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BY EMAIL TRANSMISSION:

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Reference: Comments of Environmental Defense Fund on Re-Proposed CO₂ Budget Trading Program [9 VAC 5 - 140]

Dear Ms. Sabasteanski,

Environmental Defense Fund (EDF) respectfully submits the following comments in response to the February 4, 2019 publication of the re-proposed CO₂ Budget Trading Program [9 VAC 5-140 (Regulation for Emissions Trading Programs)] in the *Virginia Register of Regulations*.¹

EDF strongly supports Virginia finalizing a regulation to reduce carbon pollution from the electric power sector in order to mitigate the effects of climate change and grow the clean energy economy in Virginia.

Our comments include the following sections:

- 1.) The APCB has clear legal authority to move forward with an environmentally protective CO₂ Budget Trading Program.
- 2.) EDF supports the APCB's proposal to enact a lower 28 million ton starting budget in 2020 that reflects business as usual under more recent and updated modeling assumptions.
- 3.) The proposed emissions budget ensures significant near-term reductions.
- 4.) The APCB should monitor for emissions leakage and describe measures Virginia will take to mitigate potential leakage effects.
- 5.) EDF supports DEQ's proposal to allocate conditional allowances with an updating output-based approach as an effective means of mitigating emissions leakage.
- 6.) EDF supports Virginia's commitment to analyze potential impacts of the CO₂ Budget Trading Program on environmental justice communities as part of the regular program review.
- 7.) The APCB's proposed set-aside comports with its statutory authority.

¹ 34:10 VA.R. 924-959, available at <http://register.dls.virginia.gov/vol34/iss10/v34i10.pdf>.

- 8.) EDF recommends that any unallocated allowances be added to the total conditional CCR allowances for the appropriate calendar year.
- 9.) EDF supports the proposed revisions to harmonize the price floor, ECR, and CCR with RGGI.
- 10.) EDF recommends the APCB adjust the 2021 bank adjustment formula to harmonize with RGGI.
- 11.) The APCB should take steps to ensure the CO₂ emissions budget declines beyond 2030 consistent with best available science.
- 12.) Committing to ambitious climate reductions can benefit Virginia consumers.

1. The APCB has clear legal authority to move forward with an environmentally protective CO₂ Budget Trading Program.

As discussed at length in EDF’s comments on the original proposal, the Virginia Air Pollution Control Board (APCB) has ample existing statutory authority to adopt a cap-and-trade program that reduces statewide emissions of greenhouse gases.² We incorporate those comments by reference and discuss in detail below why key aspects of the reproposal are also well supported from a legal perspective.

2. EDF supports the APCB’s proposal to enact a lower 28 million ton starting budget in 2020 that reflects business as usual under more recent and updated modeling assumptions.

The APCB would be well justified in establishing an initial base budget of 28 million tons of CO₂. The proposed rule originally sought comment on whether the initial base budget should be 34 or 33 million tons of CO₂; the APCB has revised that number to 28 million tons. This adjustment would, relative to the originally proposed budgets, better fulfill the APCB’s statutory duty to “achieve . . . such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable.”³ Setting the base budget at a level that reflects this statutory mandate is particularly important because incremental reductions from the initial budget that must be met in future years are determined relative to this initial emissions budget.⁴

The evidence before the APCB in the record already compiled—including DEQ’s modeling—indicates that the initial base budget must be revised downward in order to fulfill APCB’s statutory obligations. While modeling is not necessarily a perfect predictor of what will

² See Comments of Environmental Defense Fund on Proposed CO₂ Budget Trading Program [9 VAC 5 – 140] at 3-4 (Apr. 9, 2018) (EDF Comments).

³ Va. Code Ann. § 10.1-1306.

