



**Prepared Testimony of**

**Patrick McDonnell, Secretary  
Pennsylvania Department of Environmental Protection**

**Before the**

**Joint Legislative Air and Water Pollution Control and Conservation Committee**

**February 3, 2020**

*“Climate change is the most critical environmental threat confronting the world, and power generation is one of the biggest contributors to greenhouse gas emissions. Given the urgency of the climate crisis facing Pennsylvania and the entire planet, the commonwealth must continue to take concrete, economically sound and immediate steps to reduce emissions. RGGI will give us that opportunity to better protect the health and safety of our citizens.”*

*-Governor Tom Wolf*

Good morning Chairman Wentling, Vice-Chair Comitta, and members of the committee and thank you for the invitation to be here today. I look forward to sharing with you the Department's experience with co-generation, with a focus on waste coal-fired generation and highlight the role of this sector in terms of the Regional Greenhouse Gas Initiative. I will explain how we have created a set-aside program for Pennsylvania's waste-coal generation sector as we draft a regulation that would establish a cap on carbon dioxide (CO<sub>2</sub>) emissions from fossil fuel-fired power plants in Pennsylvania. My testimony also outlines the legacy environmental issues of past generations, like mining, and highlights why it is vital to not leave additional environmental issues, like climate change, to future generations to solve.

### **Coal Refuse**

During past mining operations, water was used to clean and sort coal, and streams were used for transportation via a canal system. Unfortunately, what remains from these past mining operations is expansive piles of discarded coal refuse, often adjacent to and leaching into the waterways. The material in these piles is often mobilized during storm events or extreme flow conditions resulting in significant impacts on water and air quality. Many of the coal refuse piles have been devoid of vegetation for decades further leaving the material susceptible to erosion. Furthermore, this material has been discarded in large piles, sometimes hundreds of feet in height – creating additional safety concerns related to their instable and combustible nature.

Due to technology developments the waste coal in these piles, although a lower energy value resource, can be combusted to produce electricity. By harnessing this technology, the waste coal generation industry has reduced the size, number and impacts of these piles otherwise abandoned and allowed to mobilize and negatively impact air and water quality in Pennsylvania. Not only has this sector identified a beneficial use for this waste, they also beneficially use the combustion residual of coal ash for use in reclaiming lands, specifically mine lands, and often creating land with economic value- now suitable for redevelopment. Since 1988 a total of 160.7 million tons of waste coal has been removed and burned in co-generation plants to generate electricity, with an additional 200 million tons of coal ash beneficially used at mine sites.

Federal programs exist to address these legacy mining issues, however, abandoned piles, and silt dams are often a lower priority. As a result, waste coal operations and associated generation operations have been one of the most substantial watershed cleanup efforts of the past 30 years, and this sector continues to play a critical role in terms of pollution prevention, environmental cleanup, and land reclamation in Pennsylvania – that would otherwise remain for future generations.

Of Pennsylvania's over 13,000 acres of coal piles cataloged by the Department, 3,700 acres (71 million cubic yards) have been reclaimed with roughly 9,000 acres (202 million cubic yards) remaining. However, despite these successes, the coal piles in Pennsylvania's Anthracite Region remain one of the largest sources of non-point source pollution in the region. Thousands of tons of coal waste and coal silt remain near streams or along the stream banks that line Pennsylvania's extensive network of streams and rivers. Additionally, of the piles that remain, approximately 40 of them have ignited, and continually burn- significantly impacting local air quality and releasing significant quantities of carbon dioxide. There is clearly more work to be done.

## **Climate Change**

Climate change is the most critical environmental threat facing the world. Right here in Pennsylvania, it has led to more flooding, more heat and respiratory illnesses, more vector-borne diseases and pests, and more disruptions to agricultural systems. Since 1900, Pennsylvania has warmed by 1.8 degrees F. Annual precipitation has increased 10% on average, with some areas seeing a 20% increase over the same time period. From 1958 through 2010, the Northeast U.S. saw more than a 70% increase in the amount of precipitation falling during very heavy rainfall events.

The impacts of climate change are vast and what was predicted 10 years ago is being confirmed today. The projections are even more dire. By 2050, Pennsylvania is expected to warm by 5.4 degrees F. The Pennsylvania that we know will not be the same Pennsylvania that our children or our grandchildren will know. By the middle of this century, Philadelphia will feel like Richmond and Pittsburgh will feel like Washington, D.C. Precipitation patterns will also be increased by another 8% by 2050, with a winter precipitation increase of 14%.

We know that climate change impacts are being caused by the emission and atmospheric concentration of greenhouse gases (GHG), namely carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). There is overwhelming scientific evidence that these greenhouse gas emissions are causing climate change, with modeling and prediction of impacts improving rapidly.

