Regulatory Analysis Form

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INDEPENDENT REGULATORY REVIEW COMMISSION

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Environmental Protection

(2) Agency Number: 7

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(3) PA Code Cite: 25 Pa. Code Chapter 145, Subchapter E

(4) Short Title: CO_2 Budget Trading Program

(5) Agency Contacts (List Telephone Number and Email Address):

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(6) Type of Rulemaking (check applicable box):

- ☒ Proposed Regulation
- ☐ Final Regulation
- ☐ Final Omitted Regulation
- ☐ Emergency Certification Regulation:
  - ☐ Certification by the Governor
  - ☐ Certification by the Attorney General

(7) Briefly explain the regulation in clear and nontechnical language. (100 words or less)

The Environmental Quality Board (Board) proposes to amend Chapter 145 (relating to interstate pollution transport reduction) to read as set forth in Annex A. This proposed rulemaking would add Subchapter E (relating to CO_2 budget trading program) to establish a program to limit the emissions of carbon dioxide (CO_2) from fossil fuel-fired electric generating units (EGUs), with a nameplate capacity equal to or greater than 25 megawatts (MWe). This proposed rulemaking includes a declining annual CO_2 emissions budget, which starts at 78,000,000 tons in 2022 and ends at 58,085,040 tons in 2030. This is anticipated to reduce CO_2 emissions in this Commonwealth by 31% compared to 2019. This proposed rulemaking would result in CO_2 emission reductions in this Commonwealth of 188 million tons by 2030, improving the health and welfare and the environment of this Commonwealth, including communities most impacted by marginal air quality. This proposed rulemaking would also establish the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI), a regional CO_2 Budget Trading Program.

(8) State the statutory authority for the regulation. Include specific statutory citation.

This proposed rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 6.3(a) of the APCA (35 P.S. § 4006.3(a)) also authorizes the Board by regulation to establish fees to support the air pollution control program authorized by this act and not covered by fees required by section 502(b) of the Clean Air Act (CAA).

(9) Is the regulation mandated by any federal or state law or court order, or federal regulation? Are there any relevant state or federal court decisions? If yes, cite the specific law, case or regulation as well as, any deadlines for action.

While this proposed rulemaking is not mandated by any federal or state law or court order, CO_2 is a regulated air pollutant under the APCA and the Federal CAA. This Commonwealth's courts have found that the regulation of air pollution has long been a valid public interest. *See e.g., Bortz Coal Co., v. Commonwealth,* 279 A.2d 388, 391 (Pa. Cmwlth. 1971); *DER v. Pennsylvania Power Co.*, 384 A.2d 273, 284 (Pa. Cmwlth. 1978); *Commonwealth v. Bethlehem Steel Corporation*, 367 A.2d 222, 225 (Pa. 1976). Moreover, the Commonwealth Court has endorsed the Department's position that the General Assembly, through the APCA, gave the agency the authority to reduce greenhouse gas (GHG) emissions, including CO_2. *Wolf v. Funk,* 144 A.3d 228, 250 (Pa. Cmwlth. 2016). In *Massachusetts v. EPA*, 549 U.S. 497 (2007) the U.S. Supreme Court recognized that similarly broad language in the CAA authorized EPA to regulate CO_2 emissions under the CAA.

On October 3, 2019, Governor Wolf signed Executive Order 2019-07, *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions,*[1] which directed the Department to use its existing authority under the APCA to develop a proposed rulemaking to abate, control, or limit CO_2 emissions from fossil fuel-fired electric power generators. This proposed rulemaking establishes a CO_2 budget consistent in stringency to that established by the states participating in RGGI ("participating states"), provides for the auction of CO_2 emissions allowances through a market-based mechanism, and is sufficiently consistent with the RGGI Model Rule such that allowances may be traded with holders of allowances from other states.

While the Department developed this proposed rulemaking under the direction of Executive Order 2019-07, the Board has the authority to promulgate this proposed rulemaking under the APCA. Through the APCA, the Legislature granted the Department and the Board the authority to protect the air resources of this Commonwealth, which is inclusive of controlling CO_2 pollution. CO_2 falls under the definition of "air pollution" in section 3 of the APCA (35 P.S. § 4003). The Board has the authority under section 5(a)(1) of the APCA to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. As mentioned in the response to question 10, numerous sources, including the EPA, the Penn State University, the U.S. Global Change Research Program (USGCRP) and the International Panel on Climate Change (IPCC), have confirmed that CO_2 emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life. CO_2 is also a GHG and the largest contributor to climate change. Thus, regulating sources of CO_2 emissions is necessary to protect the public health and welfare from harmful air pollution and address climate change.

(10) State why the regulation is needed. Explain the compelling public interest that justifies the regulation. Describe who will benefit from the regulation. Quantify the benefits as completely as possible and approximate the number of people who will benefit.

According to data from the United States Energy Information Administration (EIA), this Commonwealth generates the 4th most CO_2 emissions from EGUs in the country.[2] Since CO_2 emissions are a major contributor to regional climate change impacts, the Department developed this proposed rulemaking to

[1] Executive Order 2019-07, *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions,* October 3, 2019, https://www.oa.pa.gov/Policies/eo/Documents/2019-07.pdf.
[2] EIA, Energy-Related Carbon Dioxide Emissions by State, 2005-2016, February 27, 2019, https://www.eia.gov/environment/emissions/state/analysis/.

establish this Commonwealth's participation in a regional approach that significantly reduces CO_2 emissions and this Commonwealth's contribution to regional climate change.

The purpose of this proposed rulemaking is to reduce anthropogenic emissions of CO_2, a GHG, and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment. This proposed rulemaking would establish the Commonwealth's participation in RGGI, a regional CO_2 Budget Trading Program aimed at reducing CO_2 emissions from the power sector. This proposed rulemaking would establish a CO_2 Budget Trading Program for this Commonwealth which is capable of linking with similar regulations in the participating states. The totality of these individual state CO_2 Budget Trading Program regulations together make up the regional CO_2 Budget Trading Program or "RGGI."

This proposed rulemaking would effectuate least cost CO_2 emission reductions for the years 2022 through 2030. The declining CO_2 Emissions Budget in this proposed rulemaking directly results in CO_2 emission reductions of around 20 million short tons in this Commonwealth as well as emission reductions across the broader PJM regional electric grid. However, the Department projects that 188 million short tons of CO_2 that would have been emitted over the next decade are avoided by this Commonwealth's participation in RGGI.

If this Commonwealth participates in RGGI in 2022, combined with the other participating states and based on gross domestic product (GDP), RGGI would be equal to the third largest economy in the world. When viewed from this collective impact, the CO_2 emission reductions achieved by the participating states are even more significant. Reductions in CO_2 emissions will help decrease the adverse impacts of climate change on human health, the environment and the economy. Specifically, CO_2 emission reductions may decrease costs from extreme weather events and climate-related ailments that also result in increased health care costs, as well as missed school and work days due to illness.

The CO_2 emission reductions accomplished through implementation of this proposed rulemaking would benefit the health and welfare of the approximately 12.8 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing the amount of climate change causing air pollution resulting from the regulated sources.

Climate Change Impacts and the Greenhouse Effect

Like every state in the country, this Commonwealth has already begun to experience adverse impacts from climate change, such as higher temperatures, changes in precipitation, and frequent extreme weather events, including large storms, flooding, heat waves, heavier snowfalls, and periods of drought. These impacts could alter the many fundamental assumptions about climate that are intrinsic to this Commonwealth's infrastructure, governments, businesses and the stewardship of its natural resources and environment. If not properly accounted for, changes in climate could result in more frequent road washouts, higher likelihood of power outages, and shifts in economic activity, among other significant impacts. Climate change can also affect vital determinants of health such as clean air, safe drinking water, sufficient food and secure shelter. These vital determinants are particularly affected by the increased extreme weather events, in addition to decreased air quality and an increase in illnesses transmitted by food, water, and disease carriers such as mosquitos. If these impacts are to be avoided, GHG emissions must be reduced expeditiously.

The impacts of climate change are vast and what was predicted ten years ago is being confirmed today. Climate change is being caused by the emission and atmospheric concentration of GHGs, namely CO_2.

Scientists have confirmed that increased CO_2 emissions from human activity are causing changes to global climate. Of all the actively publishing climate scientists, 97% agree that climate warming trends over the past century are extremely likely due to human activities. Major scientific institutions including the U.S. National Academy of Sciences, the USGCRP, the American Medical Association, the American Association for the Advancement of Science, and many others endorse this position. In the Fifth Assessment Report of the IPCC released in 2014, the IPCC concluded that, "human influence on the climate system is clear, and recent anthropogenic emissions of GHGs are the highest in history."[3]

While CO_2 is a necessary element of life on Earth and acts as a fundamental aspect of nearly every critical system on the planet, CO_2 in high concentrations in the atmosphere leads to the greenhouse effect. The greenhouse effect occurs when CO_2 (and other GHG) molecules absorb solar energy and re-emit infrared energy back to the Earth's surface. This absorption and re-emitting of infrared energy is what makes certain gases trap heat in the lower atmosphere, not allowing it to go back out to space. The greenhouse effect disrupts the normal process whereby solar energy is absorbed at the Earth's surface and is radiated back through the atmosphere and back to space. Maintaining the surface temperature of the Earth depends on this balance of incoming and outgoing solar radiation.[4]

Global temperatures are increasing due to the greenhouse effect. Significantly changing the global temperature has impacts to every other weather and climate cycle occurring across the world. For instance, global average sea level, which has risen by about 7–8 inches since 1900 (with about 3 inches of that increase occurring since 1993), is expected to rise at least several inches in the next 15 years and by 1–4 feet by 2100.[5] The impacts of increased GHGs in the atmosphere, including extreme weather and catastrophic natural disasters, have become more frequent and more intense. Extreme weather events also contribute to deaths from extreme heat or cold exposure and lost work hours due to illness. The World Health Organization expects climate change to cause around 250,000 additional deaths globally per year between 2030-2050, with additional direct damage costs to health estimated to be around $2-4 billion per year by 2030.[6] Based on the overwhelming scientific evidence, these harms are likely to increase in number and severity unless aggressive steps are taken to reduce GHG emissions.

Climate Change Impacts Assessments

In 2009, the Department released its first Climate Change Impacts Assessment[7] and Climate Change Action Plan, as required under the Pennsylvania Climate Change Act (71 P.S. § 1361.1—13.61.8). The 2009 Climate Change Impacts Assessment showed that this Commonwealth was already experiencing some of the harmful effects of climate change. That same year, under CAA section 202(a)(1), 42 U.S.C.A. § 7521(a)(1), the EPA issued an "Endangerment Finding," that six GHGs — CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride — endanger both the public health and the public welfare of current and future generations by causing or contributing to climate change. See 74 FR 66496 (December 15, 2009). The 2009 Endangerment Finding is further reinforced by

[3] IPCC, Climate Change 2014: Synthesis Report, Contribution of Working Groups I, II and III to the *Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. 2014, www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf.

[4] National Aeronautics and Space Administration, "The Causes of Climate Change," https://climate.nasa.gov/causes/.

[5] Sea Level Rise. *U.S. Climate Resilience Toolkit*, September 19, 2019, https://toolkit.climate.gov/topics/coastal/sea-level-rise.

[6] World Health Organization, *Climate change and health*, February 1, 2018, https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health.

[7] Environment and Natural Resources Institute of The Pennsylvania State University, 2019 Pennsylvania Climate Impacts Assessment Update, June 29, 2019, http://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/Climate%20Change%20Advisory%20Committee/7000-BK-DEP4252%5B1%5D.pdf.

the findings of the USGCRP's Fourth National Climate Assessment (NCA4) which is consistent with the Commonwealth's 2015 and 2020 Climate Impacts Assessment Updates.

In 2015, the Environment and Natural Resources Institute at Penn State University released an updated Climate Impacts Assessment for the Department. The 2015 Climate Impacts Assessment found that this Commonwealth has undergone a long-term warming of more than 1.8°F over the prior 110 years, and that due to increased GHG emissions current warming trends are expected to increase at an accelerated rate with average temperatures projected to increase an additional 5.4 degrees by 2050.[8] This warming will have potential adverse impacts related to Pennsylvania agriculture, forests, aquatic ecosystems, water resources, wildlife and public health. In this Commonwealth, average annual precipitation has increased by approximately 10% over the past 100 years and, by 2050, is expected to increase by an additional 8%, with a 14% increase during the winter season.[9]

In particular, climate change will worsen air quality relative to what it would otherwise be, causing increased respiratory and cardiac illness. Air quality impacts from climate change are due to the combination of pollutants emitted from anthropogenic sources and weather conditions. Climate change can potentially also worsen water quality, affecting health through consumption of diminished quality drinking water and through contact with surface waters during outdoor recreation. The risk of injury and death from extreme weather events could also increase as a consequence of climate change. Additionally, climate change could affect the prevalence and virulence of air-borne infectious diseases such as influenza. In April 2020, the Environment and Natural Resources Institute at Penn State University released an updated Climate Change Impacts Assessment for the Department,[10] which states that the expected disruptions to this Commonwealth's climate and impacts on this Commonwealth's climate sensitive sectors remain as dire as presented in the 2015 Climate Impacts Assessment.

On November 23, 2018, the USGCRP released the NCA4,[11] a scientific assessment of the national and regional impacts of natural and human-induced climate change. The NCA4 represents the work of over 300 government and non-government experts, led by experts within the U.S. Environmental Protection Agency (EPA), the U.S. Department of Energy and eleven other federal agencies. The NCA4 shows how the impacts of climate change are already occurring across the country and emphasizes that future risks from climate change will depend on the decisions made today. It is worth noting that the NCA4 mentions that the Northeast region is a model for other states, as it has traditionally been a leader in GHG mitigation action.

By 2035, the NCA4 projects that the Northeast will see the largest temperature increase in the country of more than 3.6°F on average higher than the preindustrial era.[12] This would occur as much as two decades before global average temperatures reach a similar milestone. The changing climate of the Northeast threatens the health and public welfare of its residents and will lead to health-related impacts and costs,

[8] Environment and Natural Resources Institute of The Pennsylvania State University, 2015 Pennsylvania Climate Impacts Assessment Update, May 2015, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5002&DocName=2015%20PENNSYLVANIA%20CLIMATE%20IMPACTS%20ASSESSMENT%20UPDATE.PDF%20.

[9] *Id* at 7.

[10] Environment and Natural Resources Institute of The Pennsylvania State University, 2020 Pennsylvania Climate Change Impacts Assessment Update, April 2020, http://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/ClimateChange/2020ClimateChangeImpactsAssessmentUpdate.pdf.

[11] USGCRP, Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II, 2018, https://nca2018.globalchange.gov/.

[12] *Id.* at Chapter 18: Northeast.

including additional deaths, emergency room visits and hospitalizations, higher risk of infectious diseases, lower quality of life and increased costs associated with healthcare utilization. Mosquitoes, fleas and ticks and the diseases they carry have been a particular concern in the Northeast in recent years. Scientists have linked these diseases, specifically tick-related Lyme disease, to climate change.

Climate change also threatens to reverse the advances in air quality that the states in the Northeast, including this Commonwealth, have worked so hard to achieve over the past couple of decades. In particular, climate change will increase levels of ground-level ozone pollution in the Northeast through changes in weather and increased ozone precursor emissions. Ozone is an irritant and repeated exposure to ozone pollution for both healthy people and those with existing conditions may cause a variety of adverse health effects, including difficulty in breathing, chest pains, coughing, nausea, throat irritation and congestion. In addition, people with bronchitis, heart disease, emphysema, asthma and reduced lung capacity may have their symptoms exacerbated by ozone pollution. Asthma, in particular, is a significant and growing threat to children and adults in this Commonwealth. The NCA4 refers to this as a "climate penalty" and projects it could cause hundreds more ozone pollution-related deaths per year.

Over the past several decades, the Department has made substantial progress in decreasing ground-level ozone pollution in this Commonwealth, including limiting precursor emissions. However, Bucks, Chester, Delaware, Montgomery and Philadelphia counties are designated as marginal nonattainment areas for the 2015 ozone national ambient air quality standards (NAAQS). See 83 FR 25776 (June 4, 2018). There is still more work that needs to be done to reduce emissions in these nonattainment areas and to avoid backsliding on the improvements to air quality across this Commonwealth. An increase in ground-level ozone levels due to climate change would interfere with continued attainment of the ozone NAAQS, hinder progress in marginal nonattainment areas and put public health and welfare at risk.

Along with these overall impacts, multiple sectors in this Commonwealth can expect to see specific negative impacts from climate change.

Health

Climate change will impact human health in a number of ways. It will likely increase ground-level ozone, small airborne particulates, and pollen and mold concentrations. Ozone is an irritant that causes respiratory issues, aggravates asthma, causes respiratory infections, and increases mortality. Higher plant growth, more pollen produced by each plant, increased allergenicity of the pollen grains, and a longer pollen season can also be expected. In this Commonwealth, mosquito and tick-borne diseases are spreading to new communities and regions and impacting people's lives.[13] According to a recent Penn State University study,[14] since 2000, this Commonwealth has had the highest number of total Lyme disease cases nationwide. Increased deer tick prevalence throughout this Commonwealth is related to climate change and shifts in land use because winters are no longer cold enough to kill off tick populations.

Vulnerable populations across this Commonwealth will be at a higher risk for heat related death. People with heart failure, the elderly, and those without access to air conditioning will all be increasingly exposed

[13] Environment and Natural Resources Institute of The Pennsylvania State University, 2015 Pennsylvania Climate Impacts Assessment Update, May 2015, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5002&DocName=2015%20PENNSYLVANIA%20CLIMATE%20IMPACTS%20ASSESSMENT%20UPDATE.PDF%20.

[14] Pennsylvania State University, More than 100 years of data show Pennsylvania tick population shift, May 3, 2019, https://phys.org/news/2019-05-years-pennsylvania-population-shift.html.

to more frequent and intense heat waves. One study found that if temperatures increase another 3 degrees, cities like Philadelphia will see hundreds more deaths per year than if warming is limited to 1 degree.[15]

Repeated exposure to ozone pollution for both healthy people and those with existing conditions may cause a variety of adverse health effects including difficulty breathing, chest pains, coughing, nausea, throat irritation, and congestion. In addition, people with bronchitis, heart disease, emphysema, asthma, and reduced lung capacity may have their symptoms exacerbated by ozone pollution. Asthma is a significant and growing threat to children and adults in this Commonwealth. Reduced ambient concentrations of ground-level ozone would reduce the incidences of hospital admissions for respiratory ailments including asthma and improve the quality of life for residents of this Commonwealth.[16]

According to the NCA4, climate-driven changes in weather, human activity and natural emissions are all expected to impact future air quality across the United States. Many emission sources of GHGs also emit air pollutants that harm human health. Controlling these common emission sources would both mitigate climate change and have immediate benefits for air quality and human health. The energy sector, which includes energy production, conversion, and use, accounts for 84% of GHG emissions as well as 80% of emissions of oxides of nitrogen (NO_x) and 96% of sulfur dioxide (SO_2). Specifically, mitigating GHGs can lower emissions of particulate matter (PM), ozone and PM precursors, and other hazardous pollutants, reducing the risks to human health from air pollution.

Agriculture

In addition to causing adverse human and animal health effects, high levels of ground-level ozone affect vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reducing growth and survivability of tree seedlings; and increasing plant susceptibility to disease, pests, and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems.[17]

Similar to various public health pressures, the agricultural, food, and water systems this Commonwealth depends on for survival are also under threat by climate change. The increase in precipitation and its variability could lead to higher plant disease, increased risk of flooding, difficulty in the timing of planting, and increased demand for irrigation. Extreme temperatures will stress grain crops and fruit crops that flower in the summer months (such as grapes). To adapt, this Commonwealth's wineries may choose to plant European varieties of grapes, which tend to do better in warmer climates, but this would also lead to increases in the cost of wine.[18]

This Commonwealth's dairy production will also experience challenges from reduced milk yields, a result of heat stress on cows. Farmers may see additional capital expenditures necessary for cooling systems to reduce the heat stress on cows. The same is true for poultry and egg production. Investments in

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[15] University of Bristol, Adjusting carbon emissions to the Paris climate commitments would prevent thousands of heat-related deaths, June 5, 2019, http://www.bristol.ac.uk/news/2019/june/heat-related-deaths-.html.

[16] EPA, Health Effects of Ground-Level Ozone, http://web.archive.org/web/20160220023128/http://www3.epa.gov/airquality/ozonepollution/health.html.

[17] Environment and Natural Resources Institute of The Pennsylvania State University, 2013 Pennsylvania Climate Impacts Assessment Update, May 2015, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=6806&DocName=PA%20DEP%20CLIMATE%20IMPACT%20ASSESSMENT%20UPDATE.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E%3C%2Fspan%3E.

[18] *Id.*

insulation, ventilation, fans, and air conditioning will be necessary to prevent heat stress to the birds. Currently, a large portion of poultry and hog production takes place in warmer, southern states like North Carolina and Georgia, showing that these production processes can still be viable with the increased costs of cooling. However, there may be a northward movement of these animals, bringing with them an increase in nutrient production and further stressing our obligations for water quality improvements.[19]

High levels of ground-level ozone also affect animals including pets, livestock, and wildlife, in ways similar to humans. Reduced ambient concentrations of ground-level ozone would improve the quality of life of animals, preserve this Commonwealth's biodiversity, and reduce veterinary costs to farmers and citizens with pets.

Forests & Recreation

Climate change is already having an impact on forests around the world and this Commonwealth's diverse and productive forests will likely also see impacts. Tree species are expected to shift to higher latitudes and elevations for suitable habitat. Mortality rates are expected to increase, and regeneration is expected to decline. Rising temperatures increase insect reproductive rates, making pest outbreaks more destructive and harder to control. Additionally, pests that impact the forests of southern states could make their way into this Commonwealth's forests.

Outdoor recreation in this Commonwealth will also be impacted by climate change. Stream flows in the summer could be reduced and negatively affect sport fishing. Swimming in lakes and rivers could be limited by poor water quality, the result of higher temperatures, low summer flows, and nutrient and pathogen loadings. These combinations of circumstances can lead to harmful algal blooms.

Warmer winter temperatures and reduced snowfall will negatively impact snow-based recreation. This Commonwealth's ski resorts will experience shorter seasons, higher snow making costs, and lower profits as a consequence of climate change. Research also suggests that dispersed winter recreation, such as cross-country skiing and snowmobiling, will decline because of less snowfall and fewer extended periods of cold weather.[20]

Infrastructure

Extreme weather events can affect the reliability of energy delivery. Hurricanes, polar vortexes, and ice storms can damage infrastructure. Increased cooling demands can also stress energy delivery systems during times of high demand and could lead to electrical blackouts. Planning for distributed generation to provide electricity in the event of natural disaster related outages becomes necessary.

The Commonwealth's infrastructure system has recently experienced major impacts from increased precipitation and the resultant landslides, as 2018 was the wettest year on record.[21] In just one year,

[19] Environment and Natural Resources Institute of The Pennsylvania State University, 2019 Pennsylvania Climate Impacts Assessment Update, June 29, 2019, http://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/Climate%20Change%20Advisory%20Committee/7000-BK-DEP4252%5B1%5D.pdf.

[20] Environment and Natural Resources Institute of The Pennsylvania State University, 2015 Pennsylvania Climate Impacts Assessment Update, May 2015, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5002&DocName=2015%20PENNSYLVANIA%20CLIMATE%20IMPACTS%20ASSESSMENT%20UPDATE.PDF%20.

[21] National Weather Service: National Oceanic and Atmospheric Administration, 2018 in Context: Record Precipitation across Pennsylvania, https://www.weather.gov/ctp/RecordPrecip2018.

PennDOT saw over $125 million in emergency expenses to replace damaged infrastructure and cash-strapped local municipalities are dealing with the same budget-busting issues. Adding to that financial stress, many flooding events are so localized that they do not qualify for Federal assistance, so homeowners, business owners, and local and state agencies must bear the brunt of repair costs.

Water Resources

The Department predicts higher flood potential due to more precipitation and intensified risks to water resources that are already stressed. Other potential impacts are decreased water quality, urban flooding, decreased water supplies for urban areas, and irrigation. Warmer temperatures may mean less winter thermal stress on fish, but higher summer temperatures could have an impact on salmon spawning. More severe storm events and dry periods will change flow patterns, resulting in major changes to the channel morphology and aquatic habitat. The largest negative impact may be in lost biodiversity as fish and other species' populations shift northward.

Additionally, the Department predicts that water temperatures in the summer could increase 2.7 to 3.5 degrees. This warming will cause a decrease in the solubility of oxygen and an increase in respiration rates, resulting in decline of the dissolved oxygen concentration. By mid-century, the sea level will increase by 0.4 meters. Coupled with the projected summer stream flow decrease of 19%, a modest increase of salinity is expected to occur.[22] Salinity is an important defining characteristic of the Delaware estuary, regulating floral and faunal distributions and affecting human use of the estuary. While salinity is a threat, the predicted sea-level rise has the potential to drown the already-stressed wetlands if their growth rates are less than the rates of the rise.[23]

Immediate Action is Needed to Address this Commonwealth's Contribution to Climate Change

Given the urgency of the climate crisis, including the significant impacts on this Commonwealth, the Board determined that concrete, economically sound and immediate steps to reduce GHG emissions are needed. As one of the top GHG emitting states in the country, the Board has a compelling interest to reduce GHG emissions to address climate change and protect public health, welfare and the environment. Based on the most recent data from the EPA's State Inventory Tool, in 2017, this Commonwealth generated net GHG emissions equal to 233.20 million metric tons CO_2 equivalent (MMTCO2e) Statewide, the vast majority of which are CO_2 emissions. In the context of the world, this Commonwealth's electricity generation sector alone emits more CO_2 than many entire countries including Greece, Colombia, Sweden, Israel, Singapore, Austria, Peru and Portugal.[24]

Historically, the electricity generation sector has been the leading source of CO_2 emissions in this Commonwealth. Based upon data contained in the Department's 2020 GHG Inventory, 29% of this Commonwealth's total GHG emissions are produced by the electricity generation sector.[25] In recent

[22] Environment and Natural Resources Institute of The Pennsylvania State University, 2015 Pennsylvania Climate Impacts Assessment Update, May 2015, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5002&DocName=2015%20PENNSYLVANIA%20CLIMATE%20IMPACTS%20ASSESSMENT%20UPDATE.PDF%20.

[23] *Id.*

[24] Joint Research Centre, European Commission, "JRC Science For Policy Report: Fossil CO_2 emissions of all world countries," 2018, https://ec.europa.eu/jrc/en/publication/fossil-co2-emissions-all-world-countries-2018-report.

[25] Environment and Natural Resources Institute of The Pennsylvania State University, 2020 Pennsylvania Climate Change Impacts Assessment Update, April 2020, http://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/ClimateChange/2020ClimateChangeImpactsAssessmentUpdate.pdf.

years, this Commonwealth has seen a shift in the electricity generation portfolio mix, resulting from market forces and the establishment of alternative energy goals, and energy efficiency targets. Since 2005, this Commonwealth's electricity generation has shifted from higher carbon-emitting electricity generation sources, such as coal, to lower and zero emission generation sources, such as natural gas, wind and solar. At the same time, overall energy use in the residential, commercial, transportation, and electric power sectors has reduced.

However, looking forward, the Department projects CO_2 emissions from the electricity generating sector will increase due to reduced switching from coal to natural gas, the potential closure of zero carbon emitting nuclear power plants, and the addition of new natural gas-fired units in this Commonwealth. The Three Mile Island nuclear power plant already closed on September 20, 2019, amounting to a loss of 818 MW of carbon free generation. However, the modeling conducted for this proposed rulemaking predicts no further nuclear power plants retirements through 2030 with implementation of this proposed rulemaking. Without this proposed rulemaking, this Commonwealth's nuclear fleet may remain at-risk of closure. In fact, the Beaver Valley nuclear power plant, responsible for 1,845 MW of carbon free generation, recently withdrew its closure announcement, specifically citing this Commonwealth's intended participation in RGGI as a key determinant in continuing operations.

Further, the Department's Climate Action Plan predicts that total and net GHG emissions (including emissions sinks) will increase by 4% and 5%, respectively, from 2015 to 2050.[26] Additionally, the most recent GHG Inventory indicates that in 2017 GHG emissions in this Commonwealth increased, widening the gap between current emissions and reductions necessary to avoid the worst impacts of climate change.[27]

This proposed rulemaking is necessary to ensure CO_2 emissions continue to decrease and at a rate that shields this Commonwealth from the worst impacts of climate change. RGGI plays an important role in providing a platform whereby this Commonwealth can reduce CO_2 emissions using a market-based approach. As the electricity generation sector remains one of the leading sources of CO_2 in this Commonwealth, it is imperative that emissions continue to decrease from that sector.

The Commonwealth's GHG Emission Reduction Goals

It is for these reasons that on January 8, 2019, Governor Wolf signed Executive Order 2019-01, *Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance*.[28] This Executive Order set the first ever climate change goal for this Commonwealth to reduce net GHG emissions from 2005 levels by 26% by 2025 and 80% by 2050. These climate change goals align this Commonwealth with the reduction targets under the Paris Agreement aimed at keeping global temperature rise below the 2-degree Celsius threshold. According to climate experts, the 2-degree Celsius threshold is the level beyond which dire global consequences would occur, including sea level rise, superstorms and crippling heat waves.

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[26] Pennsylvania Department of Environmental Protection, 2018 Pennsylvania Climate Action Plan: Strategies and actions to reduce and adapt to climate change, April 29, 2019, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1454161&DocName=2018%20PA%20CLIMATE%20ACTION%20PLAN.PDF%20%20%20%3cspan%20style%3D%22color:blue%3b%22%3e%28NEW%29%3c/span%3e.

[27] Pennsylvania Department of Environmental Protection, 2019 Pennsylvania Greenhouse Gas Inventory Report, December 2019, http://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/Climate%20Change%20Advisory%20Committee/2019/12-20-19/FINAL%20Inventory%20-%202019_2019-12-20.pdf.

[28] Executive Order 2019-01, *Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance*, January 8, 2019, https://www.governor.pa.gov/newsroom/executive-order-2019-01-commonwealth-leadership-in-addressing-climate-change-and-promoting-energy-conservation-and-sustainable-governance/.

On April 29, 2019, the Department issued a Pennsylvania Climate Action Plan that identified GHG emission trends and baselines in this Commonwealth and recommended cost-effective strategies for reducing or offsetting GHG emissions. The Climate Action Plan determined that reducing the overall carbon intensity of the electricity generated in this Commonwealth is one of the most critical strategies for reducing GHG emissions. The Climate Action Plan also identified many different strategies and actions that all Pennsylvanians can take to combat climate change. According to the Climate Action Plan, one of the most cost-effective emissions reduction strategies is to limit CO_2 emissions through an electricity sector cap and trade program. This Commonwealth participating in a cap and trade program is expected to result in the largest near-term reduction in emissions and was deemed cost-effective relative to the social cost of carbon. The Climate Action Plan modeled a cap and trade program that requires a carbon cap equal to a 30% reduction from 2020 CO_2 emissions levels by 2030, which is equivalent to RGGI stringency.

On October 3, 2019, Governor Wolf signed Executive Order 2019-07, *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions,*[29] which directed the Department to use its existing authority under the APCA to develop this proposed rulemaking to abate, control or limit CO_2 emissions from fossil fuel-fired electric power generators. The Executive Order also directed the Department to present this proposed rulemaking to the Board by July 31, 2020. On June 22, 2020, Governor Wolf amended the Executive Order to extend the deadline to September 15, 2020. As directed by the Executive Order, this proposed rulemaking establishes a CO_2 budget consistent in stringency to that established by the participating states, provides for the annual or more frequent auction of CO_2 emissions allowances through a market-based mechanism, and is sufficiently consistent with the RGGI Model Rule such that allowances may be traded with holders of allowances from other states.

Considering that this Commonwealth has the fourth leading CO_2 emitting electricity generation sector in the country, this proposed rulemaking is a significant component in achieving the Commonwealth's goals to reduce GHG emissions. Although this proposed rulemaking will not solve global climate change, it will aid this Commonwealth in addressing its share of the impact, joining other states and countries that are addressing their own impacts. The statutory authority for this proposed rulemaking, the APCA, is built on a precautionary principle to protect the air resources of this Commonwealth for the protection of public health and welfare and the environment, including plant and animal life and recreational resources, as well as development, attraction and expansion of industry, commerce and agriculture. In order to be proactive, this proposed rulemaking is needed to address this Commonwealth's contributions to climate change, particularly CO_2 emissions. The Board determined to address CO_2 emissions through a regional initiative because regional cap and trade programs have proven to be beneficial and cost-effective at reducing air pollutant emissions. In fact, this Commonwealth has and continues to participate in successful regional cap and trade programs.

History and Success of this Commonwealth's Participation in Cap and Trade Programs

In the 1990 CAA Amendments, the United States Congress determined that the use of market-based principles, such as emissions banking and trading are effective ways of achieving emission reductions. According to the EPA, emissions trading programs are best implemented when the environment and public health concerns occur over a relatively large geographic area and effectively designed emissions trading programs provide flexibility for individual emissions sources to tailor their compliance path to their needs. The EPA has also determined that reducing emissions using a market-based system provides regulated

[29] Executive Order 2019-07, *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions,* October 3, 2019, https://www.oa.pa.gov/Policies/eo/Documents/2019-07.pdf.

sources with the flexibility to select the most cost-effective approach to reduce emissions and has proven to be a highly effective way to achieve emission reductions, meet environmental goals, and improve human health. In contrast to traditional command and control regulatory methods that establish specific emissions limitations and technology use with limited or no flexibility, cap and trade programs harness the economic incentives of the market to reduce pollution. The Board has a decades-long history of promulgating regulations that have established this Commonwealth's participation in successful cap and trade programs.

Beginning in 1995, this Commonwealth participated in the first national cap and trade program in the United States, the Acid Rain Program, which was established under Title IV of the 1990 CAA Amendments and required, in part, major emission reductions of SO_2 through a permanent cap on the total amount emitted by EGUs. For the first time, the Acid Rain Program introduced a system of allowance trading that used market-based incentives to reduce pollution. The Acid Rain Program reduced SO_2 emissions by 14.5 million tons (92%) from 1990 levels and 16.0 million tons (93%) from 1980 levels.[30] The undisputed success of achieving significant emission reductions in a cost-effective manner led to the application of the market-based cap and trade tool for other regional environmental problems.

From 1999 to 2002, this Commonwealth participated in the Ozone Transport Commission's (OTC) NO_x Budget Program, an allowance trading program designed to reduce summertime NO_x emissions from EGUs to reduce ground-level ozone, which included all of the current states participating in RGGI. According to the OTC's NO_x Budget Program 1999-2002 Progress Report,[31] NO_x Budget Program units successfully reduced ozone season NO_x emissions in 2002 by nearly 280,000 tons, or about 60%, from 1990 baseline levels, achieving greater reductions than required each year of the program. Based on the success of the OTC's NO_x Budget Program and the Acid Rain Program, in 2003 the EPA implemented a regional NO_x cap and trade program under the NO_x SIP Call, which closely resembled the OTC NO_x Budget Program. The EPA again noted the cost savings of achieving emissions reductions through trading.

Beginning in 2009, the EPA's NO_x Budget Trading Program was replaced by the Clean Air Interstate Rule (CAIR) trading program, covering 28 eastern states, which required further summertime NO_x reductions from the power sector as well as SO_2 reductions. Finally, in 2015 CAIR was replaced by the Cross-State Air Pollution Rule trading program.

Regional Greenhouse Gas Initiative (RGGI)

RGGI is a cooperative regional market-based cap-and-trade program designed to reduce CO_2 emissions from fossil fuel-fired EGUs. RGGI is currently composed of ten northeastern states, including Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. Since its inception on January 1, 2009, RGGI has utilized a market-based mechanism to cap and cost-effectively reduce CO_2 emissions that cause climate change. Because CO_2 from large fossil fuel-fired EGUs is a major contributor to regional climate change, the participating states developed

[30] EPA, 2018 Power Sector Programs Progress Report, 2018, https://www3.epa.gov/airmarkets/progress/reports/pdfs/2018_full_report.pdf.

[31] OTC, NO_x Budget Program 1999-2002 Progress Report, https://nepis.epa.gov/Exe/ZyNET.exe/P1002LY4.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000017%5CP1002LY4.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

a regional approach to address CO_2 emissions. This regional approach resulted in a Model Rule applicable to fossil fuel-fired EGUs with a nameplate capacity equal to or greater than 25 MWe. RGGI is implemented in the participating states through each state's independent CO_2 Budget Trading Program regulations, based on the Model Rule, which link together.

RGGI is a "cap and trade" program that sets a regulatory limit on CO_2 emissions from fossil fuel-fired EGUs and permits trading of CO_2 allowances to effect cost efficient compliance with the regulatory limit. RGGI is also referred to as a "cap and invest" program, because unlike traditional cap and trade programs, RGGI provides a "two-prong" approach to reducing CO_2 emissions from fossil fuel-fired EGUs. The first prong involves a declining CO_2 emissions budget and the second prong is investment of the proceeds resulting from the auction of CO_2 allowances to further reduce CO_2 emissions.

Benefits of RGGI Participation

Cap and trade programs have an established track record as economically efficient, market-driven mechanisms for reducing pollution in a variety of contexts. Other countries and states have found that cap and trade programs are effective methods to achieve significant GHG emission reductions. RGGI is one of the most successful cap and trade programs and it is well-established with an active carbon trading market for the northeastern United States. This successful market-based program has significantly reduced and continues to reduce emissions. The participating states have collectively reduced power sector CO_2 pollution by over 45% since 2009, while experiencing per capita Gross Domestic Product growth and reduced energy costs.[32] The program design of RGGI would enable the Board to regulate CO_2 emissions from the power sector in a way that is least-cost and economically efficient thereby driving long-term investments in cleaner sources of energy.

Part of what makes RGGI economically efficient is that it is a regional program, which allows EGUs to achieve least-cost compliance by buying and selling allowances in a regional auction or in regional secondary markets. RGGI CO_2 allowances are fungible across the participating states, meaning that though this Commonwealth has an established allowance budget for each year, this Commonwealth's allowances are available to meet the compliance obligations in any other RGGI state and vice versa. Therefore, CO_2 emissions from this Commonwealth's power sector are not limited to strictly the amount of this Commonwealth's CO_2 allowances. This cooperation allows EGUs more flexibility in terms of compliance and allows the market to continue to signal entrance and exit of generation. Though each state has its own annual allocation, compliance occurs at the regional level rather than on a state-by-state basis. In this respect the market assists in achieving least cost compliance for all participating states.