⁴ See Proposed 9VAC5-140-6190(A).

happen in the future, it does provide important insights into likely trends and future outcomes that can appropriately inform this decision. Recent modeling updates show lower emissions in 2020 than DEQ originally projected, along with trends indicating continued emission reductions from Virginia’s power sector. We discussed several such findings in our April 2018 comments on the original proposed rule.⁵ Since then, DEQ released new Integrated Planning Model (IPM) modeling — using appropriately updated assumptions about natural gas prices, electricity demand growth, and emission reductions projections from increased renewables and energy efficiency development under Virginia’s 2018 Grid Transformation and Security Act — that supports projections of a lower 2020 emissions baseline.⁶ Modeling from Rhodium Group, using a modified version of the National Energy Modeling System (NEMS) with updated assumptions, also projects lower 2020 baseline power sector emissions than previously projected for Virginia.⁷ These findings indicate that a 2020 base budget of 28 million tons of CO₂ is appropriate.

The proposed revision to the 2020 initial budget, by responding to the data submitted by stakeholders and the analysis by the agency itself, is appropriately fact-based and reasonable rulemaking in accordance with the principles of administrative law.⁸

3. The proposed emissions budget ensures significant near-term reductions.

EDF is currently modeling state and regional electric sector CO₂ emission outcomes (through 2030 and beyond) under a range of policy scenarios. Preliminary results from the modeling indicate that under business-as-usual conditions (i.e., Virginia doesn’t implement a carbon pollution standard) electric sector CO₂ emissions in Virginia could continue to increase

⁵ See EDF Comments at 11-12 and 14-16 (noting updated modeling by NRDC and Rhodium Group, scheduled retirements of coal- and natural-gas-fired generating units, and legislation promoting or mandating additional solar capacity, offshore wind capacity, and energy efficiency programs).

⁶ See VA DEQ, “Carbon Dioxide Trading Program: Re-Proposed Regulation,” presentation to Virginia State Air Pollution Control Board, October 29, 2018, available at <https://www.deq.virginia.gov/Portals/0/DEQ/Air/GHG/C17-reproposal.pptx>.

⁷ Differences in emissions baseline projections between, e.g., DEQ’s and Rhodium Group’s models, depend on the modeling assumptions. DEQ would be well justified in determining the 2020 starting emissions budget for Virginia based on projected baseline emissions from the agency’s own modeling. Rhodium’s modeling, which tends to be more optimistic about the pace of emission reductions, projects emissions from Virginia’s power sector will fall to 18-26 million tons in 2020 under business-as-usual (the range reflects sensitivity cases with high and low renewable and natural gas costs, and “minimum” and “full” rollbacks to federal climate policies). Rhodium’s modeling supports the downward trend in emissions that DEQ uncovered in its new modeling, relative to the agency’s earlier proposed 2020 budget, which was based on modeling that used prior year assumptions. For details on Rhodium’s modeling assumptions, see: John Larsen, et al., *Taking Stock 2018* (New York: Rhodium Group, 2018), available at <https://rhg.com/research/taking-stock-2018/>. Rhodium modeling results for Virginia are derived from: U.S. Climate Service, Rhodium Group, 2018.

⁸ See *Johnston-Willis, Ltd. v. Kenley*, 369 S.E.2d 1, 19 (Va. 1988) (upholding an agency determination that there was no need for additional obstetrical services based in part on projections of need); *EDF, Inc. v. Va. State Water Control Bd.*, 422 S.E.2d 608, 609, 612 (Va. Ct. App. 1992) (deferring to the agency’s factual findings and upholding its decision to establish a water quality standard, which decision “followed extended debate, addressed and resolved conflict and uncertainty in the evidence and balanced numerous interests”).

significantly above the proposed base budget by 2030.⁹ Thus, based on our preliminary modeling, we anticipate that Virginia’s adoption of a CO₂ budget trading program with the proposed CO₂ emission budgets would result in critical CO₂ emission reductions.

4. The APCB should monitor for emissions leakage and describe measures Virginia will take to mitigate potential leakage effects.

Analysis from RGGI, Inc., indicates that leakage effects — the potential increase in CO₂ emissions from generators outside the RGGI region due to shifting generation from covered sources as a result of the RGGI carbon price — are likely to be much smaller than the substantial environmental benefits of Virginia’s program.¹⁰ Nevertheless, we urge the APCB to adopt a rule that takes steps to mitigate any significant leakage that may occur because doing so would further the statutory purpose of protecting health and welfare.

