



**Renewable  
Energy &  
Electric  
Vehicle  
Association**

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April 9, 2018

RE: Regulation for Emissions Trading (9VAC5-140)

Dear Ms. Sabasteanski:

On behalf of the Blue Ridge Environmental Defense League, Food & Water Watch, People Demanding Action, Preserve Floyd and the Renewable Energy & Electric Vehicle Association (REEVA), we welcome the opportunity to submit comments in opposition to the Virginia State Air Pollution Control Board's proposed "Regulation for Emissions Trading Programs" (9 VAC 5-140), published January 8, 2018.

The Blue Ridge Environmental Defense League is a regional, community-based, non-profit environmental organization. Our founding principles are earth stewardship, environmental democracy, social justice, and community empowerment. Food & Water Watch is a national advocacy organization that champions healthy food and clean water for all with over 23,000 supporters in Virginia. People Demanding Action is a mass-based political movement and network rebuilding a populist coalition representing 8,500 Virginians to protect and preserve the dreams of our children and the coming generations. Preserve Floyd is working to prohibit the proposed Mountain Valley Pipeline and Atlantic Coast Pipeline from coming through the Appalachians and protecting and preserving our community. REEVA helps local Southwest Virginia members install renewable energy and build electric vehicles.

The proposal aims to cap and reduce carbon dioxide (CO<sub>2</sub>) emissions from fossil fuel-fired electric power generating facilities by having the state join an interstate trading program known as Regional Greenhouse Gas Initiative (RGGI). Virginia's participation in a cap-and-trade program like RGGI is not the answer.

RGGI allows polluters to buy and sell allowances in lieu of direct emissions controls. RGGI's inherently flawed and harmful approach has not been proven to reduce CO<sub>2</sub> emissions and has encouraged the shift to natural-gas fired power plants, increasing dependence on gas from hydraulic fracturing (or fracking) at the expense of renewable energy while allowing accompanying methane emissions to continue unabated. Moreover, RGGI is essentially a pay-to-pollute structure that enables polluters to simply buy allowances for the right to pollute rather than decrease their emissions, which effectively encourages more pollution in lower-income areas and communities of color, exacerbating underlying environmental justice disparities. And the program's seemingly most attractive feature as a

state revenue raiser for environmental initiatives has been undercut as states regularly raid these funds to fill coffers and satisfy budget deficits.

Former Governor McAuliffe's Executive Directive 11 (2017), "Reducing Carbon Dioxide Emissions from the Electric Power Sector and Growing Virginia's Clean Energy Economy," unambiguously states that the Commonwealth of Virginia is under threat from climate change and necessitates action. Across the state, increasing temperatures and rising sea levels due to climate change has already resulted in saltwater intrusion, disappearing beaches and more intense storms and floods.<sup>1</sup> Economic losses and damage to both the environment and human health are expected to worsen.<sup>2</sup> Urgent action is needed to reduce greenhouse gas emissions that contribute to climate change and lessen the severity of these impacts.

While it is promising to see Governor Northam move to take action to mitigate Virginia's climate change risks and control CO<sub>2</sub> emissions from the electric power sector in accordance with Governor McAuliffe's directive, the proposal to join RGGI will not and cannot achieve the directive's goals to curb greenhouse gas emissions. We oppose market-based schemes like RGGI that purportedly protect the environment by pricing and trading pollution, but actually exacerbate pollution and climate change.

## **I. Flaws in RGGI Program Overstate Climate Benefits**

### **A. Excessive RGGI Emissions "Cap" and Other Programmatic Flaws Prevent Emission Reductions**

The excessively high RGGI cap and low allowance clearing prices, combined with other flaws in the program, prevent RGGI from being stringent enough to drive any meaningful or significant reductions in carbon dioxide emissions.

From the outset, RGGI has proven to be a weak program that has allowed power plants to emit on a business-as-usual basis. For the first five years of the program, the industrywide cap was set over 50 percent higher than actual emissions. This meant fossil fuel power plants did not need to do anything to meet the overly generous RGGI cap. In fact, this high initial cap allowed power plants to "bank" a substantial amount of unused allowances, amounting to 140 million tons of CO<sub>2</sub>. While the cap was adjusted to address these saved allowances, this allowance surplus could continue to grow significantly over the next few years due to a cap that continues to be higher than actual emissions, low allowance clearing prices, the purchasing of all available allowances and other factors.<sup>3</sup> This further limits the effectiveness of the program to reduce carbon emissions.

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<sup>1</sup> U.S. Environmental Protection Agency (EPA). "What Climate Change Means for Virginia." EPA 430-F-16-048. August 2016 at 1-2.

