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Dear Ms. Sabasteanski: March 31st, 2023

On behalf of our over 83,000 members and supporters in Virginia, Environmental Defense Fund (EDF) appreciates the opportunity to comment on the Virginia Department of Environmental Quality's (DEQ) Notice of Intended Regulatory Action for the State Air Pollution Control Board (Board). EDF is a leading international, non-partisan, nonprofit organization dedicated to protecting human health and the environment by effectively applying science, economics, law and innovative private-sector partnerships.

EDF respectfully urges the Board to reject attempts to remove Virginia from the Regional Greenhouse Gas Initiative (RGGI) – a multi-state initiative to reduce carbon pollution – through regulatory action, particularly because the Board does not have the authority to do so.[1] We support Virginia's continued participation in RGGI, and we urge the Board to reject efforts to repeal the program and defer to the General Assembly on this question as the Board does not have the legal authority to end Virginia's participation in this program. Our comments are organized as follows:

[1] Schneider, G. S. (2022, September 9). Democrats accuse Youngkin of sidestepping state law on environmental plan. The Washington Post. https://www.washingtonpost.com/dc-md-va/2022/09/09/virginia-youngkin-rggi-democrats-greenhouse/

I. Introduction

The Regional Greenhouse Gas Initiative (RGGI), a market-based, multi-state climate program throughout the Northeast and Mid-Atlantic, has been driving progress on a cleaner power sector for over a decade. In 2020, Virginia's General Assembly passed Senate Bill 1027, the Clean Energy and Community Flood Preparedness Act, which outlined details related to RGGI.[2] Participation in this program has yielded progress in reducing climate pollution[3] as well as providing bolstered funds for existing programs that help protect Virginians from devastating floods. Participation in RGGI has also helped save many electric ratepayers money by lowering their energy usage through low-income energy efficiency and weatherization programs.[4]

II. Virginia's Participation in RGGI is Clearly Required by Law

Virginia Code Section 10.1-1330 requires the Commonwealth's executive branch and agencies to implement the state's RGGI regulation. Indeed, the General Assembly ratified Virginia's RGGI regulation, with certain specified changes, when it enacted the Virginia Clean Energy and Community Flood Preparedness Act in 2020. Va. Code § 10.1-1330(A).[5] The agencies cannot now seek to rescind a regulation ratified by the legislature, any more than they could disregard the statutory instructions to implement the program in 2020.[6] On the contrary, other provisions in this section confirm an ongoing obligation to carry out the RGGI regulation.

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[2] *SB 1027 Clean Energy and Community Flood Preparedness Act; definitions, funds, report.* Virginia Legislative Information System. (2020). https://lis.virginia.gov/cgibin/legp604.exe?201%2Bsum%2BSB1027

[3] DEQ. (2022). *Virginia Carbon Trading Rule and Regional Greenhouse Gas Initiative (RGGI) Participation, Costs and Benefits*, https://www.deq.virginia.gov/home/showpublisheddocument/13813/637829669069026180.

[4] The Regional Greenhouse Gas Initiative. (2020). *The Investment of RGGI Proceeds in 2020*, https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2020.pdf

[5] The bill's patron in the Senate described it as "essential to the battle against climate change." Hearing of the Senate Agriculture, Conservation and Natural Resources Committee on SB1027, at 3:00:33 (Feb. 4, 2020) (statement of Sen. Lewis).

[6] *See* Opinion Order, *Va. Mfrs. Ass'n v. Va. Dep't Env't Quality*, No. CL 20-4918, at 5 (entered July 14, 2021) ("In context, DEQ was directed to take the provisions of the Act and unite them into the Original

Section 10.1-1330(B) authorizes the Executive Director of the Department of Environmental Quality ("Director") to "establish, implement, and manage an auction program to sell allowances into a market-based trading program consistent with the RGGI program and this article" and then requires the Director to "seek to sell 100 percent of all allowances issued each year through the allowance auction." Thus, the statute requires the sale of allowances "each year," which assumes the state's ongoing participation in RGGI.[7]

The statute also requires allowance sale revenue to be used to fund specific programs such as flood prevention and low-income energy efficiency programs. Va. Code § 10.1-1330(C). This allocation of funding further emphasizes that participation in RGGI is required because the legislature intended that auction revenue from participation in RGGI fund specific programs enumerated in the statute.[8]

Finally, § 10.1-1330(D) requires an annual report "describing the Commonwealth's participation in RGGI, the annual reduction in greenhouse gas emissions, the revenues collected and deposited in the interest-bearing account maintained by the Department pursuant to this article, and a description of each way in which money was expended during the fiscal year." If participation in RGGI were optional, this annual reporting requirement would be superfluous. Yet the General Assembly chose to include this reporting requirement, further indicating that Virginia's participation in RGGI is required by statute.

Given the many ways the statute makes it clear that participation in RGGI is required by Virginia law, neither the Air Pollution Control Board nor the Department of Environmental Quality has the legal authority to end participation in RGGI.[9] The agencies' authority and actions are bound by Virginia's statutory requirements—requirements that only both houses of the General Assembly and the governor, acting in concert, may alter.

Beyond the Virginia Clean Energy and Community Flood Preparedness Act, the Air Pollution Control Board is also statutorily required, in making regulations, to consider the "character and degree of injury to, or interference with, safety [or] health" caused by the regulated activity, as well as "[t]he scientific and economic practicality of reducing or eliminating the discharge

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Regulation to create an indistinguishable regulation applicable to electricity manufacturers that emit CO_2.").

[7] Members of the Senate Agriculture, Conservation and Natural Resources Committee emphasized that "implementation of this bill is going to cost Dominion and other utilities money" and that "it's not a confusion. We're taxing the ratepayers $100 million a year, and that money is going into a fund for other purposes. There ain't no confusion about it. That's the bottom line." Hearing of the Senate Agriculture, Conservation and Natural Resources Committee on SB1027, at 3:06:12 & 3:44:36 (Feb. 4, 2020) (statements of Sen. Obenshain & Sen. Stuart).

[8] The bill's patron in the Senate noted that it "gives us some significant resources to battle the results of climate change and flooding, which is of tremendous importance to us." Hearing of the Senate Agriculture, Conservation and Natural Resources Committee on SB1027, at 3:01:56 (Feb. 4, 2020) (statement of Sen. Lewis).

[9] See Chesapeake Hosp. Auth. v. State Health Comm'r, 872 S.E.2d 440, 446 (Va. 2022) ("[R]egulations must be consistent with their governing statutes.").

resulting from such activity." Va. Code § 10.1-1307(E). Agencies are "under a duty to act reasonably" in enacting regulations.[10] Applying these principles, the Air Pollution Control Board must carefully consider whether the cost savings to certain private companies and their customers from repealing Virginia's RGGI regulation justify the forgone benefits in terms of mitigating climate impacts and other effects of harmful air pollution, as well as the value of the investments directed by the Virginia Clean Energy and Community Flood Preparedness Act. In light of the impacts of climate change discussed below and the program's success in mitigating climate pollution, the only reasonable conclusion from weighing the statutory factors is to preserve Virginia's RGGI regulation.

