

March 6, 2019

**COMMENTS OF THE VIRGINIA CHAPTER OF THE SIERRA CLUB
ON RE-PROPOSED CO₂ BUDGET TRADING PROGRAM**

The Virginia Chapter of the Sierra Club, which currently has approximately 19,000 members, supports Virginia's adoption of regulations implementing a "CO₂ Budget Trading Program" for electric power plants. The re-proposed rule represents an important advance in protecting Virginia's citizens, environment and economy. It should be approved and implemented with the modifications suggested by these comments. *Specific language suggestions are contained in the body of these comments.*

SUMMARY

As discussed in Part I of these comments, Virginia is wise to adopt regulations requiring reductions in CO₂ emissions from power plants through a market for CO₂ emissions from electric power plants. Linking to the Regional Greenhouse Gas Initiative (RGGI) is supported by these comments and extensive experience with RGGI. The CO₂ Budget Trading Program will serve Virginia well. Moreover, the Sierra Club supports the lowering of the initial base budget to 28 million tons, which will promote the efficacy of the carbon reduction program. Given that the cap in the current RGGI states has consistently been undersubscribed, it will be critical to continue to monitor the appropriateness of the cap level in conjunction with the other RGGI states and make adjustments to ensure the continued climate benefits of the program.

Part I also addresses questions posed by the re-proposed rule and identifies several important provisions that should be preserved or, in some cases, changes needed in the final rule. The final rule should:

- **Require all power plants that burn fossil and/or non-fossil fuels to obtain CO₂ allowances to cover their total CO₂ emissions.** Burning biomass can produce as much or more CO₂ as coal per MWh of electricity generated and the multi-decadal timeframe for recapture with trees will not contain the rapidly growing climate crisis.
- **Promote environmental justice by protecting communities living in proximity to and downwind of CO₂-emitting power plants by both monitoring and committing to remedy emergent environmental justice issues,** including any increases in concentrations of co-pollutants (*e.g.*, SO₂, smog, mercury, and other toxics) resulting from patterns of allowance utilization by such power plants.
- **Require continued CO₂ reductions beyond 2030 as provided by the re-proposed rule. The department should work with RGGI to help it understand the unique importance of this language for Virginia.** Clarify that the 25 MWe threshold for existing generation units cannot be avoided by making changes after the rule was proposed and apply the rule to *new* units serving generators of 15 MWe or larger in order to prevent gaming that would size or

configure new generators just below the 25 MWe threshold in order to evade a price on CO₂ emissions.

Part II identifies a number of important technical changes to the final rule that are needed to clarify its scope and requirements for the benefit of both administration of, and compliance with, the rule.

PART I – OVERVIEW AND SPECIFIC POLICY ISSUES THAT REMAIN

A. Overview

The re-proposed rule is unquestionably needed in order to protect the public by reducing CO₂ emissions from power plants located in Virginia and to do so by creating a CO₂ emissions market linked to the existing RGGI market for CO₂ emissions. Reducing CO₂ emissions is critical to protecting Virginia’s citizens, natural resources, infrastructure and economy.

Since comments were last submitted, a multi-agency, Federal team issued the **Fourth National Climate Assessment**.¹ That Assessment leaves no doubt about either the link between climate change and human greenhouse (GHG) emissions, including CO₂, or the urgency of taking actions to reduce those emissions. While we request that the entire Assessment be incorporated into the record, these excerpts from the Assessment’s Overview section underscore the urgency to act.

“Observations collected around the world provide significant, clear, and compelling evidence that global average temperature is much higher, and is rising more rapidly, than anything modern civilization has experienced, with widespread and growing impacts (Figure 1.2) (*CSSR, Ch. 1.9*). The warming trend observed over the past century can only be explained by the effects that human activities, especially emissions of greenhouse gases, have had on the climate (Ch. 2: Climate, KM 1 and Figure 2.1).”

“Climate change is transforming where and how we live and presents growing challenges to human health and quality of life, the economy, and the natural systems that support us...Risks are often highest for those that are already vulnerable, including low-income communities, some communities of color, children, and the elderly.”

The Assessment “concludes that *the evidence of human-caused climate change is overwhelming and continues to strengthen, that the impacts of climate change are intensifying across the country, and that climate-related threats to Americans’ physical, social, and economic well-being are rising*. These impacts are projected to intensify—but how much they intensify will depend on actions taken to reduce global greenhouse gas emissions and to adapt to the risks from climate change now and in the coming decades.”

“Greenhouse gas emissions from human activities will continue to affect Earth’s climate for decades and even centuries. Humans are adding carbon dioxide to the atmosphere at a rate far

¹ U.S. Global Change Research Program, *Fourth National Climate Assessment, Volume II Impacts, Risks and Adaptation in the United States* (2018) <https://nca2018.globalchange.gov/>. Volume I presents the scientific assessment for the Fourth National Climate Assessment. <https://science2017.globalchange.gov/>.

greater than it is removed by natural processes, creating a long-lived reservoir of the gas in the atmosphere and oceans that is driving the climate to a warmer and warmer state.”

“Early greenhouse gas emissions mitigation can reduce climate impacts in the nearer term (such as reducing the loss of arctic sea ice and the effects on species that use it) and in the longer term by avoiding critical thresholds (such as marine ice sheet instability and the resulting consequences for global sea level and coastal development...).”

“[R]ecent record-setting hot years are expected to become common in the near future. By late this century, increases of 2.3°–6.7°F are expected under a lower scenario (RCP4.5) and 5.4°–11.0°F under a higher scenario (RCP8.5) relative to 1986–2015 (Figure 1.3).”

“High temperature extremes, heavy precipitation events, high tide flooding events along the U.S. coastline, ocean acidification and warming, and forest fires in the western United States and Alaska are all projected to continue to increase, while land and sea ice cover, snowpack, and surface soil moisture are expected to continue to decline in the coming decades. These and other changes are expected to increasingly impact water resources, air quality, human health, agriculture, natural ecosystems, energy and transportation infrastructure, and many other natural and human systems that support communities across the country. The severity of these projected impacts, and the risks they present to society, is greater under futures with higher greenhouse gas emissions, especially if limited or no adaptation occurs...”

As one illustration of the problems posed to Virginia, the Assessment warns:

“Low-lying Norfolk, Virginia, houses the world’s largest naval base, which supports multiple aircraft carrier groups and is the duty station for thousands of employees. Most of the area around the base lies less than 10 feet above sea level, and local relative sea level is projected to rise between about 2.5 and 11.5 feet by the year 2100 under the Lower and Upper Bound USGCRP sea level rise scenarios, respectively.”

Another report recently issued by the International Panel on Climate Change (IPCC), further underscores the dangers of inaction or delayed action. It concludes that in order to avoid the dangers from increasing global average temperatures by 1.5°C, it is necessary to reduce GHG emissions by 45% by 2030 and to achieve zero-net CO₂ emissions by 2050. The proposed rule is thus directionally correct, but plainly insufficient and will need to be strengthened in the future.²

B. Questions Posed by the Re-Proposal Notice

1. Sierra Club supports strengthening the initial base budget for 2020.

In our April 2018 comments on Virginia’s proposed CO₂ budget trading program, we urged DEQ to set the initial base budget below 30 million tons and to revisit this initial budget in

² Intergovernmental Panel on Climate Change. Global Warming of 1.5° C, Summary for Policymakers. See http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

early 2019.³ We appreciate DEQ’s responsiveness to this request and its current proposal to set the initial base budget at 28 million tons. The proposed 28 million ton figure is consistent with modeling sponsored by the Natural Resources Defense Council and conducted by ICF using the Integrated Planning Model.⁴ It is also consistent with the trends in Virginia’s power sector described in Sierra Club’s April 2018 comments, including the rapid decline in coal-fired generation in Virginia and flattening retail loads.⁵ We believe that 28 million tons represents a far more realistic forecast of 2020 emissions from covered sources in Virginia and support this revised initial base budget.

At the same time, we note that the annual allowance budget in the current RGGI states has consistently been undersubscribed since the inception of the program. Most recently, 2018 emissions from CO₂ budget sources in the current RGGI states were 15 percent below the 2018 cap of 70 million tons, in line with the RGGI state’s emission cap for 2023 – five years ahead of schedule. To protect the integrity of the program to continue to provide climate and environmental benefits, it will be critical to continue to monitor the appropriateness of the cap level in conjunction with the other RGGI states and make appropriate adjustments in future program reviews.

2. The Final Rule Should Cover All CO₂ Emissions From Covered Generating Units.

As we read the re-proposed rule, any generating unit that burns more than 5% fossil fuels would require allowances to cover all of its CO₂ emissions, including emissions from co-fired non-fossil fuel.⁶ The Sierra Club strongly supports requiring CO₂ allowances for all CO₂ emissions from generating units crossing the 5% fossil-fuel threshold regardless of the specific fuel to which the CO₂ emissions may be attributed.

