

## **Joint Stakeholder Comments on Updated RGGI Reference Case Modeling Assumptions**

February 17, 2017

Our organizations appreciate the opportunity to comment on the updated reference case modeling assumptions for the ongoing Regional Greenhouse Gas Initiative (RGGI) program review. Over the past fifteen months, the RGGI states have expended impressive time and effort in engaging stakeholders and soliciting their input, and have already made considerable progress in identifying a path forward for RGGI beyond 2020. Establishing clarity around a cap trajectory and other program elements through 2030 will be valuable for states, compliance entities planning future investments, and other stakeholders, particularly as states move forward with developing plans to achieve 2030 and longer-term 2050 climate goals. We encourage the RGGI states to continue to move the program review process along without delay, with a goal of presenting policy cases by mid-April and finalizing a suite of program elements for state adoption no later than this summer.

With regard to the RGGI reference case modeling, we recognize that significant effort has already gone into the development of the modeling assumptions and we generally support the proposed updates. Given the time that has elapsed since the program review began, updated load forecast and renewable cost and performance data have become available and we appreciate the RGGI states' efforts to update the reference case modeling with the most currently available estimates. As our organizations have pointed out during this program review, load forecasts and renewable cost and performance forecasts continue to evolve in ways that will facilitate achievement of more stringent caps at lower cost, and it is important for states to be using the most currently available forecasts. Indeed, if trends in both of these areas continue, even the current forecasts of load and renewable costs will likely prove to be overestimated.

In addition, we offer the following specific recommendations.

### **1) Renewable Portfolio Assumptions**

A number of RGGI states have recently extended and expanded renewable portfolio standards or passed clean energy legislation that will accelerate the pace at which renewable generation resources are developed in the region. We appreciate the RGGI states' efforts to incorporate these recent developments, as they bear directly on the expected greenhouse gas (GHG) emission trajectory for the region. One such development that the states should be certain to incorporate into the updated modeled reference case is the recent strengthening of the Maryland renewable portfolio standard, on February 3<sup>rd</sup>, from a 20% by 2022 goal to a 25% by 2020 goal.

### **2) Natural Gas Price Assumptions**

*The RGGI states should continue to model natural gas prices as an average between EIA's base case and high resource case, and should use this assumption across both the reference case and "High" and "Low" emissions sensitivities.*

We support the RGGI states' proposal to update natural gas prices in the program review modeling to use the most recent values from EIA's *Annual Energy Outlook 2017*. We also

support continuing to model natural gas prices in the program review as the average of EIA's base case and high resource ("High Oil and Gas Resource," or HOGR) case, as in earlier versions of the states' base reference case model.

However, the states' proposal to use alternative gas price assumptions in the "Low" and "High" emissions case scenarios of the RGGI modeling is problematic. We recommend instead that the states use the same natural gas prices in the "Low" and "High" emissions sensitivity runs as used in the base reference case – i.e., that natural gas prices not vary between these cases.

As proposed, RGGI's "Low" emissions scenario would adopt natural gas prices from EIA's high resource case – i.e., would assume lower natural gas prices than in the states' base reference case – while the states' "High" emissions scenario would use gas prices from either EIA's base case or its low resource case – i.e., would assume higher natural gas prices than in the base reference case. The logic behind these proposals appears to be that low natural gas prices facilitate more coal to gas switching while high gas prices would move in the other direction.

These assumptions are rational if we assume investment and dispatch decisions are binary choices between coal and gas. However, with increasingly competitive, lower cost renewable energy entering the system, it not clear that lower natural gas prices necessarily produce lower emissions or that higher natural gas prices necessarily increase emissions. Instead, lower natural gas prices could potentially slow the growth of renewable energy, while higher natural gas prices could make renewable energy more attractive. By co-varying natural gas and renewable energy prices in their modeling, the RGGI states risk undermining the intended sensitivities and masking the effects of price signals on emissions and compliance costs that they seek to illuminate.

