Adverse impact notification sent to Joint Commission on Administrative Rules, House Committee on Appropriations, and Senate Committee on Finance (COV § 2.2-4007.04.C): Yes ☒ Not Needed ☐

If/when this economic impact analysis (EIA) is published in the *Virginia Register of Regulations*, notification will be sent to each member of the General Assembly (COV § 2.2-4007.04.B).

Virginia Department of Planning and Budget

Economic Impact Analysis [Revised Proposed]

9 VAC 5-140 Regulation for Emissions Trading
Department of Environmental Quality
Town Hall Action/Stage: 4818 / 8476
December 19, 2018

Summary of the Proposed Amendments to Regulation

The Air Pollution Control Board (Board) proposes to establish the CO_2 Budget Trading Program in regulation. The original proposed regulatory language for the CO_2 Budget Trading Program was published in the Virginia Register of Regulations on January 18, 2018.[1] An economic impact analysis of that proposal was published in the Virginia Regulatory Town Hall on December 13, 2017.[2] The Board has submitted a revised proposal.[3] This report addresses changes from the original proposal. For more detail on the impact of the program see the economic impact analysis of the original proposal.

Estimated Economic Impact

Lower CO_2 Allowances

Under the revised proposal the initial (year 2020) Virginia base budget of CO_2 emission allowances is 28 million tons rather than the 33 (or 34) million tons under the original proposal.

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[1] See “9VAC5-140. Regulation for Emissions Trading Programs (Proposed)” at http://register.dls.virginia.gov/vol34/iss10/v34i10.pdf

[2] See http://townhall.virginia.gov/l/GetFile.cfm?File=1\4818\8130\EIA_DEQ_8130_v2.pdf

[3] See http://townhall.virginia.gov/L/ViewStage.cfm?stageid=8476

In both proposals the base budget is reduced by 3% each year up until 2030. According to the Department of Environmental Quality (DEQ), this is because new information acquired over the past year reduced the forecast for CO_2 emitted by Virginia sources in 2020 to 28 million tons and further for subsequent years. Lower expected demand for electricity, reduced expected prices for lower-emitting natural gas, and renewable energy production from wind and solar coming online faster than previously expected all contribute to the change.

All states within the Regional Greenhouse Gas Initiative (RGGI),[4] as well as Virginia, have reported significant reductions in forecasted demand for electricity. As pointed out by DEQ, Virginia's reduction in forecasted demand is partially due to energy efficiency provisions within Chapter 296 of the 2018 Acts of Assembly.[5]

Also, over the past year, the federal Energy Information Administration[6] has lowered their forecasts for future natural gas prices considerably. This provides for a reduced cost for switching to natural gas from higher CO_2 –emitting sources than was anticipated when the initial proposal was developed.

Provisions of Chapter 296 also encourage wind and solar energy production. This, coupled with faster than expected development of this type of energy production that has already occurred, provides the potential for renewable energy available for lower cost than anticipated before. As with natural gas, this provides a lower cost than previously anticipated for switching to energy production with much lower CO_2 emission.

Impact: Electricity Consumers

A consulting firm called ICF models the RGGI CO_2 Budget Trading Program. ICF modelled the impact of Virginia joining RGGI under the parameters included in the original proposal and the revised proposal. Among other outputs, the ICF model produces projected

[4] RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont to cap and reduce power sector CO_2 emissions. RGGI is composed of individual CO_2 Budget Trading Programs in each participating state. Through independent regulations, each state's CO_2 Budget Trading Program limits emissions of CO_2 from electric power plants, issues CO_2 allowances and establishes participation in regional CO_2 allowance auctions. Regulated power plants can use a CO_2 allowance issued by any participating state to demonstrate compliance with an individual state program. In this manner, the state programs, in aggregate, function as a single regional compliance market for CO_2 emissions.

[5] See http://lis.virginia.gov/cgi-bin/legp604.exe?181+ful+CHAP0296

[6] See https://www.eia.gov/analysis/

power prices in each state. A different firm called the Analysis Group uses the results of ICF's modelling to estimate the impact on monthly electricity bills for Virginia residential, commercial, and industrial consumers. DEQ has the results of their modelling and analysis on their website.[7]

DEQ believes that for Virginia the "revenue received by CO_2 Budget Sources owned by regulated electric utilities flow to rate payers pursuant to State Corporation Commission (SCC) requirements."[8] While not described in the proposed regulation, this action is predicated upon anticipated actions of the SCC which it may or may not take. Pursuant to DEQ's instructions, the Analysis Group does assume for the purpose of their estimates that all revenue from the sale of CO_2 emission allowances that were allocated to Virginia sources is passed on to consumers. The ICF model does not account for this information.