Another benefit of participating in multistate auctions run by RGGI, Inc. is that RGGI, Inc. has retained the services of an independent market monitor to monitor the auction, CO_2 allowance holdings, and CO_2 allowance transactions, among other activities. The market monitor provides independent expert monitoring of the competitive performance and efficiency of the RGGI allowance market. This includes identifying attempts to exercise market power, collude, or otherwise manipulate prices in the auction and/or the secondary market, making recommendations regarding proposed market rule changes to improve the efficiency of the market for RGGI Allowances, and assessing whether the auctions are administered in accordance with the noticed auction rules and procedures. The market monitor will monitor bidder behavior in each auction and report to the participating states any activities that may have a material impact on the efficiency and performance of the auction. The participating states, through RGGI,

[32] Analysis Group, The Economic Impacts of The Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States: Review of RGGI's Third Three-Year Compliance Period (2015-2017), April 17, 2018, https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf

Inc., release a Market Monitor Report shortly after each CO_2 allowance auction. The report includes aggregate information about the auction including the dispersion of projected demand, the dispersion of bids, and a summary of bid prices, showing the minimum, maximum, average and clearing price and the allowances awarded.

RGGI has helped the participating states create jobs, save money for consumers, and improve public health, while reducing power sector emissions and transitioning to a cleaner electric grid. In an independent and nonpartisan evaluation of the first three control periods in RGGI, the Analysis group, one of the largest economic consulting firms globally, found that the participating states experienced economic benefits in all three control periods, while reducing CO_2 emissions. The participating states added between $1.3 billion and $1.6 billion in net economic value during each of the three control periods. The participating states also showed growth in economic output, increased jobs and reduced long-run wholesale electricity costs.[33]

A recent report from the Acadia Center, a nonprofit organization committed to advancing the clean energy future, entitled "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%. RGGI has also driven substantial reductions in harmful co-pollutants, making the region's air cleaner and its people healthier. Additionally, proceeds from RGGI auctions generated nearly $3.3 billion in state investments from 2009 to 2019.[34]

For comparison, according to the Department's 2019 GHG Inventory Report from 2005 to 2016, this Commonwealth reduced its net emissions by 33.5% while the participating states reduced covered sources CO_2 pollution over 45% over the same period. Additionally, this was achieved while the region's per-capita GDP has continued to grow- highlighting the synergies between environmental protection and economic development.

Emissions Reductions

The design of the CO_2 Budget Trading Program within this proposed rulemaking ensures emissions from the electricity generation sector are decreased over time. Between 2022 and 2030, the program's CO_2 emissions budget will decrease 19,914,960 tons, equal to a reduction of 25.532%, as shown in Table 1. However, to capture the full extent of the benefits of this proposed rulemaking it is critical to compare this Commonwealth's annual emissions with this proposed rulemaking and without it from 2022 to 2030.

[33] *Id.*

[34] Acadia Center, "The Regional Greenhouse Gas Initiative 10 Years in Review," 2019, https://acadiacenter.org/wp-content/uploads/2019/09/Acadia-Center_RGGI_10-Years-in-Review_2019-09-17.pdf.

Table 1. Pennsylvania CO_2 Emissions Budget Through 2030.

Year	Budget	Decline (Tonnage)	Annual Decline (Percentage)
2022	78,000,000	2,489,370	-3.19%
2023	75,510,630	2,489,370	-3.30%
2024	73,021,260	2,489,370	-3.41%
2025	70,531,890	2,489,370	-3.53%
2026	68,042,520	2,489,370	-3.66%
2027	65,553,150	2,489,370	-3.80%
2028	63,063,780	2,489,370	-3.95%
2029	60,574,410	2,489,370	-3.11%
2030	58,085,040	2,489,370	-4.11%
2022-2030 Total Reduction		**19,914,960**	**-25.532%**
-25.532% reduction from 2022		**58,085,040**	
Total tonnage reduction		**19,914,960**	
Annual tonnage reduction		**2,489,370**	

In order to analyze the full extent of CO_2 emission reductions due to this proposed rulemaking, the Department utilized the Integrated Planning Model (IPM) to compare this Commonwealth's CO_2 emissions, among other attributes, with implementation of this proposed rulemaking and without implementation of this proposed rulemaking. IPM is a dynamic model of the United States power sector that can determine least-cost solutions of meeting energy and peak demand requirements. The model considers a number of key operating or regulatory constraints, such as emission limits, transmission capabilities and constraints, renewable generation requirements, fuel market constraints, etc. IPM can perform integrated analysis and can project wholesale power prices, CO_2 allowance prices, and CO_2 emissions in an optimal and internally consistent manner. It is also particularly suited to evaluating the impacts of environmental regulations and policies.

IPM is well-suited to consider complex treatment of emission regulations involving trading, banking and traditional command-and-control emission policies. Because of the model's endogenous treatment of natural gas, coal and biomass fuel markets, it is fully capable of analyzing policies that directly affect these markets. A detailed unit-level database of every grid-connected EGU in the United States is the fundamental input to IPM. The model represents power markets through model regions that are geographical entities with distinct characteristics. Wholesale power prices, fuel prices, emission allowance prices, and renewable energy credits are all estimated endogenously in an integrated fashion.

The IPM analysis produced two results for this proposed rulemaking. The first is a "Reference Case" based on this proposed rulemaking not being implemented in this Commonwealth or business as usual. The second is a "Policy Case" based on this proposed rulemaking being implemented in this Commonwealth and the auction proceeds being invested in efforts to further reduce air pollution. Comparing these two cases, the Department estimates that this Commonwealth will experience CO_2 emission reductions of 188 million tons over the decade as a direct result of participation in RGGI. This results in CO_2 reductions in this Commonwealth and a net benefit to the entire PJM region. The Department's modeling shows that this Commonwealth makes these significant emission reductions while maintaining historic electric generation levels, enhancing this Commonwealth's status as a leading net energy exporter, creating economic opportunities and reducing long-term wholesale energy prices.

Health Benefits of this Proposed Rulemaking

This proposed rulemaking would provide public health benefits due to the expected reductions in emissions of CO_2 and the ancillary emission reductions or co-benefits of SO_2 and NO_x reductions. The Department's modeling projects cumulative emission reductions of 112,000 tons of NO_x and around 67,000 tons of SO_2 over the decade. Further reducing NO_x and SO_2 emissions is beneficial to public health, because NO_x and SO_2 contribute to several health problems.

Short-term exposure to SO_2 emissions can be harmful to public health because it impacts the ability to breathe especially in children and those with asthma.[35] NO_x can also cause irritation in the respiratory system. In particular, long-term exposure to elevated NO_x levels may contribute to asthma, and potentially increase susceptibility to respiratory infections and lead to increased hospital admissions.[36]

NO_x and SO_2 emissions are also major contributors to PM pollution, which is a mixture of microscopic solid and liquid droplets that are suspended in the air. The smaller the size of the particle, the more damaging it is to human health. $PM_{2.5}$, which is particulate matter that is particularly damaging as the particles are small enough to get deep into the lungs, and perhaps even enter the bloodstream. Children are at increased risk of health impacts from PM as their lungs are still developing, and PM can exacerbate asthma or acute respiratory disease. Elevated levels of PM will also aggravate adults with COPD, asthma, coronary artery disease, or congestive heart failure. When particle levels in the air are high, older adults are more likely to be hospitalized, and death from aggravated heart or lung disease may occur.[37]

NO_x emissions also contribute to the formation of ground-level ozone. When ozone occurs at ground level it presents a serious air quality problem in many parts of the United States, including this Commonwealth. Ground level ozone is formed when pollutants emitted from a variety of sources, including power plants, react with sunlight. Ozone negatively affects human health as it irritates the respiratory system, reduces lung function, aggravates asthma, and inflames and damages the lining of the lungs.[38] Those especially at risk from ground-level ozone exposure are children, adults who are active outdoors, and those with underlying respiratory issues such as asthma.

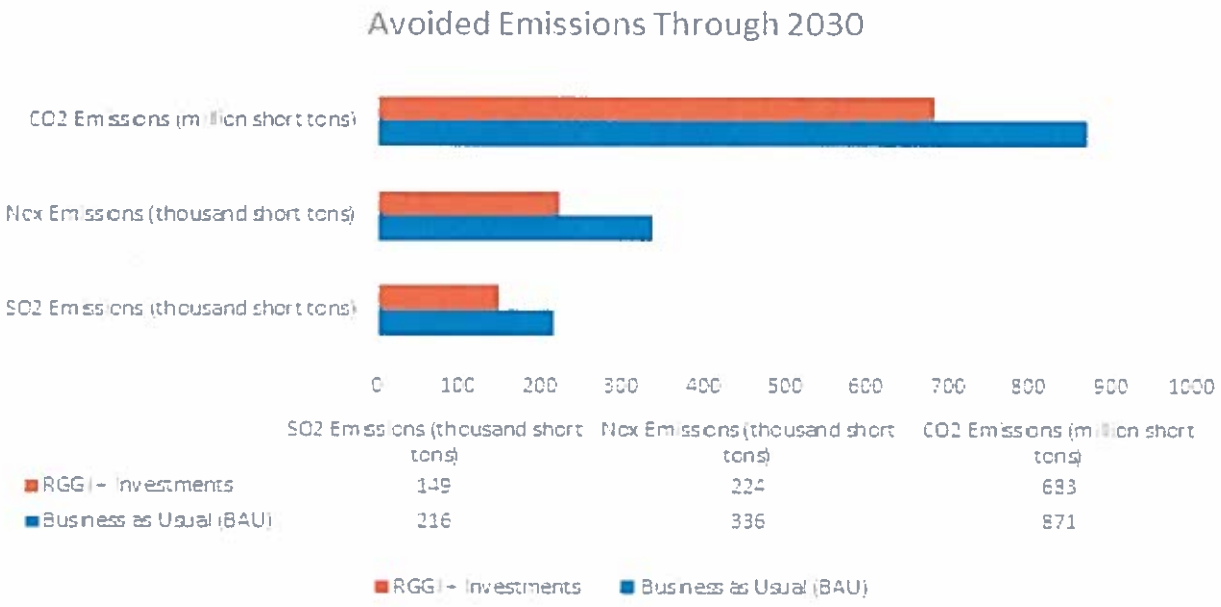
A 2017 independent study by Abt Associates, a global research firm focused on health and environmental policy, on the "Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative, 2009-2014" showed that participating states gained significant health benefits in the first six years of RGGI implementation alone. From 2009-2014, the participating states avoided around 24% of CO_2 emissions that would have otherwise been emitted during that period, resulting in around $5 billion in avoided health related costs.[39] Since this proposed rulemaking would lead to a 31% reduction of projected CO_2 emissions, or avoided emissions, over the next decade, this Commonwealth is likely to see similar gains in health benefits.

A recent study led by researchers from the Columbia Center for Children's Environmental Health at Columbia University Mailman School of Public Health ("Columbia study"), published on July 29, 2020,

[35] EPA, Sulfur Dioxide (SO_2) Pollution, www.epa.gov/so2-pollution/sulfur-dioxide-basics#what is so2.
[36] EPA, Particulate Pollution and Your Health, September 2003, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1001EX6.txt.
[37] *Id.*
[38] EPA, Health Effects of Ground-Level Ozone, http://web.archive.org/web/20160220023128/http://www3.epa.gov/airquality/ozonepollution/health.html.
[39] Abt Associates, "Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative, 2009-2014," January 2017, https://www.abtassociates.com/sites/default/files/files/Projects/executive%20summary%20RGGI.pdf.

on the "Co-Benefits to Children's Health of the U.S. Regional Greenhouse Gas Initiative" indicates that the health benefits from RGGI are even more significant than estimated in 2017 by Abt Associates. The Columbia study concluded that the co-pollutant reductions resulting from RGGI have provided considerable child health benefits to participating and neighboring states. In particular, between 2009-2014, RGGI resulted in an estimated 537 avoided cases of childhood asthma, 112 avoided preterm births, 98 avoided cases of autism spectrum disorder, and 56 avoided cases of term low birthweight. Those child health benefits also have significant economic value, estimated at $199.6–358.2 million between 2009 and 2014 alone. However, the researchers note that the actual health benefits are even greater than estimated because the analysis does not capture the future health benefits related to reductions in childhood PM2.5 exposure and mitigating climate change, such as fewer heat-related illnesses or cases of vector-borne disease to which children are especially vulnerable.[40]

Figure 1. CO_2, NO_x and SO_2 Emission Reductions Comparison.



Benefit-per-Ton (BPT) Methodology

To calculate the public health benefits of avoided emissions, the Department used the EPA's Regional Benefit-per-Ton (BPT) methodology.[41] This approach applies an average benefit per ton derived from modeling of benefits of specific air quality scenarios. The EPA's benefit-per-ton approach "relies on estimates of human health responses to exposure to PM and ozone obtained from the peer-reviewed scientific literature."[42] These estimates are then used in conjunction with emissions reductions or avoided emissions to conduct health impact and economic benefit assessments.

[40] Frederica Perera, David Cooley, Alique Berberian, David Mills, and Patrick Kinney, "Co-Benefits to Children's Health of the U.S. Regional Greenhouse Gas Initiative," Environmental Health Perspectives, Vol. 128, No. 7, July 2020, https://ehp.niehs.nih.gov/doi/10.1289/EHP6706.

[41] EPA, Regulatory Impact Analysis for the Clean Power Plan Final Rule, October 2015, https://www3.epa.gov/ttnecas1/docs/ria/utilities_ria_final-clean-power-plan-existing-units_2015-08.pdf.

[42] *Id.*

Specifically, to calculate benefits of avoided emissions, the Department multiplied the benefit-per-ton estimates (using the 3% discount rate) by the corresponding emission reductions that were generated from the power sector modeling for this proposed rulemaking. This methodology relies on two U sets of co-efficient for calculations, from two cohort studies. The Krewski calculation serves as the lower bound and the Lepeule calculation as the upper bound of projected impacts. As this proposed rulemaking spans the timeframe of 2022 to 2030, so does the analysis of the health benefits due to avoided emissions. However, the emission reductions from this proposed rulemaking will provide benefits that extend well beyond 2030. Based on these calculations, the public health benefits to this Commonwealth of avoided SO_2 and NO_x emissions range between $2.79 billion to $6.3 billion by 2030, averaging between $232 million to $525 million per year.

Table 2. Public Health Benefits of Emissions Reductions.

Avoided Emissions	Krewski (low-end)	Lepeule (high-end)
Benefits of Avoided SO_2 Emissions	$2,415,130,517	$5,458,234,159
Benefits of Avoided NOx Emissions	$372,171,575	$840,749,945
TOTAL	$2,787,302,092	$6,298,984,104

Incidence-per-Ton (BPT) Methodology

The Department used the EPA's Regional Incidence-per-Ton (IPT) methodology which calculates total avoided incidences of major health issues and avoided lost work and school days due to reduced emissions. Again, to calculate reduced incidences of avoided emissions, we multiplied the incidence-per-ton estimates (using the 3% discount rate) by the corresponding emission reductions that were generated from the power sector modeling for this proposed rulemaking. Again, using the Krewski and Lepeule incidence co-efficients as the lower and upper bound respectively.[43]

Through 2030, it is estimated that between 282 and 639 premature deaths will be avoided in this Commonwealth due to emission reductions directly resulting from this proposed rulemaking.

Table 3. Avoided Premature Deaths by 2030 from emissions reductions from this regulation.

	Avoided Deaths by 2030
Krewski	282
Lepeule	639

Children and adults alike will suffer less from respiratory illnesses. The methodology projects 31,000 fewer incidences of upper and lower respiratory symptoms which will lead to reduced emergency department visits and avoided hospital admissions. Healthier children will be able to play more, as incidences of minor restricted-activity days decline on the order of almost 500,000 days between now and 2030. Adults would be healthier as well. The methodology projects over 83,000 avoided lost workdays due to health impacts.

[43] EPA, Co-efficients for the Eastern Region for both the IPT and BPT Methodologies can be found in the Regulatory Impact Analysis for the Clean Power Plan Final Rule, October 2015, https://www3.epa.gov/ttnecas1/docs/ria/utilities_ria_final-clean-power-plan-existing-units_2015-08.pdf.

Table 4. Avoided Health Impacts by 2030 from emission reductions from this regulation.[44]

Incidences per Ton (IPT)	Avoided Incidences Through 2030
Emergency department visits for asthma	335
Acute bronchitis (age 8–12)	1,011
Lower respiratory symptoms	12,898
Upper respiratory symptoms	18,458
Minor restricted-activity days	495,487
Lost workdays (age 18–65)	83,639
Asthma exacerbation (age 6–18)	45,299
Hospital Admissions, Respiratory	211
Hospital Admissions, Cardiovascular	258

Investment of Auction Proceeds Benefits Consumers and the Economy

The proceeds generated from this proposed rulemaking would be invested into programs that would reduce air pollution and create positive economic impacts in this Commonwealth. The Department plans to develop a draft plan for public comment outlining reinvestment options separate from this proposed rulemaking. However, the Department conducted modeling to estimate the economic impacts of this proposed rulemaking. The Department analyzed the net economic benefits of the program investments using the Regional Economic Model, Inc. (REMI) model. The extensive economic modeling will help the Department determine the best ways to invest the auction proceeds in this Commonwealth to maximize emission reductions and economic benefits. The modeling anticipates that in the first year of participation in RGGI, approximately $300 million in auction proceeds will be generated for the use in the elimination of air pollution in this Commonwealth. The auction proceeds would be spent on programs related to the regulatory goal, and the Department modeled a scenario in which the proceeds are invested in energy efficiency, renewable energy and GHG abatement.

The proceeds will aid this Commonwealth in the transition toward a clean energy economy. In 2015, the EPA noted that the energy market was moving toward cleaner sources of energy and states needed to make plans for and invest in the next generation of power production, particularly considering that current assets and infrastructure were aging. By strategically investing the proceeds, this Commonwealth can help ensure that, as new investments are being made, they are integrated with the need to address GHG pollution from the electric generation sector. See 80 FR 64661, 64678 (October 23, 2015). There are energy transitions occurring both in this Commonwealth and nationally.

Nationally, the last ten years have seen coal's position steadily erode due to a combination of low electricity demand, mounting concern over climate, and increased competition from natural gas and renewables. The same is true for coal generation in this Commonwealth. Since 2005, electricity generation in this Commonwealth has shifted from higher carbon-emitting electricity generation sources, such as coal, to lower and zero emissions generation sources, such as natural gas, and renewable energy. Between now and 2030, coal generation is expected to decline dramatically. In 2010, coal generation represented 47% of this Commonwealth's generation portfolio and is expected to decline to roughly 1% of this Commonwealth's generation portfolio in 2030.[45] This shift away from coal-fired generation occurs irrespective of this Commonwealth's participation in RGGI. Anticipating the need for transition,

[44] *Id.*

[45] EIA, State Electricity Profiles 2010, January 2012, www.eia.gov/electricity/state/archive/sep2010.pdf.

for these communities and employees, auction proceeds can be used to mitigate these impacts and assist communities and families through the energy transition. This could include repowering of the existing coal-fired power plants to natural gas, investments in worker training or other community-based support programs.

The Department would invest a portion of the proceeds in energy efficiency initiatives because energy efficiency is a low-cost resource for achieving CO_2 emission reductions while reducing peak demand and ultimately reducing electricity costs. Lower energy costs create numerous benefits across the economy, allowing families to invest in other priorities and businesses to expand. Energy efficiency savings can be achieved cost-effectively by upgrading appliances and lighting, weatherizing and insulating buildings, upgrading HVAC and improving industrial processes. Additionally, all consumers benefit from energy efficiency programs, not just direct program participants because focused investment in energy efficiency can lower peak electricity demand and can decrease overall electricity costs which results in savings for all energy consumers. Additionally, energy efficiency projects are labor-intensive which creates local jobs and boosts local economy. For instance, projects involving home retrofits directly spur employment gains in the housing and construction industries.

Investing a portion of the auction proceeds into energy efficiency initiatives is also crucial to addressing the impacts of climate change on consumers. According to the NCA4, rising temperatures are projected to reduce the efficiency of power generation while increasing energy demands, resulting in higher electricity costs. Energy efficiency will help lessen those impacts by putting downward pressure on both demand and electricity costs.

Historically, the participating states have invested a significant portion of their auction proceeds in energy efficiency programs. According to RGGI's 2017 Investment Report,[46] over the lifetime of the installed measures, the investments made in energy efficiency in 2017 alone are projected to save participants over $879 million on energy bills, providing benefits to more than 291,000 participating households and 2,600 participating businesses. The investments are also projected to further avoid the release of 6.6 million short tons of CO_2 pollution.

The Department would also invest a portion of the proceeds in clean and renewable electricity generation, such as energy derived from clean or zero emissions sources including geothermal, hydropower, solar and wind. Clean and renewable energy systems reduce reliance on fossil fuels and provide climate resilience benefits, including reduced reliance on centralized power. They also offer the opportunity to save money on electricity costs by installing on-site renewable energy and also reduce power lost through transmission and distribution. Investing in clean and renewable projects will help this Commonwealth meet its climate goals, drive in-state investments and job creation, and lessen the pressure on the CO_2 allowance budget by generating more electricity without additional emissions.

The participating states invested 14% of their 2017 auction proceeds in clean and renewable energy projects. Over the lifetime of the projects installed in 2017, these investments are projected to offset $329.6 million in energy expenses for nearly 500 households and businesses. The investments are also projected to avoid the release of 1.2 million short tons of CO_2 emissions.[47]

[46] Analysis Group, The Economic Impacts of The Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States: Review of RGGI's Third Three-Year Compliance Period (2015-2017), April 17, 2018, https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf

[47] RGGI, The Investment of RGGI Proceeds in 2017, October 2019, https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2017.pdf.

The Department would also invest a portion of the proceeds in GHG abatement initiatives. GHG abatement includes a broad category of projects encompassing other ways of reducing GHGs, apart from energy efficiency and clean and renewable energy. Examples of potential programs in this Commonwealth include abandoned oil and gas well plugging, electric vehicle infrastructure, carbon capture, utilization and storage, combined heat and power, energy storage, repowering projects and vocational trainings, among others.

For reference, in 2017, an estimated 14% of RGGI investments were made in GHG abatement programs and projects. For the duration of the project lifetime, those investments are expected to avoid over 431,000 short tons of CO_2 emissions across the region.[48]

The Department modeled an investment scenario with 31% of annual proceeds for energy efficiency, 32% for renewable energy and 31% for GHG abatement, and 6% for any programmatic costs related to the oversight of the CO_2 Budget Trading Program (5% for the Department and 1% for RGGI, Inc). These programmatic costs are in line with the historical amounts reserved by the participating states.

The results of the modeling show that this proposed rulemaking will not only combat climate change and improve air quality for residents, but also be of positive economic value to this Commonwealth. The modeling estimates that from 2022 to 2030, this proposed rulemaking would lead to an increase in Gross State Product of $1.9 billion and a net increase of 27,752 jobs in this Commonwealth. The Department's modeling also indicates that investments from this proposed rulemaking would spur an addition of 9.4 gigawatts (GW) of renewable energy and result in a load reduction of 29 terawatt hours of electricity from energy efficiency projects.

(11) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

There is not a corresponding federal regulation that reduces CO_2 emissions from fossil fuel-fired EGUs through a CO_2 budget trading program. Therefore, this proposed rulemaking will be more stringent than federal requirements.

On July 8, 2019, the EPA promulgated the "Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units," commonly known as the "Affordable Clean Energy Rule or ACE rule" under section 111(d) of the CAA. 84 FR 32520 (July 8, 2019). The Department has incorporated the Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources, promulgated under section 111 of the CAA (42 U.S.C.A. § 7411) by reference in Chapter 122 (relating to national standards of performance for new stationary sources).

Under the ACE Rule, the Department is required to establish unit-specific standards of performance that reflect the GHG, specifically CO_2, emission limitation achievable through application of the appropriate best system of emission reduction technologies at existing coal-fired EGUs. The EPA determined that CO_2 emissions trading is not a permissible measure for states to implement in establishing the standards of performance for existing coal-fired EGUs under the ACE Rule. 84 FR 32520, 32556. To satisfy compliance with the ACE Rule, the Department is modifying the Title V permits of applicable facilities to incorporate these unit-specific standards of performance. Thus, this proposed rulemaking is not being developed to implement the ACE Rule requirements.

[48] *Id.*

Based on the EPA's Regulatory Impact Analysis for the ACE Rule, the resulting CO_2 emission reductions amount to less than 1% of the CO_2 emissions from the total electric sector. Given the urgency of the climate crisis, including the significant impacts to this Commonwealth, the Board determined that this proposed rulemaking is necessary to help achieve the significant reductions in CO_2 emissions necessary to avoid the worst impacts of climate change. As one of the top GHG emitting states in the country, the Board has a compelling interest to reduce GHG emissions to address climate change and protect public health, welfare and the environment.

(12) How does this regulation compare with those of the other states? How will this affect Pennsylvania's ability to compete with other states?

There are ten states currently participating in RGGI, including Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. The Commonwealth of Virginia is expected to begin participating in 2021. Since all of the participating states' regulations are based on the RGGI Model Rule, this proposed rulemaking is very similar to the regulations in the participating states, with modifications made to accommodate the unique aspects of this Commonwealth's power sector.

Comparison with RGGI Participating States

As mentioned previously, the participating states developed a Model Rule to use as the framework for each state's independent CO_2 Budget Trading Program regulation. The development of the RGGI Model Rule was supported by an extensive regional stakeholder process that engaged the regulated community, environmental non-profits and other organizations with technical expertise in the design of cap and trade programs. The structure of the RGGI Model Rule, because it was drafted based on the language in the EPA's NO_x Budget Trading Program rule in 40 CFR Part 96 (relating to NO_x budget trading program and CAIR NO_x and SO_2 trading programs for state implementation plans), which the Board used as a model for Chapter 145, Subchapter A.

States that participate in RGGI develop regulations that are compatible with the RGGI Model Rule to ensure consistency among the individual programs. Key areas of compatibility include alignment of the main program elements, stringency of the CO_2 allowance budgets and consistency of regulatory language. This consistency is necessary to ensure the fungibility of CO_2 allowances across the participating states, which supports the regional trading of CO_2 allowances and the use of a CO_2 allowance issued in one participating state for compliance by a regulated source in another participating state.

This proposed rulemaking therefore adopts the main program elements of the RGGI Model Rule, including the definitions, applicability, standard regulatory requirements, monitoring and reporting requirements, the CO_2 Allowance Tracking System (COATS), the emissions containment reserve (ECR), the cost containment reserve (CCR) and the CO_2 emissions offset project provisions. The CO_2 allowance budgets in this proposed rulemaking are sufficiently stringent to align with RGGI's goal of reducing CO_2 emissions by 30% from 2020 to 2030. This proposed rulemaking also contains regulatory language consistent with the RGGI, Inc. auction platform, the online platform used to sell CO_2 allowances. RGGI, Inc. is a nonprofit corporation created to provide technical and administrative support services to the participating states in the development and implementation of their CO_2 Budget Trading Programs. Each participating state is also allotted two positions on the Board of Directors of RGGI, Inc. Under this proposed rulemaking, RGGI, Inc. may act as the agent for the Department.

Each participating state's regulation provides for the distribution of CO_2 allowances from its CO_2 allowance budget. The majority of CO_2 allowances are distributed at auction and each CO_2 allowance sold at auction returns proceeds from the sale to that state to invest in energy efficiency, renewable energy, and GHG abatement programs. but some states have elected to designate a limited amount of CO_2 allowances to be "set-aside" in a designated account and distributed to advance individual state policy goals and objectives. Since this proposed rulemaking is consistent with the RGGI Model Rule, the Commonwealth's CO_2 allowances will have equal value to CO_2 allowances held in the other participating states, meaning they may be freely acquired and traded across the region.

Although CO_2 allocation provisions may vary from state to state, to be consistent with the RGGI Model Rule each participating state allocates a minimum of 25% of its CO_2 allowance budget to a general account from which CO_2 allowances will be sold or distributed in order to provide funds for energy efficiency measures, renewable or noncarbon-emitting energy technologies, and CO_2 emissions abatement technologies, as well as programmatic costs. Consistent with the RGGI Model Rule, this proposed rulemaking establishes a general account from which CO_2 allowances will be sold or distributed, which is labeled as the Department's air pollution reduction account. Each year, the Department will allocate CO_2 allowances representing 100% of the tons of CO_2 emitted from the Commonwealth's CO_2 allowance budget to the air pollution reduction account, except for the CO_2 allowances that the Department has set aside for a designated purpose as discussed in the following section. CO_2 allowances in the air pollution reduction account will be sold or distributed in order to provide funds for use in the elimination of air pollution and programmatic costs.

While this proposed rulemaking is sufficiently consistent with the Model Rule and corresponding regulations in the participating states, the Board also accounts for the unique environmental, energy and economic intricacies of this Commonwealth. This provides the Board the flexibility to limit CO_2 emissions from fossil fuel-fired EGUs in a way that aligns with the other participating states, while tailoring this proposed rulemaking to this Commonwealth's energy markets. There are five main areas in which this proposed rulemaking differs from the Model Rule.

First, under § 145.342(i) (relating to CO_2 allowance allocations) of this proposed rulemaking, the Department will set aside 9,300,000 CO_2 allowances at the beginning of each year for waste coal-fired units located in this Commonwealth. The Board is establishing this waste coal set-aside in this proposed rulemaking because waste coal-fired units provide an environmental benefit of reducing the amount of waste coal piles in this Commonwealth. Coal piles are a significant environmental issue in this Commonwealth, because waste coal piles cause air and water pollution, as well as safety concerns. Waste coal-fired units burn waste coal to generate electricity thereby reducing the size, number and impacts of these piles otherwise abandoned and allowed to mobilize and negatively impact air and water quality in this Commonwealth. In recent years, waste coal-fired units have struggled to compete in the energy market, due in part to low natural gas prices, and several units have shut down or announced anticipated closure dates. Given the environmental benefit provided, the Board determined that it is necessary to assist owners or operators of waste coal-fired units with meeting their compliance obligation under this proposed rulemaking. This legacy environmental issue from this Commonwealth's long history of coal mining further underscores why it is vital to not leave additional environmental issues, like climate change, for future generations to solve.

By providing a set aside, as opposed to an exemption, the CO_2 emissions from waste coal-fired units are included in this Commonwealth's CO_2 emissions budget and owners or operators of waste coal-fired units are still required to satisfy compliance of all the regulatory requirements in this proposed rulemaking.

After reviewing the last 5 years of CO_2 emission data from waste coal-fired units, the Department determined that the CO_2 allowance set aside should be equal to the total of each waste coal-fired unit's highest year of CO_2 emissions from that 5-year period. That total is 9,300,000 tons of CO_2 emissions. Thus, the Department will set aside 9,300,000 CO_2 allowances annually. Each year, Department will allocate the CO_2 allowances directly to the compliance accounts of the waste coal-fired units equal to the unit's actual emissions. However, if the waste coal-fired units emit over 9,300,000 tons of CO_2 emissions sector-wide in any year, then the units must acquire the remaining CO_2 allowances needed to satisfy their compliance obligation.

While this Commonwealth's participation in RGGI 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 generation sector, so that the environmental benefits of continuing to remediate this Commonwealth's legacy waste coal piles may continue. For context, since 1988 a total of 160.7 million tons of waste coal has been removed and burned to generate electricity, with an additional 200 million tons of coal ash beneficially used at mine sites. Of this Commonwealth's over 13,000 acres of waste coal piles cataloged by the Department, 3,700 acres have been reclaimed with roughly 9,000 acres remaining. Additionally, of the piles that remain, approximately 40 of them have ignited, and continually burn which significantly impacts local air quality.

Second, this proposed rulemaking also includes the establishment of a strategic use set-aside allocation under § 145.342(j). By April 1 of each calendar year, the Department will allocate any undistributed CO_2 allowances from the waste coal set-aside to the strategic use set-aside account. Since generation from waste coal-fired units has been declining in this Commonwealth, waste coal fired-units may emit less than 9,300,000 tons each year and the Department will be left with undistributed CO_2 allowances. Under the strategic use set-aside, the Department will allocate these undistributed CO_2 allowances directly to eligible projects that eliminate air pollution. The Board is establishing the strategic use set-aside particularly to encourage and foster promotion of energy efficiency measures, promote renewable or noncarbon-emitting energy technologies, and stimulate or reward investment in the development of innovative carbon emissions abatement technologies.

Third, this proposed rulemaking includes a set-aside provision under § 145.342(k) for cogeneration units, including combined heat and power (CHP) systems. The Board is establishing this set-aside because cogeneration units concurrently produce electricity and useful thermal energy, making them energy efficient and environmentally beneficial. Under the cogeneration set-aside, the Department will adjust the compliance obligation of a cogeneration unit by reducing the total CO_2 emissions by an amount equal to the CO_2 that is emitted as a result of providing useful thermal energy or electricity, or both, supplied directly to a co-located facility during the allocation year. The Department will only provide CO_2 allowances in this set-aside equal to the compliance adjustment. The cogeneration unit will be responsible for obtaining the remaining CO_2 allowances needed to satisfy the unit's compliance obligation. Unlike the waste coal set-aside, the Department would not distribute CO_2 allowances directly to the unit, but rather retire CO_2 allowances on behalf of the unit in order to reduce its compliance obligation. Also, cogeneration units must fill out an application and provide information to the Department to receive a compliance adjustment.

CHP systems use energy efficiently by simultaneously producing electricity and useful thermal energy from the same fuel source. CHP captures the wasted heat energy that is typically lost through power generation, using it to provide cost-effective heating and cooling to factories, businesses, universities and hospitals. CHP systems are able to use less fuel compared to other fossil fuel-fired EGUs to produce a given energy output. Less fuel being burned results in fewer air pollutant emissions, including CO_2 and

other GHGs. In addition to reducing emissions, CHP benefits the economy and businesses by improving manufacturing competitiveness through increased energy efficiency and providing a way for businesses to reduce energy costs while enhancing energy reliability.

Fourth, under § 145.305 (relating to limited exemption for CO_2 budget units with electrical output to the electric grid restricted by permit conditions) of this proposed rulemaking, the Board provides additional flexibility in the form of a limited exemption for cogeneration units that are interconnected and supply power to a manufacturing facility. A cogeneration unit that supplies less than 15% of its annual total useful energy to the electric grid, not including energy sent to the interconnected manufacturing facility, does not have a compliance obligation under this proposed rulemaking. The owner or operator of the cogeneration unit claiming this limited exemption must have a permit issued by the Department containing a condition restricting the supply to the electric grid. This limited exemption is in addition to the exemption in the RGGI Model Rule for fossil fuel-fired EGUs with a capacity of 25 MWe or greater that supply less than 10% of annual gross generation to the electric grid. The Board is including this additional exemption for cogeneration units that primarily send energy to an interconnected manufacturing facility because these cogeneration units provide a CO_2 emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the manufacturing facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO_2 emissions.

Lastly, this proposed rulemaking adds regulatory language on the procedure for auctioning CO_2 allowances, which is not contained in the RGGI Model Rule. Several participating states have also added auction procedure language to their CO_2 Budget Trading Program regulations or developed completely separate auction regulations. By including the auction procedure in this proposed rulemaking, the Board seeks to ensure that auction participants fully understand the auction process and the associated requirements.

In the auction procedure section of this proposed rulemaking, § 145.401 (relating to auction of CO_2 allowances), the Board states that the Department will participate in multistate CO_2 allowance auctions in coordination with other participating states based on specific conditions. First, a multistate auction capability and process must be in place for the participating states. A multistate auction must also provide benefits to this Commonwealth that meet or exceed the benefits conferred on this Commonwealth through a Pennsylvania-run auction process. Additionally, the multistate auction process must be consistent with the process described in this proposed rulemaking and include monitoring of each CO_2 allowance auction by an independent market monitor. Since the multistate auctions conducted by RGGI, Inc. satisfy all four of the conditions, the Department will participate in the multistate auctions. However, the Board also states that if the Department finds these four conditions are no longer met, the Department may determine to conduct a Pennsylvania-run auction. By including the ability to conduct a Pennsylvania-run action in this proposed rulemaking, the Board provides for flexibility in case the benefits of the multistate auctions diminish in the future.

Competition in Interstate Electricity Market

This Commonwealth generates more electricity than it consumes, exporting the remaining electricity to other states within PJM. States within PJM compete with one another in interstate electricity markets. State level policies can impact that market unevenly as generators may have varying costs depending on their location.

Not all states within PJM participate in RGGI, so generators in non-participating states may have different costs associated with electricity generation. The Department conducted an analysis evaluating possible impacts on this Commonwealth's ability to compete in the interstate electricity generation market if this proposed rulemaking is implemented.

The Department found that this Commonwealth will continue to export electricity to other states and this Commonwealth's total generation is not eroded as a result of RGGI participation. In fact, if the auction proceeds are invested in the energy sector, the modeling estimates that total electricity exports from this Commonwealth will be higher by 2030 with this proposed rulemaking than without it. Further, any price differential resulting from the addition of the CO_2 allowance price is not significant enough to cause EGUs to close and reopen in surrounding states. EGUs in this Commonwealth have historically maintained a competitive advantage regarding natural gas prices due to the proximity to the Marcellus shale formation. Even with the price adder of the CO_2 allowance price, the modeling shows that natural gas generation in this Commonwealth continues to be extremely competitive.[49] As shown in Table 5 below, this Commonwealth's nominal power prices (capacity and energy) remain competitive in the region when compared to the current and future power prices of the participating states.

Table 5. Firm Power Prices (Nominal $/MWh).

	2020	2022	2025	2028	2030
MA	$ 54.0	$ 46.8	$ 46.2	$ 52.5	$ 56.0
CT	$ 49.0	$ 42.4	$ 43.4	$ 46.4	$ 47.1
ME	$ 48.8	$ 41.4	$ 43.6	$ 47.7	$ 47.5
NH	$ 49.4	$ 41.7	$ 42.3	$ 47.5	$ 47.6
RI	$ 54.1	$ 47.3	$ 48.4	$ 55.1	$ 57.4
VT	$ 53.3	$ 45.0	$ 47.6	$ 52.6	$ 53.5
NY	$ 43.7	$ 44.3	$ 45.4	$ 46.1	$ 47.2
DE	$ 42.7	$ 35.6	$ 39.4	$ 42.7	$ 40.2
MD	$ 35.7	$ 34.4	$ 38.8	$ 42.1	$ 39.8
9-state RGGI	$ 45.9	$ 40.2	$ 41.4	$ 44.2	$ 44.2
VA	$ 33.9	$ 34.1	$ 38.6	$ 41.1	$ 39.2
NJ	$ 42.0	$ 37.1	$ 40.6	$ 41.9	$ 38.9
PA	$ 32.0	$ 31.6	$ 36.6	$ 39.7	$ 37.5

(13) Will the regulation affect any other regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

No other regulations are affected by this proposed rulemaking.

[49] ICF, Energy Assessment Report for the Commonwealth of Pennsylvania, April 2019, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1451239&DocName=ENERGY%20ASSESSMENT%20REPORT%20FOR%20THE%20COMMONWEALTH%20OF%20PENNSYLVANIA.PDF%20%20%20%3cspan%20style%3D%22color:blue%3b%22%3e%28NEW%29%3c/span%3e.

(14) Describe the communications with and solicitation of input from the public, any advisory council/group, small businesses and groups representing small businesses in the development and drafting of the regulation. List the specific persons and/or groups who were involved. ("Small business" is defined in Section 3 of the Regulatory Review Act, Act 76 of 2012.)

As required under the Regulatory Review Act and further emphasized by Executive Order 2019-07, the Department conducted a robust public outreach effort including the business community, energy producers, energy suppliers, organized labor, environmental groups, low-income and environmental justice advocates and others to ensure that the development and implementation of this program results in reduced emissions, economic gains and consumer savings.

