



Institute for
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

February 9, 2018

Andrew McKeon, Executive Director
RGGI, Inc.
90 Church Street, 4th Floor
New York, NY 10007
Regional Greenhouse Gas Initiative

VIA ELECTRONIC SUBMISSION

Subject: Comments on Virginia's proposal to join the Regional Greenhouse Gas Initiative

Dear Executive Director McKeon and Members of the RGGI Board,

The Institute for Policy Integrity at New York University School of Law¹ ("Policy Integrity") respectfully submits the following comments on Virginia's proposal to join the Regional Greenhouse Gas Initiative (RGGI).² Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity regularly conducts economic and legal analysis on pricing of greenhouse gas emissions, among other environmental and economic topics.

Including Virginia energy producers in RGGI will greatly expand the scope of the market, improving market efficiency, competitiveness, and lowering carbon abatement costs. Policy Integrity offers the following comments to RGGI on Virginia's proposal:

- In order to maintain an efficient and competitive permit trading market, RGGI should encourage Virginia to set the initial level of its conditional allowances no higher than the amount of emissions expected in 2020. If this is not possible, RGGI should be prepared to adjustment the total cap in a similar manner to previous, interim cap adjustments made between 2014 and 2020;
- Adding Virginia electricity generators to RGGI will improve electricity market efficiency. RGGI should ensure that Virginia's regulated power producers do not receive a windfall from Virginia's unique consignment auction process.

¹ No part of this document purports to present New York University School of Law's views, if any.

² Proposed Regulation, Regulation for Emissions Trading Programs (adding 9VAC5-140-6010 through 9VAC5-140-6430), 34 Va. Reg. Regs. 924 (Jan. 8, 2018).

Introduction

By joining RGGI in 2020, Virginia will take an important step toward internalizing the environmental externality caused by emissions of carbon dioxide. Virginia will also substantially expand the scope and market size of RGGI, helping to improve market competitiveness and trading efficiency. Joining RGGI will likely also reduce the cost of CO₂ abatement by allowing the marginal cost of abatement to equilibrate across a larger set of emitters. A lower marginal cost of abatement will help RGGI states meet carbon emission reduction goals more cost effectively.

The details of how Virginia integrates itself into RGGI have the potential to affect the aggregate emissions from RGGI states, compliance costs for polluters in other states, and the competitiveness of generators in Virginia. Therefore, while the expansion of RGGI is a positive development, some of the specific aspects of Virginia's proposal warrant careful attention to ensure that the highest possible welfare gains are achieved.

RGGI should carefully assess the effect that Virginia's initial allowance level will have on the RGGI cap

When Virginia joins RGGI, the total emissions regulated by RGGI will rise by over 40%.³ Thus, the choice of Virginia's emissions cap will substantially affect the total number of allowances available at each auction and may have a large effect on the stringency of the RGGI cap. Changing the stringency of the RGGI cap will, in turn, affect future permit prices and the compliance costs for budget units in the remaining RGGI states.

A new state joining RGGI could either increase or decrease the stringency of the total emission cap.⁴ These comments focus on a loosening of the cap. As explained below, this case seems more likely given the emission budget that Virginia has proposed. Additionally, because of limits on the price of RGGI allowances, a less stringent cap would result in lower social welfare when compared to a tighter cap. If Virginia's total number of allowances is set ambitiously low, then RGGI permit prices will increase, possibly even hitting the price ceiling. This would not constitute an inefficiency from a social point of view. In 2020 the

³ This follows from comparison of the Virginia's proposed base budget of either 33 million or 34 million tons of CO₂ allowances to RGGI's total carbon budget for 2020. See Proposed Regulation, Regulation for Emissions Trading Programs, *supra* note 2, at 927 and Regional Greenhouse Gas Initiative, 2016 Program Review: Principles to Accompany Model Rule Amendments, available at https://www.rggi.org/sites/default/files/Uploads/Program-Review/12-19-2017/Principles_Accompanying_Model_Rule.pdf.

⁴ "Stringency of the cap" refers to how tightly the cap on emissions binds for all of RGGI. If the cap on emissions binds, then emissions allowances will be scarce and they will trade with a positive price. The stringency of the cap determines how scarce the allowances are. An increase in the stringency of the cap would push the price of allowances up, potentially to the price ceiling. A decrease in the stringency of the cap would make allowances less scarce, leading to a drop in the permit price. If the price drops all the way to the price floor, then the emissions cap would not be binding.