On the other hand, the Public Notice issued by DEQ states that one of the “substantive changes” in the proposed rule “is an “exemption of fossil fuel units that co-fire with biomass from CO₂ accounting” and it specifically requests comments on coverage of CO₂ emissions from units that co-fire with both fossil fuel and non-fossil fuels. While we do not see such an exemption anywhere in the re-proposed regulation, we do comment on this issue and oppose any such exemption.

a. Biomass

The Sierra Club opposes any exemption for CO₂ emissions from burning biomass. Indeed, in addition to CO₂ budget units that co-fire with fossil fuels, we urge that the final rule include, as CO₂ budget units subject to the allowance-holding requirement, generation units that combust biomass without fossil fuel.

³ Comments of the Virginia Chapter of the Sierra Club on Proposed CO₂ Budget Trading Program (Apr. 9, 2018), at 6 (hereinafter Sierra Club April 2018 Comments).

⁴ NRDC Comments on VA DEQ’s Proposed Regulations for Emissions Trading (9VAC5 Chapter 140, Rev. C17) (Apr. 9, 2018), at 6.

⁵ Sierra Club April 2018 Comments at 6-13.

⁶ As originally proposed, any power generating unit that burns more than 10% fossil fuels would have required allowances to cover **all** of its CO₂ emissions, even if part of the emissions are from co-firing other fuels, such as biomass.

All biomass produces CO₂ emissions when burned, and biomass burns less efficiently than fossil fuels thereby producing more CO₂ per unit of energy generated. Wood-based biomass is particularly harmful. Whatever may be said about using grasses or other quick-growing crops as biomass, wood-based biomass is the least likely to result in CO₂ recapture within a time frame helpful to avoiding the looming climate crisis. Like all biomass, woody biomass produces more CO₂/MWH generated than burning coal or natural gas. In addition, if full recapture through regrowth of woody biomass does occur, it will be decades into the future and too late to keep us from crossing dangerous climate thresholds. The recapture will also be followed by a new round of cutting and burning so another major pulse of CO₂ emissions will promptly follow.

First, EO11 (2017), "Reducing Carbon Dioxide Emissions from Electric Power Facilities and Growing Virginia's Clean Energy Economy," addressed CO₂ emissions from electric power facilities, without saying that CO₂ from biomass would be excluded from coverage by Virginia's rule. Further, while the RGGI model rule covers "fossil fuel-fired" generation units (XX-1.2 (definition of "unit") and XX-1.4), the model rule provides the option of, but does not require, excluding the units' emissions from combustion of biomass and limits that exclusion option to "eligible biomass" (XX-1.2 (definition of "eligible biomass") and XX-6.5(b)(1)). Some states in RGGI (Maine and Vermont) do not exclude any biomass emissions from fossil fuel-fired units. In short, exclusion of non-fossil-fuel emissions is not necessary for consistency with either EO11 or with RGGI. .

Second, there is no legitimate reason to exclude biomass-based generation from the requirement to obtain allowances. The implicit premise for exempting CO₂ emissions from burning biomass is that the emitted CO₂ will eventually be recaptured by regrowth of the feedstock and that future recapture is somehow sufficient to mitigate the climate damages from current CO₂ emissions.⁷ Those assumptions are faulty in several respects, particularly as they relate to wood-based biomass.

- CO₂ emissions per MWH of electricity generated from biomass are substantially higher than from coal and natural gas because biomass burns less efficiently. Using the Energy Information Administration's generation numbers and the U.S. Environmental Protection Agency's CO₂ emission numbers, we calculate **2016 CO₂ emission rates (lb CO₂/MWh) for three Virginia wood-fired generation plants (converted from coal) as: Southhampton - 3292 lb CO₂/MWh; Altavista - 3140 lbCO₂/MWh; and Hopewell Power station - 3204 lbCO₂/MWh. This compares to common values for most coal plants in 2200 lb/MWh range, except for a few very old plants. Values for combined cycle natural gas plants may run as low as 800 lb/MWh.**

⁷ See, e.g., Booth, "Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy," *Environ. Res. Lett.* 13 (2018) 035001 <https://doi.org/10.1088/1748-9326/aaac88> ; NRDC (Nathanael Greene), "Biomass: Not Carbon Neutral and Often Not Clean," (April 08, 2014); PFPI, "The Myths that Sustain the Biomass Energy Industry "Renewable – Sustainable - Carbon Neutral" <http://www.pfpi.net/carbon-neutral-think-again> (2011); Manomet "Biomass Sustainability and Carbon Policy Study" (2020) https://www.manomet.org/sites/default/files/publications_and_tools/Manomet_Biomass_Report_Full_June2010.pdf Pearce, "Carbon Loophole" (2017) <https://e360.yale.edu/features/carbon-loophole-why-is-wood-burning-counted-as-green-energy> ; <https://grist.org/article/e-u-loophole-counts-wood-energy-as-carbon-neutral-its-not/> (2017);

- Co-pollutants from biomass combustion—e.g., particulates—are large in quantity and harmful to human health. If waste wood is included in the mix, toxic and metal pollutants can also be emitted.
- Adverse climate and health impacts from burning biomass will not be neutralized by sequestration of CO₂ through regrowth – even assuming that the biomass is eventually replaced with comparable forests.
 - Trees take many decades to regrow and recapture the CO₂ sequestered in existing forests, with much less sequestration by seedlings and small trees.
 - As noted above, climate changes are projected to become catastrophic and irreversible within the next 10-20 years if we do not cut CO₂ emissions now. Decades of warming while trees regrow will not offset the harm of near-term CO₂ emissions that will heat the planet for millennia. Lost-lives will not be restored, nor will flooded coastlines and communities come back, nor will melted ice sheets and glaciers return, even if trees re-sequester an equivalent quantity of CO₂ 40-100 years from now. Similarly, harms from ocean acidification will not be resolved by future growth of any forms of biomass.
 - If old growth forests are cut to feed power plants, it is unlikely that equivalent carbon will ever be sequestered by commercial forests that replace them, particularly since they commercially planted trees will be cut for burning as soon as economically possible.
- Exempting biomass from carbon prices amounts to a **harmful subsidy** for CO₂ emissions from biomass. That subsidy of free carbon pollution rights would undercut beneficial investments in zero-carbon alternatives, such as solar, wind and energy efficiency, which mitigate climate harms in both the near-term and long-term. The subsidy is particularly unjustifiable given that biomass emits more CO₂ /MWH than fossil fuels.
- There is no support for the implicit assumption by biomass-advocates that forests will be regrown in a sustainable way or in sufficient quantities to recapture that CO₂ is emitted during the life of this program.
 - RGGI purports, in the option that it allows for excluding emissions from “eligible biomass,” to limit the exemption of biomass to “sustainably harvested” biomass. However, adopting that approach would require DEQ to adopt “sustainability” regulations and commit personnel and resources to monitor and enforce sustainability the next 50-100 years. Effective enforcement would require bonding, reporting, inspections and enforcement measures.
 - Cutting of whole trees to meet biomass demand would be even more harmful than so-called “forest residues” and regulatory commitments would be needed to enforce prohibitions on cutting whole trees, judging the health of trees taken and holding companies to any commitments to rely on “forest residues.”
 - Even if only “forest residues” were burned, there would be a negative climate impact over the next 50 or more years, particularly since exempting wood residues and pellets from CO₂ prices would increase the economic incentives to harvest whole trees, including mature ones that sequester the most CO₂.
 - Since converting biomass into wood pellets and transporting the pellets takes energy, recapturing the CO₂ from biomass require more than a one-for-one replacement.

- Past investments in large biomass facilities do not deserve special treatment any more than past investments in fossil fuel-fired facilities. CO₂ emissions are harmful in both cases. At a minimum, all new plants burning biomass without fossil fuel should be required to acquire allowances for all CO₂ emissions, just like fossil fuel-fired plants are required to cover all CO₂ emissions.

Third, the recent IPCC report cited above recognizes that we need to achieve a 45% CO₂ emissions reduction economy-wide (not just in power generation) by 2030 and achieve “net zero” emissions by 2050. It makes no sense to subsidize biomass emissions of CO₂ by exempting them from the requirement to obtain CO₂ allowances. With the inevitably slow growth of replanted forests and future cuttings of those trees, exempting woody biomass will help to defeat the 2030 and 2050 goals for CO₂ reductions. The climate crisis will never be resolved if previously built woody-biomass facilities (whether or not they co-fire fossil fuel) are granted exemptions or if incentives are created to build new wood-fired plants or to operate existing ones more.

Fourth, changing the rule to exempt CO₂ from non-fossil fuels would require adoption and enforcement of a new regime of measurement, accounting and reporting to segregate fossil-fuel and non-fossil-fuel CO₂ emissions from covered generation. Without such an additional layer of measurement, accounting, reporting, inspections and auditing, the rule simply would not work for co-fired units.

b. Other Co-firing

The core problem we face is that CO₂ emitted now or over the next few decades will heat the atmosphere and oceans for millennia. It does not matter whether the CO₂ emissions come from biomass or any other materials. There is thus no legitimate reason to exempt emissions from burning solid wastes or any other fuel.