Additionally, the Department, working with the Public Utility Commission, engaged with PJM Interconnection to promote the integration of this program in a manner that preserves orderly and competitive economic dispatch within PJM and minimizes emissions leakage. The Department has also been an active participant in PJM's Carbon Pricing Senior Task Force (CPSTF)[50] which was established to discuss potential process or rule changes necessary to integrate a regional or sub-regional carbon pricing mechanism into PJM's wholesale electricity markets.

The Department consulted with the Air Quality Technical Advisory Committee (AQTAC) and the Citizens Advisory Council (CAC) in the development of this proposed rulemaking. On December 12, 2019, the Department presented concepts to AQTAC on a potential rulemaking to participate in RGGI. The Department returned to AQTAC on February 13, 2020 to discuss the preliminary draft Annex A. At the April 16, 2020 AQTAC meeting, the Department provided a brief update on the development of this proposed rulemaking. In response to requests from committee members for more opportunities to learn about the CO_2 Budget Trading Program, on April 23, 2020, the Department presented on and provided the modeling results associated with this proposed rulemaking in a Special Joint Informational Meeting of AQTAC and CAC. The meeting was held via a webinar and over 225 members of the public were able to listen to the modeling results. Anyone interested in hearing the modeling results can also watch the meeting at any time through a link on the Department's website.[51]

AQTAC was established under section 7.6 of the APCA (35 P.S. § 4007.6) to provide technical advice at the request of the Department on policies, guidance and regulations. On May 7, 2020, this proposed rulemaking was presented to AQTAC for review and technical advice before the Department moved this proposed rulemaking forward to the Board for consideration. The meeting was held via a webinar and over 200 members of the public had the opportunity to listen to the discussion and to request to provide comments. The AQTAC members were divided on whether to submit a formal letter of concurrence and ultimately declined to do so without a majority decision. The Department will continue to seek technical advice from AQTAC and address member questions and concerns throughout the rulemaking process.

The opportunity to provide public comment on this proposed rulemaking to AQTAC members was provided on three occasions, at the February 13, 2020, April 16, 2020, and May 7, 2020 AQTAC meetings.

Under section 7.6 of the APCA, the Department is required to consult with CAC in the development of the Department's regulations and State implementation plans. On November 19, 2019, the Department

[50] PJM Interconnection, Issue Charge of the Carbon Pricing Senior Task Force, 2019, www.pjm.com/-/media/committees-groups/task-forces/cpstf/postings/issue-charge.ashx?la=en.

[51] Pennsylvania Department of Environmental Protection, Special Joint Informational Meeting- Carbon Dioxide Budget Trading Program, April 23, 2020, www.dep.pa.gov/rggi.

presented concepts to CAC on a potential rulemaking to participate in RGGI. The Department returned to CAC on February 18, 2020 for an informational presentation on a preliminary draft Annex A. The Department also conferred with CAC's Policy and Regulatory Oversight Committee concerning this proposed rulemaking on May 8, 2020. At the May 19, 2020 CAC meeting, this proposed rulemaking was presented to CAC for review before the Department moved this proposed rulemaking forward to the Board for consideration. The CAC members ultimately declined to submit a formal letter of concurrence with the Department's recommendation to move this proposed rulemaking forward to the Board for consideration. The Department will continue to consult with CAC and address member questions and concerns throughout the rulemaking process.

The opportunity to provide public comment on this proposed rulemaking to CAC members was provided on three occasions, at the November 19, 2019, February 18, 2020, and May 19, 2020 CAC meetings.

Under section 7.8 of the APCA (35 P.S. § 4007.8), the Small Business Compliance Advisory Committee (SBCAC) is required to review and advise the Department on rulemakings which affect small business stationary sources. The Department provided informational presentations on this proposed rulemaking to SBCAC on January 22, 2020 and April 22, 2020. On July 22, 2020, the Department presented this proposed rulemaking to SBCAC for review and advice on the potential small business stationary source impact of this proposed rulemaking. During the presentation, the Department mentioned that it has estimated that ten small business stationary sources, as defined under section 3 of the APCA (35 P.S. § 4003), may need to comply with this proposed rulemaking. Of those ten sources, seven are estimated to be waste coal-fired power plants. The Department also mentioned that it has included in this proposed rulemaking a CO_2 allowance set-aside provision to assist all waste coal-fired power plants located in this Commonwealth with their compliance obligation. The SBCAC ultimately voted not to concur with the Department's recommendation to move this proposed rulemaking forward to the Board, with 4 opposed and 3 in support. The Department will continue to seek advice from SBCAC on the small business stationary source impact of this proposed rulemaking and address member questions and concerns throughout the rulemaking process.

Additionally, the Department provided an informational presentation to the Environmental Justice Advisory Board on May 21, 2020 and had further engagement with Environmental Justice stakeholder groups such as the Chester Environmental Partnership and EJ Stakeholders Group. The Department also provided informational presentations on this proposed rulemaking to the Climate Change Advisory Committee on February 25, 2020 and the Oil and Gas Technical Advisory Board on May 20, 2020.

The Department has also met with various stakeholders to receive additional input on this proposed rulemaking on numerous occasions throughout the development process. In particular, the Department met with environmental groups, residents, businesses, legislators, owners and operators of affected sources, industry groups and environmental justice stakeholders during the development of this proposed rulemaking.

The Board will also provide for a comment period for a minimum of 60 days and hold public hearings in impacted areas of this Commonwealth, as required under the APCA.

(15) Identify the types and number of persons, businesses, small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012) and organizations which will be affected by the regulation. How are they affected?

Under § 145.304 (relating to applicability) of this proposed rulemaking, the owner or operator of a fossil-fuel-fired EGU with a nameplate capacity equal to or greater than 25 MWe that sends more than 10% of

its annual gross generation to the electric grid would have a compliance obligation. These regulated EGUs are referred to as "CO_2 budget units" and a facility that includes one or more CO_2 budget units is a "CO_2 budget source." Under § 145.306 (relating to standard requirements) of this proposed rulemaking, the owner or operator of each CO_2 budget source will be required to have a permit under Chapter 127 (relating to construction, modification, reactivation and operation of sources) which incorporates the requirements of the CO_2 Budget Trading Program. The owner or operator will be required to operate the CO_2 budget source and each CO_2 budget unit at the source in compliance with the permit.

Based on the most recent data from the EPA's Clean Air Market Division, the U.S. Energy Information Administration (EIA) and the Department's emission inventory, the Department estimates that as of the end of 2019, 57 CO_2 budget sources (facilities) with 140 CO_2 budget units (EGUs) would have a compliance obligation under this proposed rulemaking. However, due to the dynamic nature of the electricity generation sector, the number of covered facilities will likely change by the implementation date, January 1, 2022, of this proposed rulemaking. The Department projects based on announced closures and future firm capacity builds that on January 1, 2022 there will be 62 CO_2 budget sources with 150 CO_2 budget units with a compliance obligation under this proposed rulemaking. The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this proposed rulemaking and determined that around 99% of this Commonwealth's power sector CO_2 emissions would be covered under this proposed rulemaking.

The Department used the North American Industry Classification System (NAICS) codes for the subject industry sectors to develop lists of potentially affected entities. The NAICS identifies the industry as Electric Bulk Power Transmission and Control (NAICS code 221112 and 221121), Other Electric Power Generation (NAICS code 221118), Electric Power Distribution (NAICS code 221122), and Paper (except Newsprint) Mills facility (NAICS code 322121). The Department provided these NAICS codes to the Pennsylvania Small Business Development Center's Environmental Management Assistance Program (EMAP) with a request for a list of entities in each classification. EMAP provided the Department with a list of 57 facility owners or operators identified by NAICS code 221112, two facility owners or operators identified by NAICS code 221121, one facility owner or operator identified by NAICS code 221118, one facility owner or operator identified by NAICS code 221122, and one facility owner or operator identified by NAICS code 322121, for a total of 62 potentially affected entities. Under the U.S. Small Business Administration (SBA) Small Business Size Regulations under 13 CFR Chapter 1, Part 121, the small business-size standard in number of employees for each of these NAICS classifications is 750 employees. The Department determined that ten of these potentially affected entities may be small businesses by that definition. Of these ten entities, seven are waste coal facilities, for which a set-aside provision has been established to assist these facilities with most if not all of their compliance obligation under this proposed rulemaking.

Within the participating states and under this proposed rulemaking, the owner or operator of a CO_2 budget unit must obtain one CO_2 allowance for each ton of CO_2 emitted from the CO_2 budget unit each year. The owner or operator may use a CO_2 allowance issued by any participating state to demonstrate compliance with any state's regulation, including this proposed rulemaking. RGGI operates on three-year control periods for compliance, meaning full compliance is evaluated at the end of each three-year control period. As described under § 145.306(c), at the end of a control period, the owner or operator is required as a permit condition to hold enough CO_2 allowances in their compliance account to cover the CO_2 budget source's CO_2 emissions during the period. The owner or operator must also show interim control period compliance during each of the first two calendar years of a control period. During each interim control period, the owner or operator must hold CO_2 allowances equal to 50% of CO_2 emissions in the compliance account for the CO_2 budget source. As outlined under § 145.355 (relating to compliance), at the end of the

control period or interim control period, CO_2 allowances will be deducted from each CO_2 budget source's compliance account to cover each of the CO_2 budget unit's CO_2 emissions at the source for the control period or interim control period.

All owners or operators of CO_2 budget sources are required to open a compliance account in COATS in order to transfer and hold CO_2 allowances for compliance purposes. The Department will use COATS to determine compliance with this proposed rulemaking by comparing the covered emissions of a CO_2 budget source with the CO_2 allowances held in its compliance account. COATS is a publicly accessible platform that records and tracks data for each state's CO_2 Budget Trading Program, including the transfer of CO_2 allowances that are offered for sale by the participating states and purchased in the quarterly auctions. On the COATS website, the public can view and download reports of RGGI program data and CO_2 allowance market activity. COATS is used to allocate, award and transfer CO_2 allowances, to certify and provide CO_2 allowances for compliance-related tasks, and to register and submit applications and reports for offset projects.

Under § 145.352 (establishment of accounts) of this proposed rulemaking, any person may apply to open a general account for the purpose of holding and transferring CO_2 allowances by submitting a complete application for a general account to the Department or its agent. A general account can be used for the receipt, transfer, and banking of CO_2 allowances in COATS, but unlike a compliance account, it does not provide for the CO_2 allowance compliance deduction process outlined in this proposed rulemaking. A compliance account is associated with an electric generation facility regulated under a state CO_2 Budget Trading Program, a CO_2 budget source. These accounts are used for compliance with the requirements of each state's CO_2 Budget Trading Program. Only one compliance account will be assigned to each CO_2 budget source. An applicant must have either a general or compliance account to participate in CO_2 allowance auctions. CO_2 allowances can be "banked" meaning they may be held for future compliance as they have no expiration date.

CO_2 allowances may be acquired through purchases in quarterly multistate auctions, through secondary markets, or by obtaining CO_2 offset allowances. Once a CO_2 allowance is purchased in an auction, it can then be resold in the secondary market. The secondary market assists with compliance by allowing CO_2 allowances to be traded in between quarterly auctions. As previously mentioned, every auction is overseen by an independent market monitor. Trading in the secondary market is also monitored by an independent market monitor in order to identify anticompetitive conduct. The quarterly multistate auction process continues each consecutive year of the CO_2 Budget Trading Program with fewer CO_2 allowances distributed into the auctions by the participating states each year.

RGGI Provides Regulatory Certainty

Although RGGI is a market-based approach, there are also price fluctuation protections that are built into the auction platform to help ensure that CO_2 allowance prices are predictable. Specifically, there are auction mechanisms that identify a precipitous increase or decrease in price, and trigger what are referred to as the CCR and ECR. The CCR process triggers additional CO_2 allowances to be offered for sale in the case of higher than projected emissions reduction costs. Similarly, states implementing the ECR, including this Commonwealth, will withhold CO_2 allowances from the auction to secure additional emissions reductions if prices fall below the established trigger price, so that the ECR will only trigger if emission reduction costs are lower than projected. This provides predictability in terms of both the cost of compliance for covered entities, and a relatively predictable stream of revenue for each participating state. CO_2 allowances may also be purchased through the secondary market when costs are low and held for future compliance years.

Offsets

As an additional compliance option under this proposed rulemaking, owners or operators of CO_2 budget sources may complete an offset project to reduce or avoid atmospheric loading of CO_2 or CO_2 equivalent (CO_2e) emissions. CO_2e refers to the quantity of a given GHG, other than CO_2, multiplied by its global warming potential. By completing an offset project, the owner or operator will generate CO_2 offset allowances which can be used to offset a portion of the CO_2 budget source's emissions. A CO_2 offset allowance is equivalent to a CO_2 allowance, however a CO_2 offset allowance represents a project-based GHG emission reduction outside of the electric generation sector. This project must be in addition to not in place of an existing legal requirement. Under § 145.355(a)(3) of this proposed rulemaking, consistent with the RGGI Model Rule and the regulations in the participating states, the number of CO_2 offset allowances available to be deducted for compliance purposes may not exceed 3.3% of the CO_2 budget source's CO_2 emissions for a control period or interim control period.

As described under § 145.395 (relating to CO_2 emissions offset project standards), the three eligible offset categories include landfill methane capture and destruction projects, projects that sequester carbon due to reforestation, improved forest management or avoided conversion, and projects that avoid methane emissions from agricultural manure management operations. Each of the three offsets categories are designed to further reduce or sequester emissions of CO_2 or methane within the northeast region. In the RGGI Model Rule, the participating states cooperatively developed prescriptive regulatory requirements for each of the offset categories that have been incorporated into this proposed rulemaking. These requirements ensure that awarded CO_2 offset allowances represent CO_2e emission reductions or carbon sequestration that are real, additional, verifiable, enforceable and permanent.

Under § 145.393 (relating to general requirements) of this proposed rulemaking, offset projects must be located in this Commonwealth or partly in this Commonwealth and partly within one or more of the participating states, provided that the majority of the CO_2e emission reductions or carbon sequestration occur in this Commonwealth. Massachusetts, New Hampshire and Rhode Island have determined not to award CO_2 offset allowances, but CO_2 budget sources located within those states may use CO_2 offset allowances awarded by a participating state, including this Commonwealth. By recognizing CO_2e emission reductions and carbon sequestration outside the electric generation sector and this Commonwealth's CO_2 emissions budget offset projects provide compliance flexibility and create opportunities for low-cost emission reductions and other co-benefits across various sectors. Thus, including offset projects in this proposed rulemaking provides two crucial benefits, an additional compliance option for owners or operators and the potential for this Commonwealth to further reduce GHG emissions.

Compliance Assistance Plan

The Department will continue to educate and assist the public and the regulated community in understanding the proposed requirements and how to comply with them throughout the rulemaking process. The Department will continue to work with the Department's provider of Small Business Stationary Source Technical and Environmental Compliance Assistance. These services are currently provided by EMAP of the Pennsylvania Small Business Development Centers. The Department has partnered with EMAP to fulfill the Department's obligation to provide confidential technical and compliance assistance to small businesses as required by the APCA, Section 507 of the CAA (42 U.S.C.A. § 7661f) and authorized by the Pennsylvania Small Business and Household Pollution Prevention Program Act (35 P.S. §§ 6029.201—6029.209).

In addition to providing one-on-one consulting assistance and on-site assessments, EMAP also operates a toll-free phone line to field questions from this Commonwealth's small businesses, as well as businesses wishing to start up in, or relocate to, this Commonwealth. EMAP operates and maintains a resource-rich environmental assistance website and distributes an electronic newsletter to educate and inform small businesses about a variety of environmental compliance issues.

(16) List the persons, groups or entities, including small businesses, that will be required to comply with the regulation. Approximate the number that will be required to comply.

The owner or operator of a fossil-fuel-fired EGU with a nameplate capacity equal to or greater than 25 MWe that sends more than 10% of its annual gross generation to the electric grid would have a compliance obligation under this proposed rulemaking.

Based on the most recent data from the EPA's Clean Air Market Division, the EIA and the Department's emission inventory, the Department estimates that as of the end of 2019, 57 CO_2 budget sources (facilities) with 140 CO_2 budget units (EGUs) would have a compliance obligation under this proposed rulemaking. However, due to the dynamic nature of the electricity generation sector, the number of covered facilities will likely change by the implementation date, January 1, 2022, of this proposed rulemaking. The Department projects based on announced closures and future firm capacity builds that on January 1, 2022 there will be 62 CO_2 budget sources with 150 CO_2 budget units with a compliance obligation under this proposed rulemaking.

About ten of these potentially affected facilities may meet the definition of small business as defined in Section 3 of the Regulatory Review Act (71 P.S. § 745.3). Of these ten potential facilities, seven of them are classified as waste coal facilities. This proposed rulemaking includes a waste-coal set aside provision to assist these facilities with compliance by providing up to 9.3 million CO_2 allowances each year.

The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this proposed rulemaking and determined that around 99% of this Commonwealth's power sector CO_2 emissions would be covered under this proposed rulemaking. The number and type of facilities that will be affected by this proposed rulemaking are listed below in Table 6.

Table 6. Affected Facilities and EGUs By Fuel Type.

Category	Facilities (2019)	EGUs (2019)	Facilities (2022)	EGUs (2022)
Coal	6	13	6	13
Waste Coal	9	13	9	13
Natural Gas Combined Cycle	21	55	25	62
Natural Gas Single Cycle	15	44	15	44
Oil/Gas Boiler	4	11	4	11
Combined Heat & Power	2	4	3	7
Total	57	140	62	150

(17) Identify the financial, economic and social impact of the regulation on individuals, small businesses, businesses and labor communities and other public and private organizations. Evaluate the benefits expected as a result of the regulation.

Owners or operators of fossil fuel-fired EGUs with a nameplate capacity equal to or greater than 25 MWe that send more than 10% of annual gross generation to the electric grid would have a compliance obligation under this proposed rulemaking. While those with a compliance obligation are limited, the benefits of this proposed rulemaking will accrue to all residents of this Commonwealth.

Regional Environmental and Health Benefits

The CO_2 emission reductions resulting from this proposed rulemaking are substantial and are the catalyst needed to meet the climate goals for this Commonwealth, as outlined in Executive Order 2019-01, to reduce net GHG emissions Statewide by 26% by 2025 from 2005 levels and by 80% by 2050 from 2005 levels. A predicted reduction of 13.6 million metric tons of CO_2 by 2025 due to this Commonwealth's potential participation in RGGI provides significant assurance that along with prudent investments of auction proceeds and other GHG abatement activities, this Commonwealth will remain on track to reach the 2025 net GHG reduction goal.

While efforts to model impacts of this proposed rulemaking focused on this Commonwealth, the impacts on the participating states in the PJM region, which consists of all or parts of 13 states and the District of Columbia, were also considered. Historically, the RGGI program has experienced some emissions leakage. Emissions leakage is the shifting of emissions from states with carbon pricing to states without carbon pricing. The Department's modeling indicates that there may be some future emissions leakage in terms of additional fossil fuel emissions outside of this Commonwealth's borders. Despite the leakage, this Commonwealth's participation in RGGI would result in a net emissions reduction of 86.9 million tons of CO_2 across PJM for the period between 2020 and 2030. Additionally, the Department has been an active participant in PJM's CPSTF which is conducting additional modeling in an effort to better understand and control leakage across the entire PJM region.

The participating states together, including this Commonwealth, will achieve regional CO_2 emissions reductions of 30% by 2030. According to data from the World Bank, by 2022 based on GDP, the participating states would comprise the third largest economy in the world.[52] These CO_2 emission reductions are even more significant when viewed from this collective impact. Reductions in CO_2 emissions will help decrease the adverse impacts of climate change on human health, the environment and the economy. Specifically, CO_2 emission reductions may decrease costs from extreme weather events and climate-related ailments that also result in increased health care costs.

While this proposed rulemaking requires CO_2 emission reductions, co-pollutants will also be reduced, because multiple pollutants are emitted from fossil fuel-fired EGUs. While the benefits of the cumulative CO_2 emission reductions will be tremendous, the Department also estimates that this proposed rulemaking will lead to a reduction of co-pollutants as well. This proposed rulemaking would provide public health benefits due to the expected reductions in emissions of CO_2 and the ancillary emission reductions or co-benefits of SO_2 and NO_x reductions. The Department's modeling projects cumulative emission reductions of 112,000 tons of NO_x and around 67,000 tons of SO_2 over the decade. The public health benefits to this Commonwealth of these avoided SO_2 and NO_x emissions range between $2.79 billion to $6.3 billion by 2030, averaging between $232 million to $525 million per year.

[52] The World Bank, Calculation based on GDP (current US$), https://data.worldbank.org/indicator/NY.GDP.MKTP.CD.

Investment of Auction Proceeds

The amount of proceeds generated from the multistate auctions is a function of the CO_2 allowance price and this Commonwealth's "effective budget," which is the amount of CO_2 allowances that the Department will have remaining in its budget after deducting allowances for the set aside allocations and the ECR. The Department estimates that this proposed rulemaking will generate around $339 million in 2022 and around $190 million in 2030 from the sale of CO_2 allowances in multistate auctions as seen in Table 7.

These auction proceeds are then available to the Department to be invested in programs and projects that would further eliminate air pollution in this Commonwealth. For the purposes of modeling the impacts of investing the proceeds, assumptions were made that the proceeds would be distributed so that 31% are invested in energy efficiency, 32% in renewable energy and 31% in GHG abatement with 6% remaining to cover any programmatic costs related to management of the CO_2 Budget Trading Program, 5% for the Department and 1% for RGGI, Inc.

Additionally, modeling indicates that these investments not only spur economic benefits but also result in the addition of 9.4 GW of renewable energy and load reduction of 29 TWh of electricity from energy efficiency projects. This addition of carbon free generation and reduction in electricity demand would further bolster the benefits of this proposed rulemaking. This increases the amount of electricity exported from this Commonwealth, further drives down emissions and compliance costs for facilities, and results in a reduction of electricity prices in 2029 below what they would have been without this proposed rulemaking. This is consistent with the prices in the participating states, which since the beginning of the RGGI program have not seen an increase in electricity costs.

By using program proceeds to invest in energy efficiency and renewable energy programs, this will help offset any potential increased costs to electricity prices by decreasing peak demand and offering low cost electricity to the grid. In fact, the Acadia Center conducted an 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%.[53]

Table 7. Pennsylvania Auction Proceeds through 2030.

Year	PA Effective Budget	CO_2 Allowance Price ($)	Total Auction Proceeds
2022	60,900,000	5.42	$330,253,216
2023	58,659,567	5.59	$327,858,077
2024	56,419,134	5.76	$324,717,819
2025	54,178,701	5.92	$320,832,440
2026	51,938,268	5.27	$273,949,084
2027	49,697,835	4.63	$229,965,884
2028	47,457,402	3.98	$188,882,843
2029	45,216,969	3.98	$180,081,660
2030	42,976,536	3.99	$171,268,997

[53]Acadia Center, "The Regional Greenhouse Gas Initiative 10 Years in Review," 2019, https://acadiacenter.org/wp-content/uploads/2019/09/Acadia-Center_RGGI_10-Years-in-Review_2019-09-17.pdf.

Financial and Economic Impact

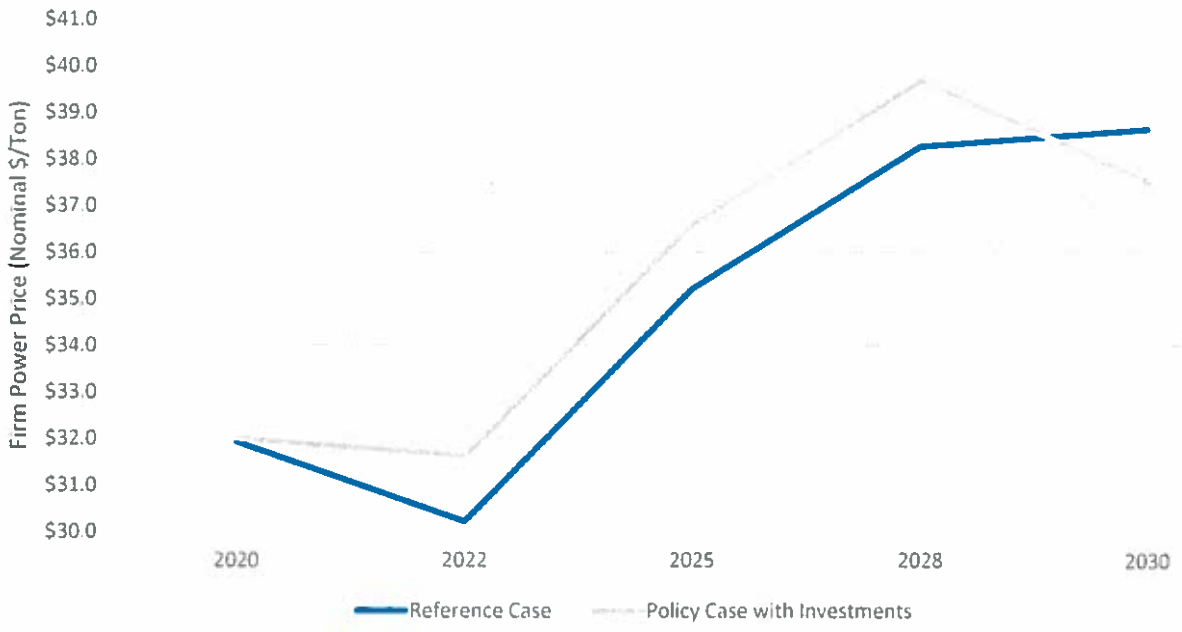
The results of the modeling show that this proposed rulemaking will not only combat climate change and improve air quality, but also provide positive economic value to this Commonwealth. These results align with the numerous published studies highlighting the corresponding positive financial and economic impacts of RGGI participation.

The modeling estimates that from 2022 to 2030, this proposed rulemaking would lead to an increase in Gross State Product of $1.9 billion and a net increase of 27,752 jobs in this Commonwealth. The results also show that overall citizens of this Commonwealth could see a cumulative increase in Disposable Personal Income of $6.9 billion by 2050.

Electric Consumer Impact

According to the Department's modeling, this Commonwealth's projected firm power prices after implementation of this proposed rulemaking are expected to be lower than prices would be without this proposed rulemaking, as seen in Figure 2.

Figure 2. Comparison of Firm Power Prices Through 2030.



Historically, this Commonwealth has exported a third of its electricity generation, and that will continue into the future. In fact, if this Commonwealth participates in RGGI, electricity exports will increase even more than business-as-usual. Therefore, it can be expected that at least a third of the cost of compliance would be borne by out-of-state electric consumers. In 2022, this Commonwealth's net electricity exports are estimated at 68,000 gigawatt hours (GWh), representing 31% of this Commonwealth's 2022 electricity generation of 217,476 GWh.[54] As a result, without factoring in the strategic investment of auction proceeds, the remaining 69% of the costs or $219 million would be borne by this Commonwealth. This

[54] Pennsylvania Public Utility Commission, Electric Power Outlook for Pennsylvania 2017-2022, August 2018, www.puc.state.pa.us/General/publications_reports/pdf/EPO_2018.pdf.

percentage is also dependent on the CO_2 emissions intensity of the exported generation. However, this does not mean that electric consumers in this Commonwealth will therefore pay $219 million. There are several other factors involved in determining the impact on consumer electric bills.

According to the EIA's Annual Energy Outlook from January 2020, the major components of the United States average price of electricity in 2019 were 58% generation, 29% distribution and 13% transmission costs.[55] This proposed rulemaking would only impact the generation portion of a consumer electric bill, which is a little more than half of the bill. The Department's modeling estimates that over the next decade wholesale energy prices will stay in between a range of an increase of 3% in 2022 and ultimately a decrease of 3% by 2030 as a result of this proposed rulemaking. That amounts to a roughly 1.5% increase or decrease in the average retail electricity rate, which is less than the swing in prices traditionally seen as a result of seasonal fluctuations in the energy market.

The average residential electric consumer in this Commonwealth spends from $97.04 to $136.60 per month depending on whether they heat their homes with electricity or another fuel source.[56] Although electricity rates vary in this Commonwealth by Electric Distribution Company service territories, these bill amounts represent the average electricity rates across this Commonwealth.

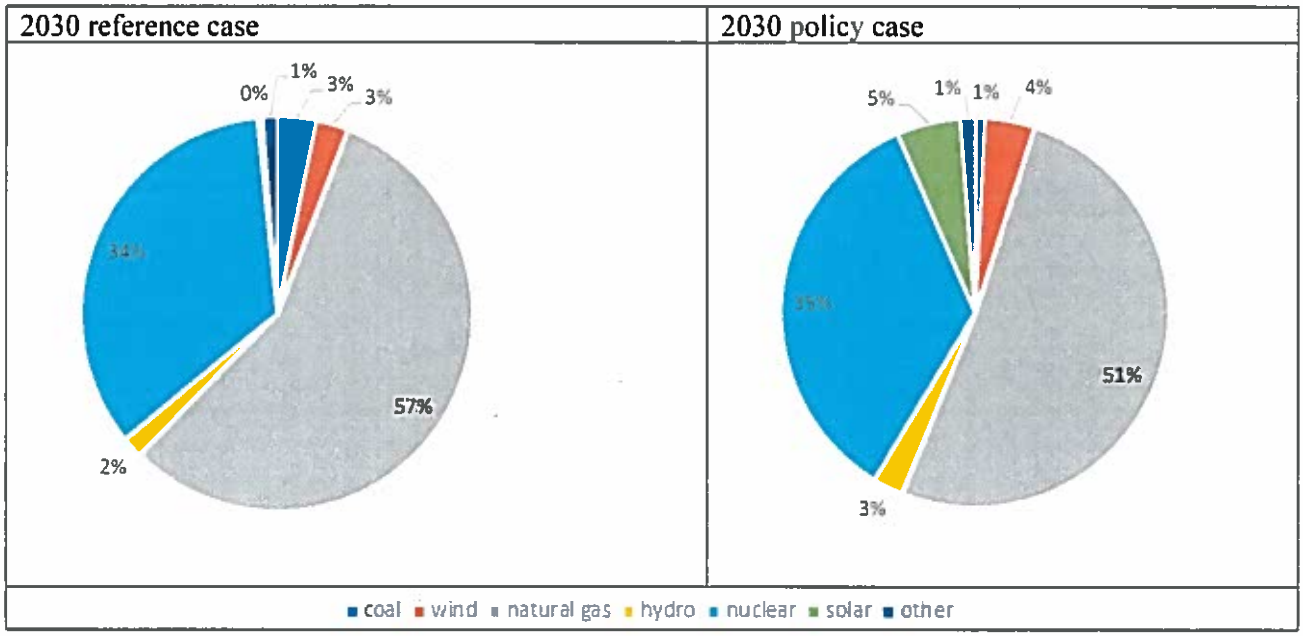
If this proposed rulemaking is implemented and this Commonwealth begins participating in RGGI in 2022, residential electric consumer bills will increase by an estimated 1.5% in the short-term. This amounts to an additional $1.46 to $2.05 per month depending on the home heating source. However, the Department's modeling shows that this minor increase is temporary. As a result of the revenue reinvestments from the auction proceeds, by 2030, energy prices will fall below business-as-usual prices resulting in future consumer electricity cost savings. This means electric consumers will see greater electric bill savings in the future then if this proposed rulemaking were not implemented.

This Commonwealth's electricity generation mix has changed significantly over time. In 2010, coal accounted for approximately 47% of this Commonwealth's generation and natural gas accounted for approximately 15%. By 2019, coal accounted for approximately 17% of this Commonwealth's generation and natural gas accounted for approximately 43%, mainly due to the relatively low price of natural gas as a fuel source.[57] The notable shifts in the generation mix from 2010 to 2019 highlight that the electricity generation sector is dynamic and can change over time without impacts to the overall economic health of the industry and this Commonwealth.

The modeling results show that even without accounting for the proceed investments, the electricity generation sector will not be harmed by this proposed rulemaking. The Department projects that the differences of this Commonwealth's electricity generation mix between the Policy Case and Reference Case by 2030 is minimal, as seen in Figure 3. Even without this proposed rulemaking, the amount of coal generation will experience a precipitous decline to 2030. Although the trajectories vary, by 2030 there will be marginal differences in the amount of coal generation in this Commonwealth with or without this proposed rulemaking. As this coal-fired generation retires, new generation from natural gas and renewables will more than make-up for the lost coal generation.

[55] EIA, Annual Energy Outlook 2020, January 29, 2020, www.eia.gov/todayinenergy/detail.php?id=42635.
[56] Pennsylvania Public Utility Commission, 2018 Collections Data for the Major Electric and Gas Companies- Chapter 14 Biennial Report, January 15, 2020, http://www.puc.pa.gov/General/publications_reports/pdf/Chapter14-Biennial_2018RCD.pdf.
[57] EIA, State Profile and Energy Estimates: Pennsylvania, 2019, https://www.eia.gov/state/analysis.php?sid=PA.

Figure 3. Comparison of Pennsylvania Energy Generation.



With changes to the power generation, so too are there impacts in terms of employment in these sectors. Within the energy sector, there have been employment shifts and trends occurring over time across this Commonwealth showing the most growth in clean energy employment and slower, or negative, growth in fossil fuel energy sectors.

Energy Sector Employment[58]

The energy sector is a large employer of workers in this Commonwealth and one of the fastest growing employment sectors. From 2017 to 2019, this Commonwealth had a total of 269,031 traditional energy jobs, defined as jobs in electric power generation, transmission, distribution, and storage, as well as fuels, energy efficiency, and motor vehicles. These jobs accounted for 4.5% of the overall Statewide workforce. Energy and energy-related employment has continued to grow over the last two years. Since 2017, traditional energy jobs have grown by 7.6%, or 8,306 new workers. Between 2018 and 2019 alone, traditional energy employment grew by 5.2%, or 5,757 jobs. In fact, energy jobs are growing faster than the overall labor market. Total jobs in this Commonwealth have grown by only 0.8% between 2018 and 2019 compared to 5.2% in the energy sector as a whole.

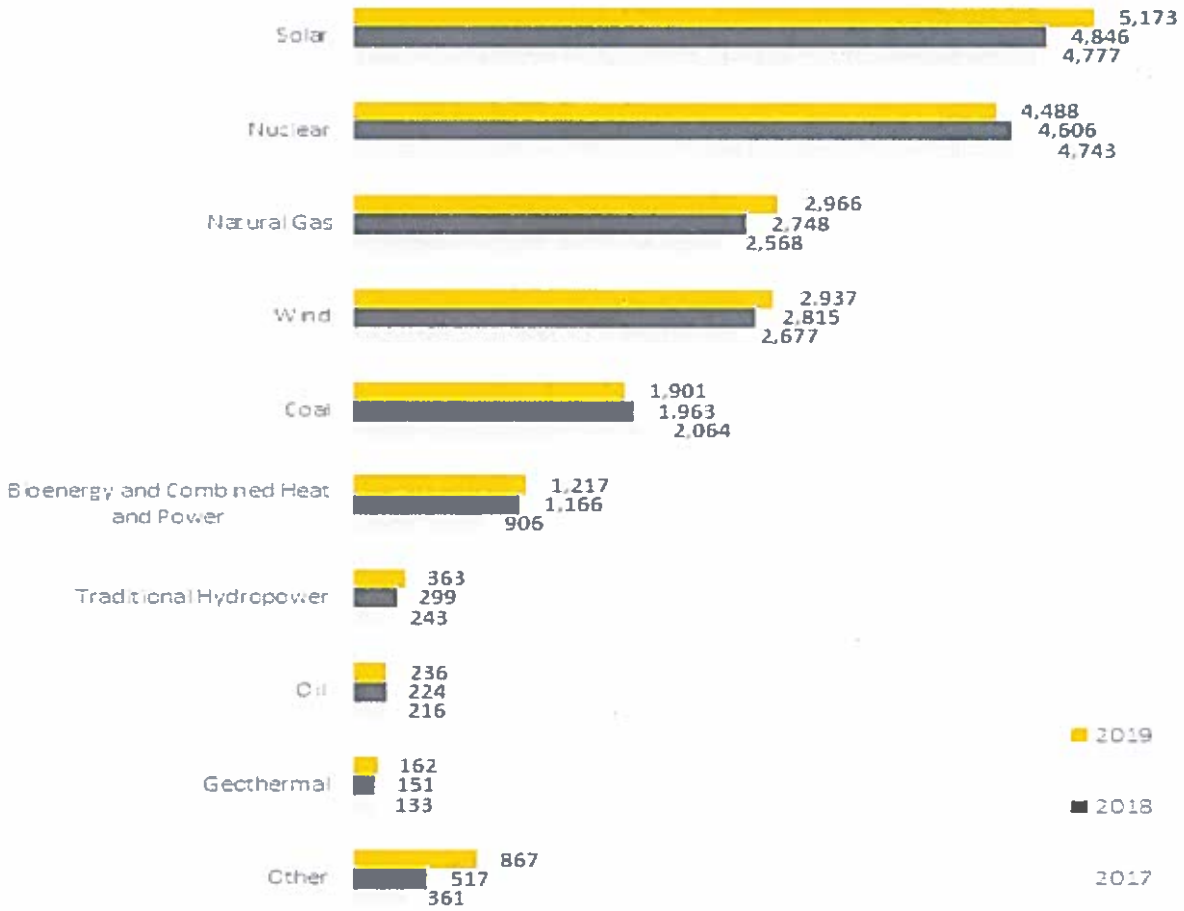
Looking more specifically at employment within the energy sector, natural gas electric power generation jobs have grown since 2017 as the state increases its natural gas electricity generation capacity. Since 2010, the state's share of electricity generation from natural gas has more than doubled, while the share of coal has declined by more than half. In general, natural gas is becoming an increasingly larger share of the energy production mix in the United States. Between 2014 and 2018, natural gas production in America grew by 18.6%, and over the last two decades, natural gas production has grown by 61.2% across the country.

[58] BW Research Partnership. 2020 Pennsylvania Energy Employment Report and 2020 Pennsylvania Clean Energy Employment Report, https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/EnergyEfficiency_Environment_and_EconomicsInitiative/Pages/Workforce-Development.aspx

Coal jobs have declined by 3.3% since 2017 due to the decrease in coal generation, a nationwide phenomenon as the country moves away from coal-fueled electric power generation to cleaner burning sources. In general, coal generation jobs across the United States have decreased by 14.1%, shedding 13,132 jobs. At the same time, coal production across America has declined by 24.3% since 2014. Coal production in this Commonwealth between December 2018 and December 2019 alone declined by 21%. In a comparison of technologies across the energy sector, employment in coal accounted for less than wind, natural gas, nuclear and solar- with 1,901 jobs remaining across this Commonwealth at the end of 2019.

This Commonwealth is also home to a significant nuclear generation workforce; this sector employs 4,488 workers, but has declined by 5.7% since 2017, shedding 256 jobs. Job losses in nuclear generation are likely attributable to the closing of Three Mile Island in September 2019. Since nuclear facilities are zero-carbon emitters, their position is bolstered through this proposed rulemaking because it factors in the price of emitting CO_2 into electricity prices, which may provide a competitive advantage. In fact, Energy Harbor, owner of the Beaver Valley Nuclear Plant, in early 2020 specifically cited this proposed rulemaking as a primary reason for withdrawing their deactivation notice and keeping the plant operating and securing the jobs of their employees.

