Submitted Testimony of Secretary Patrick McDonnell

Department of Environmental Protection

Senate Environmental Resources & Energy and Community, Economic, and Recreational Development Committees

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Good morning Chair Yaw, Chair Comitta, Chair Yudichak, Chair Cappelletti, and members of the Senate Environmental Resources & Energy Committee and the Community, Economic, and Recreational Development Committee. On behalf of Governor Wolf, I would like to thank you for the opportunity to provide information about Pennsylvania's participation in the Regional Greenhouse Gas Initiative (RGGI) and its importance in Pennsylvania's effort to address the most critical environmental issue facing our residents, and every other state and country on this planet.

First, it is important to recall why Pennsylvania is taking action to decrease emissions. "Climate Change is widespread, rapid and intensifying" – that is a direct quote from the most recent report released by the Intergovernmental Panel on Climate Change (IPCC) last year. The report indicates that the climate is warming faster than predicted, that the climate is changing dramatically and that the role of human influence on the climate system is "undisputed." Of the greenhouse gases that contribute to climate change, the IPCC indicates that "the evidence is clear that carbon dioxide is the main driver of climate change."

The warming experienced over the last century will continue because greenhouse gases remain in the atmosphere for decades, sometimes even centuries. This is why it is crucial to address Pennsylvania's greenhouse gas emissions now as we cannot afford to wait any longer. To be clear, the Department recognizes the emissions reductions that have been achieved across all sectors of the economy. However, while Pennsylvania has historically seen some emissions reductions, these trends are not continuing, and we need to act now to ensure Pennsylvania progresses in reducing greenhouse gas pollution.

RGGI is a bipartisan, cooperative, market-based program that has been implemented since 2009. Over the last 13 years, it has proven to be a policy that has driven down emissions twice as fast as the rest of the country while investing $4 billion into local communities. Independent research has shown that the Gross Domestic Product (GDP) of participating states has outpaced the GDP of the rest of the country and that electricity costs actually fell in RGGI states during the first 10 years of implementation, despite rising across the rest of the country. RGGI is a well-designed, fair policy to address the biggest environmental threat facing the world with the most basic, fundamental principle in environmental economics: the polluter pays.

The states involved in RGGI have used auction proceeds to create clean energy programs that allow their residents to power their homes and vehicles with clean, domestic energy sources that are not subject to exportation or international price swings. They have created jobs. Over 19% of RGGI proceeds have been used to assist the most vulnerable, low-income residents in those states. We can do those same things in Pennsylvania.

This is why over two years ago, at the direction of Governor Wolf, the Department initiated a process to use its existing authority as enacted by the General Assembly under the Air Pollution Control Act (APCA) to develop a rulemaking to abate, control, or limit CO_2 emissions from fossil fuel-fired electric power generators. The Department's rulemaking provides the framework for Pennsylvania's participation in RGGI.

Throughout the development of the regulation, the Department has undergone a rulemaking process more thorough, engaging, transparent, and rigorous than likely any other rulemaking before it – a process that went above and beyond what is required by law. The Department has:

- Published hundreds of pages of regulatory analysis, detailing the environmental, economic, and legal justifications supporting the regulation.
- Conducted quantitative power sector and economy-wide modeling for the proposed rule, and published all inputs, assumptions, and results in a detailed modeling report. The Department conducted a second round of modeling in 2021 with updated data for the final rulemaking.
- Held over 15 public discussions with multiple different advisory committees to assess the potential benefits and impacts of the rulemaking.
- Received support from the Citizen's Advisory Council (CAC), the Air Quality Technical Advisory Committee (AQTAC), the Small Business Compliance Advisory Committee (SBCAC), and the Environmental Justice Advisory Board (EJAB).
- Hired an expert consultant to meet with coal communities, environmental justice communities, and other interested stakeholders and to hear concerns about the rulemaking and assist coal communities with economic diversification.
- Published a set of RGGI Equity principles to guide the development, design, and implementation of the regulation to ensure it does not contribute to existing environmental inequities.
- Received more than 14,000 comments during the regulatory public comment period, including testimony from nearly 450 people during more than 32 hours of testimony over 10 public hearings.
- Provided responses to nearly 500 unique comments across a 225-page comment and response document.

