

# An Analysis of the Regional Greenhouse Gas Initiative

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## I. Introduction

The Regional Greenhouse Gas Initiative (RGGI, pronounced “Reggie”) is the first mandatory cap-and-trade program for carbon dioxide (CO<sub>2</sub>) emissions in the United States, and it will dramatically affect the environmental impact of energy generation in member states.<sup>1</sup> A cap-and-trade program is a governmental regulatory method for restricting greenhouse gas emissions under which a limit (or *cap*) is set for greenhouse gas output. Permits (or *allowances*) to emit a finite amount of greenhouse gases are then sold at auction to businesses and/or power plants who operate in or are subject to the relevant state government’s jurisdiction. This paper serves to elaborate on RGGI’s components and discuss their importance for the initiative as a whole.

## II. RGGI Overview

Under RGGI, participating states in the eastern United States collaborate to set a regional cap for CO<sub>2</sub>.<sup>2</sup> Allowances are then auctioned off to power plants in those states, and through administrative action within the program, the regional cap declines so that CO<sub>2</sub> emissions decrease predictably and at a steady rate.<sup>3</sup> At present, RGGI’s member states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia.<sup>4</sup> North Carolina and Pennsylvania are also in the process of joining the initiative through executive action (as opposed to legislative action, the process by which current participating states have joined).<sup>5</sup> The core components of RGGI’s

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<sup>1</sup> CTR. FOR CLIMATE AND ENERGY SOL.’S, *Regional Greenhouse Gas Initiative (RGGI)*, c2es.org, <https://www.c2es.org/content/regional-greenhouse-gas-initiative-rggi/> (last visited Jan. 1, 2022).

<sup>2</sup> RGGI, REGIONAL GREENHOUSE GAS INITIATIVE 1 (Sept. 2021), [https://www.rggi.org/sites/default/files/Uploads/Fact%20Sheets/RGGI\\_101\\_Factsheet.pdf](https://www.rggi.org/sites/default/files/Uploads/Fact%20Sheets/RGGI_101_Factsheet.pdf).

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> Pa. Exec. Order No. 2019-07 (Jun. 22, 2020), <https://www.oa.pa.gov/Policies/co/Documents/2019-07.pdf>.

implementation include (1) the auction process, (2) tracking and compliance, and (3) the reinvestment of auction proceeds (typically into efficient and renewable energy projects in participating states).<sup>6</sup>

### III. Auction Process

As mentioned above, the RGGI auction process allows regulated power plants (or firms) in participating states to purchase CO<sub>2</sub> emissions allowances. Each individual allowance permits a power plant to emit one short ton of CO<sub>2</sub>.<sup>7</sup> Allowances are initially sold to power plants through the “primary market,” under which auction dates are held every 3 months.<sup>8</sup> Thereafter, allowances are resold in the open “secondary market,” which provides firms with opportunities to purchase allowances at any time during the three months between RGGI auction dates.<sup>9</sup>

In order to maintain stability in the auction markets, RGGI implements three different auction mechanisms. The most basic of these is a **Minimum Reserve Price** that is set annually.<sup>10</sup> This is the minimum price for which allowances can be sold at a quarterly primary market RGGI auction.<sup>11</sup> In 2021, the minimum reserve price was \$2.38 per allowance.<sup>12</sup>

In addition to the minimum reserve price, RGGI also implements a **Cost Containment Reserve (CCR)** and an **Emissions Containment Reserve (ECR)**.<sup>13</sup> The CCR contains allowances held in reserve which subsequently become available for purchase if the allowance

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<sup>6</sup> *Elements of RGGI*, REGIONAL GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/program-overview-and-design/elements> (last visited Jan. 1, 2022).

<sup>7</sup> RGGI, *supra* note 2, at 1.

<sup>8</sup> POTOMAC ECONOMICS, REPORT ON THE SECONDARY MARKET FOR RGGI CO<sub>2</sub> ALLOWANCES: FOURTH QUARTER 2018, (Feb. 2019), [https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Quarterly-Reports/MM\\_Secondary\\_Market\\_Report\\_2018\\_Q4.pdf](https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Quarterly-Reports/MM_Secondary_Market_Report_2018_Q4.pdf).

<sup>9</sup> *Id.*

<sup>10</sup> RGGI, *supra* note 2, at 1.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Elements of RGGI*, *supra* note 6.

purchase price rises higher than expected.<sup>14</sup> Conversely, the ECR withholds allowances from the market if the purchase price falls lower than expected.<sup>15</sup> These mechanisms “help provide market stability if the cost of reducing emissions is higher or lower than expected.”<sup>16</sup> In 2021, the CCR trigger price was \$13.00, and the ECR trigger price was \$6.00.<sup>17</sup> This means that additional allowances would have been added to the primary market when the auction price rose above \$13.00, and some allowances would have been withheld from the primary market when the auction price fell below \$6.00.