<sup>2</sup> Repetto, Robert. Demos. "Economic and Environmental Impacts of Climate Change in Virginia." April 19, 2012 at 5 to 8; Georgetown Climate Center. "Understanding Virginia's Vulnerability to Climate Change." February 17, 2015 at 1 and 2; Smith, K.R. et al. "Human health: impacts, adaptation, and co-benefits." *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. 2014 at 713, 717-718, 734 and 742; EPA (2016) at 2; Chesapeake Physicians for Social Responsibility. "Climate Change and Health in Virginia." Health & Energy Brief. February 2017 at 2; Natural Resources Defense Council. "Climate and Health in Virginia." February 2015 at 3.

<sup>3</sup> Ramseur, Jonathon L. Congressional Research Service. "The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Congress." May 16, 2017 at 11; Stutt, Jordan et al. Acadia Center. "Regional Greenhouse Gas Initiative Status

The cost containment reserve (CCR) is another RGGI mechanism that injects “flexibility” into the program that further disincentivizes emissions reductions by operating as a cushion by releasing additional pollution allowances on top of the cap if prices get too high. To date, the CCR has been triggered twice, in 2014 and 2015, allowing 5 million and 10 million additional allowances, respectively, to be sold.<sup>4</sup> All of these allowances were purchased, and because they were not borrowed from future years, these allowances essentially increased the cap.<sup>5</sup>

## **B. RGGI Pricing Provisions Prevent Meaningful Emissions Reductions**

RGGI prices, including the reserve price, which sets the minimum allowance clearing price, continue to be too low or too volatile to result in any meaningful carbon reductions. These prices have ranged from around \$1.86 to \$1.93 per ton CO<sub>2</sub> between 2010 to 2012, when the cap greatly exceeded emissions, to \$7.50 in December 2015, just prior to the U.S. Supreme Court decision to delay the implementation of the Clean Power Plan.<sup>6</sup> Since then, prices stumbled once again to \$3.79 in the most recent March 14 auction, a nearly 50 percent drop since its 2015 peak.<sup>7</sup> These low and fluctuating prices seem to be an inherent feature of carbon pricing programs. Most, if not all, of the current carbon markets have failed to create “a stable, market-driven price of carbon,” and often prices for GHG allowances “have been so low as to create little incentive to invest in GHG reduction,” according to researchers at the Haas School of Business at the University of California, Berkeley.<sup>8</sup> In fact, a number of reports assert that carbon should currently be priced at around \$35 to \$110 per ton CO<sub>2</sub> in order to keep global average temperatures increases to well below 2 degrees Celsius above pre-industrial levels.<sup>9</sup> Structural flaws in the RGGI program (including a supply of allowances that exceeds emissions) prevent the purported market-based incentives from working. Moreover, polluters prefer a larger supply of low-priced pollution allowances, creating a disincentive to actually embrace a pollution price point that might be effective. We do not believe that, in practice, any market-based pollution trading scheme will ever result in market prices sufficient to encourage all polluters to reduce their emissions.

## **C. RGGI ignores significant biomass and methane emissions, potentially overstating reductions**

*Substantial emissions of potent greenhouse gas methane from fracked natural gas:* RGGI has not accounted for the increased emissions of methane from the significant growth of fracking and natural gas infrastructure. Methane is an extremely potent greenhouse gas, with 86 times greater global

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Report. Part II: Achieving Climate Commitments.” August 2016 at 8; Borenstein, Severin et al. Energy Institute at Haas. “Expecting the Unexpected: Emissions Uncertainty and Environmental Market Design.” August 2016 at 2.

<sup>4</sup> Ramseur (2017) at 16.

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.* at 10 to 11; Walton, Robert. “RGGI carbon auction prices fall 40% on Clean Power Plan uncertainty.” *Utility Dive*. July 7, 2016.

<sup>7</sup> Potomac Economics. Prepared for RGGI, Inc., on behalf of the RGGI Participating States. “Market Monitor Report for Auction 39.” March 16, 2018 at 3.

<sup>8</sup> Borenstein et al. (2016) at 2.

<sup>9</sup> High-Level Commission on Carbon Prices. “Report of the High-Level Commission on Carbon Prices.” Washington, DC: World Bank. 2017 at 1 to 4; Dietz, Simon and Nicholas Stern. “Endogenous Growth, Convexity of Damage and Climate Risk: How Nordhaus’ Framework Supports Deep Cuts in Carbon Emissions.” *The Economic Journal*. Vol. 125. March 2015 at 591.

warming potential than carbon dioxide over the short term.<sup>10</sup> Escaping methane emissions from oil and gas operations, including pipeline transmission, are the leading human-caused source of methane pollution in the United States — and the second largest source worldwide.<sup>11</sup>