To address this concern, we recommend that the states instead keep natural gas price assumptions consistent across the base case and sensitivity scenarios, while continuing to vary the costs and performance of renewable technologies in the sensitivities, as proposed, using data from NREL's low and high scenarios. Combined with the states' other proposed sensitivity assumptions, these changes would create clearer directional drivers toward or away from emitting generation in the model's "Low" and "High" sensitivities.

If instead the states continue modeling different natural gas prices between sensitivities, we encourage careful consideration of the implications of these price assumptions on emissions, as discussed above. To the extent the states view the "Low" and "High" emissions sensitivities as potentially informing price triggers for RGGI's Cost Containment Reserve (CCR) or a future Emissions Containment Reserve (ECR), the states should also carefully consider whether the gas prices selected, and their expected probabilities, align with the intended uses of this modeling, or whether a different band of prices would better achieve cost and emissions containment goals.<sup>1</sup>

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<sup>1</sup> For example, EIA's low and high "oil price" sensitivities in AEO 2017 provide an alternative band of gas prices around the AEO reference case (\$5.00/MMBtu in 2030) that is narrower than the low and high "oil and gas resource" cases currently proposed by the states as potential modeling inputs. In EIA's oil price sensitivity cases, natural gas prices range from \$4.73 to \$6.12/MMBtu in 2030. In the oil and natural gas resource sensitivities, natural gas prices are between \$3.74 and \$7.12/MMBtu.

### **3) Clean Power Plan**

*The RGGI states should continue to include the Clean Power Plan, as finalized, in the base reference case, its associated sensitivities, and future policy runs.*

While there is uncertainty about the Clean Power Plan (CPP) as we await a ruling from the D.C. Circuit, the CPP remains an adopted federal rule, which, as all nine RGGI states have argued, “properly implements EPA’s unambiguous statutory authority to regulate carbon-dioxide emissions from power plants,”<sup>2</sup> and should be upheld by the court. The merits of these arguments remain, and counsel toward continuing to include the CPP in RGGI program review modeling.

There are several additional reasons why including the CPP in the states’ modeling is prudent:

1. If courts uphold the rule, the administration cannot simply walk away from it. Any changes to the rule would require the same robust and public rulemaking process that EPA followed in crafting the CPP. Failure to implement the CPP will be subject to judicial review, and EPA continues to have a duty to protect the public from carbon pollution, as the Supreme Court has affirmed three times.
2. The substantive requirements of the rule are still several years away, beginning in 2022 and phasing in through 2030. As we have seen in RGGI and other regions, many states are already on-track to meet and exceed their CPP obligations, and significant time remains to implement and achieve the rule’s targets nationwide.
3. Even with uncertainty regarding the CPP, the dangers of climate change and the need for urgent action have not gone away, and it is reasonable to continue to assume that there will be federal action to address this problem between now and 2030. While the RGGI states could also develop an alternative federal climate policy placeholder to include in their program review models, the simplest course of action would be to continue modeling the CPP. This practice – keeping an existing policy in the Reference Case unless it has been officially rolled back – is also consistent with the practices of EIA and others.

Accordingly, we urge the states to continue including the CPP throughout their modeling.

### **4) Assumptions Regarding Banked Allowances**

*The RGGI states should model a post-2020 adjustment for allowances banked from 2015-2020, consistent with prior treatment of banked allowances.*

The reference case should assume that banked allowances are addressed in the same manner as they have been in the past. As part of the 2012 Program Review the participating states agreed to conduct two adjustments for banked allowances. The first adjustment accounted for the 57 million banked allowances that had accumulated over the first control period (2009-2011), while

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<sup>2</sup> Brief for State and Municipal Intervenors in Support of Respondents in *State of West Virginia, et al. v. U.S. EPA, et al.* (D.C. Cir. case no. 15-1363), at p. 2, available at [https://www.edf.org/sites/default/files/content/states\\_and\\_cities\\_final.pdf](https://www.edf.org/sites/default/files/content/states_and_cities_final.pdf).

a second adjustment accounted for 82 million allowances accumulated over the second control period (2012-2014).<sup>3</sup> Accounting for these allowances by adjusting the cap over a multiyear period has proven to be a gradual and effective approach to addressing market oversupply while preserving the value of investments in the RGGI program.