DEQ names several reasons why leakage is “unlikely” in its responses to comments on the original proposed rule. In part, DEQ explains, “the owners of generation in Virginia are unlikely to face any competitive disadvantage relative to plants outside the state because the allowances are to be allocated to compliance entities under the program, and the amount of the allocations are to be determined on an updating output basis.” Moreover, “updating output-based allocation is expected to encourage generation in the state, rather than discourage it.” DEQ also writes, “The implementation of the DMME set-aside will also encourage the reduction of in-state demand, thereby reducing carbon pollution and further preventing leakage.”¹¹ We agree that the updated output-based allocation and the efforts to reduce in-state emissions through the set-aside should reduce leakage and may be sufficient mechanisms to address leakage, but urge DEQ to include its assessment of leakage risk and strategy for mitigating the risk in the official record for the final rule, as well as a commitment to monitor leakage going forward and to take steps to address significant leakage if it is observed.

Specifically, EDF also urges DEQ to provide within the final rule a detailed explanation of the measures Virginia is taking and will take to mitigate the potential for leakage. In particular, EDF supports DEQ’s proposal to evaluate emissions leakage as part of the Commonwealth’s periodic program review process. We also encourage DEQ to work with RGGI states to monitor and analyze power flows and emissions from RGGI and non-RGGI generating sources for signs of leakage as part of RGGI’s annual electricity monitoring process,

⁹ Electric sector emissions are generally highly sensitive to natural gas prices. EDF’s modeling assumes a Henry Hub natural gas price of just over \$3/MMBtu (2016\$) in 2030.

¹⁰ RGGI, *CO₂ Emissions from Electricity Generation and Imports in the Regional Greenhouse Gas Initiative: 2016 Monitoring Report*, December 13, 2018, available at: https://www.rggi.org/sites/default/files/Uploads/Electricity-Monitoring-Reports/2016_Elec_Monitoring_Report.pdf.

¹¹ Virginia DEQ, “Proposed Regulation Agency Background Document,” Revised Proposed Stage, Regulation for Emissions Trading (9 VAC5-140), December 27, 2018, available at <http://www.townhall.virginia.gov/L/ViewStage.cfm?stageid=8476>.

and to work with other RGGI participating states to evaluate and adopt mechanisms to effectively address leakage in the periodic region-wide program review.

Further, Virginia should also consider (now or in the future) extending the carbon cap to account for emissions attributed to electricity imports into the Commonwealth. This approach would likely be the most effective mechanism to mitigate leakage, as it ensures that any emissions associated with generation dispatched to serve electric load in Virginia will be covered by the cap, eliminating any economic incentive for uncovered generating units from out-of-state to serve Virginia load. Accounting for carbon emissions associated with imported electricity under the cap ensures statewide emission reductions, while mitigating any market distortion between units serving the same load. Virginia should engage with RGGI and PJM states to explore and pursue the development of strategies within the PJM market region to provide the Commonwealth with the information it would need to deploy such a solution.

5. EDF supports DEQ’s proposal to allocate conditional allowances with an updating output-based approach as an effective means of mitigating emissions leakage.

EDF supports DEQ’s proposal to use an updating output-based approach to allocating conditional allowances to covered sources. Analyses conducted by EDF and RFF in the context of the federal Clean Power Plan (CPP) found that using an updating output-based approach can be an effective means of mitigating emissions leakage — wherein carbon emissions shift out-of-state or to sources not covered by the program through, e.g., shifting generation. Modeling conducted by RFF found that using an updating approach to allocate 100% of allowances to a subset of eligible sources under the CPP (as opposed to a historic, or “grandfathering,” approach) could reduce leakage by up to 64% compared to a mechanism that allocated only 5% of allowances with an updating output-based approach.¹² Similarly, EDF analysis found that allocating all or nearly all CO₂ allowances with an updating output-based approach could significantly reduce leakage compared to alternative approaches.¹³