III. Virginia is Being Impacted by Climate Change Now

RGGI has a proven record of emission reductions since the beginning of the program, a fact that the Virginia Department of Environmental Quality (DEQ) acknowledged in its own report to the Governor about the proposed withdrawal from RGGI.[11] Continuing in this program would help Virginia achieve its stated goal of achieving a net-zero carbon economy by 2050.[12]

With unprecedented droughts, wildfires, floods and heat waves impacting communities nationwide, it's clear to Virginians that climate change is no longer a distant threat. The state has experienced eight different billion-dollar disaster events (three tropical cyclones, four severe storms, and one winter storm) in 2021 alone.[13] It's not just storms threatening Virginia; August 2022 was the hottest August recorded in North America and the second warmest August globally.[14] Historic flooding is happening across the country and new data reveals the emergence of an "extreme heat belt" from Texas to Illinois, where the heat index could reach 125°F at least one day a year by 2053.[15] By 2030, some coastal areas in the Southeast and Mid-Atlantic may also experience days with a heat index above 125°F.

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[10] Commonwealth ex rel. State Water Control Bd. v. Cty. Utils. Corp., 290 S.E.2d 867, 874 (Va. 1982).

[11] DEQ. (2022). *Virginia Carbon Trading Rule and Regional Greenhouse Gas Initiative (RGGI) Participation, Costs and Benefits*, https://www.deq.virginia.gov/home/showpublisheddocument/13813/637829669069026180

[12] Reuters Staff. (2020, March 6). *Virginia passes bill to achieve 100% carbon-free power by 2045*. Reuters.https://www.reuters.com/article/us-usa-virginia-renewables/virginia-passes-bill-to-achieve-100-carbon-free-power-by-2045-idUSKBN20T2OF

[13] NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2022). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73

[14] Rosenthal, Z., & Patel, K. (2022, September 15). *Earth just experienced one of its warmest summers on record*. The Washington Post. Retrieved October 20, 2022, from https://www.washingtonpost.com/climate-environment/2022/09/15/hottest-summer-august-world/

[15] Wilson, B., Porter, J. R., Kearns, E. J., Hoffman, J. S., Shu, E., Lai, K., Bauer, M., et al. (2022). High-Resolution Estimation of Monthly Air Temperature from Joint Modeling of In Situ Measurements and Gridded Temperature Data. Climate, 10(3), 47. MDPI AG. Retrieved from http://dx.doi.org/10.3390/cli10030047

These climate-powered disasters are a national security threat as well as an environmental concern. The Hampton Roads area in southeastern Virginia is home to dozens of defense installations with numerous personnel and assets based in the region, including Naval Station Norfolk, the world's largest naval facility. Secretary of Defense Lloyd J. Austin III visited the Naval Station Norfolk in 2021 and reiterated the national security sector's worries that the planet's changing climate will have a dramatic effect on their missions, plans and installations, especially on the Atlantic coasts. Over the last 100 years, average sea level — as measured by a National Oceanic and Atmospheric Agency tide gauge that's been in place for a century at Naval Station Norfolk — has risen 18 inches. According to NOAA projections, it is expected to rise between 1-3 feet by 2050. Funds brought in from RGGI auctions go towards bolstering Virginia's coastal resilience and flood preparedness, ensuring military operations can continue to be run smoothly in Hampton Roads and defense communities continue to thrive.[16]

Withdrawing from RGGI would mean removing the only existing source of funds for programs that help Virginian communities build resilience in the face of flooding and other climate threats. Only the General Assembly has the authority to cut off this vital funding source.

IV. RGGI has a Long History of Providing Economic Benefits to Participating States

According to analysis by E2, Virginia is ranked 10th in the nation for clean energy employment with 88,370 jobs.[17] Clean energy industries are poised for growth as Virginia continues to invest in its clean energy economy through RGGI. Analyses of the RGGI program have shown that growing jobs in the clean energy economy, reducing pollution, and investing in workers and local communities has substantial net benefits. One analysis found that over its first three compliance periods, RGGI created nearly 16,000 job-years in the region and in that same period added $1.4 billion of value to the economy.[18] According to a new analysis of RGGI through 2017, the program has created over $4 billion in net economic gains and over 44,000 job-years of employment.[19]

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[16] DOD Navy confront Climate Change Challenges in southern Virginia. U.S. Department of Defense.(2021).https://www.defense.gov/News/News-Stories/Article/Article/2703096/dod-navy-confront-climate-change-challenges-in-southern-virginia/

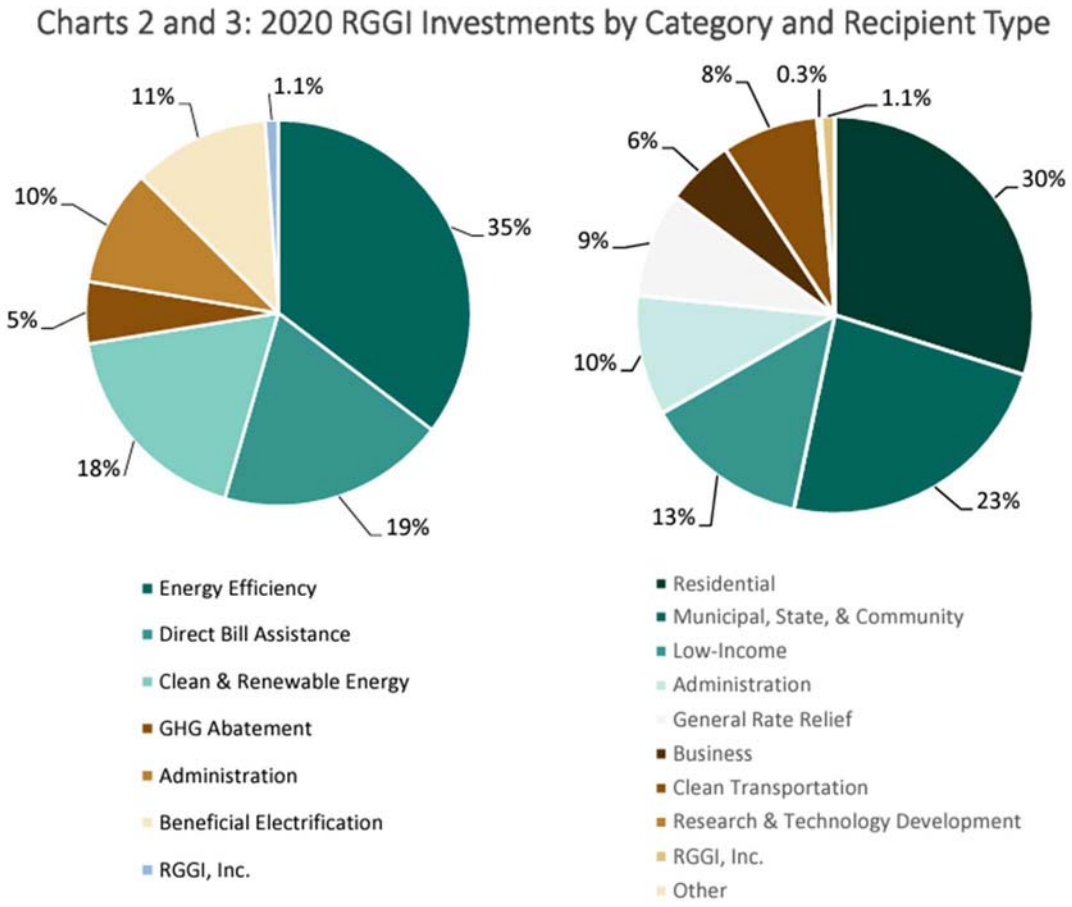
[17] E2. (2021). E2 - good for the economy. good for the environment. E2. https://e2.org/wp-content/uploads/2021/04/E2-2021-Clean-Jobs-America-Report-04-19-2021.pdf