By adding allowances to or withholding allowances from the auction market, the CCR and ECR allow RGGI to follow the core principles of fundamental economic supply and demand theory.<sup>18</sup> That is, the addition of allowances (from the CCR) increases CO<sub>2</sub> allowance supply in the event that firms must spend more than expected in order to reduce their overall CO<sub>2</sub> emissions. On the other hand, the withholding of allowances (that are in the ECR) decreases CO<sub>2</sub> allowance supply when firms are spending less than expected in order to reduce CO<sub>2</sub> emissions. These additions and withholdings are an important aspect of RGGI because they allow the initiative to effectively and accordingly adjust supply in order to reach an optimal range of both CO<sub>2</sub> emissions reduction and economic development.<sup>19</sup> That is, the CCR and ECR enable RGGI to reach the “sweet spot” wherein power plants reduce emissions over time without reducing them so quickly that energy costs rapidly increase for the power plants’ customers. There is a common yet unproven assumption that a transition to renewable energy will result in upward

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<sup>14</sup> RGGI, *supra* note 2, at 1.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> See CONG. RSCH. SERV., THE REGIONAL GREENHOUSE GAS INITIATIVE: BACKGROUND, IMPACTS, AND SELECTED ISSUES 4 (Jul. 16, 2019).

<sup>19</sup> See *id.*

volatility for customers' energy bills. By implementing the CCR and ECR, the RGGI designers have provided effective mechanisms that mitigate the likelihood of price spikes.

#### **IV. Tracking and Compliance**

In order to meet the CO<sub>2</sub> emissions reductions that RGGI seeks to achieve, the initiative must effectively and accurately measure the exact amount of CO<sub>2</sub> that regulated power plants emit. This means it is imperative that RGGI ensures that those power plants are abiding by the restrictions that the emissions allowances put in place. RGGI has two primary mechanisms for achieving these goals: (1) a requirement that power plants possess emissions allowances equal to total emissions over a three-year **control period** and (2) the initiative's platform for tracking emissions, called the RGGI **CO<sub>2</sub> Allowance Tracking System (COATS)**.<sup>20</sup>

RGGI evaluates compliance at the end of each three-year **control period**.<sup>21</sup> Additionally, "RGGI states have . . . conducted interim control period compliance, which requires each CO<sub>2</sub> budget source to [surrender or use] allowances equal to 50 percent of their emissions during each interim control period (the first two calendar years of each three-year control period)."<sup>22</sup> The process by which firms follow the control period process is best summarized in the RGGI 101 Fact Sheet, which states that "[e]very year, regulated power plants must surrender allowances equal to one half of their CO<sub>2</sub> emissions for that year. Every three years, called a **control period**, they must surrender allowances for all emissions from year three, plus all remaining emissions from years one and two."<sup>23</sup>

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<sup>20</sup> RGGI, *supra* note 2, at 1.

<sup>21</sup> *Compliance*, REGIONAL GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/allowance-tracking/compliance> (last visited Jan. 1, 2022)

<sup>22</sup> *Id.*

<sup>23</sup> RGGI, *supra* note 2, at 1.

This process provides two primary benefits for RGGI in its tracking and compliance process. First, because the control periods are divided into one-year interim control periods, RGGI states can track firms' emissions more often and accurately determine which firms are on track to meet their reduction requirements within a given three-year control period. Second, by forcing firms to surrender (or use) allowances equal to one half of their yearly CO<sub>2</sub> emissions and requiring firms to surrender all of their emissions allowances by the end of year three, RGGI effectively encourages liquidity in the allowances marketplace by discouraging the hoarding of allowances. That is, if power plants know that they will be forced to surrender some of the extra emissions allowances that they purchase and subsequently do not use the allowances in a given control period, they will not purchase those extra allowances in the first place, or they will sell such extra allowances in the secondary market. Consequently, more firms will be able to participate in the primary market, and there will be a more robust secondary market.

To keep track of firms' acquisition, transfer, retirement, and surrender of emissions allowances, RGGI utilizes its COATS platform.<sup>24</sup> Any party who successfully sets up a login and creates an account on COATS can receive, transfer, and hold RGGI allowances within the platform.<sup>25</sup> Additionally, COATS allows the public to view, customize, and download reports containing RGGI data and CO<sub>2</sub> allowance market activity, and login information is not required to view these public reports.<sup>26</sup> These public reports can be accessed at: <https://rggi-coats.org/eats/rggi/>.