¹² See Comments of Environmental Defense Fund on EPA’s Proposed Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; and Amendments to Framework Regulations, *available at* https://www.edf.org/sites/default/files/content/edf_fp-mr_comments_final_draft.pdf; and Resources for the Future, Approaches to Address Potential CO₂ Emissions Leakage to New Sources under the Clean Power Plan, 2016, *available at* <https://www.rff.org/publications/reports/approaches-to-address-potential-co2-emissions-leakage-to-new-sources-under-the-clean-power-plan/>;

¹³ See Comments of Environmental Defense Fund on EPA’s Proposed Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; and Amendments to Framework Regulations, *available at* https://www.edf.org/sites/default/files/content/edf_fp-mr_comments_final_draft.pdf

6. EDF supports Virginia’s commitment to analyze potential impacts of the CO₂ Budget Trading Program on environmental justice communities as part of the regular program review.

The U.S. Environmental Protection Agency defines environmental justice as, “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.”¹⁴ A regulatory process that prioritizes “meaningful involvement” and secures outcomes that ensure no community is disproportionately harmed — and that underserved communities receive an equitable share of the benefits — is a vital goal for the APCB to pursue.

It is important to note that finalizing the CO₂ Budget Trading Program with an environmentally protective emissions budget that declines over time consistent with best available science and modeling, as discussed in Sections 2 and 11 in these comments, is vital to advancing environmental justice. Fossil fuel-fired power plants, such as those that would be covered under Virginia’s program, tend to be disproportionately located in or near communities of color and low-income communities.¹⁵ Moreover, according to the U.S. Global Change Research Program’s (USGCRP) Fourth National Climate Assessment:

“Social, economic, and geographic factors shape the exposure of people and communities to climate-related impacts and their capacity to respond. Risks are often highest for those that are already vulnerable, including low-income communities, some communities of color, children, and the elderly. Climate change threatens to exacerbate existing social and economic inequalities that result in higher exposure and sensitivity to extreme weather and climate-related events and other changes.”¹⁶

By reducing CO₂ and co-pollutant emissions across the board, a stringent emissions budget can help provide particular benefits to communities that tend to bear disproportionate harms.

EDF welcomes the APCB’s commitment to evaluate potential impacts of the CO₂ Budget Trading Program on vulnerable and underserved communities.¹⁷ The CO₂ Budget Trading Program will be one of a broad set of policies and programs that potentially affect environmental

¹⁴ U.S. EPA, “Learn about environmental justice,” 2018, *available at* <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>.

¹⁵ See U.S. EPA, *EJ Screening Report for the Clean Power Plan*, Docket No. EPA-HQ-OAR-2013-0602, 2015, *available at* <https://archive.epa.gov/epa/cleanpowerplan/ej-screening-report-clean-power-plan.html>. See also Adrian Wilson, *Coal Blooded: Putting Profits Before People* (Baltimore: NAACP, 2012), *available at* <https://www.naacp.org/climate-justice-resources/coal-blooded/>.

¹⁶ Christopher W. Avery, et al., “Chapter 1: Overview,” in *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* (Washington, DC: U.S. Global Change Research Program, 2018), *available at* <https://nca2018.globalchange.gov/chapter/1/>.

¹⁷ See Proposed 9VAC5-140-6440.

justice issues in the Commonwealth. Analyzing the potential impacts of RGGI on vulnerable communities will be an important part of the broader suite of actions Virginia agencies are taking to address environmental justice.

EDF urges the APCB to prioritize meaningful involvement of environmental justice communities and experts in developing and executing a robust and transparent environmental justice analysis. The APCB should work closely with community stakeholders to define the scope of the analysis (including the definition of “environmental justice community,” sources and pollutants analyzed, and health, environmental, and economic metrics), methodology, outreach strategy (which should build capacity of environmental justice communities to understand the results and advocate for themselves), and actionable steps to strengthen the program and mitigate environmental justice effects.

7. The APCB’s proposed set-aside comports with its statutory authority.

The APCB’s proposed set-aside comports with its statutory authority. In the reproposal, the APCB has specified that the proceeds from set-aside allowances will fund “the implementation of programs that lower base and peak electricity demand and reduce the cost of the program to consumers and budget sources.”¹⁸ The agency would be well within its statutory authority to adopt a rule that includes a set aside of this nature.