The table below compares the estimated average monthly electricity bills for Virginia residential, commercial, and industrial consumers over the 2020 to 2030 period with the Commonwealth not establishing the CO_2 Budget Trading Program in regulation and joining RGGI (Reference) to if Virginia does promulgate the revised proposed regulation and joins RGGI (Policy).

Customer Type	**Reference ($2017)**	**Policy ($2017)**	**% Difference**
Residential	$153.20	$152.65	-0.4%
Commercial	$882.47	$877.23	-0.6%
Industrial	$29,671.14	$29,472.39	-0.7%
Note: The estimates in this Table were produced by the Analysis Group, using the Integrated Planning Model developed by ICF. This was the only model available during the time period for this review, and DPB lacked the resources to verify the model or its assumptions. If the SCC resumes rate reviews, these assumptions should be reconsidered.			

[7] See https://www.deq.virginia.gov/Programs/Air/GreenhouseGasPlan.aspx

[8] DEQ November 16, 2017 presentation before the Board, p. 24:
http://www.deq.virginia.gov/Portals/0/DEQ/Air/GHG/C17-pro.pdf?ver=2017-11-20-153710-670
DEQ December 4, 2017 presentation to the Commission on Electric Utility Regulation, p. 15.
http://leg5.state.va.us/User_db/frmView.aspx?ViewId=5094&s=7

As can be seen, the model results provided by DEQ projects that electricity bills will be lower with the Commonwealth establishing the CO_2 Budget Trading Program in regulation and joining RGGI.

Running ICF's model with the new projections and revised parameters produces firm power prices in Virginia moderately higher under Policy versus Reference. For example, running the model indicates Virginia firm power prices of $34.9 per megawatt hour in 2025 under Policy, and $34.5 under Reference. The projected revenue from the sale of CO_2 emission allowances (that is passed on to consumers by assumption) is large enough that it outweighs this difference and results in estimated net lower electricity bills to consumers.

Year 2031 to Year 2040

The original proposal had the base budget for 2031 and each succeeding year equal to the 2031 base budget. The revised proposal states that

> the department [DEQ] will review the Virginia CO_2 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 CO_2 multi-state trading program in which Virginia is participating when considering further reductions. Absent any adjustment, the Virginia CO_2 Budget Trading Program base budget for each year of the decade 2031-2040 shall be reduced by 840,000 tons from the preceding year.

If no action is taken in the next 12 years, this change in the proposal would result in a base budget of 11.2 million tons by 2040. It seems likely that DEQ and the Board would choose to adjust the base budget differently as conditions change over time. Based on future events, technical advances, and actual emissions in practice, a different level (either higher or lower) would likely be more appropriate.

Program Monitoring and Review

In the revised proposal the Board proposes to add that DEQ must

> evaluate impacts of the program specific to Virginia, including, but not limited to economic, energy and environmental impacts, and impacts on vulnerable and environmental justice and underserved communities. The department will, in evaluating the impacts on environmental justice communities, including low

income, minority and tribal communities, develop and implement a plan to ensure increased participation of environmental justice communities in the review.

DEQ believes that this is consistent with current program review requirements and that the agency would evaluate the impacts of the program whether through RGGI program review, normal periodic review, or reviews mandated by Governor Northam's Executive Order Six[9] (EO-6). Thus, this revised proposal addition would not likely significantly add to required DEQ staff time or other costs, but may be beneficial in specifying to the public which information and efforts would be pursued.

Clarifications

In response to comments and questions, the revised proposal includes several clarifying changes from the original proposal, particularly concerning exemptions. These proposed changes are beneficial in improving clarity, but otherwise have no effect.

Businesses and Entities Affected

The proposed changes from the original proposal particularly affect the 12 companies that operate the 32 electric power facilities with a capacity of >25 MW in the Commonwealth. All entities that use electricity, including industrial and commercial firms, farms, residences, government offices, schools and colleges, etc., are affected as well. All entities and people in Virginia would also likely experience the impact of environmental improvement.