In the case of co-firing with municipal wastes, there are added issues. For one, a significant portion of the waste stream is made up of plastics. A significant portion of the heat input for an incineration generation unit burning municipal solid waste comprises plastics, often supplemented by natural gas, petroleum, or coal to stabilize combustion. Because plastics are made from the hydrocarbons in natural gas, petroleum, or coal and 9VAC5-140-6020 C defines “fossil fuel” as “natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such material,” “fossil fuel” includes, on its face, plastics. Further, municipal-solid-waste-based generation not only involves co-firing of fossil and non-fossil fuel, but also such generation results in significant emissions of CO₂, as well as extremely harmful co-pollutants.

As of 2015, plastics comprised (by weight) 13.1 percent of municipal solid waste in the United States and 15.9 percent of municipal solid waste combusted for energy.⁸ Because plastics (other than polyvinyl chloride) have significantly higher heat content than other material in trash

⁸ U.S. EPA, Advancing Sustainable Materials Management: 2015 Fact Sheet (July 2018), at 4, available at https://www.epa.gov/sites/production/files/2018-07/documents/2015_smm_msw_factsheet_07242018_fnl_508_002.pdf, at 7-8.

(e.g., leather, textiles, biomass, food, paper, metal, and glass) except rubber,⁹ their share of incinerator heat input likely comprises more than their percentage by weight. Consequently, under the 5% fossil-fuel threshold for units to be covered units, existing and new incinerator generation units would likely be CO₂ budget units and covered by the requirement to hold allowances. The existing units that would likely be covered units include: Covanta Fairfax Energy Waste Plant VA USA, units 1 and 2; and Pittsylvania Power Station Waste Plant VA USA, units 1 and 2.

Inasmuch as such units produce CO₂, emissions while generating electricity, they should be covered by the rule. They will receive an allocation of conditional allowances and will have to purchase new allowances sufficient to cover their emissions. That is not an unfair burden, but it will tend to help reduce overall CO₂, emissions and not, by exempting them, undercut zero-carbon alternatives.

3. Costs and Benefits of the Revisions of the Proposal

The costs of the proposal for a consignment auction are minimal and the benefits are great, particularly when Virginia considers the costs and harms from continuing business as usual. Actual experience by current members of RGGI demonstrates that benefits have outweighed costs, their residents have experienced improved health outcomes, and that actual costs have consistently come in well below earlier forecasts.¹⁰ Moreover, the costs incurred in conducting a consignment auction are minor compared to the revenues from the sale of consigned allowances, even as incentives are created to find cheaper, cleaner energy sources.

On the benefit side, Virginia and its residents and businesses are already experiencing direct and indirect harms from human-caused climate changes. These are especially notable along its coastal areas, in rising health harms from heat-illnesses and smog, and in harms to property and agriculture from extreme precipitation and storm events.

Further, as discussed above, Virginia faces much more severe harms from rising temperatures and oceans as a result of climate change. The growing harms include those to its coastal and along tidal estuaries; to the health of its citizens who face greater direct harms from temperatures and pollution; to public and private property from increased flooding and wind damage from storms and extreme rain events; to its agriculture and viniculture from heat and weather disruptions; to its natural heritage, including forests, streams and wildlife; and to its economy, which will be directly harmed by the aforementioned disruptions and further harmed by delaying investments in the GHG reductions that will become more urgent and disruptive by delaying them.

Not only will Virginians benefit from reducing CO₂ emissions sooner rather than later, their economy will benefit from incentivizing low-emission investments rather than high-

⁹ See <https://www.eia.gov/totalenergy/data/monthly/pdf/historical/msw.pdf> at 10.

¹⁰ See, e.g., Acadia Center, *Outpacing the Nation: RGGI's Environmental and Economic Success* (Sept. 2017), at 4-7, available at <http://acadiacenter.org/document/outpacing-the-nation-rggi/>; Abt Associates, *Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative 2009-2014*, <http://abtassociates.com/AbtAssociates/files/7e/7e38e795-aba2-4756-ab72-ba7ae7f53f16.pdf>.

emission investments that will likely be stranded in the future. The longer we wait, the worse the transitional costs will be.

As noted above, according to the Intergovernmental Panel on Climate Change (IPCC), reducing greenhouse gas (GHG) emissions by 45 percent from 2010 levels by 2030 is critical in order to keep global temperature increase from exceeding 1.5° C above pre-industrial levels.¹¹ The certainty of harms and the nature and magnitude of those harms are spelled out in greater detail in two recent publications as part of the 4th National Climate Assessment by the U.S. Global Change Research Program (USGCRP).¹² These documents, which are incorporated by reference, leave no doubt about the dangers posed by climate change and about the reality that climate change is already harming the United States, including Virginia.

4. Potential Impacts of the Revisions on Farm and Forest Land Preservation

Farm and forest land preservation are threatened by climate change—including extreme precipitation, floods, rising temperatures, wildfires, spreading agricultural and forest pests, storms, periods of drought and changing seasonal patterns. New research indicates that rising seas have also lead to salt-infiltration of farmlands in North Carolina, and there is no reason to think that Virginia farmlands will be exempt from that hazard.¹³ A rule of implementing a CO₂ Budget Trading Program, linked to RGGI, to reduce CO₂ emissions from power plants will promote farm and forest land preservation by making progress in addressing climate change. The co-benefits of reducing co-pollutants from dirty power plants will also likely help farms and forests.

If the final rule were to create an exemption for CO₂ emissions from biomass, the result could undercut forest land preservation by subsidizing, continued and increasing power generation and CO₂ emissions from woody biomass. Harvesting woody biomass would encourage harm to forests and the lands that will be disturbed by continued or increased harvesting. Meanwhile, such subsidization of CO₂ and other pollution from preparing and burning biomass would undercut reductions in CO₂ emissions from fossil fuel generated electricity. Such a rule change could also undercut preservation of farm land by incentivizes expansion of tree farming for the purposes of feeding wood pellets or other wood products to biomass-fired power generation. It could also encourage diversion of land dedicated to food production to energy production. That would not be in the public interest.

¹¹ Intergovernmental Panel on Climate Change. Global Warming of 1.5° C, Summary for Policymakers. See http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

¹² U.S. Global Change Research Program, Fourth National Climate Assessment, Volume II Impacts, Risks and Adaptation in the United States (2018) <https://nca2018.globalchange.gov/>. Volume I presents the scientific assessment for the Fourth National Climate Assessment. <https://science2017.globalchange.gov/>.

¹³ **“Ruined crops, salty soil: How rising seas are poisoning North Carolina’s farmland,”** https://www.washingtonpost.com/national/ruined-crops-salty-soil-how-rising-seas-are-poisoning-north-carolinas-farmland/2019/03/01/2e26b83e-28ce-11e9-8eef-0d74f4bf0295_story.html?utm_term=.248048537757

5. Impacts of Revisions on small businesses as defined in 2.2-4007.1 of the Virginia Code

As defined in Section 2.2-4007.1 of the Virginia Code, “‘small business’ means a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.”

No company covered by the proposed rule that would be deemed a “small business” under this definition. Any power plant having generating units of 25MW or more will have gross annual sales well over \$6 million.

Further, a trading mechanism is inherently designed to achieve goals with the least financial and administrative burden. The re-proposed rules generally follow RGGI, which has successfully functioned for a decade. Economies in RGGI states have grown since the RGGI’s implementation.

C. Additional Changes Needed in the Final Rule

[Note: In some places, we provide below suggested revisions of the re-proposed rule as additions to rule text in **bold** and deletions of rule text in ~~strikeout~~.]

1. Environmental Justice Concerns Require Additional Changes

The Sierra Club appreciates the inclusion of proposed 9VAC5-140-6440 in the revised rule, which recognizes the need to both evaluate the impact of the CO₂ Budget Trading Program on environmental justice communities and also for meaningful participation from these communities. In order to make these requirements more robust and meaningful, the Sierra Club offers the following three recommendations.

First, Sierra Club recommends that when DEQ evaluates impacts on vulnerable and environmental justice and underserved communities the evaluation considers not only direct emissions of CO₂ but also impacts from co-pollutants (including nitrogen oxides, sulfur dioxide, fine particulates, and mercury) emitted by generating units covered in the CO₂ Budget Trading Program as well as the cumulative impacts from CO₂ budget sources and other polluting facilities located in a community.

In conducting evaluations to assess any adverse impacts on communities, California’s AB32 Adaptive Management Plan¹⁴ can provide a good example for a state planning to undertake such an evaluation. The key elements of this adaptive management plan are: (1) data and data source identification (information gathering); (2) analysis to determine whether an adverse impact is caused by the cap-and-trade regulation (review and analysis); and (3)

¹⁴ California Air Resources Board, Adaptive Management Plan for the Cap-and-Trade Regulation (Oct. 10, 2011), available at https://www.arb.ca.gov/cc/capandtrade/adaptive_management/plan.pdf.

identifying potential actions the Air Regulation Board could take to address these impacts and committing to take appropriate action (response).