The APCB has broad authority under section 10.1-1308 of the Air Pollution Control Law of Virginia to “promulgate regulations . . . abating, controlling and prohibiting air pollution throughout . . . the Commonwealth.”¹⁹ An allowance set aside designed to reduce greenhouse gas emissions would “abat[e] . . . air pollution” if the allowance allocation supported emission-reducing projects within DMME’s purview, such as deploying energy efficiency and renewable energy. In the final rule or in implementing the rule, the APCB or DEQ, in collaboration with DMME, should specify the factors by which projects will be evaluated for allowance allocation and demonstrate their potential to abate air pollution to protect human health, welfare, and safety, protect the environment, and promote the economic development of the Commonwealth.²⁰

The APCB’s broad authority to mitigate air pollution and to design air pollution policies to serve a diverse set of statutory directives under section 10.1-1308 is made clear by section 10.1-1306, which instructs that the APCB:

shall make, or cause to be made, such investigations and inspections and do such other things as are reasonably necessary to carry out the provisions of [Code of Virginia, Title 10.1, Subtitle II, Chapter 13],

¹⁸ Proposed 9VAC5-140-6211.

¹⁹ Va. Code Ann. § 10.1-1308(A).

²⁰ *Id.* § 10.1-1306.

within the limits of the appropriations, study grants, funds, or personnel which are available for the purposes of this chapter, including the achievement and maintenance of such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable prevent injury to plant and animal life and property and which will promote the economic and social development of the Commonwealth and facilitate enjoyment of its attractions.²¹

Under this mandatory provision, the APCB must take action to protect the public from air pollution and weigh, in designing air pollution reduction policies, opportunities to further economic and social development of the state. Allocating a portion to support energy efficiency projects, which will both reduce emissions of greenhouse gases and other harmful air pollutants and reduce the cost impacts of the emission reduction program, furthers the statutory mandate to abate pollution and supports economic development at the same time. Thus, the proposed set aside for energy efficiency projects is well within the APCB's statutory mandate. We urge the APCB to clearly provide that the set aside allowances could be allocated to a variety of projects that would reduce emissions and facilitate greater emission reductions going forward, such as renewable energy projects.

Under the rule as reproposed, DEQ would “allocate 5.0% of the Virginia CO₂ Budget Trading Program base or adjusted budget allowances, as applicable, to DMME to be consigned to auction by the holder of a public contract with DMME to assist the department for the abatement and control of air pollution, specifically CO₂, by the implementation of programs that lower base and peak electricity demand and reduce the cost of the program to consumers and budget sources.”²² The APCB may include in its regulation criteria and other requirements for DMME to apply in contracts with a third-party administrator based on its authority to “cooperate with . . . all agencies of the Commonwealth . . . in furtherance of the purposes of this chapter.”²³ We provide possible criteria for project selection below:

- A. The quantity and type of emission reductions that the project is likely to achieve.
- B. The time within which the project will likely achieve emission reductions.
- C. The cost-effectiveness of the project.
- D. Economic benefits that the project will deliver, including employment opportunities.

²¹ Va. Code Ann. § 10.1-1306 (emphases added).

²² Proposed 9VAC5-140-6211.

²³ Va. Code Ann. § 10.1-1307(A).

- E. The effect of the receipt of the allowance allocation on the above.
- F. The applicant's history of completing projects on-schedule and within estimated costs and that deliver expected emission reductions and other benefits.
- G. The potential for the project to support mitigation of air pollution and energy costs in at-risk communities.

The implementing regulations should provide for projects to report on the emission reductions achieved as well as the achievement of any other projected benefits. The implementing regulations should further ensure that projects and project developers that upon review fail to deliver emission reductions or other benefits due to what DMME determines to be avoidable failures by the project developers be made ineligible for allowances or otherwise subject to heightened scrutiny going forward.