As one of the top GHG emitting states in the country, Pennsylvania has an obligation to take action to reduce greenhouse gas emissions. In October of 2019, Governor Wolf tasked the Department in designing a CO<sub>2</sub> trading program for Pennsylvania that aligns with the Regional Greenhouse Gas Initiative, while accounting for the unique environmental, energy and economic intricacies of Pennsylvania. This program is being designed to reduce anthropogenic emissions of CO<sub>2</sub>, in a manner that is protective of public health, welfare and the environment and is economically efficient.

## **Regional Greenhouse Gas Initiative**

The Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort of ten New England and Mid-Atlantic states to reduce GHG emissions from the power sector. RGGI is a regional cap-and-invest program involving CO<sub>2</sub> emitting power plants. Participating states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. These states have set individual state caps on the total amount of CO<sub>2</sub> emitted from power plants in their states. What is referred to as the RGGI “regional cap” or “the cap” is the state caps added together. In order to show compliance with the cap, power plants must purchase a credit or “allowance,” for each ton of CO<sub>2</sub> emitted. These purchases are made at quarterly auctions conducted by RGGI Inc, and in secondary markets. RGGI Inc., as opposed to “RGGI” the regional initiative, is a non-profit corporation that provides administrative and technical support to the participating states.

RGGI is referred to as a cap-and-invest program as the proceeds from the auctions are allocated back to the participating states in proportion to the amount of CO<sub>2</sub> subject to regulation in each state. States then use these proceeds to make investments in programs that further reduce GHG emissions. Thus RGGI, is a “two-pronged approach” that reduces CO<sub>2</sub> emissions through a cap

as well as through investments in energy efficiency, clean energy technologies, and GHG abatement.

The first step in designing such a program is to draft a regulation that will serve as the basis for Pennsylvania's CO<sub>2</sub> budget trading program. DEP is developing a regulation that is sufficiently consistent with the RGGI Model Rule that Pennsylvania allowances are equal to allowances held in other states and may be freely acquired and traded. However, the model rule is just that, a regulatory template from which states including Pennsylvania adjust to create consistent trading programs that work in parallel but are distinctively different to meet the needs of each state. This has allowed Pennsylvania, and others, the flexibility to limit CO<sub>2</sub> emissions from the power sector in a way that aligns with the other RGGI states, but also enables us to draft a regulation that is tailored to our energy markets- for instance the waste coal generation industry, a sector unique and valuable to Pennsylvania.

Allow me to provide an example of how this would work in practice. Each fossil fuel-fired power plant that has a capacity of 25 megawatts (MW) or greater and sends more than 10% of its annual gross generation to the grid would have a compliance obligation. Each qualifying power plant is required to purchase or offset an allowance for each ton of carbon emitted on an annual basis. At the end of the year, each power plant must retire (or remove from the market) allowances equal to their CO<sub>2</sub> emissions during the calendar year. This process continues- with less allowances available each consecutive year, therefore lowering Pennsylvania's cap on an annual basis.

However, the Department has provided additional flexibility for co-generation plants that are interconnected with and supply power to manufacturing facilities. An example of a co-generation facility would be a Combined Heat and Power (CHP) plant that concurrently produces electricity and useful thermal energy. DEP has proposed that co-generation plants that supply less than 15% of their annual total useful energy to any entity, not including the energy sent to the interconnected manufacturing facility, do not have compliance obligations. Additionally, fossil fuel-fired power plants that has a capacity of 25 megawatts (MW) or greater and supply less than 10% of its annual gross generation to any entity also do not have compliance obligations.

Part of what makes RGGI economically efficient is that it is a regional program, which allows qualifying power plants to achieve least cost compliance by buying and selling allowances whether in the primary market or in secondary markets. RGGI allowances are fungible, meaning that though Pennsylvania has an established allowance amount for each year, PA allowances are available to meet the compliance obligations in any other RGGI state and vice versa. Therefore, emissions from the Pennsylvania power sector are not limited to strictly the amount of PA allowances. Though each state has an annual allocation, compliance occurs at the regional level rather than on a state-by-state basis. This cooperation allows producers more flexibility in terms of compliance and allows the market to signal entrance and exit of generation. In this respect the market assists in achieving least cost compliance for all participating states. That is how the RGGI market works generally, though there are nuances, as differences in individual state programs drive specific state policy priorities.

*RRGI Allowances and Set Asides*

Each state has the authority and discretion as to how they treat the allowances- which are memorialized in each state's CO<sub>2</sub> Budget Trading Program regulation. Allocation of the CO<sub>2</sub> allowances is just one mechanism through which states further public policy goals.

For example, each state must decide how to make these CO<sub>2</sub> allowances available. In addition to states offering allowances for sale through the auction, most RGGI states also opt to have set-aside programs. These states specifically carve out or reserve a portion of the state's allowances to assist certain sectors with part or all their RGGI compliance obligations- or allow other sectors to monetize the allowances for further investment. In the draft regulation, DEP has provided a set-aside option to assist Pennsylvania's waste coal generation sector with RGGI program compliance. While waste coal facilities are not exempt from the program, Pennsylvania DEP will oversee the sector's compliance using allowances that have specifically been carved out or "set aside" for this purpose. In other words, waste coal facilities will not incur significant compliance costs as a result of Pennsylvania's participation in RGGI, as long as the emissions from the waste coal generation sector do not exceed the set-aside amount on an annual basis.