[18] Analysis Group. (2018). *The Economic Impacts of the Regional Greenhouse Gas Initiative on nine Northeast and Mid-atlantic states.* https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf

[19] Acadia Center, The Regional Greenhouse Gas Initiative 10 Years in Review. (2019). https://acadiacenter.org/wpcontent/uploads/2019/09/Acadia-Center_RGGI_10-Years-in-Review_2019-09-17.pdf.

Virginia has received approximately $452 million in cumulative proceeds since its first auction in March 2021. Virginia Code allocates 45% of those funds for their statewide Community Flood Preparedness Fund and 50% for low-income energy efficiency programs.[20]

Program-wide, 18% of 2020 RGGI investments and 14% of cumulative RGGI investments went to clean and renewable energy projects, which are expected to return over $600 million in lifetime energy bill savings while also avoiding the release of over 1.7 million short tons of CO2. Direct bill assistance programs, also a priority investment area for many states in RGGI, received 19% of 2020 RGGI investments and 16% of cumulative RGGI investments, and have returned over $37 million in credits or assistance to consumers. Additionally, 35% of 2020 RGGI proceeds and 53% of cumulative proceeds went to energy efficiency programs. This 2020 investment is expected to return $1.2 billion in lifetime energy savings.



Graphics courtesy of RGGI Inc

[20] Virginia DEQ. Carbon Trading. (n.d.).https://www.deq.virginia.gov/air/greenhouse-gases/carbon-trading

In total, the investments the RGGI states have made with the program's revenue are projected to save participants an estimated $2 billion over their lifetime on energy bills, while also avoiding the emission of 6.7 million short tons of CO2 emissions.[21]

Federal Investment Opportunity

Virginia also stands to receive historic investments from the passage of the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). The BIL allocated approximately $65 million for weatherization and $5.5 million to help prevent outages and make the power grid more resilient in Virginia. The IRA helps consumers by making it more affordable for Virginia families to purchase energy efficient appliances, make repairs around their homes, and save money on their utility bills each month through new tax credits and rebates.

RGGI's policies work in tandem with federal investment programs. Virginia will miss out on being a leader in the clean energy economy if it goes backward on state policy at the very moment that the federal government and businesses are injecting hundreds of billions into spurring the clean energy economy. Analysis from EDF shows that federal programs will catalyze hundreds of billions of dollars in clean energy investment from the private sector.[22]

Virginia Electricity Bills

This past summer, about 1 in 6 American households were behind on utility bills, as energy prices rose to their highest level in nearly 15 years.[23] Gas provides about 37% of electricity in the US and the price of gas had *tripled* since the middle of 2021.[24] The U.S. Energy Information Administration ("EIA") also forecast in its September report that average residential electricity prices for this year would be 7.5% higher than in 2021, largely due to high natural gas prices.[25] Virginians have the 8th highest average monthly residential electricity bills in the country. In 2022, Virginians paid on average $152.50 per month for residential electricity – $14 above the national average. Virginia also had the 9th highest increase in monthly electric bills, from $128.11 in 2021 to $152.50 in 2022.[26] These high rates and bills are not being driven by RGGI, but rather by a myriad of factors, including state ratemaking policy and the Commonwealth's heavy reliance on volatile natural gas for its power sector which is subject to global market forces as seen in 2022.

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[21] Regional Greenhouse Gas Initiative, Inc. (2022). *The Investment of RGGI Proceeds in 2020.* https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2020.pdf

[22] Environmental Defense Fund. (2022), *Private Investment Leveraging Provisions in the Inflation Reduction Act of 2022.* https://www.edf.org/sites/default/files/documents/IRA_Private_Equity_Leverage_Brief.pdf

[23] Wade, W. (2022, August). As price of natural gas surges, so do household energy bills. PBS. https://www.pbs.org/newshour/show/as-price-of-natural-gas-surges-so-do-household-energy-bills

[24] Ibid.

[25] Bond, C. (2022, September). E&E News: Electricity prices take biggest leap in 41 years. https://subscriber.politicopro.com/article/eenews/2022/09/14/electricity-prices-take-biggest-leap-in-41-years-00056421

[26] The saveonenergy.com electricity bill report: Who paid the most, least? Electricity Bills By State https://www.saveonenergy.com/resources/electricity-bills-by-state/

Meanwhile, new utility scale solar panels deliver electricity at $28 to $41 per megawatt hour. By comparison, natural gas peaking plants deliver power at $151 to $196 per megawatt-hour.[27] In Virginia in 2020, natural gas accounted for 61% of Virginia's utility-scale electricity net generation, nuclear supplied 29%, renewables (mostly biomass), provided 6%, and coal-fueled power provided less than 4%.[28]

Various factors determine wholesale electricity prices, but the cost of fuel for fossil-fuel generators is an important driver.[29] Wholesale prices are especially tied to natural gas prices because natural gas-fired units are often the most expensive (marginal) generators dispatched to supply power. The natural gas price at the Henry Hub averaged $8.14/MMBtu in May 2022, 180% higher year on year than in 2021, according to the EIA, while natural gas prices averaged $7.98 over the entire summer of 2022.[30]

Rising natural gas prices are one reason Dominion and Appalachian Power customers bore added electric costs last year. In September 2022, the State Corporation Commission approved the increase for Dominion, which went into effect provisionally on July 1.[31] According to estimates, the average residential customer, defined as a household using 1,000 kilowatt-hours of electricity per month, will see their monthly bill increase by $14.93. Dominion says this is due to the increase in its fuel factor. Meanwhile Appalachian Power effected a bill increase of $20.17 in November of 2022, similarly intended to cover fuel costs. The company initially sought a $33.24 increase before offering the State Corporation Commission a mitigation plan that brought the price hike down to the $20.17 that was ultimately approved.[32]

It is clear that RGGI is not the driver of the rising electric prices we have seen in Virginia (and elsewhere) – rather it is our current, fossil-fuel dependent system that is one of the major drivers. Cleaning up our grid by deploying generation that does not have volatile fuel prices, like wind and solar, is a critical part of the solution to clear our air, protect our climate, and benefit consumers. If the administration is concerned about customer costs, we respectfully recommend that, instead of pursuing a misguided repeal of the RGGI rule, it develops a comprehensive plan that both achieves emission reductions to decarbonize the power sector and moves the Commonwealth to cost-effective, clean energy.