Social Cost of Carbon will be \$49 in current dollars,⁵ therefore, even if the generators were paying the full Cost Containment Reserve (CCR) Trigger Price, which in 2020 will be equal to \$10.77,⁶ the permit price would still be too low to fully internalize the externality caused by carbon emissions. By the same token, depressing the allowance price by decreasing the stringency of the cap would lower social welfare.

If Virginia chooses to issue allowances for more emissions than its generators would emit under a business-as-usual scenario (in other words, the “counterfactual emission level”), this will loosen the emission cap for all of RGGI.⁷ Unless allowance prices are at the price floor, the price will go down, causing the aggregate emissions to increase compared to a scenario where Virginia does not join RGGI.⁸ A fall in the permit price will also decrease the revenue that the other states receive from RGGI auctions. The magnitude of those adjustments will depend on the magnitude of the changes in RGGI’s cap.

For a decrease in total emissions to happen (see the discussion in prior paragraph), the number of permits issued in Virginia should therefore be set below the Virginia’s counterfactual emission level. To achieve that goal, a reliable prediction of the future emissions path is required. Forecasting the emissions is challenging given the uncertainties associated with developments in the energy markets and the substantial fluctuations in Virginia’s emissions over the last few years. Until 2012 there was a downward trend in the CO₂ emissions by the relevant power generators in the state, with the lowest emissions level being 24 million tons.⁹ Afterwards, mostly because of new instate generation installations, CO₂ emissions have risen, reaching 34 million tons in 2016.¹⁰

It is, however, not clear what Virginia’s future emission path in the absence of RGGI trading would be. The latest emission growth trend could continue some time into the future or may soon reverse again. There are some indications that emissions will fall in the future,

⁵ U.S. Interagency Working Group on the Social Cost of Greenhouse Gases (IWG), “Technical support document: Technical update of the social cost of carbon for regulatory impact analysis under executive order 12866 & Addendum: Application of the methodology to estimate the social cost of methane and the social cost of nitrous oxide” (2016; <https://obamawhitehouse.archives.gov/omb/oira/social-cost-of-carbon>), at 16. Prices have been updated to 2016 dollars using the Consumer Price Index.

⁶ Proposed Regulation, Regulation for Emissions Trading Programs, *supra* note 2, Table 140-1A at 933.

⁷ As Virginia issues more permits than its generators would use in absence of any regulation, the demand for permits in Virginia will be less than the number of allowances. Consequently, the “surplus” permits in the amount equal to the difference between the cap and the Virginia emissions under business-as-usual scenario will contribute to loosening the general RGGI cap.

⁸ This follows from laws of supply and demand – as permits’ supply increases, their price will drop. See, e.g. PAUL KRUGMAN & ROBIN WELLS, MICROECONOMICS (Second ed. 2009), chapter 3.

⁹ Michael G. Dowd, Virginia DEQ, Virginia Executive Directive 11 and Proposed Virginia Carbon Dioxide Trading Rule (Jan. 26, 2018), available at https://rggi.org/sites/default/files/Uploads/Participation/2018-01-26-Meeting/VA_Presentation_2018_01_26.pdf.

¹⁰ *Id.*

even in the absence of a cap. With 14% of electricity generation in the state coming from coal-fired power plants, the ongoing shift from coal to natural gas has the potential to push CO₂ emissions down in coming years.¹¹ Additionally, Virginia has a (non-binding) renewable portfolio goal that aims to increase the state's share of renewable energy in energy sales to 15% by 2025.¹² And indeed, new renewable projects are being developed that will push some of the fossil-fueled sources out of the market.¹³

RGGI should require the Virginia Department of Environmental Quality (DEQ) to provide more information on the forecast of state CO₂ emissions to help assess the likelihood that the Virginia permit allocation will be too high (or too low). Currently, little information is available about the assumptions underlying the DEQ's predicted emissions.¹⁴ From available materials, the DEQ's emission forecast appears to only take into account information from the most recent years but not the pre-2012 observations characterized by a decreasing trend. Against this background, setting the CO₂ base budget at 33 or 34 million allowances (while putting an additional 3.3 to 3.4 million CO₂ allowances into the Cost Containment Reserve) might turn out to be too generous, even when future declines in the budget are considered.¹⁵ The choice of the initial budget needs a sound justification given its potential impact on the RGGI total pollution and the permit prices. In case RGGI determines that Virginia's choice of cap negatively affects the stringency of the overall RGGI cap, RGGI can react through cap adjustments similar to the 2014-2020 interim adjustments.