In evaluating impacts of the CO₂ Budget Trading Program on vulnerable and environmental justice and underserved communities, DEQ must evaluate the impacts of co-pollutants from participating fossil fuel-fired electric power generators. Co-pollutants emitted by power plants can have serious health consequences for people living, working, and going to school in their vicinity. Fossil fuel-fired power plants emit numerous conventional and hazardous pollutants that affect public health and create other environmental and health hazards, such as coal combustion residuals. When evaluating impacts of co-pollutants DEQ should look at total emissions of co-pollutants from participating fossil fuel-fired electric power generators.

There is evidence that a disproportionate number of environmental hazards, polluting facilities and other unwanted land uses are located in communities of color and low income communities. This concentration of polluting facilities and unwanted land uses has almost certainly played an important role in the disproportionate exposure to air pollution experienced by residents of various environmental justice communities. The concept of cumulative impacts refers to the interaction, and the risks created and effects experienced due to the interaction, of multiple pollutants emitted by multiple polluting facilities located in a neighborhood.

In order to accurately evaluate the impacts of the CO₂ Budget Trading program on vulnerable, environmental justice and underserved communities DEQ must not solely evaluate pollution from participating fossil-fuel-fired electric power generators in static isolation. As a starting point DEQ can use EJSCREEN to map environmental concerns in the areas around the participating fossil-fuel-fired electric power generators in order to identify issues for further analysis. EJSCREEN's "supplementary maps" feature provides information on environmental concerns and sources of air and water pollution derived from EPA databases on hazardous waste, toxic releases, brownfields, and impaired streams and water bodies. It also provides the location of schools, churches, and hospitals. EPA's Framework for Cumulative Risk Assessment provides guidance on undertaking a cumulative impacts assessment when evaluating both chemical and non-chemical stressors that may be relevant to identifying environmental justice concerns.

Second, the Sierra Club recommends that when DEQ evaluates program impacts on vulnerable, environmental justice and underserved communities, if that evaluation shows adverse environmental or socio-economic impacts, or would add to cumulative impacts to vulnerable, environmental justice and underserved communities that already face environmental hazards, DEQ include measures to avoid or mitigate these impacts.

We recommend that when DEQ is developing measures to avoid or mitigate negative impacts on vulnerable, environmental justice and underserved communities that it do so in coordination with these communities. DEQ should consider a range of options to address localized adverse air quality impacts on vulnerable, environmental justice and underserved communities. These could include the adoption of additional regulatory requirements, coordination with other agencies to provide additional incentives for energy efficiency or other

emission reduction activities within the community, or modifications to the Regulation. Below are three specific measures that could be taken to avoid or mitigate adverse impacts.

One measure is limiting the number of allowances that a plant of concern could acquire to cover its emissions. When DEQ allocates allowances to covered power plants for free, it could limit the number of allowances that would be distributed to an individual plant of concern.

A similar result could be achieved by requiring plants of concern to reduce their operation by imposing a limit on their annual CO₂ emissions in their operating permits. Those power plants would still be allowed to participate in the trading program by buying and selling allowances, but the limits on their annual emissions would have the effect of reducing their operation.

There could also be incentives provided for certain plants of concern to reduce their generation. A stringent or declining cap could serve this purpose. If the market is constrained by the cap, the operation of some units will need to be curtailed. DEQ could issue fewer free allowances to certain power plants, creating an economic incentive for reducing the operation of those sources.

Third, Sierra Club recommends that the DEQ develop and implement a plan to ensure increased participation of EJ communities consistent with The National Environmental Justice Advisory Council’s Model Guidelines for Public Participation.

In 2013, the National Environmental Justice Advisory Council updated its Model Guidelines for Public Participation.¹⁵ The document included seven critical elements of effective community engagement, several of which we urge DEQ to draw upon in its efforts to “develop and implement a plan to ensure increased participation of environmental justice communities in the review” pursuant to 9VAC5-140-6440. In particular, the following elements are particularly relevant to ensuring meaningful input from impacted communities in the review of Virginia’s carbon reduction program.

- (1) A greater emphasis on the quality of community input rather than the quantity of input. The quality of community engagement should be based more on what is “uploaded from” the community than what is “downloaded to” the community; and how well agencies are able to practically apply the input received from community members.
- (2) Recognition of local community members as an “encyclopedia of experientially-tested and validated insight,” and consultation of that resource as part of the foundation of community engagement efforts. The success of community engagement depends on the maximum utilization of local community members as the foundation (not just an added value) to a comprehensive, holistic approach.

¹⁵ National Environmental Justice Advisory Council, Model Guidelines for Public Participation: An Update to the 1996 NEJAC Model Plan for Public Participation (Jan. 25, 2013), available at <https://www.epa.gov/sites/production/files/2015-02/documents/recommendations-model-guide-pp-2013.pdf>.

- (3) Efforts to “meet people where they are.” Methods, processes, and information should be targeted and applicable to the specific communities.¹⁶

Ensuring meaningful community input and engagement will require engaging directly with members of impacted communities early in the process and providing robust public notice to impacted communities that uses terminology and language easily understood by the majority of readers. DEQ should ensure that community members for whom English is not their primary language are able to access information in a language they can understand. DEQ should translate notices and provide translators when it is known that potentially affected community members are not proficient in English.

Engagement with impacted communities should occur in the community itself and at times that accommodate the work schedules of residents in the community. Engagement should utilize formats that encourage meaningful dialog between DEQ and members of the community. Impacted community members should not be expected to travel across the Commonwealth to participate in the environmental justice review of the carbon program or have their input limited to online questionnaires or written comments.

2. Consistent With the Re-proposed Regulation, the Final Rule Should Require Continued CO₂ Reductions Beyond 2030.

In, 9VAC5-140-6190 C, the re-proposed rule wisely states that, absent a future amendment, annual reductions of CO₂ allowances will continue in the period 2031-2040 at the same rate as in prior years:

C. For 2031 and each succeeding calendar year, the department will review the Virginia CO₂ Budget Trading Program base budget and recommend to the board appropriate adjustments in the base budget for such succeeding years. The department will consider the best available science and all relevant information and policies available from any CO₂ multistate trading program in which Virginia is participating when considering further reductions. Absent any adjustment, the Virginia CO₂ Budget Trading Program base budget for each year of the decade 2031-2040 shall be reduced by 840,000 tons from the preceding year.

We understand that RGGI has questioned this provision in comments dated February 21, 2019.¹⁷ As discussed below, we urge Virginia to pursue this provision and to work with RGGI to help it understand why it is uniquely important for Virginia’s regulations to prescribe CO₂ reductions beyond 2030 and how this provision is not inconsistent with RGGI’s model.

¹⁶ *Id.* at 2.

¹⁷ https://www.rggi.org/sites/default/files/Uploads/Participation/2019_02_21_Virginia_Re-Proposed_Comments.pdf.

a. **This provision is uniquely important for Virginia.**

In order to make reasonable judgments about applications to build generation, storage and transmission, utilities and Virginia's State Corporation Commission (SCC) need clear guidance that from environmental regulators that CO₂ limits will continue to decline after 2030. A rule requiring 10 years of CO₂ reductions followed by flat CO₂ limits thereafter does not go far enough. Generation, transmission and storage decisions that assume no CO₂ reductions after 2030 would have badly skewed assumptions about the economic life-spans and operating costs of possible projects.

When considering applications to build new electrical generation, the SCC's powers are limited by permits granted by DEQ or other regulatory agencies.¹⁸ If DEQ grants permits to electric utilities to emit a specified level of CO₂, then the law prescribes that "[i]n order to avoid duplication of governmental activities,... the Commission shall impose no additional conditions with respect to such matters."

Thus, unless Virginia's final regulations prescribe a CO₂ reductions for the period 2031-2040 (or preferably longer), utilities will argue that the SCC's review of proposed new carbon-polluting projects must assume that CO₂ emissions limits will not decline after 2030—an absurd assumption. It will not be enough that RGGI plans to periodically consider further reductions of CO₂ emissions. Nor will it be enough that there is a scientific consensus that CO₂ emissions be sharply reduced until net-zero emissions are achieved as early as 30 years from now. By prescribing flat CO₂ emissions caps after 2030, DEQ could create a fictional basis for future evaluations of certificates of public convenience and necessity.

Virginia has legally-protected monopoly utilities that own nearly all the generating capacity that supplies retail energy in the state. Unlike competing generators in other states, Virginia utilities do not bear the financial risks of building projects that are later required to shut down or throttle back due to revised environmental regulations. As a general matter, they are able to impose risks of SCC-approved construction projects on customers.