- Participated in over a dozen legislative committee meetings that discussed RGGI and met with dozens of legislators individually to discuss the impacts and opportunities of the regulation.
- Received approval by the Independent Regulatory Review Commission.

Along with undergoing a comprehensive regulatory process, it is clear that Pennsylvanians will benefit as a result of implementation of this regulation. Participation in RGGI provides an established vehicle through which Pennsylvania can reduce CO_2 emissions, address climate change, reduce co-pollutants that cause smog pollution, and invest in local economies to create jobs, lower electricity bills and further reduce pollution. These benefits have been quantified by the participating RGGI states over the last decade and the Department's comprehensive quantitative modeling effort shows that similar benefits will accrue in Pennsylvania. Specifically, the Department estimates that:

- Pennsylvania will experience CO_2 emission reductions of 97-225 million tons between now and 2030 with the regulation.
- If 188 million tons of CO_2 are avoided through 2030 then Pennsylvania residents would see cumulative health benefits amounting to between \$2.79—\$6.3 billion. This means healthier children, more disposable income for families and expanding job opportunities.
- Participation in RGGI will lead to a net increase of more than 30,000 jobs and spur further economic growth in Pennsylvania as it will result in an additional \$1.9 billion to the Gross State Product.

These findings are supported by independent analysis, including analysis conducted by Penn State's Center for Energy Law and Policy. Penn State found that not only does the Department have legal authority to develop this regulation, but that Pennsylvania will experience fewer emissions and increased health benefits. In fact, Penn State estimated the health benefits to be on the order of \$1 billion to \$4 billion per year over the initial decade of Pennsylvania's RGGI participation, specifically noting the conservative nature of the Department's calculations.

Despite completing a rigorous regulatory review process and providing obvious environmental, economic, and health benefits – some are citing recent RGGI auction allowance prices to suggest the Department's modeling was not accurate and therefore the regulation requires further in-depth evaluation.

In reality, the Department has always understood, and communicated, the validity of the modeling and purpose of using power sector and economy wide modeling as a regulatory development tool – not a crystal ball. As explained in the regulatory documents and modeling report, the Department modeled the effects of Pennsylvania's participation in RGGI on the power sector using the Integrated Planning Model (IPM). IPM is a multi-region model that determines capacity expansion plans, unit dispatch and compliance decisions, as well as power, coal and allowance price forecasts, all of which are based on power market fundamentals. IPM is also the same platform used by the U.S. Environmental Protection Agency's (EPA's) Clean Air Markets Division for analyzing air policy scenarios and as the basis for several EPA regulatory initiatives.

Once the outputs from IPM were received, along with other economic data, DEP modeled the macroeconomic impacts of those power sector changes on the overall state economy using a customized version of the REMI Policy Insight Plus model. The REMI Policy Insight Plus model is used by government agencies (including most U.S. state governments), consulting firms, nonprofit institutions, universities, and public utilities to forecast economic impacts of policy or regulatory decisions. Model simulations estimate comprehensive economic and demographic effects in wide-ranging initiatives, such as: economic impact analysis; policies and programs for economic development, infrastructure, environment, energy and natural resources; and state and local tax changes. Articles about the model equations and research findings have been published in professional national journals, including the American Economic Review, the Review of Economic Statistics, the Journal of Regional Science, and the International Regional Science Review.

The results of these modeling efforts are used to compare the impacts of various scenarios over multiple years. The results are to be used as directional indicators for various metrics across the power sector and the economy – not as an exact prediction for the amount of change for every economic and financial metric. Additionally, the intent of the modeling was to be used as one of, not the only, tool to support the development of the regulation.