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[27] "Lazard's Levelized Cost of Energy Analysis-Version 15.0." (2021). https://www.lazard.com/research-insights/levelized-cost-of-energy-levelized-cost-of-storage-and-levelized-cost-of-hydrogen-2021/

[28] U.S. Energy Information Administration - EIA - independent statistics and analysis. EIA. (2021). https://www.eia.gov/state/?sid=VA

[29] EIA expects significant increases in wholesale electricity prices this summer. Homepage - U.S. Energy Information Administration (EIA). (2022). https://www.eia.gov/todayinenergy/detail.php?id=52798

[30] Energy Information Administration. Henry Hub Natural Gas Spot Price. https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm

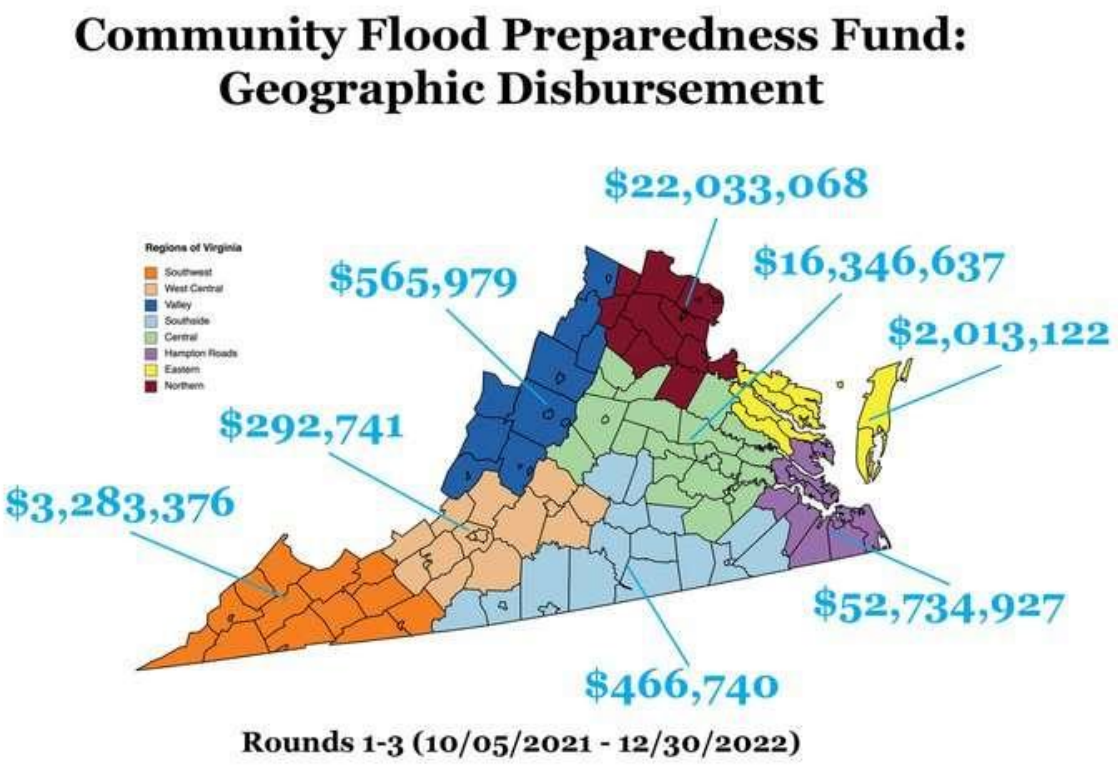
[31] Carson, F. (2022, September 16). SCC approves fuel rate increase for Dominion Energy. Virginia SCC - New Releases. https://scc.virginia.gov/newsreleases/release/SCC-OKs-Dominion-Fuel-Rate-Increase

[32] Paullin, Charlie. Virginia regulators approve bill increase for Appalachian Power's fuel costs. (3/7/2023). https://www.virginiamercury.com/2023/03/07/virginia-regulators-approve-bill-increase-for-appalachian-powers-fuel-costs/

V. Community Flood Preparedness Fund & Long-term Funding

RGGI has provided nearly $524 million for Virginia since the program began, and if current trends continue, RGGI can be expected to generate roughly $275 million in proceeds for Virginia in 2023. Nearly $100 million of RGGI proceeds have been used to fund resilience projects throughout Virginia via the Community Flood Preparedness Fund grant program.

Localities in Hampton Roads have received over $52 million to upgrade stormwater management systems, install natural infrastructure solutions to slow and store floodwater, and conduct planning and modeling to better understand future flood impacts to critical infrastructure. Northern Virginia has received over $22 million and central Virginia, including the City of Richmond and surrounding localities, have been granted more than $16 million to do similar planning, studies and projects. Notably, localities and Planning District Commissions in southwestern Virginia – which experienced two summers in a row of devastating floods without sufficient federal relief from the Federal Emergency Management Agency (FEMA) – have received over $3 million in grants to build capacity, collect data, and generate plans to reduce the region's future flood risk. While this is less funding than more urban regions have received, RGGI proceeds going to the CFPF are providing absolutely critical capacity-building support that will enable more rural localities to create plans and begin to outline projects for future implementation, as more urban localities are currently doing.



Graphic courtesy *of Wetlands Watch.*

In Virginia, 45% of RGGI auction proceeds go to the statewide Community Flood Preparedness Fund (CFPF).[33] RGGI is the sole source of revenue for the statewide CFPF, which is the only dedicated state funding source for critical flood resilience planning and project implementation for localities, tribes, and soil and water conservation districts across Virginia. RGGI has generated $235.6 million for the CFPF since Virginia started receiving auction proceeds in 2021. Of this, nearly $100 million has been awarded to localities from Buchanan County in Southwest Virginia to Petersburg, Alexandria, and the Eastern Shore.

The CFPF funds capacity-building initiatives that most federal grant programs do not, providing critical planning resources that allow localities to pursue larger project implementation requests. The CFPF can also be used as a local match for federal grant programs, making Virginia applicants more competitive for national programs. Without a reliable, adequate, and long-term funding source like RGGI to keep money flowing in the CFPF, localities will be unable to complete necessary flood resilience planning, studies, and implementation they need to address current and future flood risk.

Notably, 25% of CFPF monies are set aside for low-income geographies and the CFPF prioritizes implementation of nature-based solutions. Low-resourced communities already experiencing increasing flood risk can't afford to leave this money on the table. Pulling Virginia

[33] DCR. (2022). Community Flood Preparedness Fund Grants and Loans. Community Flood Preparedness Fund grants and loans. https://www.dcr.virginia.gov/dam-safety-and-floodplains/dsfpm-cfpf

out of RGGI would strip away critical funding that local governments need, disproportionately harming under-resourced, small and rural communities who do not have the capacity to address flood risk on their own.