Because generation lasts for decades, it would be a mistake to discourage Virginia from adopting regulations that show continued CO₂ reductions well beyond 2030. To do so would send misleading signals to the SCC and Virginia's electric markets. Generation decisions based on misleading signals beyond 2030 would cause higher costs to consumers and harmful CO₂ emissions for decades. This could erect potential barriers to Virginia's agreeing with RGGI to implement future reductions. Thus, creating an illusion that CO₂ emissions limits will remain flat after 2030 would be very harmful to utility regulation and consumers.

¹⁸ See Virginia Code § 56-580 D.

b. This provision is consistent with the RGGI model.

Virginia's proposal to presumptively require continued reductions beyond 2030 is consistent, not inconsistent, with RGGI's model for continuous progress reducing CO₂ emissions.

First, for the years 2020-2030, Virginia will reduce CO₂ allowances at a rate equal to 3% of the first year, just as provided for in its discussions with RGGI.

Second, while Virginia's proposed schedule for continued reductions beyond 2030 is needed for the reasons stated above, Virginia will obviously work with RGGI members to make reasonable adjustments in order to remain linked to the RGGI market. Adopting provisions, at this time, that would require continued reductions in 2031-2040, does not prevent DEQ from changing the pace of reductions to meet the emerging needs and the outcome of future negotiations with RGGI members. Indeed, Virginia will be far better positioned to make interim adjustments and/or adjustments to the post-2030 emissions levels, if it clearly puts utilities, customers and others on notice now that they should expect further reductions after 2030 and plan accordingly. DEQ's ability to work with RGGI to extend reductions in the future would be hampered if misleading signals now led to stranding utility assets.

Third, it should be recalled that Virginia is far behind RGGI in its reductions of CO₂ emissions.¹⁹ While RGGI has stated its plan to reduce CO₂ emissions by 65% by 2030, Virginia will be nowhere near that level of reductions. It will have to continue reducing its CO₂ emissions long beyond 2030 just to catch up.²⁰ Thus, there is no inconsistency.

Fourth, it would be entirely unfair for Virginia to be prevented from achieving at least as much total emissions reductions as current RGGI states, particularly given the health and economic benefits that have been achieved by reducing emissions in the RGGI states. (*See* footnote 10.)

Fifth, we know from volumes of scientific studies that *much greater* CO₂ reductions will be needed as we head toward 2050, just to keep worldwide temperatures from rising 1.5° to 2.0°C above pre-industrial levels. This is plainly demonstrated by the Fourth Annual Climate Assessment and IPCC Report cited above. As shown in the IPCC Report, the world needs to reach a 45% reduction by 2035 and net-zero GHG emissions by roughly 2050, on an economy-wide basis, in order to avoid worldwide temperature increases of 1.5°C. Even earlier works, such as the Virginia Governor's 2008 Climate Commission Report, recognized that an 80%

¹⁹ While RGGI states reduced their covered power plant emissions by 40% from 2008 to 2016, EIA data indicate that Virginia's emissions from all fossil-fuel power plants declined by only 7%. *See* footnote 10, *supra*.

²⁰ RGGI is now on-track to achieving a 65% CO₂ reduction by 2030. *See* "RGGI States Announce Proposed Program Changes: Additional 30% Emissions Cap Decline by 2030" (Aug. 23, 2017). Indeed, despite continuing reductions for 10 years beyond 2030, Virginia may still achieve less than RGGI states will achieve by 2030.

reduction in CO₂ from 1990 levels would be needed by 2050,²¹ and delays in overall reductions mean that deeper cuts would be needed now. Continued reductions proposed from 2031-2040 would still leave Virginia well short of those goals. Thus, it would be unreasonable for the regulations not to specify a presumptive path for carbon emissions reductions after 2030. Indeed some RGGI members have already announced their intention to cut their CO₂ emissions well beyond the levels set forth in the latest RGGI plans.²²

3. The Re-proposed Rule Should be Modified to Prevent Manipulative Actions to Avoid Coverage by the Rule

The re-proposed rule needs to **be modified in two respects** to prevent generators from endeavoring to avoid application by manipulating the size of their units. The re-proposal to cover existing units serving a generator of 25 MWe or larger is generally consistent with RGGI's model rule. However, unlike RGGI's model rule, the re-proposed rule leaves a door open to manipulation of the size of units in order to evade CO₂ allowance requirements.

a. The rule should be clarified to state that the 25 MWe threshold only needs to be crossed once after a fixed historic date to trigger coverage by the rule. To do this, 9VAC5-140-6040 A should be modified to state that the rule covers units serving a generator having a nameplate capacity of 25 MWe or more **“at any time on or after”** a fixed date. Currently, that provision simply states that fossil fuel-fired units “serving” a generator of at least 25 MWe are covered.

Because 9VAC5-140-6040 A specifies no time frame, the re-proposed rule can be interpreted as covering only units serving such a generator at the time the provision is applied and not units if and when they change to serving a different generator with, or modify their existing generator to have, slightly less than 25 MWe capacity. It is not clear that such activity would be barred by Virginia's rule prohibiting “piecemeal carrying-out of an operation” to evade regulation (9VAC5-20-70). The language of the re-proposed rule may create a loophole for units currently subject to the rule to escape coverage through such actions. In addition, this language is contrary to the approach in the RGGI model rule, which specifies a time frame (i.e., “at any time on or after January 1, 2005”) in the applicability provision (in XX-1.4(a)).

We therefore maintain that the proposed rule should be revised as follows:

9VAC5-140-6040 A

²¹ The 2008 Governor's Climate Commission's Report recognized that an 80% reduction below 1990 levels would be needed by 2050. Governor's Commission on Climate Change, *Final Report: A Climate Action Plan* (Dec. 15, 2008), p. 14. This report remains substantially correct today in its warnings of climate risks and its identification of available measures to reduce GHG emissions, including clean energy, energy efficiency and creating a cap-and-trade program. Inaction since then has resulted in growing risks today and a requirement for sharper reductions to offset a decade of business-as-usual emissions.

²² The New York State Energy Plan calls for 50% of the state's electricity to come from renewable sources by 2030. <https://energyplan.ny.gov/>. Maryland law requires development of a plan by the end of this year which would achieve a 40% reduction in statewide GHG emissions by 2030. http://mgaleg.maryland.gov/2016RS/Chapters_noln/CH_11_sb0323t.pdf.

A. Any fossil fuel-fired unit that serves, **at any time on or after January 1, 2005**, an electricity generator with a nameplate capacity equal to or greater than 25 MWe shall be a CO₂ budget unit, and any source that includes one or more such units shall be a CO₂ budget source, subject to the requirements of this part.

Alternatively, the “on-or-after” date could be shortly prior to the first notice that a plant might be covered by CO₂ regulations (e.g., January 1, 2014, which would have been shortly prior to the proposal for the Clean Power Plan, which may have created a regulatory incentive to manipulate a generator’s size or configuration). In any event, facilities should not be able to evade compliance by making changes that would alter a facility’s size or configuration.

b. The re-proposed rule should be modified to require units built after the rule is issued (i.e., new units) serving generators with a nameplate capacity less than 25 MWe to obtain emissions allowances. We suggest the threshold for new generators be set at 15 MWe or not more than 20 MWe. This is needed in order to send CO₂ regulatory and price signals to a broader pool of *new* generators and to prevent gaming that would undermine the regulation’s CO₂ reduction goals and that would be unfair to existing generators covered by the rule. Within the RGGI region, there are examples of recent proposals for multiple generation fossil fuel-fired units each just below the 25 MWe compliance threshold.²³ Since economic efficiencies and operating efficiencies would ordinarily support larger units, the sizing appears clearly to be driven by a desire to emit CO₂ without limits, thereby undercutting public health and the goals of the regulations.

A lower size threshold for coverage of new units would better protect the public from emissions of CO₂ and co-pollutants, remove an unintended incentive for building less efficient fossil fuel generators, and protect the integrity of allowance markets. Since developers would have notice of the allowance requirement for new generation, no unfairness would result from imposing a lower size threshold for such generation. Building zero-carbon generation and storage would always be options for designers of new projects. We submit that units placed in service after January 1, 2019 (or, at most, two years after the proposed rule was announced) would fairly be considered “new.”

4. Treatment of Offset Projects in the Final Rule

We support DEQ’s decision not to implement a regime of offset allowances in Virginia. Such a scheme would require an extensive set of rules defining the permissible scope offset allowances and a very substantial expenditure of Virginia’s administrative resources to assess proposals, to audit and verify actual compliance and benefits, and to bring enforcement actions to police violations. The complexity of offset arrangements is demonstrated by the facts that roughly one-third of the RGGI model rule are devoted to restrictions on, and administration of,

²³ For example, MIT recently proposed two 22 MW combustion turbines. See Draft Prevention of Significant Deterioration Permit Application No. NE-15-018 Transmittal No.: X262144, available at <http://www.mass.gov/eea/docs/dep/air/approvals/final2017/mit-dpsd.pdf>; Air Quality Plan Approval, Application No. NE-15-018, Transmittal No.: X262144 (June 21, 2017), available at <https://powering.mit.edu/sites/default/files/images/CUP%20MassDEP%20approval%20cover%20letter.pdf>

offsets and that relatively few offset projects have been approved. The potential benefits would be far outweighed by the costs.