Figure 4. Pennsylvania Electric Power Generation Employment by Sub-Technology, 2017-2019.



Clean energy, defined as energy efficiency, clean energy generation, alternative transportation, clean grid and storage, and clean fuels, employs over 97,000 workers, and represents 36% of employment in this Commonwealth's energy sector. Clean energy jobs have grown by 7,800 jobs since 2017, an increase of 8.7%, slightly outpacing traditional energy jobs, which have grown 7.6%. By comparison, overall job growth in this Commonwealth was 0.8% between 2018 and 2019.

Table 8. Change in Pennsylvania Jobs by Fuel Type 2017 vs 2019.[59]

	Clean Energy	Natural Gas	Petroleum	Coal
Number of Jobs in PA	97,186	23,738	23,690	10,350
Job growth since 2017	+8.7%	-7.4%	+14.9%	-3.3%

Energy efficiency represents the majority of all clean energy jobs in this Commonwealth; these businesses employ 71,443 workers and employment has grown by 9.4% since 2017. Following energy efficiency, clean energy generation firms comprise 15% of total clean energy jobs. Clean energy generation firms grew by 6.5%, creating 893 jobs since 2017 for a total of 14,594 workers.

The overall proportion of clean energy jobs compared to total Statewide employment in this Commonwealth is 1.6%, comparable to New York's clean energy economy, where 1.7% of total jobs are clean energy workers. However, clean energy employment concentration in this Commonwealth is lower compared to other states like Massachusetts (3.5%) or Rhode Island (3.4%), signifying the potential employment growth opportunities in this Commonwealth.

Solar workers account for the largest proportion of energy generation workers in this Commonwealth and the largest share of clean energy generation workers, 35.4% of the clean energy generation labor force or 5,173 jobs. Unlike the rest of the nation, solar jobs have been growing in this Commonwealth since 2017. Between 2017 and 2019, solar employment grew by 8.3% across the state from 4,777 workers to 5,173 workers at the end of 2019. By contrast, nationwide solar jobs declined by 1.2% over the same time period. The continued growth in solar jobs for this Commonwealth is likely the result of an increase in annual installations between 2018 and 2019. In 2018, this Commonwealth installed just under 60 MW of residential, non-residential, and utility-scale solar capacity. In 2019, annual installed capacity reached about 70 MW.

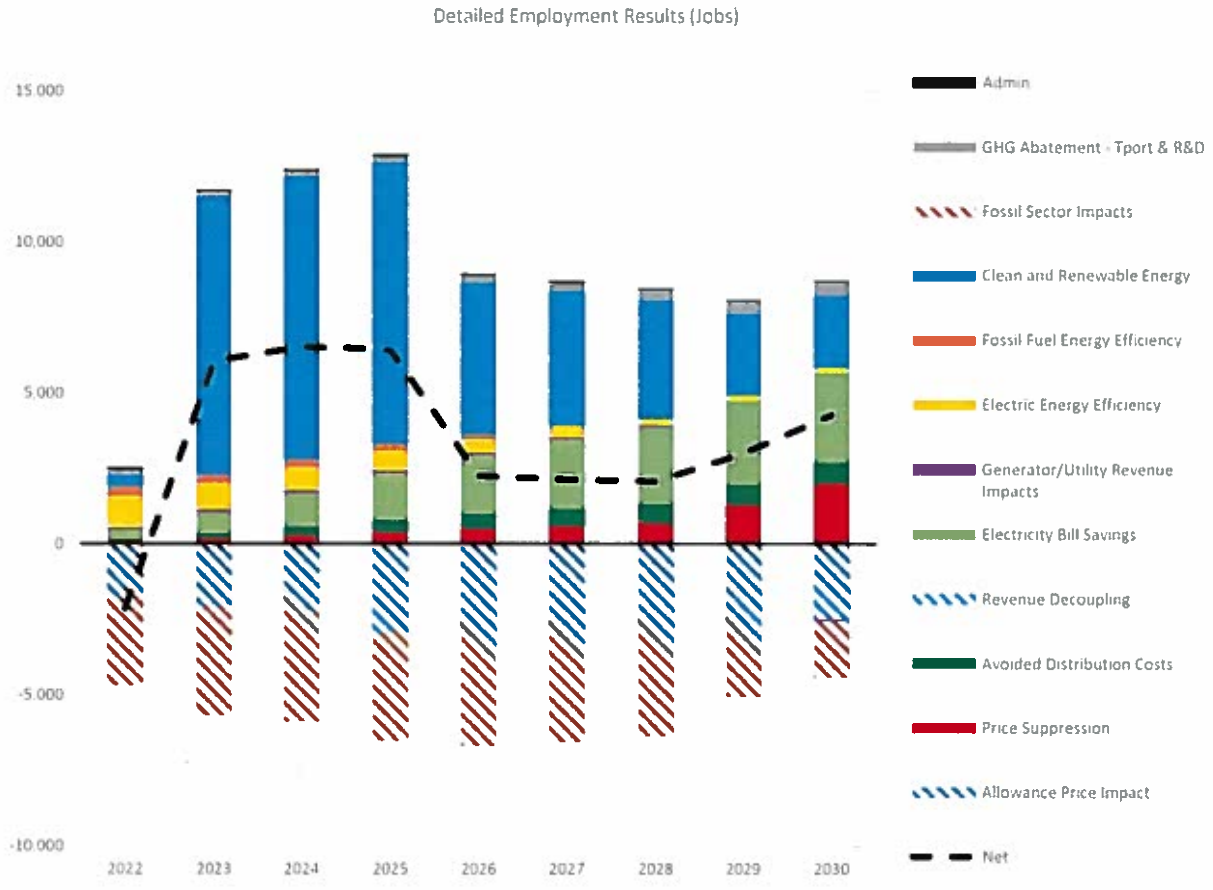
Wind energy firms continue to grow employment in this Commonwealth. The state's 2,937 wind energy generation workers account for 2.6% of all wind energy jobs across the United States. These businesses grew by 9.7% since 2017, creating 259 new clean energy jobs across this Commonwealth. Wind energy generation job growth comes alongside increasing wind capacity in this Commonwealth. Since 2013, wind energy has become the largest renewable source of electricity generation, accounting for 36% of this Commonwealth's renewable electricity capacity in 2018. With significant resources along the Appalachian Mountain crests and the shoreline of Lake Erie, this Commonwealth currently boasts 726 installed wind turbines with over 1,400 MW of generating capacity. Furthermore, the state is home to 29 manufacturing facilities that produce wind turbines, blades, towers, and other components related to wind energy technologies.

[59] *Id.*

Bioenergy and CHP, traditional hydropower, low-impact hydropower, and geothermal generation technologies account for 13.7% of this Commonwealth's clean energy generation workforce and have collectively resulted in 494 new jobs since 2017, the majority of which can be attributed to the bioenergy and CHP industry. In fact, this Commonwealth is among one of the top 12 states in the nation for the amount of electricity generated from biomass resources.

The Department's modeling shows that reinvestment of auction proceeds into the energy sector will result in a net benefit to this Commonwealth. Employment contractions occurring in the coal industry, are more than countered by immense growth in clean and renewable energy, and energy efficiency sectors. The modeling estimates that from 2022 to 2030, this proposed rulemaking would lead to an increase in Gross State Product of $1.9 billion and a net increase of 27,752 jobs in this Commonwealth as seen in Figure 5.

Figure 5. Pennsylvania Net Jobs by Sector Through 2030.



This proposed rulemaking provides an opportunity to assist residents of this Commonwealth impacted by changes in the energy sector, as Pennsylvania and the rest of the country transition to a new energy future. Without this proposed rulemaking, many jobs, specifically at coal-fired power plants will be lost without any opportunities for assistance to ensure there is an equitable transition for workers in all energy sectors.

(18) Explain how the benefits of the regulation outweigh any cost and adverse effects.

The two-prong approach of this proposed rulemaking, both a declining CO_2 emissions budget and investment of the proceeds resulting from the auction of CO_2 allowances to further reduce CO_2 emissions, will lead to positive net benefits for this Commonwealth. The combination of reduced CO_2, SO_2, and NO_x emissions, along with investments in energy efficiency, renewable energy and GHG abatement will ensure this Commonwealth gains environmental benefits while mitigating environmental impacts and growing the economy.

The results of the modeling show that overall, this proposed rulemaking will be an economic benefit to this Commonwealth. The modeling estimates that from 2022 to 2030, this proposed rulemaking would lead to an increase in Gross State Product of $1.9 billion and a net increase of 27,752 jobs. The results also show that overall Pennsylvanians could see an increase in Disposable Personal Income of approximately $6.9 billion by 2050.

(19) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

This proposed rulemaking applies to owners or operators of fossil fuel-fired EGUs, with a nameplate capacity equal to or greater than 25 MWe. This proposed rulemaking is designed to effectuate least cost CO_2 emission reductions for the years 2022 through 2030. In addition to purchasing CO_2 allowances and completing offset projects to generate CO_2 offset allowances, CO_2 budget units may reduce their compliance obligations by reducing CO_2 emissions through other alternatives such as heat rate improvements, fuel switching and co-firing of biofuels.

To comply with this proposed rulemaking, each CO_2 budget unit will need to acquire CO_2 allowances equal to its CO_2 emissions. If CO_2 allowances are purchased through the regional auctions, the owner or operator of a CO_2 budget unit will pay the auction allowance price, currently around $5 per ton, for each ton of CO_2 the unit emits. As mentioned previously, reserved CO_2 CCR allowances can be released into the auction if allowance prices exceed predefined price levels, meaning emission reduction costs are higher than projected. The total cost of purchasing allowances will therefore vary per unit based on how much CO_2 the unit emits and the allowance price. The owner or operator may also purchase CO_2 allowances on the secondary market where they could potentially purchase CO_2 allowances at a price lower than the RGGI allowance price. CO_2 allowances also have no expiration date and can be acquired and banked to defray future compliance costs.

Since the Department will allocate CO_2 allowances to waste coal-fired units each year up to 9,300,000 allowances sector-wide, waste coal-fired units will incur minimal compliance costs. Owners or operators of waste coal-fired units will only need to purchase CO_2 allowances if the set-aside amount is exceeded. However, waste coal-fired units still must comply with the other components of the regulation, including incorporating the CO_2 budget trading program requirements into their permits.

The requirements established by this proposed rulemaking will require the owner or operator to submit a complete application for a new, renewed or modified permit and pay the associated fee. The application must be submitted by the later of 6 months after the effective date of this rulemaking or 12 months before the date on which the CO2 budget source, or a new unit at the source, commences operation.

The Department estimates that the costs related to monitoring, recordkeeping and reporting will be minimal as this proposed rulemaking utilizes current methods and, in most instances, will require no additional emissions reporting. For instance, the continuous emission monitoring required under this proposed rulemaking is already in existence at the regulated source and the necessary emissions data is currently reported to the EPA. There may be minimal programmatic costs related to the submittal of compliance certification reports and auction, account, and offset project related forms.

Compliance costs will vary by CO_2 budget unit as the amount of CO_2 emitted is the primary driver of compliance costs. Overall CO_2 emissions are impacted by operational decisions such as run time, and by emissions intensity which varies by fuel type, and abatement technology employed. Additionally, certain sources may be eligible for set-aside allowances at no cost.

In 2022, this Commonwealth's CO_2 emissions from CO_2 budget sources are estimated to be 57 million short tons. Given the 3-year compliance schedule, all 57 million CO_2 allowances will not need to be purchased in the first year. The total amount of allowance available will decline as the amount of CO_2 emissions in this Commonwealth decline.

As CO_2 budget sources would need one allowance for each ton of CO_2 emitted, the owners or operators would need to acquire 57 million CO_2 allowances at the estimated 2022 allowance price of $5.58 (2017$/Ton). If these CO_2 allowances were all purchased at quarterly multistate auctions in 2022, the total purchase cost would be $318 million. The CO_2 budget sources would then most likely incorporate this compliance cost into their offer price for electricity. The price of electricity is then passed onto electric consumers. However, that does not mean that $318 million will be passed onto this Commonwealth's electric consumers.

As detailed in Question 17, the average residential electric consumer in this Commonwealth spends from $97.04 to $136.60 per month depending on whether they heat their homes with electricity or another fuel source.[60] Residential bills will increase by an estimated 1.5% in the short-term. This amounts to an additional $1.46 to $2.05 per month. However, the Department's modeling shows that this minor increase is temporary. As a result of the revenue reinvestments from the auction proceeds, by 2030, energy prices will fall below business-as-usual prices resulting in future consumer electricity costs savings. This means electric consumers will see greater electric bill savings in the future then if this proposed rulemaking were not implemented.

(20) Provide a specific estimate of the costs and/or savings to the local governments associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

It is not anticipated that local governments will incur any costs as a result of this proposed rulemaking.

[60] Pennsylvania Public Utility Commission, 2018 Collections Data for the Major Electric and Gas Companies- Chapter 14 Biennial Report, January 15, 2020, http://www.puc.pa.gov/General/publications_reports/pdf/Chapter14-Biennial_2018RCD.pdf.

(21) Provide a specific estimate of the costs and/or savings to the state government associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required. Explain how the dollar estimates were derived.

State government costs would include permit engineer review time for permit applications as a result of any new or modified permits needed to comply with this proposed rulemaking. It is anticipated that any cost to the Commonwealth will be offset by the 5% of auction proceeds available to the Department for programmatic costs. State government does not have any CO_2 budget sources covered under this proposed rulemaking.

(22) For each of the groups and entities identified in items (19)-(21) above, submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

No new legal, accounting or consulting procedures are contained in this proposed rulemaking. The recordkeeping and reporting requirements for owners and operators of applicable sources under this proposed rulemaking are minimal because the records required are in line with the records already required to be kept for emission inventory purposes and for other federal and state requirements. To minimize the burden of these requirements, the Department allows electronic submission of most planning, reporting and recordkeeping forms required by this proposed rulemaking.

COATS is an electronic platform, developed, implemented and maintained by RGGI, Inc. on behalf of the participating states, that records and tracks CO_2 emission data for each state's CO_2 Budget Trading Program. The emissions data that owners or operators report to the EPA's Clean Air Markets Division system flows through to COATS. COATS is also the platform used for each state's compliance process, meaning it is used by the participating states, including this Commonwealth, to record allocations, deductions and transfers of CO_2 allowances. Additionally, COATS allows offset project sponsors to register offset projects and submit offset project Consistency Applications and Monitoring and Verification Reports to the participating states.

(22a) Are forms required for implementation of the regulation?

Yes.

(22b) If forms are required for implementation of the regulation, **attach copies of the forms here.** If your agency uses electronic forms, provide links to each form or a detailed description of the information required to be reported. **Failure to attach forms, provide links, or provide a detailed description of the information to be reported will constitute a faulty delivery of the regulation.**

The draft forms are attached to this Regulatory Analysis Form, including the CO_2 Budget Unit Application Form, Cogeneration Set-aside Application Form, Compliance Certification Form and the Quarterly Report Form.

(23) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY (20/21)	FY +1 (21/22)	FY +2 (22/23)	FY +3 (23/24)	FY +4 (24/25)	FY +5 (25/26)
SAVINGS:	**$**	**$**	**$**	**$**	**$**	**$**
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00	0.00	0.00
COSTS:						
Regulated Community	0.00	129,222,902	258,445,803	263,212,399	267,978,995	267,978,995
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Costs	0.00	129,222,902	258,445,803	263,212,399	267,978,995	267,978,995
REVENUE LOSSES:						
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Revenue Losses	0.00	0.00	0.00	0.00	0.00	0.00

(23a) Provide the past three-year expenditure history for programs affected by the regulation.

Program	FY -3 (16/17)	FY -2 (17/18)	FY -1 (18/19)	Current FY (19/20)
Environmental Program Management (161-10382)	$26,885,000	$29,413,000	$30,932,000	$28,420,000
Clean Air Fund Major Emission Facilities (215-20077)	$16,931,000	$17,480,000	$16,067,000	$17,878,000
Clean Air Fund Mobile and Area Facilities (233-20084)	$8,228,000	$8,727,000	$7,205,000	$9,369,000

(24) For any regulation that may have an adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), provide an economic impact statement that includes the following:

(a) An identification and estimate of the number of small businesses subject to the regulation.

As described in the response to Question 15, EMAP provided the Department with a list of entities in this Commonwealth identified as Electric Bulk Power Transmission and Control (NAICS code 221112 and 221121), Other Electric Power Generation (NAICS code 221118), Electric Power Distribution (NAICS code 221122), and Paper (except Newsprint) Mills facility (NAICS code 322121). The Department provided these NAICS codes to the Pennsylvania Small Business Development Center's EMAP with a request for a list of entities in each classification. EMAP provided the Department with a list of 57 facility owners and operators identified by NAICS code 221112, two facility owners or operators identified by NAICS code 221121, one facility owner or operator identified by NAICS code 221118, one facility owner or operator identified by NAICS code 221122, and one facility owner or operator identified by NAICS code 322121, for a total of 62 potentially affected entities. Under the U.S. SBA Small Business Size Regulations under 13 CFR Chapter 1, Part 121, the small business-size standard in number of employees for each of these NAICS classifications is 750 employees. The Department determined that ten of these potentially subject entities may be small businesses by that definition.

This proposed rulemaking may also apply to owners or operators of other facilities that have not yet been identified.

(b) The projected reporting, recordkeeping and other administrative costs required for compliance with the proposed regulation, including the type of professional skills necessary for preparation of the report or record.

The recordkeeping and reporting requirements for owners or operators of affected facilities are minimal because most of the records required are in line with the records already required to be kept for emission inventory purposes and for other federal and state requirements. The owners and operators of affected facilities are familiar with the existing requirements for reporting and recordkeeping for their industry and have the professional and technical skills needed for compliance with these proposed requirements. No special skills are required, and the Department only anticipates minimal programmatic costs.

The Department plans to educate and assist the public and the regulated community in understanding the proposed requirements and how to comply with them.

(c) A statement of probable effect on impacted small businesses.

The Department expects that the impact on small businesses will be minimal. Of the ten potential small businesses identified, the majority are waste coal fired facilities. This proposed rulemaking would establish a waste-coal set aside account to assist these facilities with compliance by providing up to 9.3 million CO_2 allowances each year.

Small businesses would not be unduly burdened by this proposed rulemaking. Overall, small businesses would likely be impacted positively as a result of this proposed rulemaking, due to the benefits provided by the RGGI proceed investments. The potential funding programs could allow for more access to energy efficiency and renewable energy projects and investments in clean transportation options. For instance, if the Commonwealth decides to fund an orphan and abandoned well plugging program with RGGI

proceeds, the conventional oil and gas industry would benefit from the additional work being offered. Additionally, many renewable energy firms are considered small businesses, which could benefit from a rooftop solar program.

The Department plans to educate and assist the public and the regulated community in understanding the proposed requirements and how to comply with them. The Department will continue to work with the Department's provider of Small Business Stationary Source Technical and Environmental Compliance Assistance. These services are currently provided by EMAP of the Pennsylvania Small Business Development Centers. The Department has partnered with EMAP to fulfill the Department's obligation to provide confidential technical and compliance assistance to small businesses as required by the APCA, Section 507 of the CAA (42 U.S.C.A. § 7661f) and authorized by the Pennsylvania Small Business and Household Pollution Prevention Program Act (35 P.S. §§ 6029.201—6029.209). In addition to providing one-on-one consulting assistance and on-site assessments, EMAP also operates a toll-free phone line to field questions from this Commonwealth's small businesses, as well as businesses wishing to start up in, or relocate to, Pennsylvania. EMAP operates and maintains a resource-rich environmental assistance website and distributes an electronic newsletter to educate and inform small businesses about a variety of environmental compliance issues.

(d) A description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation.

There are no less intrusive or less costly alternative regulatory provisions available.

(25) List any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, the elderly, small businesses, and farmers.

Provisions for Covered Facilities

The Board developed a special provision to meet the particular needs of waste coal-fired electric generators in this Commonwealth, many of which may meet the definition of small business (as defined in Section 3 of the Regulatory Review Act (71 P.S. §745.3). As discussed in the response to question 12, the Department will set aside 9,300,000 CO_2 allowances at the beginning of each year for waste coal-fired units located in this Commonwealth. The Board is establishing this waste coal set-aside in this proposed rulemaking because in addition to electricity generation, waste coal-fired units provide an environmental benefit of reducing air and water pollution caused by the remaining waste coal piles in this Commonwealth. This compliance assistance is important to continuing the remediation of these waste coal piles, as these facilities are facing increased competition in part from low natural gas prices. Several facilities have closed, and others have announced anticipated closure dates.

The Board also developed a special provision to meet the particular needs of cogeneration facilities interconnected with manufacturing facilities. The general applicability of the rulemaking is for those facilities that have a nameplate capacity of 25MWe or greater and send more than 10% of the electricity to the grid. For cogeneration facilities interconnected to manufacturing facilities, the requirement for the portion of electricity required to trigger a compliance obligation increases to 15% of useful thermal energy. This provides manufacturing facilities, with on-site generation to support on-site production, an opportunity for an exemption from the regulation.

For those cogeneration facilities that do trigger a compliance requirement under this proposed rulemaking, the Board is establishing a co-generation set-aside to assist with compliance obligations. Qualifying facilities would be able to apply for CO_2 allowances from this set-aside to offset their compliance obligation associated with emissions related to the generation used on-site. If approved, these facilities would only be responsible for the compliance obligation for CO_2 emissions associated with electricity generation sold to the grid.

Consideration of Vulnerable Communities

The Department will ensure that measures taken through this proposed rulemaking do not disproportionately impact the most vulnerable residents in this Commonwealth. The Department is focused on developing a strategy for the reinvestment of proceeds resulting from the auction of this Commonwealth's CO_2 allowances that ensures an equitable distribution of beneficial projects across this Commonwealth, with a focus on benefits for low-income consumers, environmental justice communities and communities impacted by this Commonwealth's transition to a new energy future. Opportunities for these expenditures to assist transitioning communities include targeted weatherization and energy efficiency services to reduce energy use and costs for households and businesses, training opportunities related to energy efficiency and renewable energy careers, and the retention of jobs through repowering of coal-fired facilities to natural gas, among others.

Since around 20% of fossil fuel-fired EGUs in this Commonwealth are in Environmental Justice areas, residents in these communities will directly benefit from the localized emission reductions from plants located in their communities. These include reductions in CO_2, SO_2 and NO_x emissions and reduced formation of ground level ozone. Additional consideration for reinvestment opportunities will be given to Bucks, Chester, Delaware, Montgomery and Philadelphia counties as they are designated as marginal nonattainment areas for the 2015 ozone NAAQS, a standard that will become more difficult to attain with future climate change impacts.

As previously mentioned, vulnerable populations across this Commonwealth, including children, the elderly, those with pre-existing health conditions especially respiratory and communities of color are those most affected by diminished air quality. These groups are also those who have the most to gain from avoiding the worst impacts of climate change while improving the air and water quality in this Commonwealth.

Consideration of Farming & Agricultural Operations

Similar to various public health pressures, the agricultural, food, and water systems the citizens of this Commonwealth depend on for survival are also under threat by climate change. The increase in precipitation and its variability could lead to higher plant disease, increased risk of flooding, difficulty in the timing of planting, and increased demand for irrigation. This Commonwealth's dairy production will also experience challenges from reduced milk yields, a result of heat stress on cows. High levels of ground-level ozone also affect animals including pets, livestock, and wildlife, in ways similar to humans. Reduced ambient concentrations of ground-level ozone as a result of this proposed rulemaking would improve the quality of life of animals, preserve this Commonwealth's biodiversity, and reduce veterinary costs.

(26) Include a description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.

The Department has not considered alternative regulatory provisions for this proposed rulemaking, as Executive Order 2019-07 directed the Department to develop a regulation to reduce CO_2 emissions from fossil fuel-fired EGUs through a cap and trade program. Alternatively, the Department could have proposed a traditional command and control regulation to reduce CO_2 emissions from fossil fuel-fired EGUs. However, that would not be the most advantageous or economically beneficial method to control CO_2 emissions in this Commonwealth.

As noted by the EPA in its Guide to Designing and Operating a Cap and Trade Program for Pollution Control, cap and trade programs provide several benefits and advantages over more traditional approaches to environmental regulation. By establishing an emissions budget, cap and trade programs can provide a greater level of environmental certainty than other environmental policy options. The regulated sources, across the region, must procure allowances to cover emissions or risk being penalized for lack of compliance. Traditional command and control regulations, on the other hand, tend to rely on variable emission rates and often only regulate existing or new sources. However, under cap and trade programs, new and existing sources must comply with the emissions budget. A cap and trade program may also encourage sources to achieve emission reductions in anticipation of future compliance, resulting in the earlier achievement of environmental and human health benefits. In fact, the Department's modeling shows that this is occurring as this Commonwealth prepares to participate in RGGI in 2022.

The EPA also noted that banking of allowances, which this proposed rulemaking allows, provides an additional incentive to reduce emissions earlier than required. Banking provides flexibility by allowing sources to save unused allowances for use in a later compliance period when the emissions budget is lower and the costs to reduce emissions may be higher. With command-and control, the regulating authority specifies sector-wide technology and performance standards that each of the affected sources must meet, whereas cap and trade provides sources with the flexibility to choose the technologies that minimize their costs while achieving the emissions target. Cap and trade programs also provide more accountability than a command and control program. Under this proposed rulemaking and other cap and trade programs, sources must account for every ton of emissions they emit by acquiring allowances. Command and control programs tend to rely on periodic inspections and assumptions that control technology is functioning properly to show compliance.[61]

This proposed rulemaking employs an efficient and market-based solution to achieve a reduction in CO_2 emissions from the electricity generation sector in this Commonwealth. This is further bolstered by the 2019 update to the Pennsylvania Climate Action Plan which determined that one of the most cost-effective emissions reduction strategies is to limit CO_2 emissions through an electricity sector cap and trade program. Although RGGI is a market-based approach, there are also price fluctuation protections that are built into the auction platform to help ensure that CO_2 allowance prices and compliance costs are feasible. Specifically, there are auction mechanisms that identify a precipitous increase or decrease in price, and trigger what are referred to as the CCR and ECR. The CCR process triggers additional CO_2 allowances to be offered for sale in the case of higher than projected CO_2 allowance costs. Similarly, states implementing the ECR, including this Commonwealth, would withhold CO_2 allowances from the auction to secure additional emissions reductions if prices fall below the established trigger price. This provides predictability in terms of both the cost of compliance for covered entities, and a relatively predictable

[61] EPA, Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control, EPA430-B-03-002, June 2003, www.epa.gov/sites/production/files/2016-03/documents/tools.pdf.

stream of revenue for each participating state. CO_2 allowances may also be purchased through the secondary market and may be held for future compliance years as they have no expiration.

(27) In conducting a regulatory flexibility analysis, explain whether regulatory methods were considered that will minimize any adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), including:

a) The establishment of less stringent compliance or reporting requirements for small businesses.

Less stringent compliance and reporting requirements are not established under this proposed rulemaking. However, this proposed rulemaking includes a waste-coal set aside provision to assist waste coal-fired facilities with compliance by providing up to 9.3 million CO_2 allowances. The Department has estimated that 7 waste coal-fired facilities are small businesses. The Department has also established a small business assistance program that is available to provide confidential assistance to small businesses.

b) The establishment of less stringent schedules or deadlines for compliance or reporting requirements for small businesses.

Establishment of a less stringent compliance schedule or deadline for small businesses is not possible. The compliance schedules and deadlines in this proposed rulemaking align with the regulations in the participating states and follow a 3-year control period for compliance. The Department has established a small business assistance program that is available to provide confidential assistance to the small businesses.

c) The consolidation or simplification of compliance or reporting requirements for small businesses.

Compliance and reporting requirements are the same for all affected facilities. The Department has established a small business assistance program that is available to provide confidential assistance to the small businesses.

d) The establishment of performance standards for small businesses to replace design or operational standards required in the regulation.

This proposed rulemaking does not include performance standards for any affected facilities.

e) The exemption of small businesses from all or any part of the requirements contained in the regulation.

This proposed rulemaking does not exempt owners or operators of small businesses.

(28) If data is the basis for this regulation, please provide a description of the data, explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by documentation, statistics, reports, studies or research. Please submit data or supporting materials with the regulatory package. If the material exceeds 50 pages, please provide it in a searchable electronic format or provide a list of citations and internet links that, where possible, can be accessed in a searchable format in lieu of the actual material. If other data was considered but not used, please explain why that data was determined not to be acceptable.

The data supporting the Department's IPM and REMI analysis can be found on the Department's website at https://www.dep.pa.gov/Citizens/climate/Pages/RGGI.aspx. A presentation entitled "Modeling Results Presentation" located on that webpage provides supplemental information about the modeling. Additionally, relevant data files are located on that webpage, labeled as "Reference Case Results" and "Policy Case Results."

The data supporting this Commonwealth's GHG emissions can be found on the Department's website at https://www.dep.pa.gov/Citizens/climate/Pages/GHG-Inventory.aspx.

Data supporting comparisons amongst states in CO_2 emissions can be found at https://www.eia.gov/. Data supporting GHG equivalencies can be found using https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

(29) Include a schedule for review of the regulation including:

A. The length of the public comment period:	69 days
B. The date or dates on which any public meetings or hearings will be held:	Public hearings scheduled December 8, 9, 10, 11, & 14, 2020
C. The expected date of delivery of the final-form regulation:	Quarter 3, 2021
D. The expected effective date of the final-form regulation:	Quarter 4, 2021
E. The expected date by which compliance with the final-form regulation will be required:	January 1, 2022
F. The expected date by which required permits, licenses or other approvals must be obtained:	1 year after the effective date

(30) Describe the plan developed for evaluating the continuing effectiveness of the regulations after its implementation.

The Board is not establishing a sunset date for this proposed rulemaking, since it is needed for the Department to carry out its statutory authority. The Department will closely monitor this proposed rulemaking after promulgation as a final-form rulemaking in the *Pennsylvania Bulletin* for its effectiveness and recommend updates to the Board as necessary.

Through RGGI, Inc., the Department will utilize the expertise of an independent market monitor to monitor the multistate auction, CO_2 allowance holdings and CO_2 allowance transactions, among other activities in order to ensure this proposed rulemaking is maintaining its effectiveness. The market monitor provides independent expert monitoring of the competitive performance and efficiency of the RGGI allowance market. This includes identifying attempts to exercise market power, collude, or otherwise manipulate prices in the auction and the secondary market, making recommendations regarding proposed market rule changes to improve the efficiency of the market for CO_2 allowances, and assessing whether the auctions are administered in accordance with the noticed auction rules and procedures. The market monitor will monitor bidder behavior in each auction and report to the participating states any activities that may have a material impact on the efficiency and performance of the auction. The participating states, through RGGI, Inc., release a Market Monitor Report shortly after each multistate auction. The report includes aggregate information about the auction including the dispersion of projected demand, the dispersion of bids, and a summary of bid prices, showing the minimum, maximum, average and clearing price and the CO_2 allowances awarded.

Further, the participating states conduct comprehensive, periodic "program reviews" to consider program successes, impacts and design elements. In particular, during program review, participating states may revise the RGGI Model Rule, adjust the multistate auction process and develop new goals for the CO_2 Budget Trading Program. The program review also includes an extensive regional stakeholder process that engages the regulated community, environmental groups, consumer and industry advocates and other interested stakeholders.

The participating states have completed 3 program reviews since program implementation in 2009, and the next program review is currently scheduled for 2021. The program review in 2021 will evaluate energy trends, performance of the amendments, and other program design elements. Upon implementation of this proposed rulemaking, this Commonwealth would participate in the periodic program reviews to ensure this proposed rulemaking is implemented effectively.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Application for Adding a CO_2 Budget Source in an Operating Permit

Section A – Company, Facility and Contact Information		
1. Company Information/Corporation Information		
Company Name:		
Company Mailing Address:		
City:	State:	Zip Code:
Telephone Number:	E-mail Address:	
2. Plant/Facility Information		
Facility Name:		
Facility Mailing Address:		
City:	State:	Zip Code:
Telephone Number:	E-mail Address:	
Municipality:	County:	
Current Permit No.:		
Federal Employer Identification Number (EIN):		
ORIS Code:	EIA Plant Code:	
3. CO_2 Authorized Account Representative Information		
Name:	Title:	
Mailing Address:		
City:	State:	Zip Code:
Telephone Number:	Email:	
Alternate Telephone Number:		

Certification of Truth, Accuracy and Completeness by a Responsible Official

I, _____, certify under penalty of law in 18 Pa. C.S. § 4904, and 35 P.S. § 4009(b)(2) that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete.

(Signature): _____ Date: _____

Name (Print): _____ Title: _____

Section B – CO_2 Budget Unit Information		
PA DEP Source ID Number	**Source Description**	**Nameplate Capacity (MWe)**

Section C – Compliance Certification and Requirements

The CO2 budget source and each CO2 budget unit at the source must comply with the general provisions at 25 Pa. Code §§ 145.301—145.307, compliance requirements at 25 Pa. Code 145.331, and monitoring, recordkeeping, and reporting requirements at 25 Pa. Code §§ §§ 145.371—145.377.

The Department will incorporate these requirements into the facility's operating permit pursuant to 25 Pa. Code §145.322(b).

A Compliance Certification must be submitted for the CO2 budget source and each CO2 budget unit at the source by March 1 following the relevant control period or initial control period (not required during an interim control period) pursuant to 25 Pa. Code §145.331.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

CO_2 Budget Source Annual Cogeneration Application Form

This form satisfies the cogeneration set-aside account compliance obligation adjustment application requirements pursuant to 25 Pa. Code § 145.342(k)(3). This form should be completed and submitted to the Pennsylvania Department of Environmental Protection (DEP) on or before every January 30 for the preceding allocation year.

FACILITY & AAR INFORMATION		
FACILITY INFORMATION (SOURCE)	Company Name	
	Facility Name	
	EIA Plant Code	
	Permit Number	
	U.S. DOE/EIA Unit ID	
	Facility Street Address	
	City	
	State	
	Zip Code	
	Authorized Account Representative (AAR) Information	
	AAR Name	
	Title	
	Street Address	
	City	
	State	
	Zip Code	
	Telephone Number	
	Email Address	

COGENERATION UNIT DATA	PAGE OF	
For each cogeneration unit located at the CO_2 budget source identified, enter all unit-specific information. The Unit ID entered should correspond to the CO_2 budget unit as identified in the RGGI CO_2 Allowance Tracking System (RGGI-COATS). The Nameplate Capacity (MWe) entered should reference those identified in the Account Certificate of Representation Form. Attach calculations and supporting data on additional sheets.		
Allocation Year		
Source ID		
U.S. DOE/EIA Unit ID		
Did the cogeneration unit operate in the reporting calendar year?	Yes ☐	No ☐
Nameplate capacity of unit (MWe)		
CO_2 Emissions (tons)		
Please describe why the unit is considered a cogeneration unit. Attached additional sheets, if necessary.		
CO_2 Emissions (tons) from Production of Electricity Supplied to the Regional Electric Grid		
CO_2 Emissions (tons) from Production of Electricity not Supplied to the Regional Electric Grid		
CO_2 Emissions (tons) from Production of Useful Thermal Energy		
Compliance Obligation Adjustment Requested (tons) from Eligible Electricity Not Supplied to the Grid and Eligible Useful Thermal Energy		
Annual Gross Output (MWh) of Electricity Supplied to the Regional Electric Grid		
Annual Gross Output (MWh) of Electricity not Supplied to the Regional Electric Grid		
Useful Thermal Energy (MMBtu)		

CERTIFICATION STATEMENT

I certify that I was selected as the CO_2 authorized account representative of the CO_2 budget source (or alternative CO_2 authorized account representative of the CO_2 budget source, as applicable) by an agreement binding with the owners and operators of the CO_2 budget source and each CO_2 budget unit at the source. I certify that I have all the necessary authority to carry out my duties and responsibilities under the CO_2 Budget Trading Program on behalf of the owners and operators of the CO_2 budget source and of each CO_2 budget unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any decision or order issued to me by the Department or court of competent jurisdiction regarding the source or unit.

I am authorized to make this submission on behalf of the owners and operators of the CO_2 budget sources or CO_2 budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Signature of Authorized Account Representative (AAR) or Alternate

_____

Printed Name

_____

Date

_____

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

CO_2 Budget Source Compliance Certification Form

This form satisfies the submittal requirements for the Compliance Certification for Pennsylvania CO_2 budget units regulated under the Pennsylvania CO_2 Budget Trading Program. This form should be completed and submitted to the Pennsylvania Department of Environmental Protection (DEP) on or before March 1 following each control period, except for an interim control period.

FACILITY & AAR INFORMATION		
FACILITY INFORMATION (SOURCE)	Company Name	
	Facility Name	
	EIA Plant Code	
	Permit Number	
	U.S. DOE/EIA Unit ID	
	Facility Street Address	
	City	
	State	
	Zip Code	
	Authorized Account Representative (AAR) Information	
	AAR Name	
	Title	
	Street Address	
	City	
	State	
	Zip Code	
	Telephone Number	
	Email Address	
Control Period Covered		

CO_2 BUDGET UNIT INFORMATION			
Source ID	CO_2 Budget Unit Description	Serial # of Allowances to be Deducted	Serial # of Offset Allowances to be Deducted

CERTIFICATION STATEMENT

Consistent with the compliance certification requirements of 25 Pa. Code § 145.331, I certify that the CO_2 budget source and each CO_2 budget unit at the source for which the compliance certification is submitted was operated during the calendar years covered by the report in compliance with the requirements of the CO_2 Budget Trading Program.

Signature of Authorized Account Representative (AAR) or Alternate

_____

Printed Name

_____

Date

_____

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

CO_2 Budget Source Quarterly Reporting Form

This form satisfies the submittal requirements for the certification of the Quarterly Report for Pennsylvania CO_2 budget units regulated under the Pennsylvania CO_2 Budget Trading Program. This form should be completed and submitted to the Pennsylvania Department of Environmental Protection (DEP) on or before every April 30, July 30, October 30 and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1 and October 1).

FACILITY & AAR INFORMATION		
FACILITY INFORMATION (SOURCE)	Company Name	
	Facility Name	
	EIA Plant Code	
	Permit Number	
	U.S. DOE/EIA Unit ID	
	Facility Street Address	
	City	
	State	
	Zip Code	
	Authorized Account Representative (AAR) Information	
	AAR Name	
	Title	
	Street Address	
	City	
	State	
	Zip Code	
	Telephone Number	
	Email Address	

QUARTERLY REPORT REQUIREMENT INFORMATION

The CO_2 authorized account representative shall submit quarterly reports, as follows:

1. The CO_2 authorized account representative shall report the CO_2 mass emissions data for the CO_2 budget unit, in an electronic format prescribed by the Administrator, unless otherwise prescribed by the Department, for each calendar quarter beginning with:

   i. For a unit that commenced commercial operation before January 1, 2020, the calendar quarter covering January 1, 2022 through March 31, 2022; or

   ii. For a unit that commenced commercial operation on or after January 1, 2020, the calendar quarter corresponding to, the earlier of the date of provisional certification or the applicable deadline for initial certification under § 145.371(b) or, unless that quarter is the third or fourth quarter of 2021, in which case reporting shall commence in the quarter covering January 1, 2022 through March 31, 2022.