Localities Particularly Affected

The proposal to require the development and implementation of a plan to ensure increased participation of environmental justice communities would particularly affect the localities that contain those communities.

Projected Impact on Employment

Based on the new information over the past year such as lower expected demand for electricity, reduced expected prices for lower-emitting natural gas, and renewable energy production from wind and solar coming online faster than previously expected, keeping the base budget at the levels in the original proposal would likely result in non-binding CO_2 emission

[9] See https://www.governor.virginia.gov/media/governorvirginiagov/executive-actions/eo-6-executive-order-supporting-the-critical-role-of-the-virginia-department-of-environmental-quality-in-protection-of-virginia-s-air-water-and-public-health.pdf

caps. In other words, the originally proposed regulation would have very little or no impact on CO_2 emissions.

In contrast, based upon the projections discussed in this report, the revised proposed base budget levels would likely be binding and affect firms' choices in type of power production and CO_2 emissions. The proposed reduction in allowed emissions of CO_2 over time may reduce employment associated with electricity production that is high in CO_2 emission such as coal, and may increase employment in electricity production that is lower in CO_2 emission such as natural gas, and very low in emissions such as wind and solar.

Effects on the Use and Value of Private Property

As discussed above, based upon the projections discussed in this report, the revised proposed base budget levels would likely be binding and promulgation of this regulation would likely result in reduced CO_2 emissions. It is difficult to estimate the effects of the proposed regulation on the value of property. To the extent that the proposed amendments decrease flooding risk, and thus limit loss of use, the value of private property near bodies of water and other low-lying properties could become more valuable, or they could decline since it could cause the inventory of usable land to increase. Further, land values could increase in some areas as the demand for solar farms increases.

Real Estate Development Costs

The revised proposed amendments do not appear to significantly affect real estate development costs.

Small Businesses:

Definition

Pursuant to § 2.2-4007.04 of the Code of Virginia, small business is defined as "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."

Costs and Other Effects

Based upon the assumptions used for the consulting firms' modeling and analysis, electricity costs for small businesses would moderately decrease.

Alternative Method that Minimizes Adverse Impact

If the assumption that all revenue from the sale of CO_2 emission allowances that were allocated to Virginia sources is passed on to consumers is accurate, then based upon that and the other assumptions used for the consulting firms' modeling and analysis there would be no adverse impact on small businesses.

Adverse Impacts:

Businesses:

The revised proposed reductions in base budget levels would increase electricity production costs for at least some electric power producing firms.

Localities:

Based upon the assumptions used for the consulting firms' modeling and analysis, the proposed changes from the original proposal would not likely have adverse impacts for localities.

Other Entities:

Based upon the assumptions used for the consulting firms' modeling and analysis, the proposed changes from the original proposal would not likely have adverse impacts for other entities.

Legal Mandates

General: The Department of Planning and Budget has analyzed the economic impact of this proposed regulation in accordance with § 2.2-4007.04 of the Code of Virginia (Code) and Executive Order 14 (as amended, July 16, 2018). Code § 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the report should include but not be limited to: (1) the projected number of businesses or other entities to whom the proposed regulatory action would apply, (2) the identity of any localities and types of businesses or other entities particularly affected, (3) the projected number of persons and employment positions to be affected, (4) the projected costs to affected businesses or entities to implement or comply with the regulation, and (5)the impact on the use and value of private property.

Adverse impacts: Pursuant to Code § 2.2-4007.04(C): In the event this economic impact analysis reveals that the proposed regulation would have an adverse economic impact on businesses or would impose a significant adverse economic impact on a locality, business, or entity particularly affected, the Department of Planning and Budget shall advise the Joint Commission on Administrative Rules, the House Committee on Appropriations, and the Senate Committee on Finance within the 45-day period.

If the proposed regulatory action may have an adverse effect on small businesses, Code § 2.2-4007.04 requires that such economic impact analyses include: (1) an identification and estimate of the number of small businesses subject to the proposed regulation, (2) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the proposed regulation, including the type of professional skills necessary for preparing required reports and other documents, (3) a statement of the probable effect of the proposed regulation on affected small businesses, and (4) a description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation. Additionally, pursuant to Code § 2.2-4007.1, if there is a finding that a proposed regulation may have an adverse impact on small business, the Joint Commission on Administrative Rules shall be notified.