PART II – CHANGES NEEDED TO CLARIFY AND ENHANCE OPERATION OF THE FINAL RULE

[Note: We provide below suggested revisions of the re-proposed rule as additions to rule text in **bold** and deletions of rule text in ~~strikeout~~.]

1. Clarify Provisions for 2020 Initial Control Period and Interim Control Periods.

The final rule should be revised to assure that that affected generators have a clearly enforceable obligation to have allowances to cover their emissions in 2020. This can be achieved by simply including the 2020 “initial control period” in the definition of “control period” or, as discussed below, by inserting “initial control period” in numerous locations in the rule.

Certain technical corrections are also needed to assure proper implementation of the “interim control period” provisions.

a. “Initial Control Period” Fix.

The re-proposed rule contemplates a one-year “initial control period” in 2020 and three-year control periods thereafter (each comprising three one-year “interim control periods”) and a CO₂ emissions limitation in every year starting in 2020. See, *e.g.*, 9VAC5-140-6190 A and C (setting base budgets for 2020 and thereafter).

However, confusion may arise from the combination of (a) the definitions of “control period” and “interim control period” (in 9VAC5-140-6020 C), which refer to three-year and one-year periods beginning 2021 but not the one-year “initial control period” in 2020 and (b) language in other sections (*e.g.*, 9VAC5-140-6050 C 1 and 2 and 9VAC5-140-6260 A, B, and C) that imposes and implements the emissions limitation for CO₂ budget sources only during a “control period” and an “interim control period”.

The failure to mention the “initial control period” in many provisions referencing “control period” could result in allocation and consignment of conditional allowances for 2020 but no enforceable obligation for sources to acquire and hold CO₂ allowances for 2020 emissions. See, *e.g.*, 9VAC5-140-6020 C (definitions of “CO₂ allowance deduction,” “CO₂ allowance transfer deadline,” “CO₂ budget emissions limitation,” “Compliance account,” “Excess emissions,” and “Ton”), 9VAC5-140-6050 C 1, 3 and 7 and D, and 9VAC5-140-6260 A, A 1, 2, and 4, B, B 1, C 1 and 2, and D 2 a. See also 9VAC5-140-6170 A and B 2 (compliance certification report) and 9VAC5-140-6310 B (recordation of allowance transfers). Without an enforceable compliance obligation for 2010, all 2020 CO₂ allowances could be available for use in 2021 or later, effectively inflating the emissions caps for those years. That is clearly not the intent.

The re-proposed rule adds the term “initial control period” in the third line of one section (9VAC5-140-6260 A 3). However, the approach of adding “initial control period” wherever the term is necessary in the re-proposed rule means that the term should be added in the fourth line of 9VAC5-140-6260A 3, as well as in each of the above listed provisions where the term “control period” appears.

A simpler approach would be to revise the definition of “control period” to include “initial control period,” and thereby avoid having to add the latter term wherever needed. We therefore maintain that the re-proposed rule should be revised to define “control period” to include the “initial control period.”

b. “Interim Control Period” Fix

In addition, in some provisions referring to “control period,” the re-proposed rule is missing references to “interim control period” that are necessary for consistency with the RGGI model rule. We therefore maintain that the re-proposed rule should be revised to add language concerning “interim control period” as follows:

9VAC5-140-6050 C 7

7. A CO₂ allowance shall not be deducted, in order to comply with the requirements under subdivision 1 or 2 of this subsection, for a control period **or interim control period** that ends prior to the year for which the CO₂ allowance was allocated.

9VAC5-140-6050 D

D. The owners and operators of a CO₂ budget source that has excess emissions in any control period, **or excess interim emissions for any interim control period**, shall:

9VAC5-140-6260 C 2

2. The department or its agent will deduct CO₂ allowances for a control period **or interim control period** from the CO₂ budget source’s compliance account, in the absence of an identification or in the case of a partial identification of available CO₂ allowances by serial number under subdivision 1 of this subsection, as follows: * * *

3. Clarify and make enforceable applicability exemption provision.

The re-proposed rule (9VAC5-140-6040 B) exempts from the Virginia program a “CO₂ budget source” at or adjacent to a physically interconnected a manufacturing facility and supplying, before 2019 and every year thereafter, either 10% or less of “annual net electrical generation” (calculated by using a formula) to the grid or 15% or less of “annual total useful energy” (defined as “gross electrical generation” plus “useful net thermal energy”) to a facility other than the manufacturing facility. The re-proposed rule’s formula for calculating the relevant percent of annual net electrical generation uses an undefined term “electrical generation” (which may be intended to mean “net” electrical generation.) Such a source must have a permit with the applicable restrictions. The RGGI model rule (in XX-1.4(b)) contains a similar, optional

exemption for a fossil fuel-fired unit with a permit restriction limiting supply of the unit's annual electrical output to the grid to less than or equal to 10% of the unit's annual gross generation.

The re-proposed rule contains no requirements for annual reporting of amounts and relevant percentages of net generation and total useful energy and for retention of records showing continuing qualification for the exemption and no provisions explaining when an exempt unit would lose its exemption and how a unit that lost its exemption would subsequently be treated under the permitting, monitoring, and allowance allocation provisions. The re-proposed rule also does not reduce the Virginia CO₂ trading program annual base budget by the amount of CO₂ emissions in the budget from units that Virginia is exempting from the program. Keeping in the budget the CO₂ emissions of exempt units -- which are not required to hold allowances to cover emissions -- has the effect of inflating the number of allowances available for affected units to use to cover emissions and thereby reduces the emission reductions otherwise required for affected units. This result would be contrary to the climate and emission-reduction goals of the Virginia CO₂ trading program. In contrast to the re-proposed rule, the RGGI model rule (in XX-1.4(b)(3) and (4) and XX-5.3(m)) addresses all of these matters, which are necessary to make sure that the exemption is properly applied and enforceable and that CO₂ reduction goals are met.

We therefore maintain that the exemption provided in the re-proposed rule should be revised to clarify the "net electrical generation" formula and to include provisions analogous to those in the RGGI model rule (in XX-1.4(b)(3) and (4) and XX-5.3(m)) as follows:

9VAC5-140-6040. Applicability.

A. * * *

B. Exempt from the requirements of this part (**except 9VAC5-140-6020, 9VAC5-140-6030, and 9VAC5-140-6060**) is any ~~CO₂-budget~~ source **otherwise qualifying as a CO₂ budget source under subsection A of this section** located at or adjacent to and physically interconnected with a manufacturing facility ~~that, prior to January 1, 2019, and in every subsequent calendar year, met either of the following requirements:~~, **as follows:**

1. In order to be exempt under this subsection, a source must have met, prior to January 1, 2019, and in 2019 and every subsequent calendar year, either of the following requirements and must have an operating permit that contains the applicable restriction for such calendar year:

a. ~~1-~~Supplies less than or equal to 10% of its annual net electrical generation to the electric grid, or

b. ~~2-~~Supplies less than or equal to 15% of its annual total useful energy to an entity other than the manufacturing facility to which the ~~CO₂-budget~~ source is interconnected.

2. For the purpose of subdivision 1 of this subsection, the source's percent of annual net electrical generation supplied to the electric grid shall be determined as follows:

$(ES - EP) / EG \times 100$

Where:

ES = electricity sales **during the year** to the **electric** grid from the ~~CO₂-budget~~ source

EP = electricity purchases **during the year** from the **electric** grid by the ~~CO₂-budget~~ source and the manufacturing facility to which the ~~CO₂-budget~~ source is interconnected

EG = ~~electricity~~ **electrical** generation **by the source during the year**

[Note: the final rule should make clear whether “electrical generation” is gross or net generation by adding a definition of “electrical generation” or using a different defined term.]

~~Such CO₂-budget source shall have an operating permit containing the applicable restrictions under this subsection.~~

3. The exemption under this subsection shall become effective as of the January 1 that is on or after the date on which the restriction on the percentage of annual net electrical generation that may be supplied to the electric grid or of annual total useful energy that may be supplied to an entity other than the manufacturing facility, described in this subsection, and the provisions in the permit required under this subsection become final.

4. A source exempt under this subsection shall comply with the restriction on percentage of annual net electrical generation that may be supplied to the electric grid, or of annual total useful energy that may be supplied to an entity other than the manufacturing facility, described in this subsection.

5. A source exempt under this subsection shall report to the department the amount of annual electrical generation and the amount of annual net electrical generation supplied to the electric grid, or the amount of annual total useful energy and the amount of annual total useful energy supplied to an entity other than the manufacturing facility, as applicable under this subsection, during the year by the following February 1.

6. For a period of 10 years from the date the records are created, the owners and operators of a source exempt under this subsection shall retain, at the source, records demonstrating that the conditions of the permit under this subsection were met. The 10-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the department. The owners and operators bear the burden of proof that the source met the restriction on the percentage of annual net electrical generation that may be supplied to the electric grid or of annual total useful energy that may be supplied to an entity other than the manufacturing facility, as applicable under this subsection.