Natural gas drilling leaks considerable amounts of methane, and these leaks are higher from fracked gas drilling than from conventional drilling. A 2011 Cornell University study found that leaks from natural gas drilling, processing, storage and distribution amounted to 5.7 percent of the methane gas from unconventional wells and 3.8 percent from conventional wells.<sup>12</sup> Even small methane leaks add up, since the United States produced 33.2 trillion cubic feet of natural gas in 2017.<sup>13</sup> Additionally, methane emissions from gas power plants alone may be considerably higher than thought. A Purdue University study estimated that methane emissions from gas-fired power plants is about 20 to 120 times higher than previously estimated because of leaks and intentional venting.<sup>14</sup>

The climate proponents and petroleum industry that favor natural gas contend that since gas-fired plants emit less CO<sub>2</sub> than coal-fired plants, replacing coal power plants with gas power plants reduces climate emissions.<sup>15</sup> However, these methane emissions throughout the natural gas supply chain can nullify or even reverse any climate benefits from switching from coal-fired to gas-fired power plants. RGGI's climate projections not only ignore methane emissions, but they also ignore the reality that natural gas in the US already emits more CO<sub>2</sub> than coal — the Department of Energy estimates that CO<sub>2</sub> emissions from natural gas will be 23.7 percent higher than coal by 2019.<sup>16</sup> That is also true in RGGI states, where the CO<sub>2</sub> emissions from gas-fired plants were 25 times higher than coal-fired plants in 2016.<sup>17</sup>

But even a conservative assessment of methane leaks from the natural gas supply chain shows that the greenhouse gases are not declining as RGGI states switch from coal-fired to gas-fired power plants. The declining CO<sub>2</sub> emissions from coal-fired power plants and coal-related methane emissions have been exceeded by estimated increases in CO<sub>2</sub> from natural gas-fired power plants and methane leaks just related to the gas used to fuel the power plants. From 2013

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<sup>10</sup> Myhre, Gunnar and Drew Shindell. “Anthropogenic and Natural Radiative Forcing.” Chapter 8 in Stocker, Thomas F. and Dahe Qin (eds.). Intergovernmental Panel on Climate Change. *Climate Change 2013: The Physical Science Basis*. Cambridge University Press: Cambridge, United Kingdom. 2013 at 714.

<sup>11</sup> Jackson, Robert B. et al. “Natural Gas Pipeline Leaks Across Washington, DC.” *Environmental Science & Technology*. Vol. 48. Iss. 3. January 2014 at 2051.

<sup>12</sup> Howarth, Robert W., Renee Santoro and Anthony Ingraffea. “Methane and the greenhouse-gas footprint of natural gas from shale formations.” *Climatic Change*. Vol. 106. 2011 at 683.

<sup>13</sup> U.S. Department of Energy. Energy Information Administration (EIA). “U.S. Natural Gas Withdrawals and Production.” Available at [www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_dc\\_NUS\\_mmcf\\_a.htm](http://www.eia.gov/dnav/ng/ng_prod_sum_dc_NUS_mmcf_a.htm). Accessed March 2018.

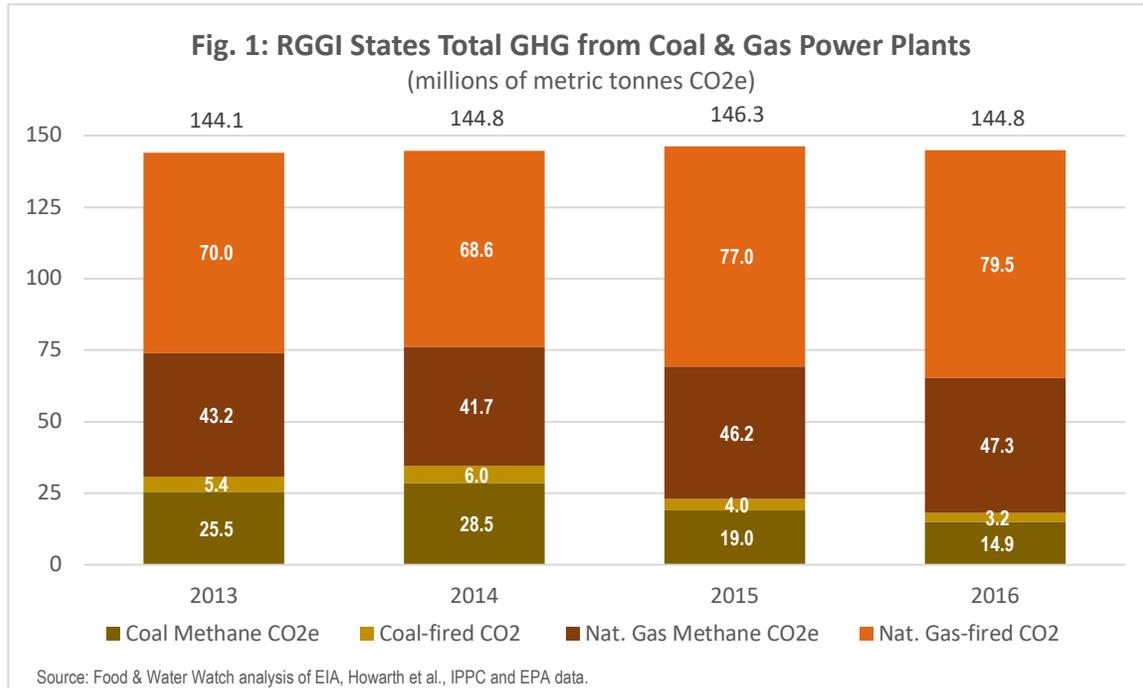
<sup>14</sup> Lavoie, Tegan N. et al. “Assessing the methane emissions from natural gas-fired power plants and oil refineries.” *Environmental Science & Technology*. Vol. 51. February 21, 2017 at 3373.