2. The CO_2 authorized account representative shall submit each quarterly report to the Administrator and the Department or its agent within 30 days following the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the manner specified in 40 CFR Part 75, Subpart H and 40 CFR 75.64 (relating to quarterly reports). Quarterly reports shall be submitted for each CO_2 budget unit, or group of units using a common stack, and shall include all the data and information required in 40 CFR Part 75, Subpart G (relating to reporting requirements) except for opacity, heat input, NO_x and SO_2 provisions.

3. The CO_2 authorized account representative shall submit to the Administrator or the Department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all the unit's emissions are correctly and fully monitored. The certification shall state that the following conditions have been met:

   i. The monitoring data submitted were recorded in accordance with the applicable requirements of this subchapter and 40 CFR Part 75, including the quality assurance procedures and specifications.

   ii. For a unit with add-on CO_2 emissions controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1) (relating to units with add-on emission controls), the add-on emissions controls were operating within the range of parameters listed in the quality assurance/quality control program under 40 CFR Part 75, Appendix B and the substitute values do not systematically underestimate CO_2 emissions.

   iii The CO_2 concentration values substituted for missing data under 40 CFR Part 75, Subpart D do not systematically underestimate CO_2 emissions.

CO_2 BUDGET UNIT QUARTERLY DATA	PAGE	OF

For each CO_2 budget unit located at the CO_2 budget source identified, enter all unit-specific information. The Unit ID entered should correspond to the CO_2 budget unit as identified in the RGGI CO_2 Allowance Tracking System (RGGI-COATS). The Nameplate Capacity (MWe) entered should reference those identified in the Account Certificate of Representation Form. For each unit, CO_2 emissions (tons) for the quarter and calendar year-to-date should be entered. The Emissions Collection and Monitoring Plan System (ECMPS) Feedback Report that is received by the facility for the submission of Quarterly Emissions Report to EPA for each unit should be attached with this form.

Reporting Quarter and Year			
Source ID			
U.S. DOE/EIA Unit ID			
Did the CO_2 budget unit operate in the reporting calendar year?	Yes ☐	No ☐	
Nameplate capacity of unit (MWe)			
Quarterly CO_2 Emissions (tons)			
Calendar Year-to-Date CO_2 Emissions (tons)			
Attached EPA ECMPS Feedback Report?	Yes ☐	No ☐	
Are the monitoring data that are submitted, recorded in accordance with the applicable requirements of 25 Pa. Code Chapter 139 and 40 CFR Part 75, including the quality assurance procedures and specifications?	Yes ☐	No ☐	
For a unit with add-on CO_2 emissions controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1), were the add-on emissions controls operating within the range of parameters listed in the quality assurance/quality control program under 40 CFR Part 75 Appendix B, and do the substitute values not systematically underestimate CO_2 emissions?	Yes ☐	No ☐	N/A ☐
Do the CO_2 concentration values substituted for missing data under 40 CFR Part 75 Subpart D not systematically underestimate CO_2 emissions?	Yes ☐	No ☐	N/A ☐

CERTIFICATION STATEMENT

I certify that I was selected as the CO_2 authorized account representative of the CO_2 budget source (or alternative CO_2 authorized account representative of the CO_2 budget source, as applicable) by an agreement binding with the owners and operators of the CO_2 budget source and each CO_2 budget unit at the source. I certify that I have all the necessary authority to carry out my duties and responsibilities under the CO_2 Budget Trading Program on behalf of the owners and operators of the CO_2 budget source and of each CO_2 budget unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any decision or order issued to me by the Department or court of competent jurisdiction regarding the source or unit.

I am authorized to make this submission on behalf of the owners and operators of the CO_2 budget sources or CO_2 budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Signature of Authorized Account Representative (AAR) or Alternate

_____

Printed Name

_____

Date

_____

CDL-1

FACE SHEET
FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE BUREAU

(Pursuant to Commonwealth Documents Law)

RECEIVED
OCT 21 2020
Independent Regulatory Review Commission

DO NOT WRITE IN THIS SPACE

Copy below is hereby approved as to form and legality. Attorney General

By: Amy M. Elliott (Deputy Attorney General)

10/20/2020
DATE OF APPROVAL

☐ Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and correct copy of a document issued, prescribed or promulgated by:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-559

DATE OF ADOPTION SEPTEMBER 15, 2020

BY

TITLE PATRICK MCDONNELL
CHAIRPERSON

EXECUTIVE OFFICER CHAIRPERSON OR SECRETARY

Copy below is hereby approved as to form and legality Executive or Independent Agencies

BY Marisa H. Z. Lehr

9/15/2020
DATE OF APPROVAL

(Deputy General Counsel)
(Chief Counsel - Independent Agency)
(Strike inapplicable title)

☐ Check if applicable. No Attorney General Approval or objection within 30 days after submission

NOTICE OF PROPOSED RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

CO2 Budget Trading Program

25 Pa. Code Chapter 145

PROPOSED RULEMAKING
ENVIRONMENTAL QUALITY BOARD
[25 PA. CODE CH. 145]

CO_2 Budget Trading Program

The Environmental Quality Board (Board) proposes to amend Chapter 145 (relating to interstate pollution transport reduction) to read as set forth in Annex A. This proposed rulemaking would add Subchapter E (relating to CO_2 budget trading program) to establish a program to limit the emissions of carbon dioxide (CO_2) from fossil fuel-fired electric generating units (EGUs) located in this Commonwealth, with a nameplate capacity equal to or greater than 25 megawatts (MWe).

This proposed rulemaking is given under Board order at its meeting of September 15, 2020.

A. ***Effective Date***

This proposed rulemaking will be effective upon final-form publication in the *Pennsylvania Bulletin*.

B. ***Contact Persons***

For further information, contact Virendra Trivedi, Chief, Division of Permits, Bureau of Air Quality, Rachel Carson State Office Building, P.O. Box 8468, Harrisburg, PA 17105-8468, (717) 783-9476; or Jennie Demjanick, Assistant Counsel, Bureau of Regulatory Counsel, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Information regarding submitting comments on this proposed rulemaking appears in Section J of this preamble. Persons with a disability may use the Pennsylvania AT&T Relay Service, (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposed rulemaking is available on the Department of Environmental Protection's (Department) web site at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board (EQB)").

C. ***Statutory Authority***

This proposed rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 6.3(a) of the APCA (35 P.S. § 4006.3(a)) also authorizes the Board by regulation to establish fees to support the air pollution control program authorized by this act and not covered by fees required by section 502(b) of the Clean Air Act (CAA).

D. ***Background and Purpose***

The purpose of this proposed rulemaking is to reduce anthropogenic emissions of CO_2, a greenhouse gas (GHG) and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment in this Commonwealth. This proposed rulemaking would reduce CO_2 emissions from sources within this Commonwealth and establish

the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI), a regional CO_2 Budget Trading Program. This proposed rulemaking would establish a CO_2 Budget Trading Program for this Commonwealth which is capable of linking with similar regulations in states participating in RGGI ("participating states"). These independently promulgated and implemented CO_2 Budget Trading Program regulations together make up the regional CO_2 Budget Trading Program or "RGGI."

This proposed rulemaking would effectuate least cost CO_2 emission reductions for the years 2022 through 2030. The declining CO_2 Emissions Budget in this proposed rulemaking directly results in CO_2 emission reductions of around 20 million short tons in this Commonwealth as well as emission reductions across the broader PJM regional electric grid. However, the Department projects that 188 million short tons of CO_2 that would have been emitted over the next decade are avoided by this Commonwealth's participation in RGGI. According to data from the United States Energy Information Administration (EIA), this Commonwealth generates the 4th most CO_2 emissions from EGUs in the country. Since CO_2 emissions are a major contributor to regional climate change impacts, the Department developed this proposed rulemaking to establish this Commonwealth's participation in a regional approach that significantly reduces CO_2 emissions and this Commonwealth's contribution to regional climate change.

Request for Comments

The Board will provide for a comment period for a minimum of 60 days and hold public hearings in impacted areas of this Commonwealth, as required under the APCA. During the comment period, the Department is seeking comment on potential approaches for the implementation of this proposed rulemaking that would address equity and environmental justice concerns in this Commonwealth. The Department is also seeking comment on potential approaches that would assist the transition of workers and communities in a just and equitable manner as this Commonwealth continues on a path to cleaner electricity generation. Lastly, the Department is seeking comment on ways to appropriately address the benefits of cogeneration in this Commonwealth, including the allocation of CO_2 allowances similar to the waste coal set-aside provision.

Climate Change Impacts and the Greenhouse Effect

Like every state in the country, this Commonwealth has already begun to experience adverse impacts from climate change, such as higher temperatures, changes in precipitation, and frequent extreme weather events, including large storms, flooding, heat waves, heavier snowfalls, and periods of drought. These impacts could alter the many fundamental assumptions about climate that are intrinsic to this Commonwealth's infrastructure, governments, businesses and the stewardship of its natural resources and environment. If not properly accounted for, changes in climate could result in more frequent road washouts, higher likelihood of power outages, and shifts in economic activity, among other significant impacts. Climate change can also affect vital determinants of health such as clean air, safe drinking water, sufficient food, and secure shelter. These vital determinants are particularly affected by the increased extreme weather events, in addition to decreased air quality and an increase in illnesses transmitted by food, water, and

disease carriers such as mosquitos and ticks. If these impacts are to be avoided, GHG emissions must be reduced expeditiously.

The impacts of climate change are vast and what was predicted ten years ago is being confirmed today. Climate change impacts are being caused by the emission and atmospheric concentration of GHGs, namely CO_2. Scientists have confirmed that increased CO_2 emissions from human activity are causing changes to global climate. Ninety-seven% of the actively publishing climate scientists agree that climate warming trends over the past century are extremely likely due to human activities. Major scientific institutions including the U.S. National Academy of Sciences, the U.S. Global Change Research Program (USGCRP), the American Medical Association, the American Association for the Advancement of Science, and many others endorse this position. In the Fifth Assessment Report of the International Panel on Climate Change (IPCC) released in 2014, the IPCC concluded that, "human influence on the climate system is clear, and recent anthropogenic emissions of GHGs are the highest in history." See IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

While CO_2 is a necessary element of life on Earth and acts as a fundamental aspect of nearly every critical system on the planet, CO_2 in high concentrations in the atmosphere leads to the greenhouse effect. The greenhouse effect occurs when CO_2 (and other GHG) molecules absorb solar energy and re-emit infrared energy back to the Earth's surface. This absorption and re-emitting of infrared energy is what makes certain gases trap heat in the lower atmosphere, not allowing it to go back out to space. The greenhouse effect disrupts the normal process whereby solar energy is absorbed at the Earth's surface and is radiated back through the atmosphere and back to space. Maintaining the surface temperature of the Earth depends on this balance of incoming and outgoing solar radiation. See the National Aeronautics and Space Administration, "The Causes of Climate Change," https://climate.nasa.gov/causes/.

Global temperatures are increasing due to the greenhouse effect. Significantly changing the global temperature has impacts to every other weather and climate cycle occurring across the world. For instance, global average sea level, which has risen by about 7–8 inches since 1900 (with about 3 inches of that increase occurring since 1993), is expected to rise at least several inches in the next 15 years and by 1–4 feet by 2100. The impacts of increased GHGs in the atmosphere, including extreme weather and catastrophic natural disasters, have become more frequent and more intense. Extreme weather events also contribute to deaths from extreme heat or cold exposure and lost work hours due to illness. The World Health Organization expects climate change to cause around 250,000 additional deaths globally per year between 2030-2050, with additional direct damage costs to health estimated to be around $2-4 billion per year by 2030. Based on the overwhelming scientific evidence, these harms are likely to increase in number and severity unless aggressive steps are taken to reduce GHG emissions.

Climate Change Impacts Assessments

In 2009, the Department released its first Climate Change Impacts Assessment and Climate Change Action Plan, as required under the Pennsylvania Climate Change Act (71 P.S. § 1361.1—13.61.8). The 2009 Climate Change Impacts Assessment showed that this

Commonwealth was already experiencing some of the harmful effects of climate change. That same year, under CAA section 202(a)(1), 42 U.S.C.A. § 7521(a)(1), the EPA issued an "Endangerment Finding," that six GHGs — CO2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride — endanger both the public health and the public welfare of current and future generations by causing or contributing to climate change. See 74 FR 66496 (December 15, 2009). While the EPA's 2009 endangerment finding was issued for motor vehicles, the EPA referenced the information on endangerment of public health and welfare found in the 2009 endangerment finding as the required information for the recent promulgation of "Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units," commonly known as the "Affordable Clean Energy Rule or ACE rule," which regulates stationary sources. See 84 FR 32520, 32534 n.146 (July 8, 2019). Additionally, the 2009 Endangerment Finding is further reinforced by the findings of the USGCRP's Fourth National Climate Assessment (NCA4) which is consistent with the Commonwealth's 2015 and 2020 Climate Change Impacts Assessments. While these Federal studies inform the Department's decision to regulate CO_2 emissions with this Commonwealth, they are not determinative because this proposed rulemaking would be promulgated by the Board under the authority of the APCA, not the CAA.

In 2015, the Environment and Natural Resources Institute at Penn State University released an updated Climate Change Impacts Assessment for the Department. The 2015 Climate Change Impacts Assessment found that this Commonwealth has undergone a long-term warming of more than 1.8°F over the prior 110 years, and that due to increased GHG emissions, current warming trends are expected to increase at an accelerated rate with average temperatures projected to increase an additional 5.4 degrees by 2050. This warming will have potential adverse impacts related to Pennsylvania agriculture, forests, aquatic ecosystems, water resources, wildlife and public health. In this Commonwealth, average annual precipitation has increased by approximately 10% over the past 100 years and, by 2050, is expected to increase by an additional 8%, with a 14% increase during the winter season.

In particular, climate change will worsen air quality relative to what it would otherwise be, causing increased respiratory and cardiac illness. Air quality impacts from climate change are due to the combination of pollutants emitted from anthropogenic sources and weather conditions. Climate change can potentially also worsen water quality, affecting health through consumption of diminished quality drinking water and through contact with surface waters during outdoor recreation. The risk of injury and death from extreme weather events could also increase as a consequence of climate change. Additionally, climate change could affect the prevalence and virulence of air-borne infectious diseases such as influenza. In April 2020, the Environment and Natural Resources Institute at Penn State University released an updated Climate Change Impacts Assessment for the Department, which states that the expected disruptions to this Commonwealth's climate and impacts on this Commonwealth's climate sensitive sectors remain as dire as presented in the 2015 Climate Change Impacts Assessment.

On November 23, 2018, the USGCRP released the NCA4, a scientific assessment of the national and regional impacts of natural and human-induced climate change. See U.S. Global Change Research Program, "Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II," (D.R. Reidmiller et al. eds., 2018),

https://nca2018.globalchange.gov/. The NCA4 represents the work of over 300 government and non-government experts, led by experts within the U.S. Environmental Protection Agency (EPA), the U.S. Department of Energy and eleven other federal agencies. The NCA4 shows how the impacts of climate change are already occurring across the country and emphasizes that future risks from climate change will depend on the decisions made today. It is worth noting that the NCA4 mentions that the Northeast region is a model for other states, as it has traditionally been a leader in GHG mitigation action.

By 2035, the NCA4 projects that the Northeast will see the largest temperature increase in the country of more than 3.6°F on average higher than the preindustrial era. This would occur as much as two decades before global average temperatures reach a similar milestone. The changing climate of the Northeast threatens the health and public welfare of its residents and will lead to health-related impacts and costs, including additional deaths, emergency room visits and hospitalizations, higher risk of infectious diseases, lower quality of life and increased costs associated with healthcare utilization. Mosquitoes, fleas and ticks and the diseases they carry have been a particular concern in the Northeast in recent years. Scientists have linked these diseases, specifically tick-related Lyme disease, to climate change.

Climate change also threatens to reverse the advances in air quality that the states in the Northeast, including this Commonwealth, have worked so hard to achieve over the past couple of decades. In particular, climate change will increase levels of ground-level ozone pollution in the Northeast through changes in weather and increased ozone precursor emissions. Ozone is an irritant and repeated exposure to ozone pollution for both healthy people and those with existing conditions may cause a variety of adverse health effects, including difficulty in breathing, chest pains, coughing, nausea, throat irritation and congestion. In addition, people with bronchitis, heart disease, emphysema, asthma and reduced lung capacity may have their symptoms exacerbated by ozone pollution. Asthma, in particular, is a significant and growing threat to children and adults in this Commonwealth. The NCA4 refers to this reversal as a "climate penalty" and projects it could cause hundreds more ozone pollution-related deaths per year.

Over the past several decades, the Department has made substantial progress in decreasing ground-level ozone pollution in this Commonwealth, including limiting precursor emissions. However, Bucks, Chester, Delaware, Montgomery and Philadelphia counties are designated as marginal nonattainment areas for the 2015 ozone national ambient air quality standards (NAAQS). See 83 FR 25776 (June 4, 2018). There is still more work that needs to be done to reduce emissions in these nonattainment areas and to avoid backsliding on the improvements to air quality across this Commonwealth. An increase in ground-level ozone levels due to climate change would interfere with continued attainment of the ozone NAAQS, hinder progress in marginal nonattainment areas and put public health and welfare at risk.

Immediate Action is Needed to Address this Commonwealth's Contribution to Climate Change

Given the urgency of the climate crisis, including the significant impacts on this Commonwealth, the Board determined that concrete, economically sound and immediate steps to reduce GHG emissions are necessary. As one of the top GHG emitting states in the country, the Board has a compelling interest to reduce GHG emissions to address climate change and protect public

health, welfare and the environment. Based on the most recent data from the EPA's State Inventory Tool, in 2017, this Commonwealth generated net GHG emissions equal to 233.20 million metric tons CO_2 equivalent (MMTCO2e) Statewide, the vast majority of which are CO_2 emissions. In the context of the world, this Commonwealth's electricity generation sector alone emits more CO_2 than many entire countries including Greece, Colombia, Sweden, Israel, Singapore, Austria, Peru and Portugal. See Joint Research Centre, European Commission, "JRC Science for Policy Report: Fossil CO_2 emissions of all world countries," 2018, https://ec.europa.eu/jrc/en/publication/fossil-co2-emissions-all-world-countries-2018-report.

Historically, the electricity generation sector has been the leading source of CO_2 emissions in this Commonwealth. Based upon data contained in the Department's 2020 GHG Inventory, 29% of this Commonwealth's total GHG emissions are produced by the electricity generation sector. In recent years, this Commonwealth has seen a shift in the electricity generation portfolio mix, resulting from market forces and the establishment of alternative energy goals, and energy efficiency targets. Since 2005, this Commonwealth's electricity generation has shifted from higher carbon-emitting electricity generation sources, such as coal, to lower and zero emission generation sources, such as natural gas, wind and solar. At the same time, overall energy use in the residential, commercial, transportation, and electric power sectors has reduced.

However, looking forward, the Department projects CO_2 emissions from the electricity generating sector will increase due to reduced switching from coal to natural gas, the potential closure of zero carbon emitting nuclear power plants, and the addition of new natural gas-fired units in this Commonwealth. The Three Mile Island nuclear power plant already closed on September 20, 2019, amounting to a loss of 818 MW of carbon free generation. However, the modeling conducted for this proposed rulemaking predicts no further nuclear power plant retirements through 2030 with implementation of this proposed rulemaking. Without this proposed rulemaking, this Commonwealth's nuclear fleet may remain at-risk of closure. In fact, the Beaver Valley nuclear power plant, responsible for 1,845 MW of carbon free generation, recently withdrew its closure announcement, specifically citing this Commonwealth's intended participation in RGGI as a key determinant in continuing operations.

This proposed rulemaking is necessary to ensure CO_2 emissions continue to decrease and at a rate that shields this Commonwealth from the worst impacts of climate change. RGGI plays an important role in providing a platform whereby this Commonwealth can reduce CO_2 emissions using a market-based approach. As the electricity generation sector remains one of the leading sources of CO_2 in this Commonwealth, it is imperative that emissions continue to decrease from that sector.

The Commonwealth's GHG Emission Reduction Goals

On January 8, 2019, Governor Wolf signed Executive Order 2019-01, *Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance*. This Executive Order set the first ever climate change goal for this Commonwealth to reduce net GHG emissions from 2005 levels by 26% by 2025 and 80% by 2050. These climate change goals align this Commonwealth with the reduction targets under the Paris Agreement aimed at keeping global temperature rise below the 2-degree Celsius threshold.

According to climate experts, the 2-degree Celsius threshold is the level beyond which dire global consequences would occur, including sea level rise, superstorms and crippling heat waves.

On April 29, 2019, the Department issued a Pennsylvania Climate Action Plan that identified GHG emission trends and baselines in this Commonwealth and recommended cost-effective strategies for reducing or offsetting GHG emissions. The Climate Action Plan determined that reducing the overall carbon intensity of the electricity generated in this Commonwealth is one of the most critical strategies for reducing GHG emissions. The Climate Action Plan also identified many different strategies and actions that all Pennsylvanians can take to combat climate change. According to the Climate Action Plan, one of the most cost-effective emissions reduction strategies is to limit CO_2 emissions through an electricity sector cap and trade program. This Commonwealth participating in a cap and trade program is expected to result in the largest near-term reduction in emissions and was deemed cost-effective relative to the social cost of carbon. The Climate Action Plan modeled a cap and trade program that requires a carbon cap equal to a 30% reduction from 2020 CO_2 emissions levels by 2030, which is equivalent to RGGI stringency.

On October 3, 2019, Governor Wolf signed Executive Order 2019-07, *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions*, which directed the Department to use its existing authority under the APCA to develop this proposed rulemaking to abate, control or limit CO_2 emissions from fossil fuel-fired electric power generators. The Executive Order also directed the Department to present this proposed rulemaking to the Board by July 31, 2020. On June 22, 2020, Governor Wolf amended the Executive Order to extend the deadline to September 15, 2020. As directed by the Executive Order, this proposed rulemaking establishes a CO_2 budget consistent in stringency to that established by the participating states, provides for the annual or more frequent auction of CO_2 emissions allowances through a market-based mechanism, and is sufficiently consistent with the RGGI Model Rule such that CO_2 allowances may be traded with holders of allowances from other states.

Considering that this Commonwealth has the fourth leading CO_2 emitting electricity generation sector in the country, this proposed rulemaking is a significant component in achieving the Commonwealth's goals to reduce GHG emissions. Although this proposed rulemaking will not solve global climate change, it will aid this Commonwealth in addressing its share of the impact, joining other states and countries that are addressing their own impacts. The statutory authority for this proposed rulemaking, the APCA, is built on a precautionary principle to protect the air resources of this Commonwealth for the protection of public health and welfare and the environment, including plant and animal life and recreational resources, as well as development, attraction and expansion of industry, commerce and agriculture. In order to be proactive, this proposed rulemaking is needed to address this Commonwealth's contributions to climate change, particularly CO_2 emissions. The Board determined to address CO_2 emissions through a regional initiative because regional cap and trade programs have proven to be beneficial and cost-effective at reducing air pollutant emissions. In fact, this Commonwealth has and continues to participate in successful regional cap and trade programs.

History and Success of this Commonwealth's Participation in Cap and Trade Programs

In the 1990 CAA Amendments, the United States Congress determined that the use of market-based principles, such as emissions banking and trading are effective ways of achieving emission reductions. According to the EPA, emissions trading programs are best implemented when the environment and public health concerns occur over a relatively large geographic area and effectively designed emissions trading programs provide flexibility for individual emissions sources to tailor their compliance path to their needs. The EPA has also determined that reducing emissions using a market-based system provides regulated sources with the flexibility to select the most cost-effective approach to reduce emissions and has proven to be a highly effective way to achieve emission reductions, meet environmental goals, and improve human health. In contrast to traditional command and control regulatory methods that establish specific emissions limitations and technology use with limited or no flexibility, cap and trade programs harness the economic incentives of the market to reduce pollution. The Board has a decades-long history of promulgating regulations that have established this Commonwealth's participation in successful cap and trade programs.

Beginning in 1995, this Commonwealth participated in the first national cap and trade program in the United States, the Acid Rain Program, which was established under Title IV of the 1990 CAA Amendments and required, in part, major emission reductions of sulfur dioxide (SO_2) through a permanent cap on the total amount emitted by EGUs. For the first time, the Acid Rain Program introduced a system of allowance trading that used market-based incentives to reduce pollution. The Acid Rain Program reduced SO_2 emissions by 14.5 million tons (92%) from 1990 levels and 16.0 million tons (93%) from 1980 levels. The undisputed success of achieving significant emission reductions in a cost-effective manner led to the application of the market-based cap and trade tool for other regional environmental problems.

From 1999 to 2002, this Commonwealth participated in the Ozone Transport Commission's (OTC) NO_x Budget Program, an allowance trading program designed to reduce summertime NO_x emissions from EGUs to reduce ground-level ozone, which included all of the current states participating in RGGI. According to the OTC's NO_x Budget Program 1999-2002 Progress Report, NO_x Budget Program units successfully reduced ozone season NO_x emissions in 2002 by nearly 280,000 tons, or about 60%, from 1990 baseline levels, achieving greater reductions than required each year of the program. Based on the success of the OTC's NO_x Budget Program and the Acid Rain Program, in 2003 the EPA implemented a regional NO_x cap and trade program under the NO_x SIP Call, which closely resembled the OTC NO_x Budget Program. The EPA again noted the cost savings of achieving emissions reductions through trading.

Beginning in 2009, the EPA's NO_x Budget Trading Program was replaced by the Clean Air Interstate Rule (CAIR) trading program, covering 28 eastern states, which required further summertime NO_x reductions from the power sector as well as SO_2 reductions. Finally, in 2015 CAIR was replaced by the Cross-State Air Pollution Rule trading program.

Authority to regulate CO_2 Emissions through a Cap and Trade Program

While the Department developed this proposed rulemaking under the direction of Executive Order 2019-07, the Board has the authority to promulgate this proposed rulemaking under the APCA. Through the APCA, the Legislature granted the Department and the Board the authority to protect the air resources of this Commonwealth, which is inclusive of controlling CO_2 pollution. CO_2 falls under the definition of "air pollution" in section 3 of the APCA (35 P.S. § 4003). The Board has the authority under section 5(a)(1) of the APCA to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Further, the Commonwealth Court has found that the regulation of air pollution has long been a valid public interest. *See e.g., Bortz Coal Co., v. Commonwealth,* 279 A.2d 388, 391 (Pa. Cmwlth. 1971); *DER v. Pennsylvania Power Co.,* 384 A.2d 273, 284 (Pa. Cmwlth. 1978); *Commonwealth v. Bethlehem Steel Corporation,* 367 A.2d 222, 225 (Pa. 1976). Moreover, the Commonwealth Court has endorsed the Department's position that the General Assembly, through the APCA, gave the agency the authority to reduce GHG emissions, including CO_2. *Wolf v. Funk,* 144 A.3d 228, 250 (Pa. Cmwlth. 2016).

As mentioned previously, numerous sources, including the EPA, the Penn State University, the USGCRP and the IPCC, have confirmed that CO_2 emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life. CO_2 is also a GHG and the largest contributor to climate change. Thus, regulating sources of CO_2 emissions is necessary to protect the public health and welfare from harmful air pollution and to address climate change.

As mentioned previously, this Commonwealth has and continues to participate in cap and trade programs. Specifically, the Board promulgated the NO_x Budget Trading Program in Chapter 145, Subchapter A (relating to NO_x Budget Trading Program) and the CAIR NO_x and SO_2 Trading Programs in Chapter 145, Subchapter D (relating to CAIR NO_x and SO_2 Trading Programs). See 30 Pa.B. 4899 and 38 Pa.B. 1705. Although those cap and trade program regulations were promulgated in response to initiatives at the Federal level, both subchapters were promulgated under the broad authority of section 5(a)(1) of the APCA, as is this proposed rulemaking. The statutory authority granted to the Board under section 5(a)(1) of the APCA is broad and unrestrictive related to the adoption of any rule or regulation for the "prevention, control, reduction and abatement of air pollution." The comprehensive scope of this directive provides the Board with the discretion to promulgate a trading program to reduce CO_2 emissions from fossil fuel-fired EGUs in this Commonwealth.

Regional Greenhouse Gas Initiative (RGGI)

RGGI is a cooperative regional market-based cap-and-trade program designed to reduce CO_2 emissions from fossil fuel-fired EGUs. RGGI is currently composed of ten northeastern states, including Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. Since its inception on January 1, 2009, RGGI has utilized a market-based mechanism to cap and cost-effectively reduce CO_2 emissions that cause climate change. Because CO_2 from large fossil fuel-fired EGUs is a major contributor to regional climate change, the participating states developed a regional approach to address CO_2

emissions. This regional approach resulted in a Model Rule applicable to fossil fuel-fired EGUs with a nameplate capacity equal to or greater than 25 MWe. RGGI is implemented in the participating states through each state's independent CO_2 Budget Trading Program regulations, based on the Model Rule, which link together.

RGGI is a "cap and trade" program that sets a regulatory limit on CO_2 emissions from fossil fuel-fired EGUs and permits trading of CO_2 allowances to effect cost efficient compliance with the regulatory limit. RGGI is also referred to as a "cap and invest" program, because unlike traditional cap and trade programs, RGGI provides a "two-prong" approach to reducing CO_2 emissions from fossil fuel-fired EGUs. The first prong is a declining CO_2 emissions budget and the second prong involves investment of the proceeds resulting from the auction of CO_2 allowances to further reduce CO_2 emissions.

CO_2 Emissions Budget and CO_2 Allowance Budget

Each participating state establishes its own annual CO_2 emissions budget which sets the total amount of CO_2 emitted from fossil fuel-fired EGUs in a year. What is commonly referred to as the "RGGI cap" on emissions is a reference to the total of all the state CO_2 emissions budgets. This proposed rulemaking includes a declining annual CO_2 emissions budget, which starts at 78,000,000 tons in 2022 and ends at 58,085,040 tons in 2030. This is anticipated to reduce CO_2 emissions in this Commonwealth by 31% compared to 2019. The declining annual CO_2 emissions budget is equivalent to the CO_2 allowance budget, which is the number of CO_2 allowances available each year. A CO_2 allowance represents a limited authorization by the Department or a participating state under the CO_2 Budget Trading Program to emit up to one ton of CO_2. The number of CO_2 allowances available each year decreases along with the CO_2 emissions budget.

One of the benefits of participating in a regional market-based program is that CO_2 allowances are fungible across the participating states. This means that regulated sources within this Commonwealth may, at their option, purchase or sell CO_2 allowances with other regulated sources inside or outside of this Commonwealth. Although this Commonwealth has an established CO_2 allowance budget for each year, this Commonwealth's CO_2 allowances are available to meet the compliance obligations in any other participating state and vice versa at the option of those regulated sources. Therefore, CO_2 emissions from this Commonwealth's power sector are not "capped" by the CO_2 emissions budget, meaning they are not limited to strictly the amount of this Commonwealth's CO_2 allowances. This provides additional compliance flexibility and the regional market assists in achieving least cost compliance for all participating states.

Consistent with Framework of the RGGI Model Rule

As mentioned previously, the participating states developed a Model Rule to use as the framework for each state's independent CO_2 Budget Trading Program regulation. The development of the RGGI Model Rule was supported by an extensive regional stakeholder process that engaged the regulated community, environmental non-profits and other organizations with technical expertise in the design of cap and trade programs. The Board is

familiar with the structure of the RGGI Model Rule, because it was drafted based on the language in the EPA's NO_x Budget Trading Program rule in 40 CFR Part 96 (relating to NO_x budget trading program and CAIR NO_x and SO_2 trading programs for state implementation plans), which the Board used as a model for Chapter 145, Subchapter A.

States that participate in RGGI develop regulations that are compatible with the RGGI Model Rule to ensure consistency among the individual programs. Key areas of compatibility include alignment of the main program elements, stringency of the CO_2 allowance budgets and consistency of regulatory language. This consistency is necessary to ensure the fungibility of CO_2 allowances across the participating states, which supports the regional trading of CO_2 allowances and the use of a CO_2 allowance issued in one participating state for compliance by a regulated source in another participating state.

This proposed rulemaking therefore adopts the main program elements of the RGGI Model Rule, including the definitions, applicability, standard regulatory requirements, monitoring and reporting requirements, the CO_2 Allowance Tracking System (COATS), the emissions containment reserve, the cost containment reserve and the CO_2 emissions offset project provisions. The CO_2 allowance budgets in this proposed rulemaking are sufficiently stringent to align with RGGI's goal of reducing CO_2 emissions by 30% from 2020 to 2030. This proposed rulemaking also contains regulatory language consistent with the RGGI, Inc. auction platform, the online platform used to sell CO_2 allowances. RGGI, Inc. is a nonprofit corporation created to provide technical and administrative support services to the participating states in the development and implementation of their CO_2 Budget Trading Programs. Each participating state is also allotted two positions on the Board of Directors of RGGI, Inc. Under this proposed rulemaking, RGGI, Inc. would provide technical and administrative services to support the Department's implementation of this proposed rulemaking. This support would include maintaining COATS and the auction platform and providing assistance with market monitoring. Any assistance provided by RGGI, Inc. would follow the requirements of this proposed rulemaking. RGGI, Inc. has neither any regulatory or enforcement authority within this Commonwealth nor the ability to restrict or interfere with the Department's implementation of this proposed rulemaking.

Each participating state's regulation provides for the distribution of CO_2 allowances from its CO_2 allowance budget. The majority of CO_2 allowances are distributed at auction and each CO_2 allowance sold at auction returns proceeds from the sale to that state to invest in energy efficiency, renewable energy, and GHG abatement programs. Some states have elected to designate a limited amount of CO_2 allowances to be "set-aside" in a designated account and distributed to advance individual state policy goals and objectives. Since this proposed rulemaking is consistent with the RGGI Model Rule, the Commonwealth's CO_2 allowances will have equal value to the CO_2 allowances held in the other participating states, meaning they may be freely acquired and traded across the region.

Although CO_2 allocation provisions may vary from state to state, to be consistent with the RGGI Model Rule each participating state allocates a minimum of 25% of its CO_2 allowance budget to a general account from which CO_2 allowances will be sold or distributed in order to provide funds for energy efficiency measures, renewable or noncarbon-emitting energy technologies, and

CO_2 emissions abatement technologies, as well as programmatic costs. Consistent with the RGGI Model Rule, this proposed rulemaking establishes a general account from which CO_2 allowances will be sold or distributed, which is labeled as the Department's air pollution reduction account. Each year, the Department will allocate CO_2 allowances representing 100% of the tons of CO_2 emitted from the Commonwealth's CO_2 allowance budget to the air pollution reduction account, except for the CO_2 allowances that the Department has set aside for a designated purpose as discussed in the following section. CO_2 allowances in the air pollution reduction account will be sold or distributed in order to provide funds for use in the elimination of air pollution and programmatic costs.

Modifications from RGGI Model Rule

While this proposed rulemaking is sufficiently consistent with the Model Rule and corresponding regulations in the participating states, the Board, in the exercise of its own independent rulemaking authority, also accounts for the unique environmental, energy and economic intricacies of this Commonwealth. This provides the Board the flexibility to limit CO_2 emissions from fossil fuel-fired EGUs in a way that aligns with the other participating states, while tailoring this proposed rulemaking to this Commonwealth's energy markets. In this proposed rulemaking, the Board made modifications from the language in the Model Rule to include permitting requirements and definitions specific to this Commonwealth, as well as stylistic changes. The Board also made adjustments to the language, including the adjustment for banked allowances and control periods, to reflect the timing of this Commonwealth's participation in RGGI. In addition to these modifications, there are five main areas in which this proposed rulemaking differs from the Model Rule.

First, under § 145.342(i) (relating to CO_2 allowance allocations) of this proposed rulemaking, the Department will set aside 9,300,000 CO_2 allowances at the beginning of each year for waste coal-fired units located in this Commonwealth. The Board is establishing this waste coal set-aside in this proposed rulemaking because waste coal-fired units provide an environmental benefit of reducing the amount of waste coal piles in this Commonwealth. Reducing waste coal piles is a significant environmental issue in this Commonwealth, because waste coal piles cause air and water pollution, as well as safety concerns. Waste coal-fired units burn waste coal to generate electricity thereby reducing the size, number and impacts of these piles otherwise abandoned and allowed to mobilize and negatively impact air and water quality in this Commonwealth. In recent years, waste coal-fired units have struggled to compete in the energy market, due in part to low natural gas prices, and several units have shut down or announced anticipated closure dates. Given the environmental benefit provided, the Board determined that it is necessary to assist owners or operators of waste coal-fired units with meeting their compliance obligation under this proposed rulemaking. This legacy environmental issue from this Commonwealth's long history of coal mining further underscores why it is vital to not leave additional environmental issues, like climate change, for future generations to solve.

By providing a set aside, as opposed to an exemption, the CO_2 emissions from waste coal-fired units are included in this Commonwealth's CO_2 emissions budget and owners or operators of waste coal-fired units are still required to satisfy compliance of all the regulatory requirements in this proposed rulemaking. After reviewing the last 5 years of CO_2 emission data from waste

coal-fired units, the Department determined that the CO_2 allowance set aside should be equal to the total of each waste coal-fired unit's highest year of CO_2 emissions from that 5-year period. That total is 9,300,000 tons of CO_2 emissions. Thus, the Department will set aside 9,300,000 CO_2 allowances annually. Each year, the Department will allocate the CO_2 allowances directly to the compliance accounts of the waste coal-fired units equal to the unit's actual emissions. However, if the waste coal-fired units emit over 9,300,000 tons of CO_2 emissions sector-wide in any year, then the units must acquire the remaining CO_2 allowances needed to satisfy their compliance obligation.

Second, this proposed rulemaking also includes the establishment of a strategic use set-aside allocation under § 145.342(j). By April 1 of each calendar year, the Department will allocate any undistributed CO_2 allowances from the waste coal set-aside to the strategic use set-aside account. Since generation from waste coal-fired units has been declining in this Commonwealth, waste coal fired-units may emit less than 9,300,000 tons each year and the Department will be left with undistributed CO_2 allowances. Under the strategic use set-aside, the Department will allocate these undistributed CO_2 allowances directly to eligible projects that eliminate air pollution. The Board is establishing the strategic use set-aside particularly to encourage and foster promotion of energy efficiency measures, promote renewable or noncarbon-emitting energy technologies, and stimulate or reward investment in the development of innovative carbon emissions abatement technologies.

Third, this proposed rulemaking includes a set-aside provision under § 145.342(k) for cogeneration units, including combined heat and power systems (CHP). The Board is establishing this set-aside because cogeneration units concurrently produce electricity and useful thermal energy, making them energy efficient and environmentally beneficial. Under the cogeneration set-aside, the Department will adjust the compliance obligation of a cogeneration unit by reducing the total CO_2 emissions by an amount equal to the CO_2 that is emitted as a result of providing useful thermal energy or electricity, or both, supplied directly to a co-located facility during the allocation year. The Department will only provide CO_2 allowances in this set-aside equal to the compliance adjustment. The cogeneration unit will be responsible for obtaining the remaining CO_2 allowances needed to satisfy the unit's compliance obligation. Unlike the waste coal set-aside, the Department would not distribute CO_2 allowances directly to the unit, but rather retire CO_2 allowances on behalf of the unit in order to reduce its compliance obligation. Also, cogeneration units must fill out an application and provide information to the Department to receive a compliance adjustment.