7. The owners and operators and, to the extent applicable, the CO₂ authorized account representative of a source exempt under this subsection shall comply with all the requirements of this part concerning all time periods for which the

exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

8. On the earlier of the following dates, a source exempt under this subsection shall lose its exemption:

a. The date on which the restriction on the percentage of annual net electrical generation that may be supplied to the electric grid or of annual total useful energy that may be supplied to an entity other than the manufacturing facility, as applicable under this subsection, is removed from the source's permit or otherwise becomes no longer applicable in any year that commences on or after January 1, 2019; or

b. The first date on which the source fails to comply, or on which the owners and operators fail to meet their burden of proving that the source is complying, with the restriction on the percentage of annual net electrical generation that may be supplied to the electric grid or of annual total useful energy that may be supplied to an entity other than the manufacturing facility, as applicable under this subsection, during any year that commences on or after January 1, 2019.

9. A source that loses its exemption in accordance with subdivision 8 of this subsection shall be subject to the requirements of this part. For the purpose of applying permitting requirements under Article 3 (9VAC5-140-6140 et seq.) of this part, allocating conditional allowances under Article 5 (9VAC5-140-6190 et seq.) of this part, and applying monitoring requirements under Article 8 (9VAC5-140-6330 et seq.) of this part, the source shall be treated as commencing operation on the date the source loses its exemption.

10. For each year commencing on or after January 1, 2020 that a source is exempt under this subsection, the department shall retire the number of conditional allowances, equal to the exempt source's average annual emissions over the most recent three calendar years for which data are available as determined, from the industrial exemption set-aside, in accordance with 9VAC5-140-6212.

9VAC5-140-6212. CO_2 Conditional allowance allocations, industrial exemption set-aside.

A. Notwithstanding 9VAC5-140-6210, the department will allocate CO_2 conditional allowances to the industrial exemption set-aside for each allocation year in accordance with the following procedures.

1. The department will open and manage a general account for the industrial exemption set-aside for each allocation year.

2. [Note: The final rule would need to include text in this subdivision that would require that each source exempt for an allocation year submit, by a specified date before the allocation year, its average annual emissions over the most recent three calendar years for which data are available. The added text would also provide that the department would review for accuracy each submission, determine the correct amount of the average annual emissions and of conditional allowances covering such emissions, and allocate, to the general account, conditional allowances from the Virginia CO₂ Budget Trading Program base budget for the allocation year equal to the total of the determined amounts for the sources for the year. The portion of the base budget available for allocation to CO₂ budget units under 9VAC5-140-6215 B 1 would need to be reduced by the amount allocated to the general account.]

B. For each allocation year, the department will retire CO_2 -conditional allowances ~~allowance allocations~~ in accordance with the following procedures.

1. As of the January 1 that is after each ~~unit~~ source becomes exempt under 9VAC5-140-6040 B, for each allocation year the department will retire CO_2 -conditional allowances in the industrial exemption set-aside general account as determined for the ~~unit~~ source pursuant to subdivision 2 of subsection A of this section.

2. After retirement of allowances pursuant to subdivision 1 of this subsection, the department will determine whether any CO_2 -conditional allowances remain in the industrial exemption set-aside general account for the allocation year. The department will transfer any such remaining CO_2 -conditional allowances from the industrial exemption set-aside general account to the compliance account of each CO₂ budget source that was allocated allowances pursuant to 9VAC5-140-6215 using the following methodology:

Existing CO₂ budget unit's share of the CO_2 -conditional allowances remaining in the industrial exemption set-aside general account = Total CO_2 -conditional allowances remaining in the industrial exemption set-aside general account x (The individual CO₂ budget unit's CO_2 -conditional allowance allocation determined in accordance with 9VAC5-140-6215 ÷ The Virginia CO₂ Budget Trading Program annual base budget, as applicable)

Where:

“Total CO_2 -conditional allowances remaining in the industrial exemption set-aside general account” is the total number of CO_2 conditional allowances remaining in the industrial exemption set-aside general account (established under subsection A of this section) for the allocation year to which the industrial exemption set-aside allocation applies; and

“The individual CO₂ budget unit's CO_2 -conditional allowance allocation” is the number of CO_2 -conditional allowances allocated under 9VAC5-140-6215 to the

individual CO₂ budget unit for the allocation year to which the industrial exemption set-aside allocation applies.

3. The department will only transfer €O₂conditional allowances, pursuant to subdivisions 2 and 3 of this subsection, in whole ton increments. The department will continue to hold any fractional shares of €O₂conditional allowances as banked €O₂conditional allowances until they may be combined with other fractional shares of €O₂conditional allowances in future years and then transferred as whole ton increments.

We note that, as an alternative to adopting the above-suggested provisions in 9VAC5-140-6040 B 8 and 9VAC5-140-6212, Virginia DEQ could reduce the Virginia CO₂ Budget Trading Program annual base budget by excluding from the budget the CO₂ emissions from all sources exempt under 9VAC5-140-6040 B from the Virginia program. If the exempt sources' emissions are excluded from budget, then the industrial exemption set-aside and the retirement of conditional allowances are not necessary.

4. Accounting for conditional allowances.

The re-proposed rule provides for establishing “compliance accounts” for CO₂ budget sources and “conditional allowance accounts” for CO₂ budget sources and DMME (e.g., 9VAC-140-6220 A, 9VAC-140-6230 A, and 9VAC-140-6250 A). However, the re-proposed rule provides for recording of conditional allowances sometimes in conditional allowance accounts (e.g., 9 VAC5-140-6250 A 1) and sometimes in compliance accounts (e.g., 9VAC5-140-6220 A and 9VAC5-140-6250 B). In addition, the re-proposed rule references the submission of an account certificate of representation for DMME’s conditional allowance account but does not explain what is such a certificate (e.g., 9VAC5-140-6110 A 1 (applicable only to CO₂ budget sources and units) and 9VAC5-140-6230 A). The simplest approach would be to revise the re-proposed rule to provide for establishment of a conditional allowance account for DMME once DMME requests, and selects a CO₂ authorized account representative for, such account. No certificate of representation would be required for DMME. This approach would (consistent with the department’s position in response to comments, http://townhall.virginia.gov/l/GetFile.cfm?File=meeting\1\28304\Agenda_DEQ_28304_v1.pdf at pp. 68-69) leave to determination by DMME the details of how holders of public contracts with DMME would create and operate their own conditional allowance accounts.

We therefore suggest that the re-proposed rule should be revised as follows:

9VAC5-140-6020 C

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"CO₂ Allowance Tracking System" or "COATS" means the system by which the department or its agent records allocations, deductions, and transfers of CO₂ allowances under the CO₂ Budget Trading Program. The tracking system

may also be used to track CO₂ allowance prices, **conditional allowances**, and emissions from affected sources.

"CO₂ Allowance Tracking System account" means an account in COATS established by the department or its agent for purposes of recording the allocation, holding, transferring, or deducting of CO₂ allowances **or conditional allowances**.

* * *

"General account" means a COATS account, established under Article 6 (9VAC5-140-6220 et seq.) of this part that is not a compliance account **or a conditional allowance account**.

* * *

9VAC5-140-6220 A

A. Consistent with 9VAC5-140-6230 A, the department or its agent will establish one compliance account **and one conditional allowance account** for each CO₂ budget source **and one conditional allowance account for DMME**. Allocations of CO₂-conditional allowances pursuant to Article 5 (9VAC5-140-6190 et seq.) of this part and deductions or transfers of **CO₂ allowances or CO₂ conditional allowances** pursuant to 9VAC5-140-6180, **9VAC5-140-6200**, 9VAC5-140-6260, 9VAC5-140-6280, or Article 7 (9VAC5-140-6300 et seq.) of this part will be recorded in the compliance accounts **or conditional allowance accounts** in accordance with this section.

9VAC5-140-6230 A

A. Upon receipt of a complete account certificate of representation under 9VAC5-140-6110, the department or its agent will establish a conditional allowance account and a compliance account for each CO₂ budget source ~~and a conditional compliance account for DMME~~ for which the account certificate of representation was submitted. **Upon request, and selection of a CO₂ authorized account representative and CO₂ alternate authorized account representative, by DMME, the department or its agent will establish a conditional allowance account for DMME. DMME may change its CO₂ authorized account representative or CO₂ alternate authorized account representative upon submission of written notification of the change to the department or its agent.**

9VAC5-140-6240

Following the establishment of a COATS account, all submissions to the department or its agent pertaining to the account, including submissions concerning the deduction or transfer of CO₂ allowances **or consignment of conditional allowances** in the account, shall be made only by the CO₂ authorized account representative for the account.