VI. RGGI Low-Income Energy Efficiency Funding

RGGI funding for energy efficiency projects also delivers significant benefits for Virginians. Typically, these types of projects, such as upgrading appliances or improving insulation, pay for themselves through reduced energy costs while also lowing emissions of greenhouse gasses and other pollutants. The average household in Virginia could save an estimated $750 a year on utility bills through efficiency improvements that are already cost effective.[34]

Nevertheless, many energy efficiency projects face barriers like high upfront costs which RGGI funds can help to alleviate. Many households, especially those belonging to low-income or marginalized groups, cannot afford the large lump sum cost of an energy efficiency upgrade without a grant or financing instrument from the government or a utility. As a result, many such households end up paying more over time, contributing to a gap in energy expenditures by race and income.[35]

RGGI funds help to solve this problem by providing the investments that families and businesses need to set them on a path of lower energy bills over time. In 2020, 35% of proceeds from RGGI auctions went to energy efficiency projects across the covered region, yielding $66 million in savings in that year alone, and, over the lifetime of those projects, the $1.2 billion referenced above.[36]

VI. RGGI is Pushing Virginia's Emissions Downward

Emissions in Virginia are trending downward, but much work remains to be done if the state hopes to meet statewide emissions targets. VA power sector emissions dropped 17% from 2020 to 2022.

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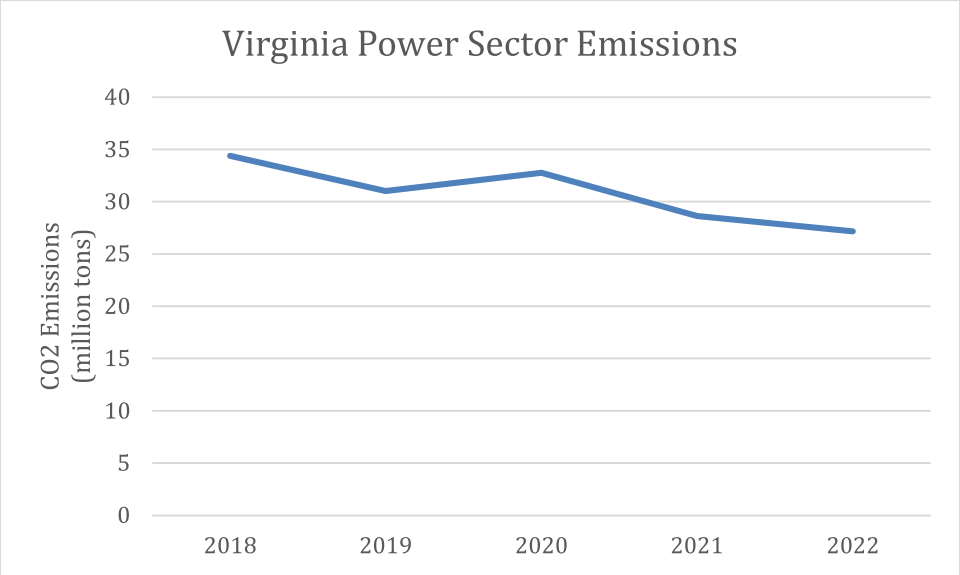
[34] Lin, Andreana J. How can Energy Efficiency Create Jobs & Savings in Virginia. (10/5/2022). https://vcnva.org/how-can-energy-efficiency-create-jobs-savings-in-virginia/
[35] Lyubich, Eva. The Race Gap in Residential Energy Expenditures. (June 2020) https://haas.berkeley.edu/wp-content/uploads/WP306.pdf
[36] RGGI Inc. The Investment of RGGI Proceeds in 2020. (May 2022) https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2020.pdf



Source: EPA Clean Air Markets Program Data

Still, if Virginia continues its current trajectory, only under optimistic assumptions will it meet the U.S. Climate Alliance's 2025 milestone for net-zero emission by 2050. By 2030, under both the low emissions and high emissions scenarios, it will fall well short of the emissions reductions needed to meet the IPCC's target for limiting warming to 1.5 degrees C.

Virginia				
Target Year	Target	Emissions Target (MMT CO_2e)	Remaining Gap (High Emissions)	Remaining Gap (Low Emissions)
2025	26% below 2005 (U.S. Climate Alliance)	105	7	-0.4
2030	45% below 2010 net emissions (IPCC)	81	26	18

Source: EDF Emissions Gap Report

Virginia's power companies clearly still have work to do to meet decarbonization goals. Dominion, for example, has an energy mix dominated by natural gas, which made up 40% of the company's generation mix in 2021, followed by nuclear, which made up just under 30%. Hydro and solar together made up just over 3%.

RGGI will be an important driver to guarantee emissions reductions in Virginia's power sector. Across the RGGI region, CO2 emissions have dropped over 35% since the program's launch in 2009; thanks in large part to fuel-switching (away from the dirtiest power plants), improved energy efficiency, and growing renewable energy output.

A 2019 Acadia report found that emissions from the plants covered by RGGI were down 47% – outpacing the rest of the nation by 90%. The gross domestic product of the RGGI states, all in the Northeast and mid-Atlantic regions, also grew by 47% – again outpacing the rest of the country, which grew by 31%.[37]

In Virginia specifically, the data is clear that RGGI reduces emissions: RGGI cut Virginia power-plant carbon emissions by 13% in its first year alone.[38] In 2020, carbon emissions in RGGI-covered units reached 32,755,842 short tons of CO2 and declined to 28,623,530 short tons of CO2 in 2021, even while electricity demand increased. As carbon pollution from power plants decreases, Virginia is also seeing co-benefits from the reduction of co-pollutant emissions like nitrogen oxide (NOx) and sulfur dioxide (SO2): in-state SO2 emissions fell by 204 tons (13%), and in-state NOx emissions fell by 1,608 tons (19%) between 2020 and 2021. The Youngkin administration has even acknowledged the importance of RGGI in a recent report,[39] concluding that RGGI "has a long track record of emission reductions since the beginning of the program."

Participation in a state or regional carbon market with an overall cap on emissions, like RGGI, provides a high degree of certainty and durability that emissions reductions will be achieved year-over-year. As stated by Virginia's DEQ, "an emission reduction program or combination of programs will be required to meet the Commonwealth's climate goals of the Virginia Clean Energy Act and the 2045 net-zero carbon emissions goal. In the absence of any such program, emissions may not reduce sufficiently to achieve these goals."[40]

The RGGI program sets annual emissions caps ensuring a gradual decline in emissions across the participating states. Because emissions are not allowed to exceed the allotted amount, the cap creates a high level of certainty that emissions are reduced consistent with program design. From the beginning of the program through 2020, the RGGI states have avoided more than 49.5 million short tons of carbon emissions.[41] With the RGGI cap set to decline 30% between 2020 and 2030, and the addition of the emissions containment reserve, participating in RGGI would help Virginia achieve its clean energy economy vision as set forth in the Virginia Clean Economy Act of 2020.[42] The act requires that Virginia transition its utilities to renewable energy by 2050.