<sup>15</sup> See Center for Climate and Energy Solutions. “Natural Gas.” Available at [www.c2es.org/content/natural-gas/](http://www.c2es.org/content/natural-gas/). Accessed March 2018; Independent Petroleum Association of America. Energy in Depth. “The climate benefits of natural gas.” Available at <http://eidclimate.org/natural-gas-climate-change/>. Accessed March 2018.

<sup>16</sup> EIA. “Short-term energy outlook (STEO).” March 2018 at Table 9a.

<sup>17</sup> Food & Water Watch analysis of EIA data. EIA. “Receipts of fossil fuels by electricity plants for electric power.” Available at [www.eia.gov/electricity/data/browser/](http://www.eia.gov/electricity/data/browser/). Accessed March 2018; EIA. “Carbon dioxide emissions coefficients.” February 2, 2016. Available at [www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](http://www.eia.gov/environment/emissions/co2_vol_mass.php). Accessed March 2018.

to 2016, these emissions hovered between 144 and 146 million metric tonnes of CO<sub>2</sub> equivalent, rising slightly (by about 710,000 metric tonnes CO<sub>2</sub>e) over the period (see Figure 1).<sup>18</sup>



This likely underestimates methane and CO<sub>2</sub>e emissions from the fracking industry and natural gas-fired power plants that provide electricity to RGGI states. First, this only includes the power plants located within RGGI states, it does not account for electricity imports from natural gas-fired power plants outside the RGGI states. For example, Pennsylvania already exports about 55 billion megawatt hours of electricity to the interstate electricity grid, more than household electricity demand.<sup>19</sup> Much of this power goes to RGGI states and our estimate does not include the gas-fired power imports and associated methane leaks from Pennsylvania or other states. New York, for instance, banned fracking in 2015 yet has increasingly relied on fracked natural gas and electricity generated by gas-fired power plants imported from Pennsylvania to supply its energy needs.<sup>20</sup> Natural gas imports from Pennsylvania doubled since Governor Andrew

<sup>18</sup> Food & Water Watch analysis. Power plant emissions based on EIA “Receipts of fossil fuels by electricity plants for electric power” and “Carbon dioxide emissions coefficients.” Methane emissions from gas based on Howarth, Santoro and Ingraffea (2011) leak estimates for conventional and unconventional gas and EIA “Natural gas withdrawals and production;” unconventional gas includes shale gas, tight gas and coalbed gas. Methane emissions from coal based on EPA for average coal methane emissions from Appalachian, Warrior and Illinois coal mines. EPA. “Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016.” EPA 430-P-18-001. February 6, 2018 at Table A-127 at A-193. Methane density conversions from cubic feet to metric tonnes from Massachusetts Institute of Technology Energy Club. “Units & conversions fact sheet.” April 15, 2007. Methane CO<sub>2</sub>e estimate based on Myhre and Shindell (2013).

<sup>19</sup> EIA. “Pennsylvania Electricity Profile 2015.” Updated July 20, 2017 at Table 8 and Table 10.

<sup>20</sup> EIA. New York State Energy Profile. Available at <https://www.eia.gov/state/print.php?sid=NY>. Updated July 20, 2017. Accessed October 2017; “It’s official: New York bans fracking.” *Reuters*. June 30, 2015.