For example, the Department recognizes that the projected RGGI allowance prices in the modeling results are lower than recent RGGI allowance auction clearing prices. It is important to note that the factors impacting the projected allowance prices in the modeling are based on market fundamentals and supply and demand. The modeling does not have perfect foresight and cannot predict changes in market expectations, global commodity price changes, etc. Critically, it is necessary to understand that the modeling assumed Pennsylvania would be participating in RGGI in 2022, providing nearly twice as many allowances into the market and likely lowering prices. Therefore, comparing market conditions between scenarios with Pennsylvania in RGGI and not in RGGI is extremely misleading.

The recent increase in RGGI allowance prices is likely due to a number of short-term factors that cannot be exactly predicted, such as changes in electricity consumption, natural gas prices, and the resulting electric generation from coal-fired power plants. In the long-term, the Department expects those price drivers to have less impact over time, an effect that can be bolstered by growing electric generation facilities that do not emit fossil fuels.

In regard to electricity prices, the modeling results clearly indicate that if the auction proceeds are invested in energy efficiency, renewable energy, and greenhouse gas abatement, participation in RGGI will lead to lower electricity rates in the future than if Pennsylvania does not participate. This trend is further supported by the experience of states that have been participating in RGGI and independent analyses of the program.

The Acadia Center's report "The Regional Greenhouse Gas Initiative: Ten Years in Review," shows that CO_2 emissions from covered sources in the participating states have decreased 47%, which is 90% faster than in the rest of country. The participating states were able to achieve that significant reduction while the gross domestic product grew by 47%, outpacing the rest of the country by 31%. The Acadia Center's analysis of electricity costs for all states that participated in RGGI compared to states in the rest of the country and found that electricity prices in RGGI states have fallen by 5.7% while prices have increased in the rest of the country by 8.6%.

In an independent and nonpartisan evaluation of the first three control periods in RGGI, the Analysis Group found that the participating RGGI states added between $1.3 billion and $1.6 billion in net economic value and experience reduced long-run wholesale electricity costs.

These results are not surprising given the limited impact the RGGI allowance price has on retail electricity rates. According to the U.S. Energy Information Administration, the major components of the United States' average price of electricity in 2020 were 56% generation, 31% distribution and 13% transmission costs. The regulation would only impact the generation portion of a consumer electric bill, which is a little more than half of the bill.

The impact of RGGI allowance prices on wholesale electricity prices can be identified through reports by PJM's Market Monitor. The Market Monitor's annual "State of the Market" report shows that since 2011, the cost of RGGI Allowance prices are equal to between 0.01% and 2% of the "locational marginal price" for the participating RGGI states in PJM, a fractional amount compared to other price drivers such as natural gas prices. The locational marginal price makes up only about half of the costs in wholesale electricity rates, reflecting the minor role that RGGI allowance prices have in electricity prices.

Further, the makeup of Pennsylvania's electricity generation sector mitigates potential impacts to electricity rates. Approximately 40% of Pennsylvania's electricity generation mix comes from sources other than fossil fuels, therefore those electric generation facilities would not be required to purchase RGGI allowances. In addition, due to the amount of electricity that Pennsylvania exports, it can be expected that at least 25% of the program's compliance costs would be borne by out-of-state entities. All these factors contribute to the reality that the RGGI allowance price has negligible impact on electricity rates and, as previously noted, the investment of allowance auction proceeds into energy efficiency and similar efforts will in fact lower electricity rates in Pennsylvania.

In conclusion, other states are acknowledging the threat of climate change and making strides to address their contributions. This includes establishing climate change goals, prioritizing climate resilience and implementing incentives and policies to support emissions reductions. Neighboring states are increasing renewable energy targets, maximizing opportunities for energy efficiency, investing in clean energy and expanding the infrastructure network for electric vehicles. They are taking bold actions, curtailing carbon pollution, improving public health and welfare – and positioning their states for success in an ever-evolving energy sector.

Pennsylvania has a moral obligation to do its part. We realize that Pennsylvania cannot combat climate change on its own, but we must also recognize that the rest of the world cannot combat climate change without us. Pennsylvania's electricity sector is the fifth highest emitting in the country, producing more carbon dioxide each year than most countries. We must take strong action now and participating in RGGI is our opportunity to do that.

Thank you again for the opportunity to provide comment for today's hearing.