It is worth noting that the allowance price will decrease slightly even if Virginia sets the cap exactly equal to its counterfactual 2020 emissions or just below them. This effect operates through two channels. First, cheap, and until now untapped, pollution abatement possibilities may exist for Virginia's electricity generators that have already been implemented in the other RGGI states. Second, if the current RGGI cap is more restrictive for generators ("more binding") than the cap chosen by Virginia, the total effective cap will

¹¹ Data for August 2017 from U.S. Energy Information Administration, <https://www.eia.gov/state/?sid=VA#tabs-4>

¹² Va. Code Ann. § 56-585.2.

¹³ For example, Dominion has now 423 MW of large-scale solar in Virginia either in operation, under construction, or under development, including power purchase contracts. See Virginia Department of Environmental Quality, Proposed Regulation Agency Background Document, available at http://www.townhall.virginia.gov/L/GetFile.cfm?File=C:\TownHall\docroot\1\4818\8130\AgencyStatement_DEQ_8130_v1.pdf, 30.

¹⁴ The emissions forecast is shown in the "Carbon Dioxide Trading Program (Rev. C17) Proposed Regulation" presentation by State Air Pollution Control Board <http://www.deq.virginia.gov/Portals/0/DEQ/Air/GHG/C17-pro.pdf?ver=2017-11-20-153710-670> (Nov 16, 2017).

¹⁵ As stipulated in Proposed Regulation, Regulation for Emissions Trading Programs, *supra* note 2, at 927.

be less stringent than without Virginia joining the system.¹⁶ However, the price decline will not be accompanied by an increase in total emissions compared to the scenario without Virginia's entry. Therefore, a falling permit price, by itself, will not be informative as to whether RGGI's expansion will decrease CO₂ emissions.

As the RGGI prices are already close to the reserve price, if Virginia enters RGGI with a loose state cap, this will increase the probability of the Emissions Containment Reserve (ECR) becoming operative.¹⁷ In accordance with ECR, states can withhold up to 10 percent of the allowances in their base annual budgets in order to ensure additional emissions reductions if prices fall below the specified trigger prices.¹⁸ As Maine and New Hampshire do not intend to implement the ECR and will thus not withhold allowances when the trigger price is reached,¹⁹ this will create redistributive effects between the states.²⁰

RGGI states need to be aware of those potential impacts and be prepared to adjust the ECR withholdings process should Virginia's cap prove to have a substantial impact on price developments.

To maximize the gains to market efficiency from the addition of Virginia generators, RGGI should verify, to the extent possible, that Virginia's consignment auction process is revenue neutral

Adding Virginia electricity generators will improve market efficiency for current RGGI-participating states. Greenhouse gases warm the climate and therefore cause external damages. Because these damages accrue to third parties and are not priced within the market, greenhouse gas emissions must be addressed by public policy.²¹ Internalizing the externality from greenhouse gas emissions helps level the playing field between electricity producers that emit and do not emit greenhouse gases. Therefore, by joining RGGI and placing a price on carbon dioxide emissions, Virginia electricity generators will be placed on a more equal playing field with generators in other RGGI-participating states.

¹⁶ For example, if in 2020 Virginia issues permits covering 100% of its emissions but other RGGI states auction off permits worth 97% of the counterfactual emissions, the total system would have permits equal to roughly $97 \cdot 0.6 + 100 \cdot 0.4 = 98$ percent of emissions.

¹⁷ The most recent RGGI permit auction settled at \$3.80. See, Regional Greenhouse Gas Initiative, *Auction 38*, (Feb. 4, 2018), <https://rggi.org/auction/38>.

¹⁸ Regional Greenhouse Gas Initiative, 2017 Model Rule, available at https://www.rrgi.org/sites/default/files/Uploads/Program-Review/12-19-2017/Model_Rule_2017_12_19.pdf

¹⁹ Regional Greenhouse Gas Initiative, 2016 Program Review: Principles to Accompany Model Rule Amendments, *supra* note 2.

²⁰ Assuming that all other states participate in the ECR symmetrically, the Maine and New Hampshire will increase their share in the total permit revenues.

²¹ M. Greenstone, E. Kopits & A. Wolverton, *Developing a Social Cost of Carbon for US Regulatory Analysis: A Methodology and Interpretation*, 7 REV. ENVIRON. ECON. POLICY 23 (2013).

Because of the unique consignment auction mechanism being used to distribute conditional allowances and RGGI proceeds in Virginia, RGGI should take steps to ensure that this equal playing field is maintained and that market efficiency is preserved. One concern with the consignment auction is that power generators in Virginia might be able to keep the revenue disbursed by RGGI.