Cuomo announced the ban in 2014.<sup>21</sup> New York is poised to import even more electricity from fracked-gas-fired power plants in central and eastern Pennsylvania slated to go online by 2018.<sup>22</sup>

Additionally, our estimate does not account for how new gas-fired power plants drive more fracking and gas infrastructure and associated methane leaks. RGGI drives demand for new gas-fired power plants (see below) and these new plants provide symbiotic profit opportunities for power companies that are capitalizing on low gas prices and fracking companies that hope the new plants will soak up supplies and ultimately raise prices enough to encourage more drilling.<sup>23</sup> The Department of Energy reported that more than 420 new gas-fired power plants were proposed for construction between 2017 and 2021.<sup>24</sup> For example, since 2011, independent power companies have constructed or planned to build 48 gas-fired power plants in Pennsylvania to capitalize on the proximity to fracked gas production, interstate pipelines and interstate electricity transmission lines.<sup>25</sup> The supplemental demand for gas-fired electricity generation increases the demand for fracking and natural gas infrastructure, which further expands methane emissions from gas drilling, processing, storage and distribution.

***“Carbon neutral” biomass classification undercounts CO<sub>2</sub> and other harmful emissions under RGGI:*** Because biomass is typically considered “renewable” under state renewable standards, RGGI does not count carbon dioxide emissions from biomass processing and combustion. This underestimates the amount of carbon released from this energy source by a significant amount. There is a growing scientific consensus that biomass cannot be considered carbon neutral. Processing, transporting and burning wood at biomass plants all produce greenhouse gas emissions, which can be greater than those from coal.<sup>26</sup> Additionally, carbon sequestration from the growth of woody material takes decades to occur and is counteracted by the rapid clearcutting of forests to fuel wood-fired power plants. These wood-fired power plants also emit particulate matter and other airborne pollutants that harm respiratory health and increase risks from asthma and heart disease.<sup>27</sup>

If biomass CO<sub>2</sub> emissions were counted in RGGI states, total RGGI CO<sub>2</sub> emissions could be on average 31 percent higher than what is currently projected over the next ten years.<sup>28</sup> This

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<sup>21</sup> EIA. New York International and Interstate Movements of Natural Gas by State. September 29, 2017 at Data 3: Net International & Interstate Receipts; *Reuters* (2015).

<sup>22</sup> “First turbine to arrive at new Salem power plant.” *Wilkes-Barre (PA) Times Leader*. February 17, 2017; Phillips, Susan. “New natural gas plant to replace shuttered coal facility in Snyder County.” *NPR StateImpact Pennsylvania*. October 28, 2015; Moore, Marcia. “Hummel Station natural gas power plant to begin operations early next year.” *Sunbury (PA) Daily Item*. April 21, 2017.

<sup>23</sup> Ailworth, Erin. “Power plants bloom even as electricity prices wilt.” *Wall Street Journal*. December 28, 2017; Napsha, Joe. “Natural gas-fueled power plants on rise.” *Pittsburgh Tribune-Review*. January 26, 2018; “Marcellus Shale boom could return.” *Washington (PA) Observer-Reporter*. April 20, 2016; Smith Hopkins, Jamie. “Big power plant ignites political fight in small Pennsylvania town.” *NPR StateImpact Pennsylvania*. November 2, 2017.

<sup>24</sup> EIA. “Electric Power Annual 2016.” December 2017 (revised March 2018) at Table 4.5.

<sup>25</sup> Keister, Sandra. Acting Agency Open Records Officer, Pennsylvania Department of Environmental Protection. Right to Know Law (RTKL) response (#1400-17-822) to Food & Water Watch. December 8, 2017. On file with Food & Water Watch.

<sup>26</sup> Harrabin, Roger “Concerns over carbon emissions from burning wood.” *BBC*. July 24, 2014; Duffy, Phillip et al. Woods Hole Research Center. Letter to the Senate on carbon neutrality of forest biomass. February 24, 2016. Available at <http://whrc.org/letter-to-the-senate-on-carbon-neutrality/> and on file. Accessed May 2017.

<sup>27</sup> Zeller, Tom Jr. “Net benefits of biomass power under scrutiny.” *New York Times*. June 18, 2010.

<sup>28</sup> Data based on a Food & Water Watch analysis of updated RGGI projections and methodology outlined in Center for Biological Diversity, Clean Air Task Force and Partnership for Policy Integrity. Comment to Nicole Singh, Executive

oversight would also undercount the CO<sub>2</sub> emissions from Virginia's small but rapidly growing biomass industry. From 2011 to 2016, electricity generation from biomass more than doubled in the state.<sup>29</sup> In 2016, 2.60 percent of Virginia's power came from biomass, nearly 50 times Virginia's energy generation from wind, solar and geothermal energy combined.<sup>30</sup> By not counting these emissions, RGGI would promote the growth of biomass, increase harmful pollution, and suppress the expansion of genuine renewables like solar.<sup>31</sup>

## II. Incidental Declines in CO<sub>2</sub> Emissions Not Attributable to RGGI

RGGI proponents regularly argue that emissions have fallen under RGGI. While CO<sub>2</sub> emissions in the participating states have declined during the time that RGGI has been in place, there is no indication that RGGI itself has driven these reductions. Much of the purported RGGI emissions reductions were more likely attributable to the Great Recession than to the program, since RGGI went into effect in 2009 as the economic activity (and pollution) declined steeply.