9VAC5-140-6250 A and B

A. By January 1 of each calendar year, the department or its agent will record in the following accounts:

1. In each CO₂ budget source's and DMME's conditional allowance account, the €O₂-conditional allowances allocated to **CO₂ budget units** at those sources and DMME **for the year** by the department prior to being consigned to auction; and
2. In each CO₂ budget source's compliance account, the CO₂ allowances purchased at auction ~~by~~ **for the CO₂ budget units** at the source under **Article 9 (9VAC5-140-6210-A-6410 et seq.) of this part.**

B. Each year the department or its agent will record €O₂-**conditional** allowances, as allocated to the **CO₂ budget unit or DMME** under Article 5 (9VAC5-140-6190 et seq.) of this part, in the **conditional allowance compliance** account for the year after the last year for which €O₂ **conditional** allowances were previously allocated to the **conditional allowance compliance** account. Each year, the department or its agent will also record €O₂ **conditional** allowances, as allocated under Article 5 (9VAC5-140-6190 et seq.) of this part, in an allocation set-aside for the year after the last year for which €O₂ **conditional** allowances were previously allocated to an allocation set-aside.

5. Deadline for monitoring system certification requirements.

The re-proposed rule (9VAC5-140-6330) requires a CO₂ budget unit to meet monitoring certification requirements by January 1, 2020, the commencement of the Virginia program. Some units (*e.g.*, those commencing commercial operation a relatively short time before, on, or any time after January 1, 2020) will need an extension of that deadline in order to have time to install and certify the necessary monitoring system. However, the re-proposed rule's provision providing an extension needs correction: 9VAC5-140-6330 C 2 extends the deadline for units only if they commence commercial operation on a single date (July 1, 2020), ignores units commencing within 6 months before or on any dates after January 1, 2020, and makes the extension period unnecessarily long (*i.e.*, a year or more, with the extended deadline being no earlier than January 1, 2021). In contrast, the RGGI model rule (in XX-8.1(b)(2)) provided an extended deadline for units commencing commercial operation 6 months or less before and any time after (*i.e.*, on or after July 1, 2008) the RGGI program's January 1, 2009 commencement and made the extension no more than 90 operating days or 180 calendar days after January 1, 2009.

We maintain that Virginia's re-proposed rule should take an approach analogous to that in the RGGI model rule and be revised as follows:

9VAC5-140-6330 C 2

2. The owner or operator of a CO₂ budget unit that commences commercial operation **on or after** July 1, ~~2019~~**2020**, shall comply with the requirements of this section by **the later**

of (i) January 1, ~~2020~~2021, or (ii) the earlier of 90 unit operating days after the date on which the unit commences commercial operation, or 180 calendar days after the date on which the unit commences commercial operation.

6. Net electric output.

The re-proposed rule (9VAC5-140-6215 A and B 1) allocates conditional allowances to CO₂ budget units based on their “net-electric output.” However, 9VAC5-140-6215 B 2 states that allocations are calculated using units’ “baseline electrical output,” an undefined term that seems to refer to the net-electric output figures established under 9VAC5-140-6215 A 1 and 2. The re-proposed rule should clarify what is “baseline electrical output.” Further, the RGGI model rule (in XX-8.8) states that a unit required to submit data on net electrical output must provide certain information to document such output, must submit an output monitoring plan, and must meet certification, quality assurance/quality control, and recordkeeping and recording requirements for output monitoring systems. The re-proposed rule should similarly contain such requirements for “net-electric output.” This is necessary in order to assure that accurate data are used in allocating allowances to CO₂ budget units.

We therefore suggest that the re-proposed rule should be revised as follows:

9VAC5-140-6215 A and B

A. The ~~net-electric~~ **baseline electrical** output in MWh used with respect to CO_2 **conditional** allowance allocations under subsection B of this section for each CO₂ budget unit shall be:

1. For units operating on or before January 1, 2020, the average of the three amounts of the unit's net-electric output during 2016, 2017, and 2018 to determine allocations for the initial control period.
2. For all units operating in each control period after 2020, the average of the three amounts of the unit's ~~total~~ net-electric output during the three most recent years for which data are available prior to the start of the control period.

B.1. For each control period beginning in 2020 and thereafter, the department will allocate to all CO₂ budget units that have a ~~net-electric~~ **baseline electrical** output, as determined under subsection A of this section, a total amount of CO_2 conditional allowances equal to the CO₂ base budget.

2. The department will allocate CO_2 conditional allowances to each CO₂ budget unit under subdivision 1 of this subsection in an amount determined by multiplying the total amount of CO_2 **conditional** allowances allocated under subdivision 1 of this subsection by the ratio of the baseline electrical output of such CO₂ budget unit to the total amount of baseline electrical output of all such CO₂ budget units and rounding to the nearest whole allowance as appropriate.

3. New CO₂ budget units will be allocated CO₂ conditional allowances once they have established **baseline** electrical output data to be used in the conditional allowance allocation process.

We also suggest that Virginia clarify the meaning of 9VAC5-140-6215 B 3. For example, the term “new CO₂ budget unit” is not defined, and it is unclear whether Virginia intends to require that a “new” unit must operate during the three years after its commencement of operation in order to establish electrical output data before the unit will be allocated conditional allowances, with allocations starting in the fourth year.

We ~~therefore~~ also maintain that the re-proposed rule should be revised to add, as 9VAC5-140-6400, the provisions in XX-8.8(a), (c), and (e) through (h) of the RGGI model rule (modified to use the term “net-electric output” **“net-electric output” instead of “net-electrical output”** and reference relevant sections of the Virginia rule rather than the RGGI model rule) imposing requirements for data submission, monitoring plans, monitor certification, quality assurance/quality control, and recordkeeping and recording.

In addition, consistent with language in the RGGI model rule (in XX-8.8(a)) referring to state requirements aimed at ensuring that a CO₂ budget unit’s reported net electric output is consistent with information that the unit submits to an Independent System Operator (ISO), the definition of “net-electric output” in the re-proposed rule (in 9VAC5-140-6020 C) should be revised as follows to require CO₂ budget units to use the information that they submit to ISOs:

9VAC5-140-6020 C

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"Net-electric output" means * * *. **A CO₂ budget unit whose net-electric output is used in Independent System Operator (ISO) energy market settlement determinations shall document net-electric output using the information submitted to the ISO.**

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7. Miscellaneous revisions

a. The re-proposed rule (9VAC5-140-6260) sets forth compliance determination procedures that are not entirely consistent with the procedures in the RGGI model rule concerning the treatment of CO₂ offset allowances. We maintain that Virginia’s procedures need to be consistent with the RGGI model rule procedures and therefore that the re-proposed rule should be revised as follows:

9VAC5-140-6260 C 2

2. The department or its agent will deduct CO₂ allowances for a control period **or interim control period** from the CO₂ budget source’s compliance account, in the absence of an

identification or in the case of a partial identification of available CO₂ allowances by serial number under subdivision 1 of this subsection, as follows: **First for any CO₂ offset allowances and then for any CO₂ allowances other than CO₂ offset allowances,** ~~Any~~ CO₂ allowances that are available for deduction under subdivision 1 of this subdivision: ~~CO₂ allowances~~ shall be deducted in chronological order (i.e., CO₂ allowances from earlier allocation years shall be deducted before CO₂ allowances from later allocation years). In the event that some, but not all, CO₂ allowances from a particular allocation year are to be deducted, CO₂ allowances shall be deducted by serial number, with lower serial number allowances deducted before higher serial number allowances.

9VAC5-140-6260 D 1

1. * * * **No CO₂ offset allowances may be deducted to account for the source's excess emissions.**

b. The re-proposed rule (9VAC5-140-6210 I) provides that:

I. Implementation of the CCR (subsection C of this section), the ECR (subsection D of this section) and the banking adjustment (subsection E of this section) shall be determined based on the extent of the CO₂ trading program.

The intent and meaning of this provision are unclear, and the RGGI model rule does not contain a similar provision. We therefore suggest that the provision be clarified.

c. The re-proposed rule should use consistently the defined term "conditional allowance" in order to distinguish such an allowance, which is not usable for compliance, from a CO₂ allowance, which is usable for compliance. The re-proposed rule uses language that makes this distinction in many (see, e.g., 9VAC5-1540-6200 A and B and 9VAC5-140-6210 H 1 and 2), but not all, instances. We therefore suggest that the re-proposed rule be revised as follows:

9VAC5-140-6020 C

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"CO₂ cost containment reserve allowance" or "CO₂ CCR allowance" means a conditional ~~CO₂~~ allowance that is offered for sale at an auction for the purpose of containing the cost of CO₂ allowances. * * *

* * *

9VAC5-140-6210 H 3

3. By May 1, 2021, and May 1 of every subsequent year thereafter, the department will submit to its agent the ~~CO₂~~ **conditional** allowance allocations for the applicable control period in accordance with 9VAC5-140-6215 A and B.

CONCLUSION

The Sierra Club welcomes Virginia's proposal to establish a Budget Trading Program linked to RGGI's existing CO₂ market. We strongly encourage the Air Board and DEQ to proceed with finalizing and implementing the regulations in a manner that reflects our comments above.

Respectfully submitted,



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