By making the information on COATS public, RGGI provides transparency with respect to emissions tracking and compliance, making it easy for anyone to see the effectiveness and

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<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *RGGI Coats*, REGIONAL GREENHOUSE GAS INITIATIVE, <https://www.rrgi.org/allowance-tracking/rggi-coats> (last visited Jan. 1, 2022)

efficiency of the initiative. To demonstrate RGGI's successful tracking and compliance practices, participating states' CO<sub>2</sub> emissions have decreased by 50% since RGGI's implementation, which is twice as much as the United States as a whole during that time period.<sup>27</sup> When asked if there has been any difficulty with respect to RGGI's tracking and compliance, William Shobe, an environmental economics professor at the University of Virginia and member of the original team that designed the RGGI auction process in 2007, said "No. Not at all. That's because RGGI did it right with its continuous emission monitoring. As a result, enforcement is almost automatic."<sup>28</sup>

## V. Reinvestment

The states currently participating in RGGI have chosen to auction allowances.<sup>29</sup> After each RGGI auction period, these participating states reinvest the proceeds into beneficial spending programs.<sup>30</sup> States can independently decide how they will invest these proceeds, and investments typically fall into four major categories: (1) energy efficiency (which makes up 54% of cumulative investments since RGGI's formation), (2) clean and renewable energy (14%), (3) greenhouse gas abatement (10%), and (4) direct (energy) bill assistance (15%).<sup>31</sup>

According to the 2019 RGGI Proceeds Report, programs funded by states' 2019 energy efficiency investments "are expected to return about \$553 million in lifetime energy bill savings to over 250,000 participating households and 1,400 businesses in the region and avoid the release of more than 1.5 million short tons of CO<sub>2</sub>."<sup>32</sup> Additionally, states' 2019 investments in clean and renewable energy technologies "are expected to return nearly \$600 million in lifetime energy

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<sup>27</sup> *RGGI*, *supra* note 2, at 1.

<sup>28</sup> Video Interview with William Shobe, Professor of Public Policy, University of Virginia (Dec. 17, 2021)

<sup>29</sup> *RGGI*, *supra* note 2, at 1.

<sup>30</sup> *Elements of RGGI*, *supra* note 6.

<sup>31</sup> REGIONAL GREENHOUSE GAS INITIATIVE, THE INVESTMENT OF RGGI PROCEEDS IN 2019 3, (RGGI, Inc. June 2021), [https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI\\_Proceeds\\_Report\\_2019.pdf](https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2019.pdf).

<sup>32</sup> *Id.*

bill savings and avoid the release of more than 850,000 short tons of CO<sub>2</sub>.”<sup>33</sup> 2019 greenhouse gas abatement investments “are expected to avoid the release of more than 160,000 short tons of CO<sub>2</sub> and to return over \$93 million in lifetime savings.”<sup>34</sup> And finally, 2019 direct bill assistance investments “have returned \$39 million in credits or assistance to consumers.”<sup>35</sup>

While states’ investments of proceeds certainly can be beneficial, the effectiveness of such spending is subject to some debate. According to Prof. Shobe, “the benefits of these reinvestments are often quite hard to measure. There are plenty of studies about how wonderful reinvestment is. However, what you get from the reinvestment is controversial.”<sup>36</sup> Prof. Shobe further explained that the main benefit RGGI provides is the reduction of emissions at the lowest possible economic cost, and he emphasized that this (and not the intricacies of proceeds reinvestments) should be the primary focus for states that join RGGI.<sup>37</sup>

It is also worth noting that, while investments in renewable energy and other environmental programs are worthy and effective uses of auction proceeds, the proceeds can also be spent on other pursuits. As Prof. Shobe stated, “there is nothing in economic theory that all the money from proceeds has to be used on environmental reinvestment.”<sup>38</sup> With this in mind, he explained the rationale behind the use of proceeds to provide direct bill assistance. “A good thing to do is give the money back to households who have had energy costs go up as a result of the program,” he said.<sup>39</sup> “Generally speaking, you have to raise the price in order to get to more resilient energy. Usually, there will be an effect on lower-income families.”<sup>40</sup> With these

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<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> Video Interview with William Shobe, *supra* note 28.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

competing viable uses of the proceeds of RGGI in mind, each state should seek a balanced use of that money to invest in a better environment and assist those who are financially disadvantaged.

## **VI. Conclusion**

North Carolina joining RGGI is a micro view of the greater macro issue in that North Carolina's addition to RGGI will provide benefits to its own local environmental effort and to the greater world as well. As the world population faces the serious issues posed by climate change and rising sea levels, localized meaningful and tangible steps toward carbon-neutrality are vital. With strong leadership, RGGI can be that step for North Carolina.