We would also recommend that if any allowances from the set-aside are not used, they become additional CO₂ CCR allowances. The purpose of the set-aside and the allocation of allowances to DMME is to “assist the department for the abatement and control of air pollution.”²⁴ Given this purpose, if DMME is unable to use the allowances, we recommend that the set-aside allowances become part of the CO₂ CCR allowances because that would ensure that these allowances will still serve the purpose of abating and controlling air pollution by reducing emissions unless the CCR trigger price is met, in which case they will promote the statutory purpose of economic and social development of the commonwealth by controlling costs.

8. EDF recommends that any unallocated allowances be added to the total conditional CCR allowances for the appropriate calendar year.

The regulation should require any base budget allowances that are not allocated to be added to the total conditional CCR allowances. This will help ensure the program’s emission reduction and cost containment goals are met. It can be accomplished by adding the following provision to section 9VAC5-140-6070 of the regulation as subsection B and making the existing language subsection A:

B. Notwithstanding 9VAC5-140-6070 A, any Virginia CO₂ Budget Trading Program base budget allowances that are not allocated pursuant to the valid provisions of this regulation shall be added to total conditional CCR allowances for the appropriate calendar year listed in 9VAC5-140-6200 and allocated accordingly.

²⁴ Proposed 9VAC5-140-6211.

9. EDF supports the proposed revisions to harmonize the price floor, ECR, and CCR with RGGI.

As discussed in our comments on the original proposed rule, EDF supports the inclusion of the RGGI price floor and Emissions Containment Reserve.²⁵ These are important features of RGGI to ensure proper functioning of the CO₂ allowance market and provide opportunities to drive additional emission reductions if compliance costs are lower than anticipated. EDF also supports the proposed changes to clarify the allocation formula and function of the Cost Containment Reserve.²⁶

10. EDF recommends the APCB adjust the 2021 bank adjustment formula to harmonize with RGGI.

The 2021 adjustment for banked allowances would lower the RGGI cap for 2021-2025 to account for banked allowances in excess of 2018-2020 emissions from RGGI covered sources. The adjustment is apparently intended to preserve stringency of the RGGI cap in future years by guarding against an excess of allowances in the bank — while not unduly penalizing sources for abating emissions early. In Virginia, CO₂ Budget Sources will not face a compliance obligation until 2020 — and therefore have no incentive to bank allowances until then. The APCB should accordingly revise Virginia’s contribution to the RGGI 2021 bank adjustment by accounting for banked allowances in excess *only of 2020 emissions from Virginia CO₂ budget sources*.²⁷

11. The APCB should take steps to ensure the CO₂ emissions budget declines beyond 2030 consistent with best available science.

The APCB should take steps to ensure CO₂ emissions from the power sector decline to zero before mid-century. EDF welcomes the APCB’s commitment in the re-proposed rule to, at minimum, continue annual tonnage reductions through 2040 and encourages the APCB to consider steeper reductions beyond 2030 to ensure the power sector is nearly or fully decarbonized by 2040.²⁸ This provides critical long-term certainty around carbon regulation for regulated facilities and others doing business in Virginia -- and this market certainty will contribute to a successful and robust emissions market, and can also help ensure Virginia is at the table as a leader on climate policy in the future. We also support DEQ’s commitment to engage in RGGI program review processes in order to continue to evaluate where Virginia needs to go beyond 2030, “in concert” with the other RGGI states.²⁹ As we discussed in our earlier

²⁵ EDF Comments at 20-21.

²⁶ See Proposed 9VAC5-140-6210(C).

²⁷ See Proposed 9VAC5-140-6210.

²⁸ See Proposed 9VAC5-140-6190(C).