Fourth, under § 145.305 (relating to limited exemption for CO_2 budget units with electrical output to the electric grid restricted by permit conditions) of this proposed rulemaking, the Board provides additional flexibility in the form of a limited exemption for cogeneration units that are interconnected and supply power to a manufacturing facility. A cogeneration unit that supplies less than 15% of its annual total useful energy to the electric grid, not including energy sent to the interconnected manufacturing facility, does not have a compliance obligation under this proposed rulemaking. The owner or operator of the cogeneration unit claiming this limited exemption must have a permit issued by the Department containing a condition restricting the supply to the electric grid. This limited exemption is in addition to the exemption in the RGGI Model Rule for fossil fuel-fired EGUs with a capacity of 25 MWe or greater that supply less than

10% of annual gross generation to the electric grid. The Board is including this additional exemption for cogeneration units that primarily send energy to an interconnected manufacturing facility because these cogeneration units provide a CO_2 emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the manufacturing facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO_2 emissions.

Lastly, this proposed rulemaking adds regulatory language on the procedure for auctioning CO_2 allowances, which is not contained in the RGGI Model Rule. Several participating states have also added auction procedure language to their CO_2 Budget Trading Program regulations or developed separate auction regulations. By including the auction procedure in this proposed rulemaking, the Board seeks to ensure that auction participants fully understand the auction process and the associated requirements.

In the auction procedure section of this proposed rulemaking, § 145.401 (relating to auction of CO_2 allowances), the Board states that the Department will participate in multistate CO_2 allowance auctions in coordination with other participating states based on specific conditions. First, a multistate auction capability and process must be in place for the participating states. A multistate auction must also provide benefits to this Commonwealth that meet or exceed the benefits conferred on this Commonwealth through a Pennsylvania-run auction process. The criteria that the Department will use to determine if the multistate auction "meets or exceeds the benefits" of a Pennsylvania-run auction are whether the auction results in reduced emissions and environmental, public health and welfare, and economic benefits. As discussed further under Section F, participation in RGGI would provide those benefits to this Commonwealth. Additionally, the multistate auction process must be consistent with the process described in this proposed rulemaking and include monitoring of each CO_2 allowance auction by an independent market monitor. Since the multistate auctions conducted by RGGI, Inc. satisfy all four of the conditions, the Department will participate in the multistate auctions. However, the Board also states that if the Department finds these four conditions are no longer met, the Department may determine to conduct a Pennsylvania-run auction. By including the ability to conduct a Pennsylvania-run action in this proposed rulemaking, the Board provides for flexibility in case the benefits of the multistate auctions diminish in the future.

Compliance and the RGGI CO_2 Allowance Tracking System (COATS)

Under § 145.304 (relating to applicability) of this proposed rulemaking, the owner or operator of a fossil-fuel-fired EGU with a nameplate capacity equal to or greater than 25 MWe that sends more than 10% of its annual gross generation to the electric grid would have a compliance obligation. These regulated EGUs are referred to as "CO_2 budget units" and a facility that includes one or more CO_2 budget units is a "CO_2 budget source." Under § 145.306 (relating to standard requirements) of this proposed rulemaking, the owner or operator of each CO_2 budget source will be required to have a permit under Chapter 127 (relating to construction, modification, reactivation and operation of sources) which incorporates the requirements of the CO_2 Budget Trading Program. The owner or operator will be required to operate the CO_2 budget source and each CO_2 budget unit at the source in compliance with the permit.

Based on the most recent data from the EPA's Clean Air Market Division, the EIA and the Department's emission inventory, the Department estimates that as of the end of 2019, 57 CO_2 budget sources (facilities) with 140 CO_2 budget units (EGUs) would have a compliance obligation under this proposed rulemaking. However, due to the dynamic nature of the electricity generation sector, the number of covered facilities will likely change by the implementation date, January 1, 2022, of this proposed rulemaking. The Department projects based on announced closures and future firm capacity builds that on January 1, 2022 there will be 62 CO_2 budget sources with 150 CO_2 budget units with a compliance obligation under this proposed rulemaking. The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this proposed rulemaking and determined that around 99% of this Commonwealth's power sector CO_2 emissions would be covered under this proposed rulemaking.

Within the participating states and under this proposed rulemaking, the owner or operator of a CO_2 budget unit must obtain one CO_2 allowance for each ton of CO_2 emitted from the CO_2 budget unit each year. The owner or operator may use a CO_2 allowance issued by any participating state to demonstrate compliance with any state's regulation, including this proposed rulemaking. RGGI operates on three-year control periods for compliance, meaning full compliance is evaluated at the end of each three-year control period. As described under § 145.306(c), at the end of a control period, the owner or operator is required as a permit condition to hold enough CO_2 allowances in their compliance account to cover the CO_2 budget source's CO_2 emissions during the period. The owner or operator must also show interim control period compliance during each of the first two calendar years of a control period. During each interim control period, the owner or operator must hold CO_2 allowances equal to 50% of CO_2 emissions in the compliance account for the CO_2 budget source. As outlined under § 145.355 (relating to compliance), at the end of the control period or interim control period, CO_2 allowances will be deducted from each CO_2 budget source's compliance account to cover each of the CO_2 budget unit's CO_2 emissions at the source for the control period or interim control period.

All owners or operators of CO_2 budget sources are required to open a compliance account in COATS in order to transfer and hold CO_2 allowances for compliance purposes. The Department will use COATS to determine compliance with this proposed rulemaking by comparing the covered emissions of a CO_2 budget source with the CO_2 allowances held in its compliance account. COATS is a publicly accessible platform that records and tracks data for each state's CO_2 Budget Trading Program, including the transfer of CO_2 allowances that are offered for sale by the participating states and purchased in the quarterly auctions. On the COATS website, the public can view and download reports of RGGI program data and CO_2 allowance market activity. COATS is used to allocate, award and transfer CO_2 allowances, to certify and provide CO_2 allowances for compliance-related tasks, and to register and submit applications and reports for offset projects.

Under § 145.352 (establishment of accounts) of this proposed rulemaking, any person may apply to open a general account for the purpose of holding and transferring CO_2 allowances by submitting a complete application for a general account to the Department or its agent. A general account can be used for the receipt, transfer, and banking of CO_2 allowances in COATS, but unlike a compliance account, it does not provide for the CO_2 allowance compliance

deduction process outlined in this proposed rulemaking. A compliance account is associated with an electric generation facility regulated under a state CO_2 Budget Trading Program, a CO_2 budget source. These accounts are used for compliance with the requirements of each state's CO_2 Budget Trading Program. Only one compliance account will be assigned to each CO_2 budget source. An applicant must have either a general or compliance account to participate in CO_2 allowance auctions. CO_2 allowances can be "banked" meaning they may be held for future compliance as they have no expiration date.

CO_2 allowances may be acquired through purchases in quarterly multistate auctions, through secondary markets, or by obtaining CO_2 offset allowances. Once a CO_2 allowance is purchased in an auction, it can then be resold in the secondary market. The secondary market assists with compliance by allowing CO_2 allowances to be traded in between quarterly auctions. As previously mentioned, every auction is overseen by an independent market monitor. Trading in the secondary market is also monitored by an independent market monitor in order to identify anticompetitive conduct. The quarterly multistate auction process continues each consecutive year of the CO_2 Budget Trading Program with fewer CO_2 allowances distributed into the auctions by the participating states each year.

As provided under section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, persons adversely affected by a Department action have the opportunity to appeal the action to the Environmental Hearing Board.

Offsets

As an additional compliance option under this proposed rulemaking, owners or operators of CO_2 budget sources may complete an offset project to reduce or avoid atmospheric loading of CO_2 or CO_2 equivalent (CO_2e) emissions. CO_2e refers to the quantity of a given GHG, other than CO_2, multiplied by its global warming potential. By completing an offset project, the owner or operator will generate CO_2 offset allowances which can be used to offset a portion of the CO_2 budget source's emissions. A CO_2 offset allowance is equivalent to a CO_2 allowance, however a CO_2 offset allowance represents a project-based GHG emission reduction outside of the electric generation sector. This project must be in addition to not in place of an existing legal requirement. Under § 145.355(a)(3) of this proposed rulemaking, consistent with the RGGI Model Rule and the regulations in the participating states, the number of CO_2 offset allowances available to be deducted for compliance purposes may not exceed 3.3% of the CO_2 budget source's CO_2 emissions for a control period or interim control period.

As described under § 145.395 (relating to CO_2 emissions offset project standards), the three eligible offset categories include landfill methane capture and destruction projects, projects that sequester carbon due to reforestation, improved forest management or avoided conversion, and projects that avoid methane emissions from agricultural manure management operations. Each of the three offset categories are designed to further reduce or sequester emissions of CO_2 or methane within the northeast region. In the RGGI Model Rule, the participating states cooperatively developed prescriptive regulatory requirements for each of the offset categories that have been incorporated into this proposed rulemaking. These requirements ensure that

awarded CO_2 offset allowances represent CO_2e emission reductions or carbon sequestration that are real, additional, verifiable, enforceable and permanent.

Under § 145.393 (relating to general requirements) of this proposed rulemaking, offset projects must be located in this Commonwealth or partly in this Commonwealth and partly within one or more of the participating states, provided that the majority of the CO_2e emission reductions or carbon sequestration occurs in this Commonwealth. Massachusetts, New Hampshire and Rhode Island have determined not to award CO_2 offset allowances, but CO_2 budget sources located within those states may use CO_2 offset allowances awarded by a participating state, including this Commonwealth. By recognizing CO_2e emission reductions and carbon sequestration outside the electric generation sector and this Commonwealth's CO_2 emissions budget, offset projects provide compliance flexibility and create opportunities for low-cost emission reductions and other co-benefits across various sectors. Thus, including offset projects in this proposed rulemaking provides two crucial benefits, an additional compliance option for owners or operators and the potential for this Commonwealth to further reduce GHG emissions.

Auction Proceeds

The auction proceeds are an integral part to carrying out the primary purpose of this proposed rulemaking which is to reduce CO_2 emissions in this Commonwealth in an economically efficient manner. By requiring the attainment of CO_2 allowances, this proposed rulemaking establishes a monetary obligation per ton of CO_2 emitted from a CO_2 budget source. The value of CO_2 allowances is used to further support the CO_2 Budget Trading Program and reduce GHG emissions and any associated costs related to achieving the emission reduction goals. The CO_2 allowances purchased in the multistate auctions generate proceeds that are provided back to the participating states, including this Commonwealth, for investment in initiatives that will further reduce CO_2 emissions. The amount of revenue generated each year is a function of the CO_2 allowance budget and the CO_2 allowance price. Each participating state determines how best to invest auction proceeds to provide public health benefits and further reduce GHG emissions. Historically, RGGI-funded programs, including energy efficiency, clean and renewable energy, GHG abatement and direct bill assistance programs, have saved consumers money and helped support businesses, all with a net positive economic impact.

As provided under section 9.2(a) of the APCA (35 P.S. § 4009.2(a)), this Commonwealth's auction proceeds will be held in a subaccount within the Clean Air Fund, which is administered by the Department "for the use in the elimination of air pollution." Section 9.2(a) of the APCA authorizes the Department to establish separate accounts in the Clean Air Fund as may be necessary or appropriate to implement the requirements of the APCA. Under section 9.2(a) of the APCA, the Board was required to adopt a regulation for the management and use of the money in the Clean Air Fund. The Board adopted Chapter 143 (relating to disbursements from the Clean Air Fund) to provide for the monies paid into the Clean Air Fund to be disbursed at the discretion of the Secretary for use in the elimination of air pollution. See 25 Pa. Code § 143.1(a). The full and normal range of activities of the Department are considered to contribute to the elimination of air pollution, including purchase of contractual services and payment of the costs of a public project necessary to abate air pollution. See 25 Pa. Code § 143.1(b). The investment of auction proceeds is discussed further under Section F.

Benefits

In addition to decreasing CO_2 emissions and addressing this Commonwealth's contribution to regional climate change impacts, this proposed rulemaking would provide numerous benefits to public health and welfare and the environment. The benefits include job creation and worker training, decreased incidences of asthma, respiratory illness and hospital visits, avoidance of premature deaths, avoidance of lost work and school days due to illness, and future electric bill savings. This Commonwealth will also see a decrease in harmful NO_x, SO_2 and particulate matter (PM) emissions, as well as ground level ozone pollution. This will particularly benefit those most often impacted by marginal air quality, such as low income and environmental justice communities. Emerging evidence links chronic exposure to air pollution with higher rates of morbidity and mortality from COVID-19. As such, reductions in CO_2 emissions are even more significant now more than ever before. The COVID-19 pandemic has resulted in a renewed focus on climate change, local air quality impacts, and opportunities for economic development, all areas where RGGI participation can provide value. The benefits of this proposed rulemaking are discussed further under Section F.

RGGI Provides Regulatory Certainty

This proposed rulemaking provides regulatory certainty for CO_2 budget sources in this Commonwealth. Although RGGI is a market-based approach, there are also price fluctuation protections that are built into the auction platform to help ensure that CO_2 allowance prices are predictable. Specifically, there are auction mechanisms that identify a precipitous increase or decrease in price, and trigger what are referred to as the Cost Containment Reserve (CCR) and Emissions Containment Reserve (ECR). The CCR process triggers additional CO_2 allowances to be offered for sale in the case of higher than projected emissions reduction costs. Similarly, states implementing the ECR, including this Commonwealth, will withhold CO_2 allowances from the auction to secure additional emissions reductions if prices fall below the established trigger price, so that the ECR will only trigger if emission reduction costs are lower than projected. This provides predictability in terms of both the cost of compliance for covered entities, and a relatively predictable stream of revenue for each participating state. CO_2 allowances may also be purchased through the secondary market when costs are low and held for future compliance years.

Public Outreach

As required under the Regulatory Review Act and further emphasized by Executive Order 2019-07, the Department conducted a robust public outreach effort including the business community, energy producers, energy suppliers, organized labor, environmental groups, low-income and environmental justice advocates and others to ensure that the development and implementation of this program results in reduced emissions, economic gains and consumer savings.

The Department consulted with the Air Quality Technical Advisory Committee (AQTAC) and the Citizens Advisory Council (CAC) in the development of this proposed rulemaking. On December 12, 2019, the Department presented concepts to AQTAC on a potential rulemaking to participate in RGGI. The Department returned to AQTAC on February 13, 2020 to discuss the

preliminary draft Annex A. At the April 16, 2020 AQTAC meeting, the Department provided a brief update on the development of this proposed rulemaking. In response to requests from committee members for more opportunities to learn about the CO_2 Budget Trading Program, on April 23, 2020, the Department presented on and provided the modeling results associated with this proposed rulemaking in a Special Joint Informational Meeting of AQTAC and CAC. The meeting was held via a webinar and over 225 members of the public were able to listen to the modeling results. Anyone interested in hearing the modeling results can also watch the meeting at any time through a link on the Department's website.

AQTAC was established under section 7.6 of the APCA (35 P.S. § 4007.6) to provide technical advice at the request of the Department on policies, guidance and regulations. On May 7, 2020, this proposed rulemaking was presented to AQTAC for review and technical advice before the Department moved this proposed rulemaking forward to the Board for consideration. The meeting was held via a webinar and over 200 members of the public had the opportunity to listen to the discussion and to request to provide comments. The AQTAC members were divided on whether to submit a formal letter of concurrence and ultimately declined to do so without a majority decision. The Department will continue to seek technical advice from AQTAC and address member questions and concerns throughout the rulemaking process.

The opportunity to provide public comment on this proposed rulemaking to AQTAC members was provided on three occasions, at the February 13, 2020, April 16, 2020, and May 7, 2020 AQTAC meetings.

Under section 7.6 of the APCA, the Department is required to consult with CAC in the development of the Department's regulations and State Implementation Plans. On November 19, 2019, the Department presented concepts to CAC on a potential rulemaking to participate in RGGI. The Department returned to CAC on February 18, 2020 for an informational presentation on a preliminary draft Annex A. The Department also conferred with CAC's Policy and Regulatory Oversight Committee concerning this proposed rulemaking on May 8, 2020. At the May 19, 2020 CAC meeting, this proposed rulemaking was presented to CAC for review before the Department moved this proposed rulemaking forward to the Board for consideration. The CAC members ultimately declined to submit a formal letter of concurrence with the Department's recommendation to move this proposed rulemaking forward to the Board for consideration. The Department will continue to consult with CAC and address member questions and concerns throughout the rulemaking process.

The opportunity to provide public comment on this proposed rulemaking to CAC members was provided on three occasions, at the November 19, 2019, February 18, 2020, and May 19, 2020 CAC meetings.

Under section 7.8 of the APCA (35 P.S. § 4007.8), the Small Business Compliance Advisory Committee (SBCAC) is required to review and advise the Department on rulemakings which affect small business stationary sources. The Department provided informational presentations on this proposed rulemaking to SBCAC on January 22, 2020 and April 22, 2020. On July 22, 2020, the Department presented this proposed rulemaking to SBCAC for review and advice on the potential small business stationary source impact of this proposed rulemaking. During the

presentation, the Department mentioned that it has estimated that ten small business stationary sources, as defined under section 3 of the APCA (35 P.S. § 4003), may need to comply with this proposed rulemaking. Of those ten sources, seven are estimated to be waste coal-fired power plants. The Department also mentioned that it has included in this proposed rulemaking a CO_2 allowance set-aside provision to assist all waste coal-fired power plants located in this Commonwealth with their compliance obligation. The SBCAC ultimately voted not to concur with the Department's recommendation to move this proposed rulemaking forward to the Board, with 4 opposed and 3 in support. The Department will continue to seek advice from SBCAC on the small business stationary source impact of this proposed rulemaking and address member questions and concerns throughout the rulemaking process.

Additionally, the Department provided an informational presentation to the Environmental Justice Advisory Board on May 21, 2020 and had further engagement with Environmental Justice stakeholder groups such as the Chester Environmental Partnership and EJ Stakeholders Group. The Department also provided informational presentations on this proposed rulemaking to the Climate Change Advisory Committee on February 25, 2020 and the Oil and Gas Technical Advisory Board on May 20, 2020.

The Department, working with the Public Utility Commission, engaged with PJM Interconnection to promote the integration of this program in a manner that preserves orderly and competitive economic dispatch within PJM and minimizes emissions leakage. The Department has also met with various stakeholders to receive additional input on this proposed rulemaking on numerous occasions throughout the development process. In particular, the Department met with environmental groups, residents, businesses, legislators, owners and operators of affected sources, industry groups and environmental justice stakeholders during the development of this proposed rulemaking.

E. ***Summary of Regulatory Requirements***

GENERAL PROVISIONS

§ 145.301. Purpose

This section establishes the purpose of the CO_2 Budget Trading Program.

§ 145.302. Definitions

This section establishes definitions for the following terms: "account number," "acid rain emissions limitation," "acid rain program," "adjustment for banked allowances," "administrator," "agent," "air pollution reduction account," "allocate or allocation," "allocation year," "allowance auction or auction," "ascending price, multiple-round auction," "attribute," "attribute credit," "automated data acquisition and handling system," "award," "beneficial interest," "bidder," "boiler," "CEMS—continuous emission monitoring system," "COATS—CO_2 allowance tracking system," "COATS account," "CO_2 allowance," "CO_2 allowance auction or auction," "CO_2 allowance deduction or deduct CO_2 allowances," "CO_2 allowances held or hold CO_2 allowances," "CO_2 allowance price," "COATS account," "CO_2 allowance transfer

deadline," "CO_2 authorized account representative," "CO_2 authorized alternate account representative," "CO_2 budget emissions limitation," "CO_2 budget permit condition," "CO_2 budget source," "CO_2 Budget Trading Program," "CO_2 budget unit," "CO_2 CCR allowance or CO_2 cost containment reserve allowance," "CO_2 CCR trigger price or CO_2 cost containment reserve trigger price," "CO_2 ECR allowance or CO_2 emissions containment reserve allowance," "CO_2 ECR trigger price or CO_2 emissions containment reserve trigger price," "CO_2e—CO_2 equivalent," "CO_2 offset allowance," "cogeneration set-aside account," "cogeneration unit," "combined cycle system," combustion turbine," "commence commercial operation," "commence operation," "compliance account," "control period," "decay rate," "descending price, multiple-round auction," "discriminatory price, sealed-bid auction," "electronic submission agent," "eligible biomass," "excess emissions," "excess interim emissions," "general account," "GWP—global warming potential," "gross generation," "interim control period," "legacy emissions," "life-of-the-unit contractual arrangement," "maximum potential hourly heat input," "minimum reserve price," "monitoring system," "nameplate capacity," "notice of CO_2 allowance auction," "operator," "owner," "participating state," "Pennsylvania CO_2 budget trading program adjusted budget," "Pennsylvania CO_2 budget trading program base budget," "qualified participant," "receive or receipt of," "recordation, record or recorded," "reserve price," "reviewer," "source," "strategic use set-aside account," "ton or tonnage," "undistributed CO_2 allowance," "uniform-price, sealed-bid auction," "unit," "unit operating day," "unsold CO_2 allowance," "useful thermal energy," "waste coal," "waste coal-fired," and "waste coal set-aside account." These defined terms are used in the substantive provisions of Subchapter E.

§ 145.303. Measurements, abbreviations and acronyms

This section establishes the measurements, abbreviations and acronyms used in Subchapter E.

§ 145.304. Applicability

This section establishes that this proposed rulemaking would apply to the owner or operator of a CO_2 budget unit that, at any time on or after January 1, 2005, served or serves an electricity generator with a nameplate capacity equal to or greater than 25 MWe. A CO_2 budget source is any source that includes one or more CO_2 budget unit.

§ 145.305. Limited exemption for CO_2 budget units with electrical output to the electric grid restricted by permit conditions

This section establishes a limited exemption and compliance requirements for a CO_2 budget source that has a permit issued by the Department containing a condition restricting the supply of the CO_2 budget unit's annual electrical output to the electric grid to no more than 10% of the annual gross generation of the unit, or restricting the supply less than or equal to 15% of its annual total useful energy to any entity other than the manufacturing facility to which the CO_2 budget source is interconnected.

§ 145.306. Standard requirements

This section establishes the standard permit, monitoring, CO_2, excess emissions and recordkeeping and reporting requirements. This section also establishes liability for the CO_2 authorized account representative and the owner or operator of a CO_2 budget source or CO_2 budget unit.

§ 145.307. Computation of time

This section establishes the computation of any time period scheduled under the CO_2 Budget Trading Program.

CO_2 AUTHORIZED ACCOUNT REPRESENTATIVE FOR A CO_2 BUDGET SOURCE

§ 145.311. Authorization and responsibilities of the CO_2 authorized account representative

This section establishes the authorization and responsibilities of the CO_2 authorized account representative.

§ 145.312. CO_2 authorized alternate account representative

This section establishes the requirements for the designation of no more than one CO_2 authorized alternate account representative to act on behalf of the CO_2 authorized account representative.

§ 145.313. Changing the CO_2 authorized account representative and the CO_2 authorized alternate account representative; changes in the owner or operator

This section establishes the process and requirements for changing the CO_2 authorized account representative or the CO_2 authorized alternate account representative. This section also establishes the process and requirements for changes in the owner or operator.

§ 145.314. Account certificate of representation

This section establishes the elements of a complete account certificate of representation for a CO_2 authorized account representative or a CO_2 authorized alternate account representative.

§ 145.315. Objections concerning the CO_2 authorized account representative

This section establishes the procedure for objections concerning the CO_2 authorized account representative.

§ 145.316. Delegation of authority to make electronic submissions and review information in COATS

This section provides for a CO_2 authorized account representative or a CO_2 authorized alternate account representative to delegate their authority to make an electronic submission

in COATS.

PERMITS

§ 145.321. General requirements for a permit incorporating CO_2 Budget Trading Program requirements

This section establishes the requirement for each CO_2 budget source to have a permit issued under Chapter 127 that incorporates the CO_2 Budget Trading Program requirements.

§ 145.322. Submission of an application for a new, renewed or modified permit incorporating CO_2 Budget Trading Program requirements

This section establishes the process and deadlines for the CO_2 authorized account representative to submit a complete permit application to the Department.

§ 145.323. Contents of an application for a permit incorporating CO_2 Budget Trading Program requirements

This section establishes the required contents of a complete permit application.

COMPLIANCE CERTIFICATION

§ 145.331. Compliance certification report

This section establishes the requirement for a CO_2 authorized account representative of a CO_2 budget source to submit to the Department a compliance certification report for each control period. The section includes the required contents of the report and compliance certification.

§ 145.332. Department action on compliance certifications

This section provides for the Department or its agent's review of compliance certifications, the ability to conduct independent audits of submissions and to deduct or transfer CO_2 allowances based on the information in the compliance certification.

CO_2 ALLOWANCE ALLOCATIONS

§ 145.341. Pennsylvania CO_2 Budget Trading Program base budget

This section establishes the Pennsylvania CO_2 Budget Trading Program declining base budget for the years 2022 through 2030 and each succeeding calendar year. For example, in 2022, the Pennsylvania CO_2 Budget Trading Program base budget is 78,000,000 tons and by 2030 and each succeeding calendar year, the Pennsylvania CO_2 Budget Trading Program base budget is 58,085,040 tons.

§ 145.342. CO_2 allowance allocations

Subsection (a) establishes that the Department will allocate CO_2 allowances representing 100% of the tons for each allocation year from the Pennsylvania CO_2 Budget Trading Program base budget to the air pollution reduction account, less those allowances set aside each allocation year.

Subsection (b) establishes the Department's set-aside accounts for waste coal, strategic use and cogeneration.

Subsection (c) establishes the Pennsylvania CO_2 Budget Trading Program adjusted budget for the allocation year 2022 and each succeeding calendar year.

Subsection (d) establishes the cost containment reserve (CCR) allocation and the process by which the Department will allocate CO_2 CCR allowances, separate from and additional to the Pennsylvania CO_2 Budget Trading Program base budget to the air pollution reduction account.

Subsection (e) establishes the emissions containment reserve (ECR) and the process by which the Department will convert and transfer any CO_2 allowances that have been withheld from any auction into the Pennsylvania ECR account.

Subsection (f) provides for the Department to determine whether to make an adjustment for banked allowances and the formula to be used.

Subsection (g) provides for the Department to establish the Pennsylvania CO_2 Budget Trading Program adjusted budget for an allocation year and the formula to be used.

Subsection (h) requires the Department to publish notice in the *Pennsylvania Bulletin* of the CO_2 Budget Trading Program adjusted budget for the allocation year, if the Department determines to adjust the budget for banked allowances.

Subsection (i) establishes the process for the waste coal set-aside allocation, including the establishment of a general account, allowance transfers, compliance allocation, an exception or exceedance of legacy emissions or 9,300,000 tons during a calendar year, and the set-aside termination. This subsection applies to waste coal-fired units located in Pennsylvania that commenced operation on or before the effective date of this rulemaking, that are subject to the CO_2 Budget Trading Program requirements.

Subsection (j) establishes the process for the strategic use set-aside allocation, including the establishment of a general account, allowance transfers and allocation to eligible projects for the use in the elimination of air pollution. The strategic use set-aside allocation will consist of undistributed CO_2 allowances from the waste coal set-aside account.

Subsection (k) establishes the process for the cogeneration set-aside allocation, including applicability, the establishment of a general account, the required compliance obligation adjustment application, the compliance obligation adjustment determination and the retirement and transfer of CO_2 allowances.

§ 145.343. Distribution of CO_2 allowances in the air pollution reduction account

This section describes how the Department will distribute CO_2 allowances held in the air pollution reduction account. With the exception of CO_2 allowances held in a set-aside account, the Department will make available all CO_2 allowances for purchase or auction each allocation year. The proceeds of the auction will be used in the elimination of air pollution in accordance with the APCA and Chapter 143 and for programmatic costs associated with the CO_2 Budget Trading Program.

CO_2 ALLOWANCE TRACKING SYSTEM

§ 145.351. CO_2 Allowance Tracking System (COATS) accounts

This section describes the nature and function of compliance and general accounts. Compliance accounts are only for CO_2 budget sources, while any person may have a general account.

§ 145.352. Establishment of accounts

This section provides for the establishment of a compliance account by the Department or its agent upon receipt of a complete account certificate of representation. This section also provides for any person to apply to open a general account by submitting a complete application to the Department or its agent that includes the required contents listed in this section. This section establishes the requirements for the authorization of a CO_2 authorized account representative, changing a CO_2 authorized account representative or a CO_2 authorized alternate account representative, changes in persons with ownership interest, objections concerning a CO_2 authorized account representative, delegation by a CO_2 authorized account representative and a CO_2 authorized alternate account representative, and account identification.

§ 145.353. COATS responsibilities of CO_2 authorized account representative and CO_2 authorized alternate account representative

This section allows submissions to the Department or its agent pertaining to a COATS account to be only submitted by the CO_2 authorized account representative or CO_2 authorized alternate account representative for the account.

§ 145.354. Recordation of CO_2 allowance allocations

This section establishes the deadlines for the Department or its agent to record and assign a serial number to the CO_2 allowances allocated for the air pollution reduction account, the waste coal set-aside account, the strategic use set-aside account and the cogeneration set-aside account

§ 145.355. Compliance

This section establishes the requirements for allowances available for compliance deduction, deductions for compliance, allowance identification, deductions for excess emissions, recordation of deductions, and action by the Department on submissions.

§ 145.356. Banking

This section allows a CO_2 allowance that is held in a compliance account or a general account to be banked or in other words to remain in the account until the CO_2 allowance is deducted or transferred.

§ 145.357. Account error

This section allows the Department or its agent to correct and notify a CO_2 authorized account representative of an error in a COATS account.

§ 145.358. Closing of general accounts

This section allows the CO_2 authorized account representative of a general account to instruct the Department or its agent to close a general account and for a general account that shows no activity for 1 year or more and does not contain any CO_2 allowances to be closed. This section also describes the notification procedure for the closure.

CO_2 ALLOWANCE TRANSFERS

§ 145.361. Submission of CO_2 allowance transfers

This section establishes the requirements for a CO_2 authorized account representative to submit a CO_2 allowance transfer to the Department for recordation.

§ 145.362. Recordation

This section establishes the requirements and process for the Department to record a CO_2 allowance transfer.

§ 145.363. Notification

This section establishes the processes for notification of recordation and non-recordation of a CO_2 allowance transfer and allows for the resubmission of a CO_2 allowance transfer for recordation.

MONITORING, REPORTING AND RECORDKEEPING REQUIREMENTS

§ 145.371. General monitoring requirements

This section establishes the monitoring requirements that an owner or operator or CO_2 authorized account representative of a CO_2 budget unit must comply with, including applicable sections of 40 CFR Part 75 (relating to continuous emission monitoring). This section also includes the requirements for installation, certification and data accounting, compliance dates for recording, reporting and quality-assuring data from the monitoring system, reporting data and prohibitions.

§ 145.372. Initial certification and recertification procedures

This section establishes the conditions for an exemption from the initial certification requirements, the applicability of recertification, the process for petitions, the certification and recertification requirements, the approval process for initial certification and recertification, the procedures for loss of certification, initial certification and recertification procedures for low mass emissions units and certification and recertification procedures for an alternative monitoring system.

§ 145.373. Out-of-control periods

This section establishes the quality assurance requirements and the audit decertification procedure.

§ 145.374. Notifications

This section establishes the requirement for a CO_2 authorized account representative for a CO_2 budget unit to submit written notice to the Department and the Administrator in accordance with 40 CFR 75.61 (relating to notifications).

§ 145.375. Recordkeeping and reporting

This section establishes the recordkeeping and reporting requirements including monitoring plans, certification applications and quarterly reports.

§ 145.376. Petitions

This section establishes the process and requirements for submitting a petition to the Department or the EPA Administrator requesting approval to apply an alternative monitoring requirement.

§ 145.377. CO_2 budget units that co-fire eligible biomass

This section establishes reporting and data calculation requirements for the CO_2 authorized account representative of a CO_2 budget unit that co-fires eligible biomass as a compliance mechanism under the CO_2 Budget Trading Program.

AUCTION OF CO_2 CCR AND ECR ALLOWANCES

§ 145.381. Purpose

This section allows the Department or its agent to specify additional information in the auction notice for each auction, including the time and location of the auction, auction rules, registration deadlines and any additional information deemed necessary or useful.

§ 145.382. General Requirements

This section establishes the required contents of an auction notice. This section also includes tables with the CCR trigger price and the ECR trigger price for the years 2023 through 2030. This section also establishes the process for the sale of CCR allowances, implementation of the reserve price and withholding ECR allowances form an auction.

CO2 EMISSIONS OFFSET PROJECTS

§ 145.391. Purpose

This section allows the Department to award CO_2 offset allowances to sponsors of CO_2 emissions offset projects that have reduced or avoided atmospheric loading of CO_2, CO_2 equivalent or sequestered carbon. CO_2 offset allowances must be real, additional, verifiable, enforceable and permanent within the framework of a standards-based approach.

§ 145.392. Definitions

This section establishes definitions for the following terms: "AEPS—Alternative energy portfolio standards," "anerobic digester," "anaerobic digestion," "anaerobic storage," "biogas," "conflict of interest," "forest offset project," "forest offset project data report," "forest offset protocol," "independent verifier," "intentional reversal," "market penetration rate," "offset project," "project commencement," "project sponsor," "regional-type anaerobic digester," "reporting period," "reversal," "system benefit fund," "total solids," "unintentional reversal," "verification" and "volatile solids." These defined terms are used in the substantive provisions of §§ 145.391—145.397 (relating to CO_2 emissions offset projects).

§ 145.393. General requirements

This section establishes the requirements for an offset project to qualify for the award of CO_2 offset allowances, including the three eligible offset project types, offset project location requirements, the project sponsor, general additionality requirements, maximum allocation periods for offset projects, offset project audits, as well as ineligibility of an offset project due to noncompliance.

§ 145.394. Application process

This section establishes the requirement for a project sponsor to establish a general account and to submit a consistency application, including the deadlines and required contents of the consistency application and the process for the Department's action on consistency applications.

§ 145.395. CO_2 emissions offset project standards

This section establishes the eligibility, offset project description, calculation and monitoring and verification requirements for the categories of offset projects, landfill methane capture and

destruction, sequestration of carbon due to reforestation, improved forest management or avoided conversion and avoided methane emissions from agricultural manure management operations.

§ 145.396. Accreditation of independent verifiers

This section establishes the standards for accreditation of independent verifiers, the required contents of an application for accreditation, the process for Department action on applications for accreditation, reciprocity of independent verifiers across participating states and the required conduct of an accredited verifier.

§ 145.397. Award and Recordation of CO_2 offset allowances

This section describes the process for awarding and recording CO_2 offset allowances. This section also establishes the deadlines for submittal of monitoring and verification reports, the required contents of monitoring and verification reports, the prohibition against filing monitoring and verification reports in more than one participating state and the process for Department action on monitoring and verification reports.

CO_2 ALLOWANCE AUCTIONS

§ 145.401. Auction of CO_2 allowances

This section establishes that the Department will participate in a multistate CO_2 allowance auction in coordination with other participating states. However, the Department may determine to conduct a Pennsylvania-run auction if the conditions for participating in a multistate auction are no longer met. The Department may delegate implementation and administrative support for any CO_2 allowance auction and retains its authority to enforce compliance with the CO_2 Budget Trading Program and control over the proceeds.

§ 145.402. Auction format

This section establishes the format of a CO_2 allowance auction, the lot of CO_2 allowances and the reserve price.

§ 145.403. Auction timing and CO_2 allowance submission schedule

This section establishes the timing of a CO_2 allowance auction, the availability of CO_2 allowances held in the air pollution reduction account and the requirement for an auction to include a CCR reserve and trigger price.

§ 145.404. Auction notice

This section establishes the requirement for notice to be provided of each CO_2 allowance auction and the required contents of the notice.

§ 145.405. Auction participant requirements

This section establishes the eligibility requirements to participate in a CO_2 allowance auction as a bidder.

§ 145.406. Auction participant qualification

This section establishes the requirement for the submittal of a qualification application, the deadline for submittal, the required contents of a qualification application, the process for Department review of a qualification application and changes in qualification status.

§ 145.407. Submission of financial security

This section establishes the requirement for a qualified applicant to provide financial security to the Department to participate in a CO_2 allowance auction as a bidder and the process for requesting return of the financial security.

§ 145.408. Bid submittal requirements

This section establishes the requirements and limitations of bid submittals.

§ 145.409. Approval of auction results

This section establishes the requirement for an independent monitor to observe the conduct and outcome of each auction and issue a report to the Department. If the Department approves the outcome of an auction based on the contents of the report, the Department will transfer and record the CO_2 allowances to successful bidders and make available the auction clearing price and the number of CO_2 allowances sold in the auction.

F. *Benefits, Costs and Compliance*

The CO_2 emission reductions accomplished through implementation of this proposed rulemaking would benefit the health and welfare of the approximately 12.8 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing the amount of climate change causing pollution resulting from the regulated sources.

Reduction of CO_2 Emissions

This proposed rulemaking includes a CO_2 emission budget which declines by approximately 20 million short tons from 2022 to 2030 within this Commonwealth. However, this Commonwealth will experience CO_2 emission reductions of around 188 million tons as a direct result of participation in RGGI. This results in CO_2 reductions in this Commonwealth and a net benefit to the entire PJM region. The Department's modeling shows that this Commonwealth makes these significant emission reductions while maintaining historic electric generation levels, enhancing this Commonwealth's status as a leading net energy exporter, and creating economic opportunities.

The CO_2 emission reductions resulting from this proposed rulemaking are substantial and are the catalyst needed to meet the climate goals for this Commonwealth, as outlined in Executive Order 2019-01, to reduce net GHG emissions Statewide by 26% by 2025 from 2005 levels and by 80% by 2050 from 2005 levels. A predicted reduction of 13.6 million metric tons of CO_2 by 2025 due to this Commonwealth's potential participation in RGGI provides significant assurance that along with prudent investments of auction proceeds and other GHG abatement activities, this Commonwealth will remain on track to reach the 2025 net GHG reduction goal.

Historically, the RGGI program has experienced some emissions leakage. Emissions leakage is the shifting of emissions from states with carbon pricing to states without carbon pricing. The Department's modeling indicates that there may be some future emissions leakage in terms of additional fossil fuel emissions outside of this Commonwealth's borders. Despite the leakage, this Commonwealth's participation in RGGI would result in a net emissions reduction of 86.9 million tons of CO_2 across PJM for the period between 2020 and 2030. Additionally, the Department has been an active participant in PJM's Carbon Pricing Senior Task Force which is conducting additional modeling in an effort to better understand and control leakage across the entire PJM region.