The reference case modeling should assume that the approach applied to banked allowances from the second and third control periods is also applied to allowances accumulated over the third and fourth control periods (2015-2017 and 2018-2020, respectively). Such an approach would allow adjustments to be spread evenly over the ten-year period from 2021-2030.

## **5) Cost Containment Reserve**

*Previous modeling of the Cost Containment Reserve (CCR) resulted in a lack of clarity around the price impacts of the different CCR structures that have been proposed.*

Recent rounds of modeling have included three possibilities for the CCR. The reference case assumption was that the CCR would continue in its current form (10 million allowances, price trigger increases by 2.5% annually), while the policy scenarios either removed the CCR entirely or introduced a restructured CCR (up to 11.7 million allowances after 2020, two tranches, two price triggers). This approach makes it difficult to ascertain which variables are responsible for differences between the reference case and policy scenarios.

In order to provide greater clarity, we recommend that a reference case sensitivity include the restructured CCR. This would provide a more useful comparison to the policy scenarios that include a restructured CCR.

## **6) Energy Storage**

*We recognize the current limitations to accurately accounting for energy storage, but encourage the RGGI states to consider the expected impacts of increased energy storage deployment on the RGGI modeling.*

National projections for energy storage growth and recent developments in RGGI states suggest that energy storage will have profound effects on the electric grid, the costs of producing power and the emissions resulting from that power generation. *State of Charge*, a 2016 report from MA DOER, “presents a comprehensive suite of policy recommendations to generate 600 MW of advanced energy storage in the Commonwealth by 2025” and DOER will establish energy storage targets by July 2017 in accordance with [H.4568](#) (*An Act to Promote Energy Diversity*). In New York, NY-BEST has established a goal of having 2 GW of multi-hour storage capacity on

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<sup>3</sup> For more information on previous adjustments for banked allowances, see <http://www.rggi.org/docs/FCPIABA.pdf> and <https://www.rggi.org/docs/SCPIABA.pdf>.

New York's electric grid by 2025 and 4 GW by 2030,<sup>4</sup> while New York City set its own storage target for 2020 of 100 MWh.<sup>5</sup>

While we understand that these deployment targets and expected growth in the energy storage industry may be difficult to capture in the RGGI modeling, we suggest that the RGGI states consider how energy storage would impact the modeling results. We believe that increased deployment of energy storage would result in greater generation from renewable energy sources, decreased emissions of CO<sub>2</sub>, decreased power prices and lower ratepayer costs.

Sincerely,

Acadia Center  
Alan S. Peterson, MD  
Appalachian Mountain Club  
Chesapeake Physicians for Social Responsibility  
CLF  
Environmental Advocates of New York  
Natural Resources Council of Maine  
Natural Resources Defense Council  
Pace Energy and Climate Center  
Partnership for Policy Integrity  
Physicians for Social Responsibility  
Sierra Club  
Union of Concerned Scientists  
Vermont Energy Investment Corporation

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<sup>4</sup> 2016 Energy Storage Roadmap for New York's Electric Grid, NY-BEST, January 2016. Available at: [https://www.ny-best.org/sites/default/files/type-page/39090/attachments/NY-BEST%20Roadmap\\_2016\\_finalpages.c.pdf](https://www.ny-best.org/sites/default/files/type-page/39090/attachments/NY-BEST%20Roadmap_2016_finalpages.c.pdf)

<sup>5</sup> For more information on Mayor DeBlasio's energy storage target, see: <http://www1.nyc.gov/office-of-the-mayor/news/767-16/climate-week-solar-power-nyc-nearly-quadrupled-since-mayor-de-blasio-took-office-and>