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[37] Spiegel, J. E. (2021, April 1). Power Plant emissions down 47% under the Regional Greenhouse Gas Initiative " yale climate connections. Yale Climate Connections. https://yaleclimateconnections.org/2020/01/power-plant-emissions-down-47-percent-under-the-regional-greenhouse-gas-initiative/

[38] Clean Air Markets Program Data (2022). U.S. Environmental Protection Agency. https://campd.epa.gov/

[39] Virginia Department of Environmental Quality (2022, March 11). Virginia Carbon Trading Rule and Regional Greenhouse Gas Initiative (RGGI) Participation Costs and Benefits. https://www.deq.virginia.gov/home/showpublisheddocument/13813/637829669069026180

[40] *Ibid.*

[41] The Regional Greenhouse Gas Initiative, Investments of RGGI Proceeds in 2020. (2022). https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2020.pdf

[42] Center for Climate and Energy Solutions. Regional Greenhouse Gas Initiative (RGGI). https://www.c2es.org/content/regional-greenhouse-gas-initiative-rggi/

Participation in RGGI gives Virginia the greatest certainty that the state will reach its emission reduction goals. A declining limit on greenhouse gas emissions, alongside other essential emission reduction regulations, provides the most reliable pathway for Virginia to meet its goal of net-zero emissions by 2045. Meeting this target is essential. Policies like RGGI will contribute towards the global effort to safeguard our climate and are essential tools for helping ensure Virginia can avoid the worst impacts of climate change, such as coastal flooding, the displacement of up to 400,000 homes due to sea level rise,[43] and billions of dollars to repair and replace homes and roads destroyed by increasingly frequent and intense storms.[44] By participating in RGGI, Virginia can help mitigate these climate impacts along with the other participant states.

When well-designed, a firm, declining cap on emissions provides the greatest possible certainty of meeting greenhouse gas reduction targets. This pollution limit, set by the emissions budget for covered sources, is the most essential feature of the cap-and-trade program. The relative role of the cap-and-trade program compared to sector-based policies as the “primary driver” for emission reductions is less important than the role the cap plays in ensuring that emissions do not exceed the allotted budget, and the stringency of the budget itself. The cap should act as the backstop to keep Virginia on track to its climate goals. If other state programs help achieve greater reductions than expected, then there is less pressure on the cap; but if other programs deliver fewer reductions, the cap remains the state’s “insurance policy” to make sure emissions continue to decline at the pace required.

VII. RGGI Provides Health Benefits to Virginians

Extreme heat has been shown to increase hospitalization and death from heat stroke and related conditions but also from cardiovascular disease, respiratory disease, and cerebrovascular disease.

A report from NASA shows that the number of extreme heat events is expected to increase substantially over the next several decades. By 2050, the share of the year where average temperatures in Fairfax County, for example, reach at least 90 degrees F is expected to more than double, from roughly 1 month from 1990 to 2020 to between 2 and 2.5 months in 2050. The number of days where average temperatures exceed 95 degrees F in the county is expected to increase by at least four times, from 7 days from 1990 to 2020 to between 28 and 36 days by 2050. A report from the nonprofit First Street Foundation showed that the number of days with temperatures above 97 degrees F is expected to nearly triple between 2023 and 2053.

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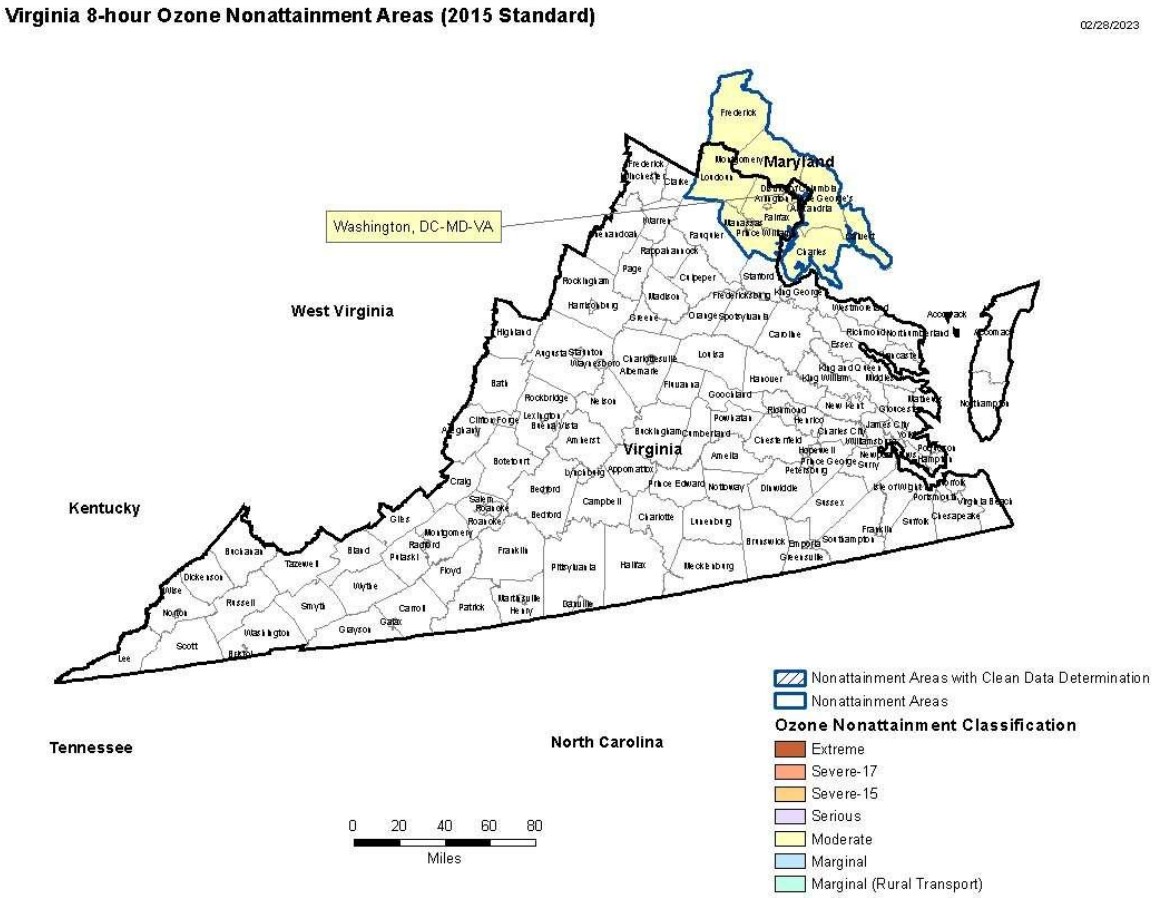
[43] Commonwealth of Virginia, supra note 3; Howard Botts, Thomas Jeffery, Wei Du, Morgan Suhr, 2014 CoreLogic Storm Surge Report, 5 (July 2014), https://www.eenews.net/assets/2014/07/10/document_cw_01.pdf.
[44] *Ibid.*

Nine Virginia counties are in nonattainment under the EPA's National Ambient Air Quality Standards for ozone. Those counties include the Washington DC suburbs of Alexandria City, Arlington County, Fairfax County, and Falls Church, and they encompass a population of more than 2.5 million people. As average temperatures rise, Virginians will be increasingly impacted by ground-level ozone, as heat and stagnant air make ozone more likely to form.