²⁹ Draft Summary and Response to Comment Received in The Initial Comment Period at 152.

comments, it would be prudent for the APCCB to work with other RGGI states to act sooner rather than later to reduce emissions more quickly in the near-term, in order to minimize economic costs and secure the greatest environmental benefits.³⁰

The need for Virginia to continue reducing carbon pollution from the power sector beyond 2030 to zero emissions before mid-century remains urgent. The 2018 report from the Intergovernmental Panel on Climate Change notes that a key characteristic of the 1.5°C mitigation pathways include “strong upscaling of renewables and sustainable biomass and reduction of unabated (no CCS) fossil fuels, along with the rapid deployment of CCS, [which] lead to a zero-emission energy supply system by mid-century.”³¹

In our comments on the proposed rule, we wrote, “A number of recent studies suggest that in order to limit global temperature increases to less than 1.5°C or 2°C above pre-industrial levels, global carbon dioxide emissions must reach net-zero by mid-century.”³² Recent landmark findings from the Intergovernmental Panel on Climate Change (IPCC) and U.S. Global Change Research Program (USGCRP) suggest emissions must decline at an even faster rate to avoid catastrophic impacts of climate change.³³ Specifically, the IPCC finds that global warming of only 1.5C above pre-industrial levels will result in dramatic, harmful impacts to human health, U.S. and global economies, and the environment.³⁴

The IPCC further finds that, “in model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range).” This emission reduction trajectory is consistent with, and in some cases steeper than, the analyses we summarized in our earlier comments.³⁵ In addition, as we also described in our earlier comments, Virginia could leverage readily available emission reduction measures to cut carbon pollution from the power sector at a faster rate.³⁶ A steeper rate of decline in the CO₂ Budget Trading Program than the 3 percent of the 2020 budget per year currently proposed could facilitate the more rapid emission reductions in the power sector that are needed to achieve our climate goals. Revising the power sector CO₂ budget downward to match or exceed the reduction trajectory

³⁰ EDF Comments at 18.

³¹ IPCC, *Special Report: Global Warming of 1.5°C*, Chapter 2, 2018, available at: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter2_Low_Res.pdf

³² *Id.* at 17.

³³ See Valerie Masson-Delmotte, et al., eds., “Summary for Policymakers,” in *Global warming of 1.5°C. An IPCC Special Report* (Geneva: Intergovernmental Panel on Climate Change, 2018), available at <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/>. See also David Reidmiller, et al., eds., *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* (Washington, DC: U.S. Global Change Research Program, 2018), available at <https://nca2018.globalchange.gov/>.

³⁴ *The New York Times* provides a comparison of potential impacts of global warming of 1.5C and 2C, based on findings from the IPCC 1.5 report. See Brad Plumer and Nadja Popovich, “Why Half a Degree of Global Warming Is a Big Deal,” *The New York Times*, October 7, 2018, available at <https://www.nytimes.com/interactive/2018/10/07/climate/ipcc-report-half-degree.html>.

³⁵ EDF Comments at 17.

³⁶ *Id.* at 17-19.

charted by the IPCC would unlock opportunities for other sectors to reduce emissions at lower cost and at a faster pace via electrification — providing greater certainty that Virginia will cut climate pollution from across the economy at the scale and level of ambition required to avoid catastrophic climate change impacts.

12. Committing to ambitious climate reductions can benefit Virginia consumers.

The Virginia Department of Planning and Budget’s Economic Impact Analysis of the reproposal included analysis that showed Virginia electricity consumers will see lower average monthly electricity bills with the reproposal policy in place versus the reference case without it.³⁷ This is consistent with independent analysis of the broader RGGI program. A 2018 report by Analysis Group, for example, found that in the RGGI region consumers’ electricity bills go down over time, due in part to investments in energy efficiency.³⁸ Another analysis found that average electricity prices decreased by 6.4 percent in the RGGI region since the inception of the program.³⁹

Thank you for consideration of these comments.

Sincerely,

Pam Kiely

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³⁷ Virginia Department of Planning and Budget
Economic Impact Analysis [Revised Proposed], *available at*

http://www.townhall.virginia.gov/L/GetFile.cfm?File=1\4818\8476\EIA_DEQ_8476_v1.pdf

³⁸ Analysis Group, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States*, 2018 *available at*

https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf

³⁹ Acadia Center, *Outpacing the Nation: RGGI’s environmental and economic success*, 2017, *available at*

http://acadiacenter.org/wp-content/uploads/2017/09/Acadia-Center_RGGI-Report_Outpacing-the-Nation.pdf