The participating states together, including this Commonwealth, will achieve regional CO_2 emissions reductions of 30% by 2030. According to data from the World Bank, by 2022 based on Gross Domestic Product (GDP), the participating states would comprise the third largest economy in the world. These CO_2 emission reductions are even more significant when viewed from this collective impact. Reductions in CO_2 emissions will help decrease the adverse impacts of climate change on human health, the environment and the economy. Specifically, CO_2 emission reductions may decrease costs from extreme weather events and climate-related ailments that also result in increased health care costs.

Health Benefits of this Proposed Rulemaking

According to the NCA4, climate-driven changes in weather, human activity and natural emissions are all expected to impact future air quality across the United States. Many emission sources of GHGs also emit air pollutants that harm human health. Controlling these common emission sources would both mitigate climate change and have immediate benefits for air quality and human health. The energy sector, which includes energy production, conversion, and use, accounts for 84% of GHG emissions as well as 80% of emissions of NO_x and 96% of SO_2. Specifically, mitigating GHGs can lower emissions of SO_2, NO_x, PM, ozone and PM precursors, and other hazardous pollutants, reducing the risks to human health from air pollution.

While this proposed rulemaking requires CO_2 emission reductions, co-pollutants will also be reduced, because multiple pollutants are emitted from fossil fuel-fired EGUs. While the benefits of the cumulative CO_2 emission reductions will be tremendous, the Department also estimates that this proposed rulemaking will lead to a reduction of co-pollutants as well. This proposed rulemaking would provide public health benefits due to the expected reductions in emissions of CO_2 and the ancillary emission reductions or co-benefits of SO_2 and NO_x reductions. The Department's modeling projects cumulative emission reductions of 112,000 tons of NO_x and around 67,000 tons of SO_2 over the decade.

The Department used the EPA's Regional Incidence-per-Ton methodology which calculates total avoided incidences of major health issues, and calculation of avoided lost work and school days due to reduced emissions. Through 2030, it is estimated that between 283 and 641 premature deaths will be avoided in this Commonwealth due to emission reductions resulting directly from this proposed rulemaking. Children and adults alike will suffer less from respiratory illnesses, 30,000 less incidences of upper and lower respiratory symptoms which leads to reduced emergency department visits and avoided hospital admissions. Healthier children will be able to play more, as incidences of minor restricted-activity days decline on the order of almost 500,000 days between now and 2030. Adults would be healthier as well which results in over 83,000 avoided lost workdays due to health impacts. The public health benefits to this Commonwealth of these avoided SO_2 and NO_x emissions range between $2.79 billion to $6.3 billion by 2030, averaging between $232 million to $525 million per year.

A 2017 independent study by Abt Associates, a global research firm focused on health and environmental policy, on the "Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative, 2009-2014" showed that participating states gained significant health benefits in the first six years of RGGI implementation alone. From 2009-2014, the participating states avoided around 24% of CO_2 emissions that would have otherwise been emitted during that period, resulting in around $5 billion in avoided health related costs. See Abt Associates, "Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative, 2009-2014," January 2017, https://www.abtassociates.com/sites/default/files/files/Projects/executive%20summary%20RGGI.pdf. Since this proposed rulemaking would lead to a 31% reduction of projected CO_2 emissions, or avoided emissions, over the next decade, this Commonwealth is likely to see similar gains in health benefits.

A recent study led by researchers from the Columbia Center for Children's Environmental Health at Columbia University Mailman School of Public Health ("Columbia study"), published on July 29, 2020, on the "Co-Benefits to Children's Health of the U.S. Regional Greenhouse Gas Initiative" indicates that the health benefits from RGGI are even more significant than estimated in 2017 by Abt Associates. The Columbia study concluded that the co-pollutant reductions resulting from RGGI have provided considerable child health benefits to participating and neighboring states. In particular, between 2009-2014, RGGI resulted in an estimated 537 avoided cases of childhood asthma, 112 avoided preterm births, 98 avoided cases of autism spectrum disorder, and 56 avoided cases of term low birthweight. Those child health benefits also have significant economic value, estimated at $199.6–358.2 million between 2009 and 2014 alone. However, the researchers note that the actual health benefits are even greater than estimated because the analysis does not capture the future health benefits related to reductions in childhood PM2.5 exposure and mitigating climate change, such as fewer heat-related illnesses or cases of vector-borne disease to which children are especially vulnerable. See Frederica Perera, David Cooley, Alique Berberian, David Mills, and Patrick Kinney, "Co-Benefits to Children's Health of the U.S. Regional Greenhouse Gas Initiative," Environmental Health Perspectives, Vol. 128, No. 7, July 2020, https://ehp.niehs.nih.gov/doi/10.1289/EHP6706.

Benefits of Continued Waste Coal Pile Remediation

While this Commonwealth's participation in RGGI 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 generation sector, so that the environmental benefits of continuing to remediate this Commonwealth's legacy waste coal piles may continue. For context, since 1988 a total of 160.7 million tons of waste coal has been removed and burned to generate electricity, with an additional 200 million tons of coal ash beneficially used at mine sites. Of this Commonwealth's over 13,000 acres of waste coal piles cataloged by the Department, 3,700 acres have been reclaimed with roughly 9,000 acres remaining. Additionally, of the piles that remain, approximately 40 of them have ignited, and continually burn which significantly impacts local air quality.

Benefits of Cogeneration and CHP Systems

As discussed previously, this proposed rulemaking provides a set-aside and limited exemption for cogeneration or CHP which will benefit existing systems while encouraging new installations in this Commonwealth. CHP systems use energy efficiently by simultaneously producing electricity and useful thermal energy from the same fuel source. CHP captures the wasted heat energy that is typically lost through power generation, using it to provide cost-effective heating and cooling to factories, businesses, universities and hospitals. CHP systems are able to use less fuel compared to other fossil fuel-fired EGUs to produce a given energy output. Less fuel being burned results in fewer air pollutant emissions, including CO_2 and other GHGs. In addition to reducing emissions, CHP benefits the economy and businesses by improving manufacturing competitiveness through increased energy efficiency and providing a way for businesses to reduce energy costs while enhancing energy reliability.

Benefits of RGGI Participation

As previously mentioned, cap and trade programs have an established track record as economically efficient, market-driven mechanisms for reducing pollution in a variety of contexts. Other countries and states have found that cap and trade programs are effective methods to achieve significant GHG emission reductions. RGGI is one of the most successful cap and trade programs and it is well-established with an active carbon trading market for the northeastern United States. This successful market-based program has significantly reduced and continues to reduce emissions. The participating states have collectively reduced power sector CO_2 pollution by over 45% since 2009, while experiencing per capita GDP growth and reduced energy costs. The program design of RGGI would enable the Board to regulate CO_2 emissions from the power sector in a way that is economically efficient thereby driving long-term investments in cleaner sources of energy.

Part of what makes RGGI economically efficient is that it is a regional cap and invest program, which allows EGUs to achieve least-cost compliance by buying and selling allowances in a multistate auction or in regional secondary markets. RGGI CO_2 allowances are fungible across the participating states, meaning that though this Commonwealth would have an established allowance budget for each year, this Commonwealth's allowances are available to meet the compliance obligations in any other RGGI state and vice versa at the option of the regulated sources. Therefore, CO_2 emissions from this Commonwealth's power sector are not limited to strictly the amount of this Commonwealth's CO_2 allowances. This cooperation allows EGUs

more flexibility in terms of compliance and allows the market to continue to signal entrance and exit of generation. Though each state has its own annual allocation, compliance occurs at the regional level rather than on a state-by-state basis. In this respect, the market assists in achieving least cost compliance for all participating states.

Another benefit of participating in multistate auctions run by RGGI, Inc. is that RGGI, Inc. has retained the services of an independent market monitor to monitor the auction, CO_2 allowance holdings, and CO_2 allowance transactions, among other activities. The market monitor provides independent expert monitoring of the competitive performance and efficiency of the RGGI allowance market. This includes identifying attempts to exercise market power, collude, or otherwise manipulate prices in the auction and/or the secondary market, making recommendations regarding proposed market rule changes to improve the efficiency of the market for RGGI CO_2 allowances, and assessing whether the auctions are administered in accordance with the noticed auction rules and procedures. The market monitor will monitor bidder behavior in each auction and report to the participating states any activities that may have a material impact on the efficiency and performance of the auction. The participating states, through RGGI, Inc., release a Market Monitor Report shortly after each CO_2 allowance auction. The Market Monitor Report includes aggregate information about the auction including the dispersion of projected demand, the dispersion of bids, and a summary of bid prices, showing the minimum, maximum, average and clearing price and the CO_2 allowances awarded.

RGGI has helped the participating states create jobs, save money for consumers, and improve public health, while reducing power sector emissions and transitioning to a cleaner electric grid. In an independent and nonpartisan evaluation of the first three control periods in RGGI, the Analysis Group, one of the largest economic consulting firms globally, found that the participating states experienced economic benefits in all three control periods, while reducing CO_2 emissions. The participating states added between $1.3 billion and $1.6 billion in net economic value during each of the three control periods. The participating states also showed growth in economic output, increased jobs and reduced long-run wholesale electricity costs. See Analysis Group, "The Economic Impacts of the Regional Greenhouse Gas Initiative on Northeast and Mid-Atlantic States," https://www.analysisgroup.com/Insights/cases/the-economic-impacts-of-the-regional-greenhouse-gas-initiative-on-northeast-and-mid-atlantic-states/.

A recent report from the Acadia Center, a nonprofit organization committed to advancing the clean energy future, entitled "The Regional Greenhouse Gas Initiative: Ten Years in Review," shows that CO_2 emissions from power plants 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 GDP grew by 47%, outpacing the rest of the country by 31%.

RGGI has also driven substantial reductions in harmful co-pollutants, making the region's air cleaner and its people healthier. Additionally, proceeds from RGGI auctions generated nearly $3.3 billion in state investments from 2009 to 2019. See Acadia Center, "The Regional Greenhouse Gas Initiative 10 Years in Review," 2019, https://acadiacenter.org/wp-content/uploads/2019/09/Acadia-Center_RGGI_10-Years-in-Review_2019-09-17.pdf.

For comparison, according to the Department's 2019 GHG Inventory Report from 2005 to 2016, this Commonwealth reduced its net emissions by 33.5% while the participating states reduced CO_2 pollution from covered sources by over 45% over the same period. Additionally, this reduction was achieved while the region's per-capita GDP has continued to grow, highlighting the synergies between environmental protection and economic development.

Additionally, this proposed rulemaking may create economic opportunities for clean energy businesses. By establishing a cost for emitting CO_2, and pricing this externality into the energy market, the CO_2 Budget Trading Program will provide a market incentive for developing and deploying technologies that improve the fuel efficiency of electric generation, generate electricity from non-carbon emitting resources, reduce CO_2 emissions from combustion sources and encourage carbon capture and sequestration. The energy efficiency sector is the largest component of all energy jobs in this Commonwealth and the renewable energy sector contains some of the fastest growing jobs in the country.

Investment of Auction Proceeds Benefits Consumers and the Economy

The proceeds generated from this proposed rulemaking would be invested into programs that would reduce air pollution and create positive economic impacts in this Commonwealth. The Department plans to develop a draft plan for public comment outlining reinvestment options separate from this proposed rulemaking. However, the Department conducted modeling to estimate the economic impacts of this proposed rulemaking. The Department analyzed the net economic benefits of the program investments using the Regional Economic Model, Inc. (REMI) model. The extensive economic modeling will help the Department determine the best ways to invest the auction proceeds in this Commonwealth to maximize emission reductions and economic benefits. The modeling anticipates that in the first year of participation in RGGI, approximately $300 million in auction proceeds will be generated for the use in the elimination of air pollution in this Commonwealth. The auction proceeds would be spent on programs related to the regulatory goal, and the Department modeled a scenario in which the proceeds are invested in energy efficiency, renewable energy and GHG abatement.

The proceeds will aid this Commonwealth in the transition toward a clean energy economy. In 2015, the EPA noted that the energy market was moving toward cleaner sources of energy and states needed to make plans for and invest in the next generation of power production, particularly considering that current assets and infrastructure were aging. By strategically investing the proceeds, this Commonwealth can help ensure that, as new investments are being made, they are integrated with the need to address GHG pollution from the electric generation sector. See 80 FR 64661, 64678 (October 23, 2015). These energy transitions are occurring both in this Commonwealth and nationally.

Nationally, the last ten years have seen coal's position steadily erode due to a combination of low electricity demand, mounting concern over climate, and increased competition from natural gas and renewables. The same is true for coal generation in this Commonwealth. Since 2005, electricity generation in this Commonwealth has shifted from higher carbon-emitting electricity generation sources, such as coal, to lower and zero emissions generation sources, such as natural gas, and renewable energy. Between now and 2030, coal generation is expected to decline

dramatically. In 2010, coal generation represented 47% of this Commonwealth's generation portfolio and is expected to decline to roughly 1% of this Commonwealth's generation portfolio in 2030. This shift away from coal-fired generation occurs irrespective of this Commonwealth's participation in RGGI. Anticipating the need for transition, for these communities and employees, auction proceeds can be used to mitigate these impacts and assist communities and families through the energy transition. This could include repowering of the existing coal-fired power plants to natural gas, investments in worker training or other community-based support programs.

The Department would invest a portion of the proceeds in energy efficiency initiatives because energy efficiency is a low-cost resource for achieving CO_2 emission reductions while reducing peak demand and ultimately reducing electricity costs. Lower energy costs create numerous benefits across the economy, allowing families to invest in other priorities and businesses to expand. Energy efficiency savings can be achieved cost-effectively by upgrading appliances and lighting, weatherizing and insulating buildings, upgrading HVAC and improving industrial processes. Additionally, all consumers benefit from energy efficiency programs, not just direct program participants because focused investment in energy efficiency can lower peak electricity demand and can decrease overall electricity costs which results in savings for all energy consumers. Additionally, energy efficiency projects are labor-intensive which create local jobs and boost local economy. For instance, projects involving home retrofits directly spur employment gains in the housing and construction industries.

Investing a portion of the auction proceeds into energy efficiency initiatives is also crucial to addressing the impacts of climate change on consumers. According to the NCA4, rising temperatures are projected to reduce the efficiency of power generation while increasing energy demands, resulting in higher electricity costs. Energy efficiency will help lessen those impacts by putting downward pressure on both demand and electricity costs.

Historically, the participating states have invested a significant portion of their auction proceeds in energy efficiency programs. According to RGGI's 2017 Investment Report, over the lifetime of the installed measures, the investments made in energy efficiency in 2017 alone are projected to save participants over $879 million on energy bills, providing benefits to more than 291,000 participating households and 2,600 participating businesses. The investments are also projected to further avoid the release of 6.6 million short tons of CO_2 pollution.

The Department would also invest a portion of the proceeds in clean and renewable electricity generation, such as energy derived from clean or zero emissions sources including geothermal, hydropower, solar and wind. Clean and renewable energy systems reduce reliance on fossil fuels and provide climate resilience benefits, including reduced reliance on centralized power. They also offer the opportunity to save money on electricity costs by installing on-site renewable energy and also reduce power lost through transmission and distribution. Investing in clean and renewable projects will help this Commonwealth meet its climate goals, drive in-state investments and job creation, and lessen the pressure on the CO_2 allowance budget by generating more electricity without additional emissions.

The participating states invested 14% of their 2017 auction proceeds in clean and renewable energy projects. Over the lifetime of the projects installed in 2017, these investments are projected to offset $329.6 million in energy expenses for nearly 500 households and businesses. The investments are also projected to avoid the release of 1.2 million short tons of CO_2 emissions.

The Department would also invest a portion of the proceeds in GHG abatement initiatives. GHG abatement includes a broad category of projects encompassing other ways of reducing GHGs, apart from energy efficiency and clean and renewable energy. Examples of potential programs in this Commonwealth include abandoned oil and gas well plugging, electric vehicle infrastructure, carbon capture, utilization and storage, combined heat and power, energy storage, repowering projects and vocational trainings, among others.

For reference, in 2017, an estimated 14% of RGGI investments were made in GHG abatement programs and projects. For the duration of the project lifetime, those investments are expected to avoid over 431,000 short tons of CO_2 emissions across the region.

The Department modeled an investment scenario with 31% of annual proceeds for energy efficiency, 32% for renewable energy and 31% for GHG abatement, and 6% for any programmatic costs related to administration and oversight of the CO_2 Budget Trading Program (5% for the Department and 1% for RGGI, Inc). These programmatic costs are in line with the historical amounts reserved by the participating states.

The results of the modeling show that this proposed rulemaking will not only combat climate change and improve air quality, but also provide positive economic value to this Commonwealth. The modeling estimates that from 2022 to 2030, this proposed rulemaking would lead to an increase in Gross State Product of $1.9 billion and a net increase of 27,752 jobs in this Commonwealth. The Department's modeling also indicates that investments from this proposed rulemaking would spur an addition of 9.4 gigawatts (GW) of renewable energy and result in a load reduction of 29 Terawatt hours of electricity from energy efficiency projects.

Benefits of Cap and Trade v. Traditional Command and Control

In 2003, the EPA issued "A Guide to Designing and Operating a Cap and Trade Program for Pollution Control," in which the EPA detailed the benefits of cap and trade programs and the advantages they provide over more traditional approaches to environmental regulation. By establishing an emissions budget, cap and trade programs can provide a greater level of environmental certainty than other environmental policy options. The regulated sources, across the region, must procure allowances to cover emissions or risk being penalized for lack of compliance. Traditional command and control regulations, on the other hand, tend to rely on variable emission rates and usually only regulated existing or new sources. However, under cap and trade programs, new and existing sources must comply with the emissions budget. A cap and trade program may also encourage sources to achieve emission reductions in anticipation of future compliance, resulting in the earlier achievement of environmental and human health benefits. In fact, the Department's modeling shows that this is occurring as this Commonwealth prepares to participate in RGGI in 2022.

The EPA also noted in the guide that banking of allowances, which this proposed rulemaking allows, provides an additional incentive to reduce emissions earlier than required. Banking provides flexibility by allowing sources to save unused allowances for use in a later compliance period when the emissions budget is lower and the costs to reduce emissions may be higher. With command-and control, the regulating authority specifies sector-wide technology and performance standards that each of the affected sources must meet, whereas cap and trade provides sources with the flexibility to choose the technologies that minimize their costs while achieving their emission target. Cap and trade programs also provide more accountability than a command and control program. Under this proposed rulemaking and other cap and trade programs, sources must account for every ton of emissions they emit by acquiring allowances. On the other hand, command and control programs tend to rely on periodic inspections and assumptions that control technology is functioning properly to show compliance. See EPA, "Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control," June 2003, EPA430-B-03-002, https://www.epa.gov/sites/production/files/2016-03/documents/tools.pdf.

Compliance Costs

This proposed rulemaking applies to owners or operators of fossil fuel-fired EGUs, within this Commonwealth, with a nameplate capacity equal to or greater than 25 MWe. This proposed rulemaking is designed to effectuate least cost CO_2 emission reductions for the years 2022 through 2030 within this Commonwealth. In addition to purchasing CO_2 allowances and completing offset projects to generate CO_2 offset allowances, CO_2 budget units may reduce their compliance obligations by reducing CO_2 emissions through other alternatives such as heat rate improvements, fuel switching and co-firing of biofuels.

To comply with this proposed rulemaking, each CO_2 budget unit within this Commonwealth will need to acquire CO_2 allowances equal to its CO_2 emissions. If CO_2 allowances are purchased through the multistate auctions, the owner or operator of a CO_2 budget unit will pay the auction allowance price, currently around $5 per ton, for each ton of CO_2 the unit emits. As mentioned previously, reserved CO_2 CCR allowances can be released into the auction if allowance prices exceed predefined price levels, meaning emission reduction costs are higher than projected. The total cost of purchasing allowances will therefore vary per unit based on how much CO_2 the unit emits and the allowance price. The owner or operator may also purchase CO_2 allowances on the secondary market where they could potentially purchase CO_2 allowances at a price lower than the RGGI allowance price. CO_2 allowances also have no expiration date and can be acquired and banked to defray future compliance costs.

Since the Department will allocate CO_2 allowances to waste coal-fired units each year up to 9,300,000 allowances sector-wide, waste coal-fired units will incur minimal compliance costs. Owners or operators of waste coal-fired units will only need to purchase CO_2 allowances if the set-aside amount is exceeded. However, waste coal-fired units still have to comply with the other components of the regulation, including incorporating the CO_2 budget trading programs into their permits.

The requirements this proposed rulemaking would establish will require the owner or operator of an applicable source to submit a complete application for a new, renewed or modified permit and pay the associated fee. The application must be submitted by the later of 6 months after the effective date of this rulemaking or 12 months before the date on which the CO_2 budget source, or a new unit at the source, commences operation.

The Department estimates that the costs related to monitoring, recordkeeping and reporting will be minimal as this proposed rulemaking utilizes current methods and, in most instances, will require no additional emissions reporting. For instance, the continuous emission monitoring required under this proposed rulemaking is already in existence at the regulated source and the necessary emissions data is currently reported to the EPA. There may be minimal programmatic costs related to the submittal of compliance certification reports and auction, account, and offset project related forms.

Compliance costs will vary by CO_2 budget unit as the amount of CO_2 emitted is the primary driver of compliance costs. Overall CO_2 emissions are impacted by operational decisions such as run time, and by emissions intensity which varies by fuel type, and abatement technology employed. Additionally, certain sources may be eligible for set-aside allowances at no cost.

In 2022, this Commonwealth's CO_2 emissions from CO_2 budget sources are estimated to be 57 million short tons. Given the 3-year compliance schedule, all 57 million CO_2 allowances will not need to be purchased in the first year. The total amount of allowances available will decline as the amount of CO_2 emissions in this Commonwealth decline.

As CO_2 budget sources would need one allowance for each ton of CO_2 emitted, the owners or operators would need to acquire 57 million CO_2 allowances at the estimated 2022 allowance price of $5.58 (2017$/Ton). If these CO_2 allowances were all purchased at quarterly multistate auctions in 2022, the total purchase cost would be $318 million. The CO_2 budget sources would then most likely incorporate this compliance cost into their offer price for electricity. The price of electricity is then passed onto electric consumers. However, that does not mean that $318 million will be passed onto this Commonwealth's electric consumers.

Electric Consumer Impact

Historically, this Commonwealth has exported a third of its electricity generation, and that will continue into the future. In fact, if this Commonwealth participates in RGGI, electricity exports will increase even more than business-as-usual. Therefore, it can be expected that at least a third of the cost of compliance would be borne by out-of-state electric consumers. In 2022, this Commonwealth's net electricity exports are estimated at 68,000 gigawatt hours (GWh), representing 31% of this Commonwealth's 2022 electricity generation of 217,476 GWh. As a result, without factoring in the strategic investment of auction proceeds, the remaining 69% of the cost of compliance or $219 million would be borne by this Commonwealth. This percentage is also dependent on the CO_2 emissions intensity of the exported generation. However, this does not mean that electric consumers in this Commonwealth will therefore pay $219 million. There are several other factors involved in determining the impact on consumer electric bills.

According to the EIA's Annual Energy Outlook from January 2020, the major components of the United States average price of electricity in 2019 were 58% generation, 29% distribution and 13% transmission costs. This proposed rulemaking would only impact the generation portion of a consumer electric bill, which is a little more than half of the bill. The Department's modeling estimates that over the next decade wholesale energy prices will stay in between a range of an increase of 3% and a decrease of 3% as a result of this proposed rulemaking. That amounts to a roughly 1.5% increase or decrease in the average retail electricity rate, which is less than the swing in prices traditionally seen as a result of seasonal fluctuations in the energy market.

The average residential electric consumer in this Commonwealth spends from $97.04 to $136.60 per month depending on whether they heat their homes with electricity or another fuel source. Although electricity rates vary in this Commonwealth by Electric Distribution Company service territories, these bill amounts represent the average electricity rates across this Commonwealth.

If this proposed rulemaking is implemented and this Commonwealth begins participating in RGGI in 2022, residential electric consumer bills will increase by an estimated 1.5% in the short-term. This amounts to an additional $1.46 to $2.05 per month depending on the home heating source. However, the Department's modeling shows that this minor increase is temporary. As a result of the revenue reinvestments from the auction proceeds, by 2030, energy prices will fall below business-as-usual prices resulting in future consumer electricity cost savings. This means electric consumers will see greater electric bill savings in the future then if this proposed rulemaking were not implemented.

Compliance Assistance Plan

The Department will continue to educate and assist the public and the regulated community in understanding the proposed requirements and how to comply with them throughout the rulemaking process. The Department will continue to work with the Department's provider of Small Business Stationary Source Technical and Environmental Compliance Assistance. These services are currently provided by the Environmental Management Assistance Program (EMAP) of the Pennsylvania Small Business Development Centers. The Department has partnered with EMAP to fulfill the Department's obligation to provide confidential technical and compliance assistance to small businesses as required by the APCA, Section 507 of the CAA (42 U.S.C.A. § 7661f) and authorized by the Pennsylvania Small Business and Household Pollution Prevention Program Act (35 P.S. §§ 6029.201—6029.209).

In addition to providing one-on-one consulting assistance and on-site assessments, EMAP also operates a toll-free phone line to field questions from Pennsylvania small businesses, as well as businesses wishing to start up in, or relocate to, Pennsylvania. EMAP operates and maintains a resource-rich environmental assistance website and distributes an electronic newsletter to educate and inform small businesses about a variety of environmental compliance issues.

Paperwork Requirements

The recordkeeping and reporting requirements for owners and operators of applicable sources under this proposed rulemaking are minimal because the records required align with the records

already required to be kept for emission inventory purposes and for other federal and state requirements.

G. *Pollution Prevention*

The Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

This proposed rulemaking would help ensure that the citizens of this Commonwealth would benefit from reduced emissions of CO_2 from regulated sources. Reduced levels of CO_2 would promote healthful air quality and ensure the continued protection of the environment and public health and welfare.

H. *Sunset Review*

This Board is not establishing a sunset date for this proposed rulemaking, since it is needed for the Department to carry out its statutory authority. The Department will closely monitor this proposed rulemaking after promulgation as a final-form rulemaking in the *Pennsylvania Bulletin* for its effectiveness and recommend updates to the Board as necessary.

I. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on October 21, 2020, the Department submitted a copy of this proposed rulemaking to the Legislative Reference Bureau for publication in the *Pennsylvania Bulletin* and to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees. In addition to submitting this proposed rulemaking, the Department has provided IRRC and the House and Senate Committees with a copy of a detailed Regulatory Analysis Form prepared by the Department. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed rulemaking within 30 days of the close of the public comment period. The comments, recommendations or objections must specify the regulatory review criteria in section 5.2 of the Regulatory Review Act (71 P.S. § 745.5b) which have not been met. The Regulatory Review Act specifies detailed procedures for review, prior to final publication of the rulemaking by the Department, the General Assembly and the Governor.

J. *Public Comments*

Interested persons are invited to submit to the Board written comments, suggestions, support, or objections regarding this proposed rulemaking. Comments, suggestions, support or objections must be received by the Board by January 14, 2021.

Comments may be submitted to the Board by accessing the Board's online comment system at http://www.ahs.dep.pa.gov/eComment.

Comments may also be submitted by e-mail to RegComments@pa.gov. A subject heading of this proposed rulemaking and a return name and address must be included in each transmission.

If an acknowledgement of comments submitted online or by e-mail is not received by the sender within 2 working days, the comments should be retransmitted to the Board to ensure receipt. Comments submitted by facsimile will not be accepted.

Comments may also be submitted to the Board by mail or express mail. Written comments should be mailed to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477. Express mail should be sent to the Environmental Quality Board, Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301.

K. *Public Hearings*

In accordance with Governor Tom Wolf's emergency disaster declaration and based on advice from the Department of Health regarding the mitigation of the spread of the novel coronavirus (COVID-19), the Board will hold ten virtual public hearings for the purpose of accepting comments on this proposed rulemaking. The hearings will be held as follows:

December 8, 2020, at 9 a.m. – 12 p.m.
December 8, 2020, at 1 p.m. – 4 p.m.
December 9, 2020, at 1 p.m. – 4 p.m.
December 9, 2020, at 6 p.m. – 9 p.m.
December 10, 2020, at 1 p.m. – 4 p.m.
December 10, 2020, at 6 p.m. – 9 p.m.
December 11, 2020, at 9 a.m. – 12 p.m.
December 11, 2020, at 1 p.m. – 4 p.m.
December 14, 2020, at 1 p.m. – 4 p.m.
December 14, 2020, at 6 p.m. – 9 p.m.

Persons wishing to present testimony at a hearing must contact Jennifer Swan for the Department and the Board, at either (717) 783-8727 or RA-EPEQB@pa.gov at least 24 hours in advance of the hearing to reserve a time to present testimony. Language interpretation services are available upon request. Persons in need of language interpretation services must contact Jennifer Swan by 5 p.m. on December 1, 2020.

Registration to present testimony at a hearing is on a first come, first served basis. To help provide interested persons with an opportunity to present testimony, organizations are limited to designating one witness to present testimony on their behalf at one of the hearings. Verbal testimony is limited to 5 minutes for each witness. Video demonstrations and screen sharing by witnesses will not be permitted.

Witnesses are requested to submit a written copy of their verbal testimony by e-mail to RegComments@pa.gov after providing testimony at the hearing.

Information on how to access the hearings will be available on the Board's webpage found through the Public Participation tab on the Department's web site at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board"). Prior to each hearing, individuals are encouraged to visit the Board's webpage for the most current information for accessing each hearing.

Any members of the public wishing to observe the public hearing without providing testimony are also directed to access the Board's webpage. The public hearings may be accessed via telephone or internet connection. Those who have not registered with Jennifer Swan in advance as described previously will remain muted for the duration of the public hearing.

Persons in need of accommodations as provided for in the Americans with Disabilities Act of 1990 should contact the Board at (717) 783-8727 or through the Pennsylvania AT&T Relay Service at (800) 654-5984 (TDD) or (800) 654-5988 (voice users) to discuss how the Board may accommodate their needs.

PATRICK McDONNELL,
Chairperson

PROPOSED RULEMAKING
Annex A
TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE III. AIR RESOURCES

CHAPTER 145. INTERSTATE POLLUTION TRANSPORT REDUCTION

Subchapter E. CO_2 BUDGET TRADING PROGRAM

GENERAL PROVISIONS

Sec.

(*Editor's Note*: Sections 145.301—145.409 are proposed to be added and are printed in regular type to enhance readability.)

§ 145.301. Purpose.

This subchapter establishes the Pennsylvania component of the CO_2 Budget Trading Program, which is designed to reduce anthropogenic emissions of CO_2, a greenhouse gas, from CO_2 budget sources in a manner that is protective of public health, welfare and the environment.

§ 145.302. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

Account number—The identification number given by the Department or its agent to each CO_2 Allowance Tracking System (COATS) account.

Acid rain emissions limitation—A limitation on emissions of sulfur dioxide or NO_x under the Acid Rain Program under Title IV of the Clean Air Act (42 U.S.C.A. §§ 7651—7651o).

Acid Rain Program—A multi-state sulfur dioxide and NO_x air pollution control and emission reduction program established by the Administrator under Title IV of the Clean Air Act and 40 CFR Parts 72—78.

Adjustment for banked allowances—An adjustment that may be applied to the Pennsylvania CO_2 Budget Trading Program base budget for an allocation year to address CO_2 allowances held in general and compliance accounts, including compliance accounts established under the CO_2 Budget Trading Program, but not including accounts opened by participating states, that are in addition to the aggregate quantity of emissions from all CO_2 budget sources in all of the participating states at the end of the control period immediately preceding the allocation year and as reflected in the CO_2 Allowance Tracking System on March 15 of the year following the control period.

Administrator—The Administrator of the EPA or the Administrator's authorized representative.

Agent—A qualified entity that may assist the Department with technical and administrative support functions in accordance with the requirements of this subchapter.

Air pollution reduction account—The general account established by the Department from which CO_2 allowances will be sold or distributed in order to provide funds for use in the elimination of air pollution in accordance with the act and Chapter 143 (relating to disbursements from the clean air fund) and the administration of the Pennsylvania component of the CO_2 Budget Trading Program.

Allocate or *allocation*—The determination by the Department of the number of CO_2 allowances to be recorded in the compliance account of a CO_2 budget source, the waste coal set-aside account, the strategic use set-aside account, the cogeneration set-aside account, the air pollution reduction account, or the general account of the sponsor of an approved CO_2 emissions offset project.

Allocation year—A calendar year for which the Department allocates or awards CO_2 allowances under § 145.341 and § 145.391—145.397 (relating to Pennsylvania CO_2 trading program base budget; and CO_2 emissions offset projects). The allocation year of each CO_2 allowance is reflected in the unique identification number given to the allowance under § 145.354(c) (relating to recordation of CO_2 allowance allocations).

Allowance auction or auction—A bidding process in which the Department or its agent offers CO_2 allowances for sale.

Ascending price, multiple-round auction—A bidding process that starts with an opening price that increases each round by predetermined increments. In each round, a bidder offers the quantity of CO_2 allowances the bidder is willing to purchase at the posted price. Rounds continue as long as demand exceeds the quantity of CO_2 allowances offered for sale. At the completion of the final round, CO_2 allowances will be allocated by one of three methods:

(i) At the final price to remaining bidders and unsold CO_2 allowances to be withheld for a future auction.

(ii) At the penultimate price, first to final round bidders and then to bidders in the penultimate round in chronological order of bid during the penultimate round for all remaining CO_2 allowances.

(iii) According to an alternative mechanism designed to effectuate the objectives of this subchapter.

Attribute—A characteristic associated with electricity generated using a particular renewable fuel, such as its generation date, facility geographic location, unit vintage, emissions output, fuel, state program eligibility, or other characteristic that can be identified, accounted for and tracked.

Attribute credit—A unit that represents the attributes related to one megawatt-hour of electricity generation.

Automated Data Acquisition and Handling System—The component of the continuous emissions monitoring system, or other emissions monitoring system approved for use under § 145.371 (relating to general monitoring requirements), designed to interpret and convert individual output signals from pollutant concentration monitors, flow monitors, diluent gas monitors and other component parts of the monitoring system to produce a continuous record of the measured parameters in the measurement units required by § 145.371.

Award—The determination by the Department of the number of CO_2 offset allowances to be recorded in the general account of a project sponsor under § 145.397 (relating to award and recordation of CO_2 offset allowances). Award is a type of allocation.

Beneficial interest—A profit, benefit or advantage resulting from the ownership of a CO_2 allowance.

Bidder—A qualified participant who has met the requirements of § 145.405 and § 145.406 (relating to auction participant requirements; and auction participant qualification) and has been determined by the Department to be eligible to participate in a specified CO_2 allowance auction under § 145.406.

Boiler—An enclosed fossil or other fuel-fired combustion device used to produce heat and to transfer heat to recirculating water, steam or other medium.

CEMS—continuous emissions monitoring system—The equipment required under § 145.371 to sample, analyze, measure and provide, by means of readings recorded at least once every 15 minutes, using an automated data acquisition and handling system, a permanent record of stack gas volumetric flow rate, stack gas moisture content, and oxygen or carbon dioxide concentration, as applicable, in a manner consistent with 40 CFR Part 75 (relating to continuous emission monitoring) and § 145.371. The following systems are types of continuous emissions monitoring systems required under § 145.371.

(i) A flow monitoring system, consisting of a stack flow rate monitor and an automated data acquisition and handling system and providing a permanent, continuous record of stack gas volumetric flow rate, in standard cubic feet per hour (scfh).

(ii) A nitrogen oxides emissions rate (or NO_X-diluent) monitoring system, consisting of a NO_X pollutant concentration monitor, a diluent gas (CO_2 or O_2) monitor, and an automated data acquisition and handling system and providing a permanent, continuous record of NO_X concentration, in parts per million (ppm), diluent gas concentration, in percent CO_2 or O_2; and NO_X emissions rate, in pounds per million British thermal units (lb/MMBtu).

(iii) A moisture monitoring system, as defined in 40 CFR 75.11(b)(2) (relating to specific provisions for monitoring SO_2 emissions) and providing a permanent, continuous record of the stack gas moisture content, in percent H_2O.

(iv) A carbon dioxide monitoring system, consisting of a CO_2 pollutant concentration monitor (or an oxygen monitor plus suitable mathematical equations from which the CO_2 concentration is derived) and an automated data acquisition and handling system and providing a permanent, continuous record of CO_2 emissions, in percent CO_2.

(v) An oxygen monitoring system, consisting of an O_2 concentration monitor and an automated data acquisition and handling system and providing a permanent, continuous record of O_2, in percent O_2.

COATS—CO_2 allowance tracking system—

(i) A system by which the Department or its agent records allocations, deductions and transfers of CO_2 allowances under the CO_2 Budget Trading Program.

(ii) The system may also be used to track all of the following:

(A) CO_2 emissions offset projects.

(B) CO_2 allowance prices.

(C) Emissions from affected sources.

COATS account—An account established by the Department or its agent for purposes of recording the allocation, holding, transferring or deducting of CO_2 allowances. The tracking system may also be used to track CO_2 offset allowances, CO_2 allowance prices and emissions from affected sources.

CO_2 allowance—A limited authorization by the Department or a participating state under the CO_2 Budget Trading Program to emit up to 1 ton of CO_2, subject to all applicable limitations contained in this subchapter.

CO_2 allowance auction or auction—The sale of CO_2 allowances through competitive bidding as administered in accordance with §§ 145.401—145.409 (relating to CO_2 allowance auctions).

CO_2 allowance deduction or deduct CO_2 allowances—The permanent withdrawal of CO_2 allowances by the Department or its agent from a COATS compliance account to account for one of the following:

(i) The number of tons of CO_2 emitted from a CO_2 budget source for a control period or an interim control period, determined in accordance with § 145.371.

(ii) The forfeit or retirement of CO_2 allowances as provided by this subchapter.

CO_2 allowances held or hold CO_2 allowances—The CO_2 allowances recorded by the Department or its agent or submitted to the Department or its agent for recordation, in accordance with § 145.351 and § 145.361 (relating to CO_2 Allowance Tracking System (COATS) accounts; and submission of CO_2 allowance transfers), in a COATS account.

CO_2 allowance price—The price for CO_2 allowances in the CO_2 Budget Trading Program for a particular time period as determined by the Department, calculated based on a volume-weighted average of transaction prices reported to the Department, and taking into account prices as reported publicly through reputable sources.

CO_2 allowance transfer deadline—Midnight of the March 1 occurring after the end of the relevant control period and each relevant interim control period or, if that March 1 is not a business day, midnight of the first business day thereafter and is the deadline by which CO_2 allowances must be submitted for recordation in a CO_2 budget source's compliance account in order for the source to meet the CO_2 requirements of § 145.306(c) (relating to standard requirements) for the control period and each interim control period immediately preceding the deadline.

CO_2 authorized account representative—

(i) For a CO_2 budget source and each CO_2 budget unit at the source, the person who is authorized by the owner or operator of the source and all CO_2 budget units at the source, in accordance with § 145.311 (relating to authorization and responsibilities of the CO_2 authorized account representative), to represent and legally bind each owner and operator in matters pertaining to the CO_2 Budget Trading Program.

(ii) For a general account, the person who is authorized under §§ 145.351—145.358 to transfer or otherwise dispose of CO_2 allowances held in the general account.