Emissions were already declining before RGGI went into effect — in fact emissions fell faster *before* RGGI was implemented. From 2002 to 2009, emissions in current RGGI states declined by about 54 million tons of carbon dioxide. In the seven years after RGGI was implemented, from 2009 to 2016, carbon dioxide emissions fell by only 43 million tons.<sup>32</sup>

Much of the alleged effectiveness of RGGI is attributable to a massive countrywide shift away from coal and oil to natural gas that was already well underway when RGGI took effect in 2009. A white paper from the New York State Energy and Research Development Authority, prepared for RGGI, found that CO<sub>2</sub> emissions in RGGI states fell from 184 million tons in 2005 to 124 million tons in 2009, largely because of the shift away from coal-fired power plants and capacity changes.<sup>33</sup>

The changes in electricity generation mix have continued throughout RGGI's lifetime. Overall, from 2005 to 2015, coal and oil use decreased from 32 percent to 9 percent of electricity production in RGGI states, while natural gas — which has become significantly cheaper because of the risky fracking boom — increased from 25 percent to 42 percent, according to data from the U.S. Energy Information Administration.<sup>34</sup>

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Director, RGGI Inc. February 19, 2016. Available at <http://www.pfpi.net/wp-content/uploads/2016/03/CBD-CATF-PFPI-RGGI-comments-Feb-19-2016.pdf>; RGGI. “Summary of RGGI Model Rule Updates.” December 10, 2017; ICF International. Prepared for RGGI. [Excel data]. “2017 RGGI model rule policy scenario (no national program).” September 18, 2017.

<sup>29</sup> Food & Water Watch analysis of EIA “Net generation for electric power, Virginia.” Available at [www.eia.gov/electricity/data/browser](http://www.eia.gov/electricity/data/browser). Accessed January 2018.

<sup>30</sup> Food & Water Watch analysis of U.S. Energy Information Administration (EIA) data “Net generation for electric power, Virginia.” Available at [www.eia.gov/electricity/data/browser](http://www.eia.gov/electricity/data/browser). Accessed January 2018.

<sup>31</sup> Booth, Mary S. Partnership for Policy Integrity. “Classifying biomass as carbon neutral increases greenhouse gas and air pollution emissions under the Clean Power Plan: A summary of Energy Information Administration projections.” October 2016 at 1 to 2.

<sup>32</sup> Food & Water Watch analysis of RGGI data “Summary Level Emissions Report.” and RGGI data “Historical Emissions Data.” Updated November 18, 2009. Accessed February 2017.

<sup>33</sup> New York State Energy Research and Development Authority. Prepared for RGGI, Inc. on behalf of RGGI Participating States. [Draft white paper]. “Relative Effects of Various Factors on RGGI Electricity Sector CO<sub>2</sub> Emissions: 2009 Compared to 2005.” November 2, 2010 at 4 and 5.

<sup>34</sup> Food & Water Watch analysis of EIA data “Net generation for electric power.” Available at <https://www.eia.gov/electricity/data/browser/>. Accessed April 2018.

### III. RGGI Promotes Risky Fracking Over Genuine Renewable Electricity

RGGI effectively promotes the expansion of fracking for natural gas at the expense of renewables. From 2009 to 2016, RGGI states have added four times more gas-fired electricity generation than wind and solar generation (29.7 billion kilowatt-hours and 6.6 billion kilowatt-hours, respectively).<sup>35</sup> The percentage of electricity from natural gas-fired power plants rose by 11.2 percentage points from 2009 to 2016 but only rose 2.4 percentage points from wind and solar.<sup>36</sup>

These natural gas-fired power plants have relied on the fracking boom which benefits the power companies but imperils communities across America. The fracked gas and oil industry pollutes the water supplies of heavily drilled communities, produces massive volumes of toxic waste, causes earthquakes and endangers vital aquifers from poorly constructed gas wells; meanwhile, oil and gas operations have become the second greatest global source of the potent greenhouse gas methane, threatening the climate and the planet.<sup>37</sup>

RGGI further encourages the shift to fracked gas because CO<sub>2</sub> is the chief greenhouse gas pollutant emitted from coal-burning power plants. If a power company shifted its energy mix from coal to natural gas, it would accumulate RGGI allowances. But while shifting to natural gas results in much lower CO<sub>2</sub> emissions at the power plant, the increased reliance on natural gas significantly amplifies methane emissions (see above).