Allow me to explain how this will work when Pennsylvania begins participating in RGGI. At the beginning of each compliance year, the Pennsylvania DEP will set-aside allowances for the waste coal facilities, thereby eliminating the need for them to purchase these allowances in either the primary auctions or secondary markets. Then at the end of the year Pennsylvania DEP will retire the appropriate amount of CO<sub>2</sub> allowances for each of these facilities. This set-aside, as explained in the draft regulation, is equal to 7.9 million tons of CO<sub>2</sub> emissions, an amount which represents the waste coal generation sector's total 2018 emissions.

As you will hear from other panelists today, the waste coal generation sector has been declining in Pennsylvania – as have their resulting emissions. After a review of the last three years of CO<sub>2</sub> emission data from this sector, 2018 had the highest associated emissions- an appropriate level at which to set this allowance amount.

This 7.9 million ton set-aside is the yearly amount held for the waste coal generation sector. On an annual basis, if the total combined emissions for qualifying waste coal facilities do not exceed the 7.9 million tons of CO<sub>2</sub>, there will be no allowance-related RGGI compliance costs for these entities. If the sector exceeds the 7.9 million ton set-aside, then individual facilities will be responsible for the procurement of allowances needed above the set-aside amount. While the set-aside amount is the firm cap for emissions assistance, this sector's emissions and generation are in no way limited. Any CO<sub>2</sub> allowances beyond the set-aside that may be required for compliance reasons would be able to be procured from the market. Conversely, any unused allowances from the annual set-aside would be offered into the market.

The Department acknowledges the value of the co-generation sector and is proposing a set-aside program through which waste coal fired generation will not incur additional costs as a result of Pennsylvania's participation in RGGI if the emissions from the waste coal generation sector do not exceed the annual set-aside. Additionally, the proposed regulation includes greater flexibility for co-generation plants that are interconnected with and supply power to a manufacturing facility.

**Other Coal Refuse Support**

A set-aside for the waste coal generation sector as we design a Pennsylvania cap-and-invest program, is not the only program through which the waste coal industry is acknowledged for its unique role and benefits in Pennsylvania. Under Pennsylvania's Alternative Energy Portfolio Standards (AEPS) Act of 2004, waste coal is identified as a Tier II Alternative Energy resource, and qualifying facilities can receive credits equal to the amount of electricity produced through alternative fuels. In fact, Pennsylvania's AEPS differs from other states in that Pennsylvania includes waste coal and coal mine methane, in addition to the typical renewable sources such as wind and solar, making it an alternative energy standard rather than a renewable energy standard.

In 2018, waste coal accounted for 63.7% of the Tier II compliance obligation. However, states other than Pennsylvania can supply credits into Pennsylvania's alternative energy credit market. To address this concern, Act 40 of 2017 modified the Alternative Energy Portfolio Standards (AEPS) Act such that as of October 31, 2017 only Pennsylvania solar facilities qualify for the AEPS solar carveout. If Pennsylvania was to follow suit whereby only Pennsylvania facilities qualified for Pennsylvania Tier II AECs, then Pennsylvania waste coal facilities could benefit even further from the AEPS program.

Additionally, as recently as 2016, the Pennsylvania Legislature highlighted the importance of this sector in the passage of ACT 84 of 2016 The Coal Refuse Energy and Reclamation Tax Credit Program - highlighting the significant and tangible benefits to the environment from this industry.

On the federal level, Governor Wolf has also expressed his support for the Mine Affected Community Energy and Environment Act or federal H.R. 4735, which seeks to create a federal coal refuse tax credit program to help address the more than 220 million tons of Pennsylvania coal refuse accounting for approximately 9,000 acres of land in Pennsylvania. This Act would create a performance-based tax credit for waste coal-fired power plants that generate electricity through the removal and remediation of waste coal on abandoned mine lands. Enacting a federal tax credit for waste coal power plants would allow Pennsylvania to continue to realize the benefits of managing and remediating the remnants of more than a century of coal mining in Pennsylvania.

**Conclusion**

In closing, I hope that my testimony this morning has clearly conveyed what RGGI participation means for Pennsylvania, and specifically the waste coal generation sector. While RGGI participation will have tangible health, environmental and economic benefits; the inclusion of the waste coal set-aside has the additional benefit of avoiding unintended impacts to this sector, so that the environmental benefits of continuing to remediate Pennsylvania's legacy coal piles may continue. At this stage the Department continues to edit and refine the draft regulatory language, and we welcome your input as we move forward with this process. Thank you again for the invitation to testify today. I appreciate your consideration of this important topic, and the Department looks forward to working with not only this Committee, but the General Assembly and all interested stakeholders as we move forward.