emission budget program, the various strategies themselves would not have to be federally enforceable.

Conclusion

The states participating in RGGI have demonstrated that significant emission reductions are feasible through a suite of clean energy activities, complemented by an enforceable emissions cap. EPA should consider this record of success in developing guidelines for state plans that require and empower states to achieve meaningful reductions through a comprehensive package of activities, including market-based emission budget programs like RGGI.