RGGI's failure to consider or cap methane as a greenhouse gas allows RGGI states to overestimate the climate benefits of the flawed program. The greenhouse gas footprint of natural gas is actually worse than coal and oil because methane traps more heat in the atmosphere.<sup>38</sup> Utilities that decide to switch from coal to gas reduce CO<sub>2</sub> smokestack emissions (and can bank unused pollution allowances) but actually could be increasing CO<sub>2</sub> equivalent greenhouse gas emissions from methane leaks.

### IV. RGGI Exacerbates Environmental Injustice

RGGI will not only be ineffective at reducing CO<sub>2</sub> emissions. Cap-and-trade programs have the potential to form pollution hotspots and harm vulnerable communities like people of color and low-income neighborhoods. These populations already face higher pollution exposures because of the

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<sup>35</sup> *Ibid.*

<sup>36</sup> *Ibid.*

<sup>37</sup> Gottlieb, Barbara. "From Flint to fracking, EPA can learn from its mistakes". *The Hill*. March 23, 2016; Frazier, Reid. "Pennsylvania confirms first fracking-related earthquakes". *The Allegheny Front*. February 18, 2017; Jackson et al. (2014) at 2051; Troutman, Melissa A. et al. "Hidden data suggests fracking created widespread, systemic impact in Pennsylvania". *Public Herald*. January 23, 2017; Ingraffea, Anthony R. et al. "Assessment and risk analysis of casing and cement impairment in oil and gas wells in Pennsylvania, 2000-2012". *Proceedings of the National Academy of Sciences*. May 2014 at 2; See Keranen, K. M. et al. "Sharp increase in central Oklahoma seismicity since 2008 induced by massive wastewater injection". *Science*. July 3, 2014; McDermott-Levy, Ruth et al. "Fracking, the environment, and health. New energy practices may threaten public health". *American Journal of Nursing*. Vol. 113, No. 6. June 2013 at 48; Mall, Amy and Dianne Donnelly. Natural Resources Defense Council. "Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy". September 2010 at 8 and 9; Urbina, Ian. "Regulation lax as gas wells' tainted water hits rivers". *New York Times*. February 26, 2011; EPA. [External Review Draft]. "Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources". EPA/600/R-15/047a. June 2015 at ES-14 and ES-15.

<sup>38</sup> Howarth, Robert W. "A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas." *Energy Science & Engineering*. 2014 at 1; Howarth, Robert W. et al. (2011) at 679, 687 and 688.

disproportionate location of toxic facilities, like power plants, in their neighborhoods. Market-based environmental policies can exacerbate toxic hotspots that remain outside the scope of trading schemes, and they worsen pre-existing health and socioeconomic disparities. Pollution trading incentivizes the purchase of pollution credits in these vulnerable areas, creating toxic hotspots that concentrate multiple, harmful pollutants, such as particulate matter and nitrogen oxides, which, unlike carbon dioxide, tend to remain in the area where they are originally emitted. A 2016 study of California's cap-and-trade program found that the participating facilities that increased greenhouse gas emissions by relying on purchased pollution allowances tended to be located in vulnerable communities. Sixty-one percent of the highest-emitting facilities also increased their greenhouse gas emissions during 2013-2014 compared to the preceding two years, a larger uptick than average.<sup>39</sup> The neighborhoods near these facilities that increased emissions had higher proportions of people of color than neighborhoods near facilities that reduced pollution.<sup>40</sup> RGGI's implementation in Virginia may likewise worsen environmental burdens for the state's most vulnerable populations.

## **V. RGGI Revenues Often Fail to Fund Clean Energy Programs and Projects and Residential Electricity Bills Continue to Increase Since RGGI Implementation**

Finally, RGGI's supporters often point to the program's ability to raise revenue for renewable energy and energy efficiency initiatives in states, as well as reduce energy bills for low-income households. However, the fact is that many states have simply used this pollution payment scheme to balance state budgets in lieu of promoting renewables. New Jersey has been perhaps the worst offender in this regard. While New Jersey was in RGGI from 2009 to 2011, \$65 million, equating to 57% of the money raised from the sale of allowances, was redirected away from renewables and used to allay the state budget deficit.<sup>41</sup> New York has also been a major offender. The state moved \$90 million to the general fund in 2009 and gave \$30 million dollars in grants to municipalities for lost tax revenue from power plant closures and mothballing in 2016.<sup>42</sup>

While governments need revenue, becoming addicted to funding from pollution is a bad idea and likely to mean that governments will be less inclined to eliminate carbon from industry emissions anytime soon as they become dependent on pollution revenue for general budget needs. In addition, raising revenue from carbon pollution is not a long-term fix to revenue problems if the goal is to reduce carbon emissions.