When carbon pollution is reduced, there are often significant reductions of other health-harming pollution, including ground-level ozone (smog) and soot. Power plants, transportation, industrial, and other sources contribute to emissions that impact air quality. According to EPA data, the power plants in Virginia covered by RGGI were responsible for 1,228 short tons of SOx and 6,125 short tons of NOx pollution in 2021.[45] As RGGI reduces carbon pollution across the region, communities are also benefitting from declining levels of soot and smog. DEQ's analysis of the final RGGI rule showed reductions of NOx, SO2, and PM2.5, amounting to tens of millions in monetized benefits over the life of the program.

Figure 1



[45] U.S. EPA (2022), Clean Air Markets Program Data, https://campd.epa.gov/data/custom-data-download

Source: U.S. EPA[46]

Across the RGGI region, we have seen the benefits of co-pollutant reductions as well. A study by leading scientists found that reduced levels of soot pollution due to RGGI from 2009-2014 benefited children's health, including avoiding cases of asthma, preterm births, cases of autism spectrum disorder and more harmful health impacts. The avoided costs of these health impacts on children are estimated at $191-350 million.[47]

Additionally, the Administration should consider the Environmental Justice impacts of its plan to roll back RGGI and the emission reductions that would be lost as a result. As previously noted by DEQ:

> "[n]ew laws passed by the General Assembly and signed by the Governor established that it is the policy of the Commonwealth to advance environmental justice. Further, DEQ's statement of policy (§10.1-1183, Code of Virginia) was amended to make environmental justice an explicit part of DEQ's mission."[48]

VIII. Virginia Businesses Support Decarbonization

McKinsey Sustainability reports that over 5,200 businesses have pledged to meet net-zero carbon emissions targets by 2050, while 450 banks, insurers, and investors, representing 40% of the world's capital between them, have pledged to make their portfolio's carbon neutral by 2050. Credit Suisse, for example, has pledged to reduce the emissions intensity of its investment by 50% by 2030.

In 2017 Ceres founded the Climate Action 100+ network, a group of investors who develop a net zero company benchmark, by which they assess companies' level of action on climate change. Ceres found a gap between companies' pledges on greenhouse gas emissions and their stated priorities to halt climate change. In its 2022 Responsible Policy Engagement Analysis, 50% of companies were found to have lobbied for Paris-aligned policy, while 93% acknowledged that climate change poses a material risk to their business, and 65% acknowledged that Paris-aligned climate policies were needed.

Ceres and its BICEP network publicly expressed support for deployment of renewable energy and energy saving technologies in 2018, as well as for RGGI and the Virginia Clean Economy

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[46] U.S. EPA, Virginia 8-Hour Ozone Nonattainment Areas. https://www3.epa.gov/airquality/greenbook/va8_2015.html

[47] Perera, F., Cooley, D., Berberian, A., Mills, D., & Kinney, P. (2020, July). Co-benefits to Children's health of the U.S. Regional Greenhouse Gas Initiative. National Institute of Environmental Health Sciences. https://ehp.niehs.nih.gov/doi/10.1289/EHP6706

[48] Virginia DEQ, https://www.deq.virginia.gov/home/showpublisheddocument/1813/637425424131330000

Act in 2022. In the same 2022 comment period, the American Clean Power Association also expressed support for the Virginia Clean Economy Act.

IX. Decarbonizing Power Can Lower Costs

As noted previously, Virginia's dependence on natural gas has put upward pressure on ratepayer bills, a trend that will likely continue unless the state invests in more renewable energy resources and energy efficiency.

Virginia's investor-owned utilities have sought rate increases due to spiking natural gas prices. As noted above, in September, the State Corporation Commission approved monthly rate increases of $14.93 for Dominion and $20 for Appalachian Power. These changes are meant to cover the gap between actual and expected fuel costs, which, for Dominion, totaled $1 billion for 2022 and is projected to reach $2.3 billion for the period between July 2022 and June 2023.

Several recent analyses have shown renewables outcompeting natural gas on price. A 2022 earnings report from NextEra projected a price of $30 per MWh for new solar and $20 per MWh for new wind. By comparison, energy prices for gas plants referenced in the report ranged from $35 per MWh to $80 per MWh. Upon the report's release, NextEra was assuming that tax credits for renewable energy would not be extended. Taking into account the energy investments in the Inflation Reduction Act, solar and wind look even more competitive. The law is expected to lower the leveled cost of energy by 38-49% for wind and 20-35% for solar. An analysis from the Rocky Mountain Institute found that without the IRA, renewables outcompete 72% of gas plants on price, and with the law, they outcompete 90% of gas plants.

X. Climate Risks and Opportunities

Dominion's filings to the U.S. Securities and Exchange Commission underscore that Dominion recognizes that extreme weather imperils its operations, and that the risk of such weather events is intensified by climate change.[49] Dominion also points to its own potential to fall short of its climate commitments as a risk, due to the related negative publicity.[50]

The company praised the IRA's extension of the Investment Tax Credit, saying "The tax credit helps spur renewable adoption for residential and commercial solar. On top of the ITC extension, the bill also includes $370 billion that will be spent on renewable energy and climate issues."

[49] Dominion 10-K for 2021 pg. 41, 55.
[50] Ibid. pg. 42.

Many companies with substantial presence in Virginia do place a larger emphasis on risks from climate change. In addition to supporting the VCEA and opposing RGGI withdrawal, Ceres published a report in 2021 showing that climate change impacts, chiefly sea level rise, drought, and extreme weather pose a substantial risk to businesses and investors. It points out, for example, that after major natural disasters, insurance premiums rise, indicating that a prolonged, secular increase in extreme weather will have a large impact on many businesses. The report also notes that leading insurance companies like IAG and AXA have shown concern for climate change-related risks.

Companies have also expressed concern over climate risks in the financial sector. In response to the SEC's request for input on climate risk disclosure, companies like Blackrock and Bank of America voiced support for tighter and more transparent disclosure standards. Companies' support for climate risk disclosure is driven by the enormous potential losses from climate change that have already been identified. A 2019 report showed $1 trillion in potential losses among 215 of the world's largest companies, many of those losses expected to be realized within five years.

The Infrastructure Investment and Jobs Act includes $62 billion in funding for power sector related projects. Over five years, Virginia can expect to receive $106 million from the bill for the expansion of the state's EV charging network. On top of that, Virginia will be eligible to apply for $2.5 billion for additional EV charging infrastructure. As noted previously, these investments alongside strong state policy can help drive investment into Virginia and ensure the state is a leader in the clean economy.