Regulated power producers in Virginia will be required by the Virginia State Corporation Commission to pass all revenue from RGGI auctions on to state electricity consumers.²² Ensuring that the consignment auction is truly revenue neutral is important for maintaining market efficiency. If generators are able to keep the revenue from RGGI auctions, then they will be incentivized to stay in the market in some cases where the optimal outcome from a social welfare perspective would be for the generator to exit the market.

For regulated generators in Virginia, the State Corporation Commission will be in charge of verifying that the consignment auction is revenue neutral. The generators might be able to gain revenue from the auctions by substituting RGGI-derived revenue for other customer support payments that they are currently making or plan to make. For instance, if a state-regulated power producer currently has a program to promote customer energy efficiency, then the producer could potentially remove that program and replace it with a program funded by revenue from the RGGI auctions. In that case, the producer would effectively receive a revenue windfall. Such a windfall would place the producer at a long-run competitive advantage relative to electricity generators who participate in RGGI but who do not receive revenue from the auctions.

Since conditional permits will be allocated based on electricity generation rather than CO₂ emissions, clean generators could even see their profits increase under this scenario.²³ If a generator receives more conditional allowances than it needs to buy from RGGI to cover its own emissions, then it will receive more revenue from RGGI than it spends at RGGI auctions. In this case, these relatively clean generators would see an increase in their profits.

A similar situation could occur if a power generator was already planning to pay for a customer support program but chooses to fund the program using RGGI auction proceeds rather than another funding source. Like the above example, if the generator chose not to follow through on the original plan, then the revenue from RGGI would not result in truly additional customer support and the generator would receive a windfall relative to what it would receive in the absence of RGGI participation. In principle, only newly conceived

²² See Virginia Executive Directive 11 and Proposed Virginia Carbon Dioxide Trading Rule, *supra* note 8.

²³ Proposed Regulation, Regulation for Emissions Trading Programs, *supra* note 2, at 947.

customer support programs should be funded using RGGI revenue to ensure that the support is additional to any other support that the generator might have offered. The State Corporation Commission will need to be proactive in protecting Virginia consumers to prevent behavior by generators that results in windfall revenue. RGGI should clarify with specificity how the State Corporation Commission will verify that all auction revenue is used for additional customer support.

For non-regulated, private power producers in Virginia subject to the proposed regulation, proceeds from RGGI auctions could also result in a revenue windfall.²⁴ As a consequence, there might be an incentive for new production of private power generating facilities to occur in Virginia rather than neighboring RGGI states. Even if these generators receive revenue from the auction, joining RGGI will improve market function relative to the current *status quo*. Right now, emitting generators in Virginia are receiving an implicit subsidy, as they are not paying for the environmental damage caused by their emissions. Internalizing this externality will eliminate the perverse incentives for high emitting generators to locate themselves in Virginia relative to other RGGI states.

Importantly, electricity generators in Virginia will be incentivized to reduce CO₂ emissions whether or not the consignment auction is fully revenue neutral. A requirement to hold a permit for each ton of CO₂ emitted provides a marginal incentive to reduce emissions. This marginal incentive to abate will be present regardless of whether generators receive lump-sum revenue from RGGI. The RGGI-derived revenue would affect the long-run profitability of the generators if it is not fully passed through to consumers, so over time higher or lower emitting generators might be more likely to enter or exit the market. However, the marginal incentives to abate will be realized as long as the requirement to hold a permit to emit is in place. Moreover, were Virginia to not place any price on carbon, it would be impeding efficient market operation by implicitly subsidizing fossil power generators in the state. Therefore, including Virginia in the RGGI trading program will help improve market function and promote a level playing field between generators.

The consignment auction mechanism also creates additional incentives not only between the peer generators in and outside Virginia but also between the generators inside Virginia. In particular, because the permit allocations and updates are based on net electricity output, the cleanest fossil fueled plants will have extra incentives to expand their electricity generation compared to higher emitting generators. This added incentive should make the Virginia generation fleet even cleaner, leading to quicker decreases in the Virginia's

²⁴ All private producers who qualify under Proposed Regulation, Regulation for Emissions Trading Programs, *supra* note 2, at 938.

emissions. In sum, adding Virginia generators to RGGI will increase environmental quality and improve market efficiency.

Respectfully submitted,

Sylwia Biatek, Ph.D.

Jeffrey Shrader, Ph.D.

Institute for Policy Integrity
New York University School of Law