Likewise, RGGI has been unable to reduce electricity bills for consumers. RGGI proponents assert that the program will save households millions of dollars in electricity rates. This has not been the case. RGGI states' residential consumers have seen their bills go up \$1.1 billion since the program was implemented. At the same time, industrial users have seen a \$1.9 billion decrease in their electricity bills (see Figure 2).<sup>43</sup>

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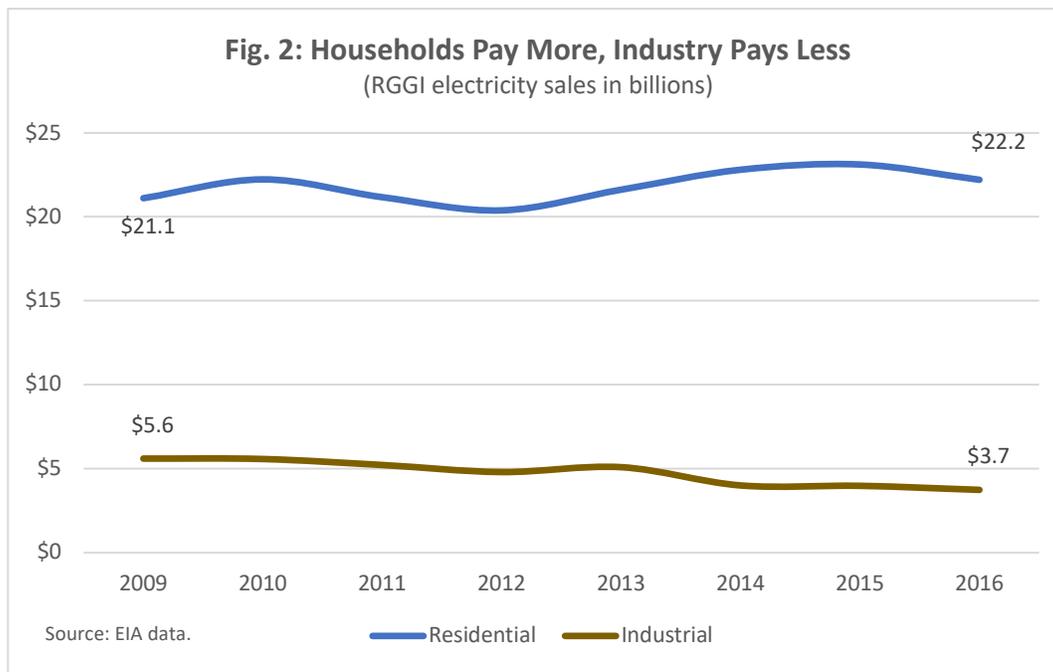
<sup>39</sup> Cushing, Lara J. et al. Program for Environmental and Regional Equity. University of Southern California. "A Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program." September 14, 2016 at 4.

<sup>40</sup> *Ibid.* at 4.

<sup>41</sup> RGGI. "The Investment of RGGI Proceeds through 2014." September 2016 at 6; Navarro, Mireya. "States Diverting Money from Climate Initiative." *New York Times*. November 28, 2010.

<sup>42</sup> RGGI (2016) at 33; Office of the New York State Comptroller. "Report on the State Fiscal Year 2016-2017 Enacted Budget." May 2016 at 34.

<sup>43</sup> Food & Water Watch Analysis of EIA data "Average retail price for electricity." Accessed March 20, 2016. Available at <https://www.eia.gov/electricity/data/browser/#/topic/?agg=0.1&geo=00fq0048&endsec=vg&freq=A&start=2001&end=2017&ctype=linechart&ltype=pin&rtype=s&pin=&rse=0&maptype=0>.



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RGGI is not going to result in any beneficial impacts on Virginia’s contribution to climate change; it simply creates a system whereby one harmful fossil fuel is replaced by another. Switching around destructive fossil fuels is not a plan to save the planet, but a recipe for disaster.

Instead, we support straightforward, non-market-based laws that have been proven effective at limiting pollution. Virginia lawmakers introduced a state bill last session that called for a just transition to 100 percent renewable energy by 2035, emphasizing the need for swift action in the next decade. This plan leaves no room for coal, fracked gas or any other dirty, harmful energy source of energy. That’s the kind of strong climate leadership Virginia needs and that’s the approach anyone who is concerned about fracking or climate change should be embracing.

Sincerely,

Louis Zeller  
Executive Director  
Blue Ridge  
Environmental  
Defense League

Wenonah Hauter  
Executive Director  
Food & Water Watch

Andrea Miller  
Executive Director  
People Demanding  
Action

Mara Robbins  
Community Organizer  
Preserve Floyd

Mark Laity-Snyder  
Vice President  
Renewable Energy &  
Electric Vehicle  
Association