XI. Emissions Leakage

Concerns are frequently raised about emissions leakage between states in regulatory programs like RGGI and those not participating in such programs. EDF supports implementation of policy mechanisms that would address leakage, including in RGGI states. However, many analyses examining the leakage phenomenon between RGGI states and non-RGGI states find that the effect is not so significant as to undermine the net emissions benefits of RGGI.[51] Additionally, the most recent RGGI Market Monitoring Report assessing 2017-2019 found that even though imports into the RGGI region increased, those imports were increasingly cleaner (i.e. had a lower CO2 emissions rate).[52] This, coupled with impending federal standards, should allay fears that potential emissions leakage from outside RGGI undermines the merits of the program in Virginia and beyond. Like many states, Virginia also has a number of state and federal policies and economic factors driving transformation in its power sector, so taking a snapshot of short-

[51] See: https://media.rff.org/documents/RPT_19-04_ezAnXDF.pdf, and EDF modeling: https://blogs.edf.org/climate411/2019/11/21/two-new-analyses-significant-benefits-for-pennsylvania-from-historic-move-to-limit-carbon-pollution/

[52] https://www.rggi.org/sites/default/files/Uploads/Electricity-Monitoring-Reports/2019_Elec_Monitoring_Report.pdf

term changes in imports/exports and linking them to implementation of one program without accounting for a wide array of factors is dubious, at best.

XII. Reliability

Numerous studies have found we can decarbonize our power sector while maintaining a reliable grid.[53] Furthermore, significant investments from federal programs like IIJA that can help states as they seek to decarbonize while maintaining electric resilience and reliability.[54] Recent reliability events in PJM have raised questions about electric reliability, and with climate-fueled summer heat waves expected to continue to wreak havoc on our grid,[55] it is critical that investments, like those from the IIJA, are leveraged to deliver both a clean and reliable grid. It is worth noting that during cold conditions, either gas plants themselves or the transmission equipment needed to transport gas may freeze, leading to dangerous drop-offs in electricity generation. Winter storms in early 2021 and in late 2022 led to electricity shortages that left hundreds of people dead and forced operators to ration power, driven in large part by frozen gas plants and fuel supplies.[56] The PJM region lost almost a quarter of its total capacity, with 70% of the outages attributable to gas plants, many of which shut down with less than an hour's notice.

Policies like RGGI are not the cause of reliability challenges, Duke University found that RGGI "has not impacted grid reliability—and that RGGI may help to improve reliability through strategic demand-side investments—all while delivering important economic, public health, and emissions reduction benefits to consumers. Indeed, the inherent flexibility of a regional, market-based program that enables power plant operators to make efficiency upgrades, shift generation to lower-emitting options, or purchase allowances makes this policy tool a good fit with grid reliability goals."[57]

XIII. Preparing for Federal Standards

Virginia should consider that federal standards reducing carbon emissions from power plants under section 111(d) and section 111(b) of the Clean Air Act are expected to be proposed by the US Environmental Protection Agency (EPA) this year. Virginia putting the brakes on its participation in RGGI will only make it more challenging to get ahead of the curve in achieving

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[53] For example, see RMI report from 2021 "Cutting Carbon While Keeping the Lights On," https://rmi.org/insight/cutting-carbon-while-keeping-the-lights-on/

[54] See: https://bipartisanpolicy.org/blog/the-grid-wins-big-in-the-iija/

[55] https://pubmed.ncbi.nlm.nih.gov/33930272/

[56] Morehouse, Catherine. Winter power grid troubles put scrutiny on natural gas reliability. (3/14/2023) https://subscriber.politicopro.com/article/2023/03/winter-power-outages-put-scrutiny-on-natural-gas-reliability-00086850

[57] https://nicholasinstitute.duke.edu/publications/closer-look-rggi-and-grid-reliability

the reductions in carbon pollution likely required under anticipated federal regulatory requirements. Indeed, continued participation in RGGI will send a market signal consistent with anticipated requirements to reduce carbon from new and existing EGUs, giving the state's electric sector a head start compared to neighboring states that are not participating in the RGGI program or otherwise being required to reduce power sector carbon emissions through state regulations. As noted elsewhere in the comments, RGGI reduces conventional pollutants that are also subject to federal regulation, so there could be additional benefits in complying with federal air quality and other standards accruing from Virginia's participation in RGGI that the Air Board should consider. Additionally, the funds uniquely provided through RGGI can further aid Virginia in compliance with federal standards because of the investments made in emissions-cutting (and cost-saving) energy efficiency.

XIV. Public Support

Virginians, like others across the country, are increasingly concerned about climate change and expect their leaders to act. The Yale Program on Climate Change Communication found in its 2021 survey that a majority of Virginians wanted all levels of government to do more on climate.[58] Additionally, a 2022 poll from Christopher Newport University showed that about 67% of Virginia voters want to stay in the RGGI program.[59]

The Commonwealth joined RGGI after a lengthy round of public comment periods and public meetings where hundreds of concerned Virginians showed their support for reducing carbon emissions. Once the public comment period ended, the Virginia General Assembly held a vote that catalyzed RGGI into law and outlined key priorities for investment of proceeds. Recently, 61 state legislators, more than a third of the General Assembly, signed onto a letter addressed to the Board opposing Gov. Glenn Youngkin's proposed withdrawal of Virginia from RGGI.[60]

XV. Conclusion

Ending Virginia's participation in RGGI will have a cascading effect that will derail the progress that the State has made in reducing carbon emissions and endanger the 2050 net-zero carbon economy goal that the Commonwealth has set. Leaving RGGI would also strip away critical funding that local governments need and would disproportionately harm under-resourced, small and rural communities who do not have the capacity to address flood risk on their own.

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[58] https://climatecommunication.yale.edu/visualizations-data/ycom-us/

[59] Bromley-Trujillo, D. R. (2022, October 12). *State of the Commonwealth 2022*. Christopher Newport University. https://cnu.edu/wasoncenter/surveys/archive/2022-02-21.html

[60] Woods, C. R. (2022, September 8). 61 Dems say Virginia's participation in RGGI is up to Legislature. Richmond Times-Dispatch. https://richmond.com/news/state-and-regional/govt-and-politics/61-dems-say-virginias-participation-in-rggi-is-up-to-legislature/article_86e0f575-2dc6-5e30-9b39-fa056de7a9f2.html

Virginia's participation in RGGI is required by law. As such, only the General Assembly has the power to withdraw Virginia's participation. Consistent with DEQ and the Board's responsibility to uphold the Constitution of the Commonwealth of Virginia, we urge both the Board and DEQ to reject efforts to permanently repeal the program.

Thank you for your consideration of these comments. Please reach out to Peter Della-Rocca at pdellarocca@edf.org if you have any questions.

Sincerely,

Peter Daigle
Peter Della-Rocca
Mandy Warner