CO_2 authorized alternate account representative—

(i) For a CO_2 budget source and each CO_2 budget unit at the source, the alternate person who is authorized by the owner or operator of the source and all CO_2 budget units at the source, in

accordance with § 145.311, to represent and legally bind each owner and operator in matters pertaining to the CO_2 Budget Trading Program.

(ii) For a general account, the alternate person who is authorized under §§ 145.351—145.358 to transfer or otherwise dispose of CO_2 allowances held in the general account.

CO_2 budget emissions limitation—For a CO_2 budget source, the tonnage equivalent, in CO_2 emissions in a control period or an interim control period, of the CO_2 allowances available for compliance deduction for the source for a control period or an interim control period.

CO_2 budget permit condition—The portion of the permit issued by the Department under Chapter 127 (relating to construction, modification, reactivation and operation of sources) to the owner or operator of a CO_2 budget source which specifies the CO_2 Budget Trading Program requirements applicable to the CO_2 budget source.

CO_2 budget source—A facility that includes one or more CO_2 budget units.

CO_2 Budget Trading Program—A multi-state CO_2 air pollution control and emissions reduction program established under this subchapter and corresponding regulations in other participating states as a means of reducing emissions of CO_2 from CO_2 budget sources.

CO_2 budget unit—A unit that is subject to the CO_2 Budget Trading Program requirements under § 145.304 (relating to applicability).

CO_2 CCR allowance or CO_2 cost containment reserve allowance—A CO_2 allowance that is offered for sale at an auction by the Department for the purpose of containing the cost of CO_2 allowances.

CO_2 CCR trigger price or CO_2 cost containment reserve trigger price—The minimum price at which CO_2 CCR allowances are offered for sale by the Department or its agent at an auction.

CO_2 ECR allowance or CO_2 emissions containment reserve allowance—A CO_2 allowance that is withheld from sale at an auction by the Department for the purpose of additional emission reduction in the event of lower than anticipated emission reduction costs.

CO_2 ECR trigger price or CO_2 emissions containment reserve trigger price—The price below which CO_2 allowances will be withheld from sale by the Department or its agent at an auction.

CO_2e—CO_2 equivalent—The quantity of a given greenhouse gas multiplied by its global warming potential.

CO_2 offset allowance—A CO_2 allowance that is awarded to the sponsor of a CO_2 emissions offset project under § 145.397 and is subject to the relevant compliance deduction limitations of § 145.355(a)(3) (relating to compliance).

Cogeneration set-aside account—A general account established by the Department for the allocation of CO_2 allowances for retirement in an amount equal to the adjustment of the compliance obligation of a cogeneration unit under § 145.342(k) (relating to CO_2 allowance allocations).

Cogeneration unit—An electric-generating unit that simultaneously produces both electric and useful thermal energy from the same primary energy facility.

Combined cycle system—A system comprised of one or more combustion turbine, heat recovery steam generator and steam turbine configured to improve overall efficiency of electricity generation or steam production.

Combustion turbine—An enclosed fossil or other fuel-fired device that is comprised of a compressor, if applicable, a combustor and a turbine, and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine.

Commence commercial operation—With regard to a unit that serves a generator, to have begun to produce steam, gas or other heated medium used to generate electricity for sale or use, including test generation.

(i) For a unit that is a CO_2 budget unit under § 145.304 on the date the unit commences commercial operation, the date shall remain the unit's date of commencement of commercial operation even if the unit is subsequently modified, reconstructed or repowered.

(ii) For a unit that is not a CO_2 budget unit under § 145.304 on the date the unit commences commercial operation, the date the unit becomes a CO_2 budget unit under § 145.304 is the unit's date of commencement of commercial operation.

Commence operation—To have begun any mechanical, chemical or electronic process, including, with regard to a unit, start-up of the unit's combustion chamber.

(i) For a unit that is a CO_2 budget unit under § 145.304 on the date of commencement of operation, the date shall remain the unit's date of commencement of operation even if the unit is subsequently modified, reconstructed or repowered.

(ii) For a unit that is not a CO_2 budget unit under § 145.304 on the date of commencement of operation, the date the unit becomes a CO_2 budget unit under § 145.304 shall be the unit's date of commencement of operation.

Compliance account—A COATS account, established by the Department or its agent for a CO_2 budget source under § 145.351, that holds CO_2 allowances available for use by the owner or operator of the source for a control period and each interim control period for the purpose of meeting the CO_2 requirements of § 145.306(c).

Control period—A 3-calendar-year period. The fifth control period, which is the first control period in which Pennsylvania will participate in the CO_2 Budget Trading Program, is from January 1, 2021, through December 31, 2023, inclusive. Each subsequent sequential 3-calendar-year period is a separate control period.

Decay rate—The amount of a gas removed from the atmosphere over a number of years.

Descending price, multiple-round auction—An auction that starts with a high provisional price, which falls in each round by predetermined increments. In each round, a bidder can lock in the purchase of some number of CO_2 allowances at the current provisional price and wait for the price to fall. Rounds continue so long as the number of CO_2 allowances locked-in is less than the quantity of CO_2 allowances offered for sale.

Discriminatory price, sealed-bid auction—A single-round, sealed-bid auction in which a bidder may submit multiple bids for CO_2 allowances at different prices. The price paid by winning bidders with the highest bids for CO_2 allowances is their own bid price.

Electronic submission agent—The person who is delegated authority by a CO_2 authorized account representative or a CO_2 authorized alternate account representative to make an electronic submission to the Department or its agent under this subchapter.

Eligible biomass—

(i) Sustainably harvested woody and herbaceous fuel sources that are available on a renewable or recurring basis, including dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, unadulterated wood and wood residues, animal wastes, other clean organic wastes not mixed with other solid wastes, biogas and other neat liquid biofuels derived from these fuel sources.

(ii) This term does not include old growth timber.

Excess emissions—The amount of CO_2 emissions, in tons, emitted by a CO_2 budget source during a control period that exceeds the CO_2 budget emissions limitation for the source.

Excess interim emissions—The amount of CO_2 emissions, in tons, emitted by a CO_2 budget source during an interim control period multiplied by 0.50 that exceeds the CO_2 budget emissions limitation for the source.

General account—A COATS account established by the Department under § 145.351 that is not a compliance account.

GWP—Global Warming Potential—

(i) A measure of the radiative efficiency or heat-absorbing ability of a particular gas relative to that of CO_2 after taking into account the decay rate of each gas relative to that of CO_2.

(ii) GWPs used in this subchapter are consistent with the values used in the Intergovernmental Panel on Climate Change, Fifth Assessment Report.

Gross generation—The electrical output in MWe at the terminals of the generator.

Interim control period—A calendar-year period, during each of the first and second calendar years of each control period. The first interim control period for the fifth control period starts on January 1, 2021, and ends on December 31, 2021, inclusive. The second interim control period for the fifth control period starts on January 1, 2022, and ends on December 31, 2022, inclusive. Each successive 3-year control period will have 2 interim control periods, comprised of each of the first 2 calendar years of that control period.

Legacy emissions—The amount of CO_2 emissions in tons equal to the highest year of CO_2 emissions from a waste coal-fired unit during the 5-year period beginning January 1, 2015 through December 31, 2019, as determined by the Department.

Life-of-the-unit contractual arrangement—A unit participation power sales agreement under which a customer reserves, or is entitled to receive, a specified amount or percentage of nameplate capacity or associated energy from any specified unit under a contract for:

(i) The life of the unit.

(ii) A cumulative term of no less than 30 years, including a contract that permits an election for early termination.

(iii) A period equal to or greater than 25 years or 70% of the economic useful life of the unit determined as of the time the unit is built, with option rights to purchase or release some portion of the nameplate capacity and associated energy generated by the unit at the end of the period.

Maximum potential hourly heat input—An hourly heat input used for reporting purposes when a unit lacks certified monitors to report heat input. If the unit intends to use 40 CFR Part 75, Appendix D (relating to optional SO_2 emissions data protocol for gas-fired and oil-fired units) to report heat input, this value shall be calculated, in accordance with 40 CFR Part 75, using the maximum fuel flow rate and the maximum gross calorific value. If the unit intends to use a flow monitor and a diluent gas monitor, this value shall be reported, in accordance with 40 CFR Part 75, using the maximum potential flow rate and either the maximum CO_2 concentration in percent CO_2 or the minimum O_2 concentration in percent O_2.

Minimum reserve price—The price for calendar year 2020 is $2.32. Each calendar year thereafter, the minimum reserve price shall be 1.025 multiplied by the minimum reserve price from the previous calendar year, rounded to the nearest whole cent.

Monitoring system—A monitoring system that meets the requirements of this subchapter, including a CEMS, an excepted monitoring system or an alternative monitoring system.

Nameplate capacity—The maximum electrical output in MWe that a generator can sustain over a specified period of time when not restricted by seasonal or other de-ratings as measured in accordance with the United States Department of Energy standards.

Notice of CO_2 allowance auction—The notification for a specific auction or auctions issued under § 145.404 (relating to auction notice).

Operator—A person who operates, controls or supervises a CO_2 budget unit or a CO_2 budget source and shall include, but not be limited to, a holding company, utility system or plant manager of the unit or source.

Owner—Any of the following persons:

(i) A holder of any portion of the legal or equitable title in a CO_2 budget unit or a CO_2 budget source.

(ii) A holder of a leasehold interest in a CO_2 budget unit or a CO_2 budget source, other than a passive lessor, or a person who has an equitable interest through such lessor, whose rental payments are not based, either directly or indirectly, upon the revenues or income from the CO_2 budget unit.

(iii) A purchaser of power from a CO_2 budget unit under a life-of-the-unit contractual arrangement in which the purchaser controls the dispatch of the unit.

(iv) With respect to any general account, a person who has an ownership interest with respect to the CO_2 allowances held in the general account and who is subject to the binding agreement for the CO_2 authorized account representative to represent that person's ownership interest with respect to CO_2 allowances.

Participating state—A state that has established a corresponding regulation as part of the CO_2 Budget Trading Program.

Pennsylvania CO_2 Budget Trading Program adjusted budget—The annual amount of CO_2 tons available in Pennsylvania for allocation in a given allocation year, in accordance with the CO_2 Budget Trading Program, determined in accordance with § 145.342. CO_2 offset allowances allocated to project sponsors and CO_2 CCR allowances offered for sale at an auction are separate from and additional to CO_2 allowances allocated from the Pennsylvania CO_2 Budget Trading Program adjusted budget.

Pennsylvania CO_2 Budget Trading Program base budget—The annual amount of CO_2 tons available in Pennsylvania for allocation in a given allocation year, in accordance with the CO_2 Budget Trading Program and as specified in § 145.341. CO_2 offset allowances allocated to project sponsors and CO_2 CCR allowances offered for sale at an auction are separate from and additional to CO_2 allowances allocated from the Pennsylvania CO_2 Budget Trading Program base budget.

Qualified participant—A person who has submitted a qualification application under § 145.406(a) and that the Department determines to be qualified to participate in CO_2 allowance auctions under § 145.406(e).

Receive or receipt of—When referring to the Department or its agent, to come into possession of a document, information or correspondence, whether sent in writing or by authorized electronic transmission, as indicated in an official correspondence log, or by a notation made on the document, information or correspondence, by the Department or its agent in the regular course of business.

Recordation, record or recorded—With regard to CO_2 allowances, the movement of CO_2 allowances by the Department or its agent from one COATS account to another, for purposes of allocation, transfer or deduction.

Reserve price—The minimum acceptable price for each CO_2 allowance offered for sale in a specific auction. The reserve price at an auction is either the minimum reserve price or the CCR trigger price, as specified in § 145.382 (relating to general requirements).

Reviewer—The individual who is delegated authority by a CO_2 authorized account representative or a CO_2 authorized alternate account representative to review information in COATS under this subchapter.

Source—A governmental, institutional, commercial or industrial structure, installation, plant, building or facility that emits or has the potential to emit any air pollutant. A source, including a source with multiple units, shall be considered a single facility.

Strategic use set-aside account—A general account established by the Department for the distribution of CO_2 allowances to encourage and foster promotion of energy efficiency measures, promotion of renewable or noncarbon-emitting energy technologies, stimulation or reward of investment in the development of innovative carbon emissions abatement technologies with significant carbon reduction potential.

Ton or *tonnage*—A short ton that is 2,000 pounds or 0.9072 metric tons.

Undistributed CO_2 allowance—A CO_2 allowance originally allocated to a set-aside account as under § 145.342 that were not distributed.

Uniform-price, sealed-bid auction—A single-round, sealed-bidding process in which a bidder may submit multiple bids at different prices. The price paid by all successful bidders will be uniform and equal to the highest rejected bid price.

Unit—A fossil fuel-fired stationary boiler, combustion turbine or combined cycle system.

Unit operating day—A calendar day in which a unit combusts any fuel.

Unsold CO_2 allowance—A CO_2 allowance that has been made available for sale in an auction conducted by the Department or its agent, but not sold.

Useful thermal energy—

(i) Energy in the form of direct heat, steam, hot water or other thermal form applied for a useful purpose in an industrial, institutional or commercial process.

(ii) This term does not include steam made available for electricity production.

Waste coal—The coal disposed or abandoned prior to July 31, 1982, or disposed of thereafter in a permitted coal refuse disposal site regardless of when disposed of and used to generate electricity, as defined under section 1648.2 of the Alternative Energy Portfolio Standards Act (73 P.S. § 1648.2).

Waste coal-fired—The combustion of waste coal or, if in combination with any other fuel, waste coal comprises 75% or greater of the annual heat input on a Btu basis. Facilities combusting waste coal shall use at a minimum a circulating fluidized bed boiler and be outfitted with a limestone injection system and a fabric filter particulate removal system.

Waste coal set-aside account—A general account established by the Department for the allocation of CO_2 allowances in an amount sufficient to provide CO_2 allowances equal to the legacy emissions from all waste coal-fired units under § 145.342(i).

§ 145.303. Measurements, abbreviations and acronyms.

Measurements, abbreviations and acronyms used in this subchapter are defined as follows:

CH_4—methane.

hr—hour.

lb—pounds.

MMBtu—Million Btu.

MW—megawatt.

MWe—megawatt electrical.

§ 145.304. Applicability.

(a) *CO_2 budget unit*. Beginning <u>*blank*</u> (*Editor's Note*: The blank refers to the effective date of this rulemaking, when published as a final-form rulemaking.), this subchapter applies to an

owner or operator of a unit that, at any time on or after January 1, 2005, served or serves an electricity generator with a nameplate capacity equal to or greater than 25 MWe.

(b) *CO_2 budget source*. Any source that includes one or more CO_2 budget units shall be a CO_2 budget source, subject to the requirements of this subchapter.

§ 145.305. Limited exemption for CO_2 budget units with electrical output to the electric grid restricted by permit conditions.

(a) *Exemption*. Notwithstanding § 145.304 (relating to applicability), a CO_2 budget source that has a permit issued by the Department containing a condition restricting the supply of the CO_2 budget unit's annual electrical output to the electric grid to no more than 10% of the annual gross generation of the unit, or restricting the supply less than or equal to 15% of its annual total useful energy to any entity other than the manufacturing facility to which the CO_2 budget source is interconnected and which complies with subsection (c), shall be exempt from the requirements of this subchapter, except for the provisions of this section, § 145.302, § 145.303, § 145.307 (relating to definitions; measurements, abbreviations and acronyms; and computation of time) and, if applicable because of the allocation of CO_2 allowances during the pre-exemption time period, § 145.341, § 145.351 and § 145.361 (relating to .

(b) *Effective date*. The exemption under subsection (a) shall become effective as of the January 1 on or after the date on which the restriction on the percentage of annual gross generation that may be supplied to the electric grid and the provisions in the permit required under subsection (a) become final.

(c) *Compliance.*

(1) The owner or operator of a CO_2 budget unit exempt under subsection (a) shall comply with the restriction on the percentage of annual gross generation that may be supplied to the electric grid described in subsection (a).

(2) The owner or operator of a CO_2 budget unit exempt under subsection (a) shall report to the Department the amount of annual gross generation and the amount of annual gross generation supplied to the electric grid during the calendar year by the following March 1.

(3) For a period of 10 years from the date the records are created, the owner or operator of a CO_2 budget unit exempt under subsection (a) shall retain, at the source that includes the unit, records demonstrating that the conditions of the permit under subsection (a) were met. The Department may, in writing, extend the 10-year period for keeping records, at any time prior to the end of the period. The owner or operator bears the burden of proof that the unit met the restriction on the percentage of annual gross generation that may be supplied to the electric grid.

(4) The owner or operator and, to the extent applicable, the CO_2 authorized account representative of a CO_2 budget unit exempt under subsection (a) shall comply with the requirements of this subchapter concerning all time periods for which the exemption is not in effect, even if the requirements arise, or must be complied with, after the exemption takes effect.

(5) A CO_2 budget unit exempt under subsection (a) will lose its exemption, on the earlier of the following dates:

(i) The restriction on the percentage of annual gross generation that may be supplied to the electric grid described in subsection (a) is removed from the unit's permit or otherwise becomes no longer applicable in any year that commences on or after January 1, 2022.

(ii) The unit fails to comply or the owner or operator fails to meet their burden of proving that the unit is complying with the restriction on the percentage of annual gross generation that may be supplied to the electric grid described in subsection (a) during any year that commences on or after January 1, 2022.

(6) A unit that loses its exemption in accordance with paragraph (c)(5) shall be subject to the requirements of this subchapter. For the purposes of this subchapter, the unit shall be treated as commencing operation on the date the unit loses its exemption.

§ 145.306. Standard requirements.

(a) *Permit requirements.*

(1) The owner or operator of each CO_2 budget source shall have a CO_2 budget permit condition in their permit required under Chapter 127 and shall submit to the Department the following:

(i) A complete application for a new, renewed or modified permit under § 145.323 in accordance with the deadlines specified in § 145.322.

(ii) Any supplemental information that the Department determines is necessary to review the permit application and issue or deny a permit, permit renewal or permit modification that includes CO_2 Budget Trading Program requirements.

(2) The owner or operator of each CO_2 budget source required to have a permit under Chapter 127 shall ensure that the permit incorporates the requirements of the CO_2 Budget Trading Program and shall operate the CO_2 budget source and each CO_2 budget unit at the source in compliance with the permit.

(b) *Monitoring requirements.*

(1) The owner or operator and, to the extent applicable, the CO_2 authorized account representative of each CO_2 budget source and each CO2 budget unit at the source, shall comply with the monitoring requirements of §§ 145.371—145.377 (relating to monitoring, reporting and recordkeeping requirements).

(2) The Department will use the emissions measurements recorded and reported in accordance with §§ 145.371—145.377 to determine the unit's compliance with the CO_2 requirements under subsection (c).

(c) *CO_2 requirements.* A CO_2 budget unit shall be subject to the CO_2 requirements starting on January 1, 2022, or the date on which the unit commences operation, whichever is later.

(1) For the purpose of determining compliance with paragraph (c)(2), total tons for a control period or an interim control period shall be calculated as the sum of all recorded hourly emissions or the tonnage equivalent of the recorded hourly emissions rates, in accordance with §§ 145.371—145.377. The Department will round total CO_2 emissions to the nearest whole ton, so that any fraction of a ton equal to or greater than 0.50 tons is deemed to equal 1 ton and any fraction of a ton less than 0.50 tons is deemed to equal zero tons.

(2) The owner or operator of each CO_2 budget source and each CO_2 budget unit at the source shall, as of the CO_2 allowance transfer deadline, hold CO_2 allowances available for compliance deductions under § 145.355, in the source's compliance account, as follows:

(i) For a control period, the amount of CO_2 allowances held shall be no less than the total CO_2 emissions for the control period from all CO_2 budget units at the source, less the CO_2 allowances deducted to meet the requirements of subparagraph (c)(2)(ii), with respect to the previous 2 interim control periods, as determined in accordance with §§ 145.351—145.358 (relating to CO_2 allowance tracking system) and §§ 145.371—145.377.

(ii) For an interim control period, the amount of CO_2 allowances held shall be no less than the total CO_2 emissions for the interim control period from all CO_2 budget units at the source multiplied by 0.50, as determined in accordance with §§ 145.351—145.358 and §§ 145.371—145.377.

(3) Each ton of CO_2 emitted in excess of the CO_2 budget emissions limitation for a control period shall constitute a separate violation of this subchapter and the act.

(4) Each ton of excess interim emissions shall constitute a separate violation of this subchapter and the act.

(5) CO_2 allowances shall be held in, deducted from, or transferred among COATS accounts in accordance with §§ 145.341—145.343 (relating to CO_2 allowance allocations), 145.351—145.358, and 145.361—145.363 (relating to CO_2 allowance transfers) and 145.397.

(6) A CO_2 allowance shall not be deducted, in order to comply with the requirements under subsection (c), for a control period or interim control period that ends prior to the year for which the CO_2 allowance was allocated.

(7) A CO_2 offset allowance shall not be deducted, in order to comply with the requirements under subsection (c), beyond the applicable percent limitations in § 145.355(a)(3).

(8) A CO_2 allowance is a limited authorization by the Department or a participating state to emit 1 ton of CO_2 in accordance with the CO_2 Budget Trading Program. No provision of the CO_2 Budget Trading Program, this subchapter, an application for a new, renewed or modified permit to incorporate the requirements of the CO_2 Budget Trading Program, a permit that includes the requirements of the CO_2 Budget Trading Program, or any provision of law shall be construed to limit the authority of the Department or a participating state to terminate or limit the authorization.

(9) A CO_2 allowance under the CO_2 Budget Trading Program does not constitute a property right.

(d) *Excess emissions requirements.* The owner or operator of a CO_2 budget source that has excess emissions in any control period or excess interim emissions for any interim control period shall do the following:

(1) Forfeit the CO_2 allowances required for deduction under § 145.355(d)(1) and (d)(2).

(2) Pay any fine, penalty or assessment or comply with any other remedy imposed under § 145.355(d)(3).

(e) *Recordkeeping and reporting requirements.*

(1) Except as provided in subparagraph (1)(i), the owner or operator of the CO_2 budget source and each CO_2 budget unit at the source shall maintain at a central location and provide upon request by the Department the following documents for 10 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 10 years, in writing by the Department.

(i) The account certificate of representation for the CO_2 authorized account representative for the CO_2 budget source and each CO_2 budget unit at the source and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with § 145.314 (relating to account certificate of representation). The certificate and documents shall be retained beyond the 10-year period until the documents are superseded because of the submission of a new account certificate of representation changing the CO_2 authorized account representative.

(ii) The emissions monitoring information, in accordance with §§ 145.371—145.377 and 40 CFR 75.57 (relating to general recordkeeping provisions).

(iii) Copies of all reports, compliance certifications and other submissions and all records made or required under the CO_2 Budget Trading Program.

(iv) Copies of the documents used to complete an application for a new or modified permit that incorporates the requirements of the CO_2 Budget Trading Program and any submission under the CO_2 Budget Trading Program or to demonstrate compliance with the requirements of the CO_2 Budget Trading Program.

(2) The CO_2 authorized account representative of a CO_2 budget source and each CO_2 budget unit at the source shall submit the reports and compliance certifications required under this subchapter, including the requirements under §§ 145.331—145.332 (relating to compliance certification).

(f) *Liability.*

(1) Except as provided under § 127.403 (relating to permitting of sources operating lawfully without a permit), a permit revision may not excuse any violation of the requirements of this subchapter that occurs prior to the date that the revision takes effect.

(2) Any provision of this subchapter that applies to a CO_2 authorized account representative shall apply to the owner or operator of the source and of the CO_2 budget units at the source.

(3) Any provision of this subchapter that applies to a CO_2 budget source shall also apply to the owner or operator of the source and of the CO_2 budget units at the source.

(4) Any provision of this subchapter that applies to a CO_2 budget unit shall also apply to the owner or operator of the unit.

(g) *Effect on other authorities.* No provision of this subchapter, a permit application or a permit shall be construed as exempting or excluding the owner or operator and, to the extent applicable, the CO_2 authorized account representative, from compliance with any provision of the act, the Clean Air Act or the regulations promulgated under the Clean Air Act or the act.

§ 145.307. Computation of time.

(a) Unless otherwise stated, any time period scheduled, under the CO_2 Budget Trading Program, to begin on the occurrence of an act or event shall begin on the day the act or event occurs.

(b) Unless otherwise stated, any time period scheduled, under the CO_2 Budget Trading Program, to begin before the occurrence of an act or event shall be computed so that the period ends the day before the act or event occurs.

(c) Unless otherwise stated, if the final day of any time period, under the CO_2 Budget Trading Program, falls on a weekend or a State or Federal holiday, the time period shall be extended to the next business day.

CO_2 AUTHORIZED ACCOUNT REPRESENTATIVE FOR A CO_2 BUDGET SOURCE

Sec.

§ 145.311. Authorization and responsibilities of the CO_2 authorized account representative.

(a) Except as provided under § 145.312 (relating to CO_2 authorized alternate account representative), each CO_2 budget source, including all CO_2 budget units at the source, shall have only one CO_2 authorized account representative, with regard to all matters under the CO_2 Budget Trading Program concerning the source or any CO_2 budget unit at the source.

(b) The CO_2 authorized account representative of the CO_2 budget source shall be selected by an agreement binding on the owner or operator of the source and all CO_2 budget units at the source and must act in accordance with the certificate of representation under § 145.314.

(c) Upon receipt by the Department or its agent of a complete account certificate of representation under § 145.314, the CO_2 authorized account representative of the source shall represent and, by their representations, actions, inactions or submissions, legally bind each owner and operator of the CO_2 budget source represented and each CO_2 budget unit at the source in all matters pertaining to the CO_2 Budget Trading Program, notwithstanding any agreement between the CO_2 authorized account representative and the owner or operator. The owner or operator shall be bound by any decision or order issued to the CO_2 authorized account representative by the Department or a court regarding the source or unit.

(d) The Department will issue a permit that incorporates the requirements of the CO_2 Budget Trading Program and establish a COATS account for a CO_2 budget source only after the Department or its agent has received a complete account certificate of representation under § 145.314 for a CO_2 authorized account representative of the source and the CO_2 budget units at the source.

(e) Each submission under the CO_2 Budget Trading Program shall be submitted, signed and certified by the CO_2 authorized account representative for each CO_2 budget source on behalf of which the submission is made. Each submission shall include the following certification statement by the CO_2 authorized account representative:

"I am authorized to make this submission on behalf of the owner or operator of the CO_2 budget sources or CO_2 budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties under 18 Pa.C.S. § 4904 for submitting false statements and information or omitting required statements and information."

(f) The Department or its agent will accept or act on a submission made on behalf of the owner or operator of a CO_2 budget source or a CO_2 budget unit only if the submission has been made, signed and certified in accordance with subsection (e).

§ 145.312. CO_2 authorized alternate account representative.

(a) An account certificate of representation may designate only one CO_2 authorized alternate account representative who may act on behalf of the CO_2 authorized account representative. The agreement by which the CO_2 authorized alternate account representative is selected shall include a procedure for authorizing the CO_2 authorized alternate account representative to act in lieu of the CO_2 authorized account representative.

(b) Upon receipt by the Department or its agent of a complete account certificate of representation under § 145.314, any representation, action, inaction or submission by the CO_2 authorized alternate account representative shall be deemed to be a representation, action, inaction or submission by the CO_2 authorized account representative.

(c) Except in this section and §§ 145.311(a), 145.313 (relating to changing the CO_2 authorized account representative and the CO_2 authorized alternate account representative; changes in the owners and operators), 145.314 and 145.352 (relating to establishment of accounts), whenever the term "CO_2 authorized account representative" is used in this subchapter, the term shall include the CO_2 authorized alternate account representative.

§ 145.313. Changing the CO_2 authorized account representative and the CO_2 authorized alternate account representative; changes in the owner or operator.

(a) *Changing the CO_2 authorized account representative.* The CO_2 authorized account representative may be changed at any time upon receipt by the Department or its agent of a superseding complete account certificate of representation under § 145.314. Notwithstanding a change, the representations, actions, inactions and submissions by the previous CO_2 authorized account representative or CO_2 authorized alternate account representative prior to the time and date when the Department or its agent receives the superseding account certificate of representation shall be binding on the new CO_2 authorized account representative and the owner or operator of the CO_2 budget source and the CO_2 budget units at the source.

(b) *Changing the CO_2 authorized alternate account representative.* The CO_2 authorized alternate account representative may be changed at any time upon receipt by the Department or its agent of a superseding complete account certificate of representation under § 145.314. Notwithstanding a change, the representations, actions, inactions and submissions by the previous CO_2 authorized alternate account representative prior to the time and date when the Department or its agent receives the superseding account certificate of representation shall be binding on the new CO_2 authorized alternate account representative and the owner or operator of the CO_2 budget source and the CO_2 budget units at the source.

(c) *Changes in the owner or operator.*

(1) If a new owner or operator of a CO_2 budget source or a CO_2 budget unit is not included in the list of owners and operators submitted in the account certificate of representation, the new owner or operator shall be deemed to be subject to and bound by the account certificate of representation, the representations, actions, inactions and submissions of the CO_2 authorized account representative and any CO_2 authorized alternate account representative of the source or unit, and the decisions, orders, actions and inactions of the Department, as if the new owner or operator were included in the list.

(2) Within 30 days following any change in the owner or operator of a CO_2 budget source or a CO_2 budget unit, including the addition of a new owner or operator, the CO_2 authorized account representative or CO_2 authorized alternate account representative shall submit a revision to the account certificate of representation amending the list of owners and operators to include the change.

§ 145.314. Account certificate of representation.

(a) A complete account certificate of representation for a CO_2 authorized account representative or a CO_2 authorized alternate account representative shall include the following elements in a format prescribed by the Department or its agent:

(1) Identification of the CO_2 budget source and each CO_2 budget unit at the source for which the account certificate of representation is submitted.

(2) The name, address, e-mail address and telephone number of the CO_2 authorized account representative and any CO_2 authorized alternate account representative.

(3) A list of the owners and operators of the CO_2 budget source and of each CO_2 budget unit at the source.

(4) The following certification statement by the CO_2 authorized account representative and any CO_2 authorized alternate account representative:

"I certify that I was selected as the CO_2 authorized account representative or CO_2 authorized alternate account representative, as applicable, by an agreement binding on the owner or operator of the CO_2 budget source and each CO_2 budget unit at the source. I certify that I have all the necessary authority to carry out my duties and responsibilities under the CO_2 Budget Trading Program on behalf of the owner or operator of the CO_2 budget source and of each CO_2 budget unit at the source and that each owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any decision or order issued to me by the Department or a court regarding the source or unit."

(5) The signature of the CO_2 authorized account representative and any CO_2 authorized alternate account representative and the dates signed.

(b) Unless otherwise required by the Department or its agent, documents of agreement referred to in the account certificate of representation shall not be submitted to the Department or its agent. The Department and its agent are not under any obligation to review or evaluate the sufficiency of documents of agreement, if submitted.

§ 145.315. Objections concerning the CO_2 authorized account representative.

(a) Once a complete account certificate of representation under § 145.314 has been submitted and received, the Department and its agent will rely on the account certificate of representation unless the Department or its agent receives a superseding complete account certificate of representation under § 145.314.

(b) Except as provided in § 145.313(a) or (b), an objection or other communication submitted to the Department or its agent concerning the authorization, or any representation, action, inaction or submission of the CO_2 authorized account representative will not affect any representation, action, inaction or submission of the CO_2 authorized account representative or the finality of a decision or order by the Department or its agent under the CO_2 Budget Trading Program.

(c) The Department and its agent will not adjudicate any private legal dispute concerning the authorization or any representation, action, inaction or submission of a CO_2 authorized account representative, including private legal disputes concerning the proceeds of CO_2 allowance transfers.

§ 145.316. Delegation of authority to make electronic submissions and review information in COATS.

(a) A CO_2 authorized account representative or a CO_2 authorized alternate account representative may delegate, to one or more persons, their authority to make an electronic submission to the Department or its agent under this subchapter.

(b) In order to delegate authority to make an electronic submission to the Department or its agent, the CO_2 authorized account representative or CO_2 authorized alternate account representative must submit to the Department or its agent a notice of delegation, in a format prescribed by the Department that includes the following:

(1) The name, address, e-mail address and telephone number of the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative.

(2) The name, address, e-mail address and telephone number of each electronic submission agent.

(3) For each electronic submission agent, a list of the type of electronic submissions under subsection (a) for which authority is delegated.

(4) The following certification statements by the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative:

(i) "I agree that any electronic submission to the Department or its agent that is by the electronic submission agent identified in this notice of delegation and of a type listed for the electronic submission agent in this notice of delegation and that is made when I am a CO_2 authorized account representative or CO_2 authorized alternate account representative and before this notice of delegation is superseded by another notice of delegation under subsection (d) shall be deemed to be an electronic submission by me."

(ii) "Until this notice of delegation is superseded by another notice of delegation under subsection (d), I agree to maintain an e-mail account and to notify the Department or its agent immediately of any change in my e-mail address unless all delegation authority by me under this subsection is terminated."

(c) A notice of delegation submitted under subsection (b) will be effective, with regard to the CO_2 authorized account representative or CO_2 authorized alternate account representative identified in the notice, upon receipt of the notice by the Department or its agent and until receipt by the Department or its agent of a superseding notice of delegation by the CO_2 authorized account representative or CO_2 authorized alternate account representative. The superseding notice of delegation may replace any previously identified electronic submission agent, add a new electronic submission agent or eliminate entirely any delegation of authority.

(d) Any electronic submission covered by the certification under subparagraph (b)(4) and made in accordance with a notice of delegation effective under subsection (b) shall be deemed to be an electronic submission by the CO_2 authorized account representative or CO_2 authorized alternate account representative submitting the notice of delegation.

(e) A CO_2 authorized account representative or a CO_2 authorized alternate account representative may delegate, to one or more persons, their authority to review information in COATS under this subchapter.

(f) In order to delegate authority to review information in COATS under subsection (e), the CO_2 authorized account representative or CO_2 authorized alternate account representative must submit to the Department or its agent a notice of delegation, in a format prescribed by the Department that includes the following:

(1) The name, address, e-mail address and telephone number of the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative.

(2) The name, address, e-mail address and telephone number of each reviewer.

(3) For each reviewer, a list of the type of information under subsection (e) for which authority is delegated.

(4) The following certification statements by the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative:

(i) "I agree that any information that is reviewed by the reviewer identified in this notice of delegation and of a type listed for the information accessible by the reviewer in this notice of delegation and that is made when I am a CO_2 authorized account representative or CO_2 authorized alternate account representative and before this notice of delegation is superseded by another notice of delegation under subsection (g) shall be deemed to be a review by me."

(ii) "Until this notice of delegation is superseded by another notice of delegation under subsection (g), I agree to maintain an e-mail account and to notify the Department or its agent immediately of any change in my e-mail address unless all delegation authority by me under this subsection is terminated."

(g) A notice of delegation submitted under subsection (f) shall be effective, with regard to the CO_2 authorized account representative or CO_2 authorized alternate account representative identified in the notice, upon receipt of the notice by the Department or its agent and until receipt by the Department or its agent of a superseding notice of delegation by the CO_2 authorized account representative or CO_2 authorized alternate account representative. The superseding notice of delegation may replace any previously identified reviewer, add a new reviewer or eliminate entirely any delegation of authority.

PERMITS

Sec.

§ 145.321. General requirements for a permit incorporating CO_2 Budget Trading Program requirements.

(a) Except as provided under § 127.403, each CO_2 budget source must have a permit issued by the Department under Chapter 127.

(b) The permit for each CO_2 budget source shall contain all applicable CO_2 Budget Trading Program requirements.

§ 145.322. Submission of an application for a new, renewed or modified permit incorporating CO_2 Budget Trading Program requirements.

(a) For any CO_2 budget source, the owner or operator shall submit a complete permit application under Chapter 127 incorporating the CO_2 Budget Trading Program requirements in this subchapter to the Department by the later of the following:

(1) 6 months after *blank*. (*Editor's Note*: The blank refers to the effective date of this rulemaking, when published as a final-form rulemaking.)

(2) 12 months before the date on which the CO_2 budget source, or a new unit at the source, commences operation.

(b) If the Department approves the incorporation of CO_2 Budget Trading Program requirements into a permit, the Department will establish permit conditions in the permit that will enable the Department to readily verify whether emissions from the source operations meet the requirements of this subchapter. Such permit conditions will set forth replicable procedures, including monitoring, source emissions testing and recordkeeping and reporting procedures, sufficient to ensure that emissions are quantified and recorded and that compliance with the emissions limitation under this subchapter is enforceable.

§ 145.323. Contents of an application for a permit incorporating CO_2 Budget Trading Program requirements.

A complete permit application shall include the following concerning the CO_2 budget source for which the application is submitted, in a format prescribed by the Department:

(1) Identification of the CO_2 budget source, including plant name and the Office of Regulatory Information Systems or facility code assigned to the source by the Energy Information Administration of the United States Department of Energy, if applicable.

(2) Identification of each CO_2 budget unit at the CO_2 budget source.

(3) The standard requirements under § 145.306.

(4) The compliance certification requirements under § 145.331 (relating to compliance certification report).

(5) The compliance requirements under § 145.355.

(6) The monitoring, recordkeeping and reporting requirements under §§ 145.371—145.377.

COMPLIANCE CERTIFICATION

Sec.

§ 145.331. Compliance certification report.

(a) *Applicability and deadline.* For each control period, except for an interim control period, in which a CO_2 budget source is subject to the CO_2 requirements of § 145.306(c), the CO_2 authorized account representative of the source shall submit a compliance certification report to the Department by March 1 following the relevant control period.

(b) *Contents of report.* The CO_2 authorized account representative shall include in the compliance certification report under subsection (a) the following:

(1) Identification of the CO_2 budget source and each CO_2 budget unit at the source.

(2) At the CO_2 authorized account representative's option, the serial numbers of the CO_2 allowances that are to be deducted from the source's compliance account under § 145.355 for the control period or an interim control period, including the serial numbers of any CO_2 offset allowances that are to be deducted subject to the limitations of § 145.355(a)(3).

(3) The compliance certification under subsection (c).

(c) *Compliance certification.* In the compliance certification report under subsection (a), the CO_2 authorized account representative shall certify, based on reasonable inquiry of those persons with primary responsibility for operating the source and the CO_2 budget units at the source in compliance with the CO_2 Budget Trading Program, whether the source and each CO_2 budget unit at the source for which the compliance certification is submitted was operated during the calendar years covered by the report in compliance with the requirements of the CO_2 Budget Trading Program, including the following:

(1) Whether the CO_2 budget source was operated in compliance with the CO_2 requirements of § 145.306(c).

(2) Whether the monitoring plan applicable to each unit at the source has been maintained to reflect the actual operation and monitoring of the unit and contains the information necessary to attribute CO_2 emissions to the unit, in accordance with §§ 145.371—145.377.

(3) Whether all the CO_2 emissions from the units at the source were monitored or accounted for through the missing data procedures and reported in the quarterly monitoring reports, including whether conditional data were reported in the quarterly reports in accordance with §§ 145.371—145.377. If conditional data were reported, the owner or operator shall indicate whether the status of all conditional data has been resolved and all necessary quarterly report resubmissions have been made.

(4) Whether the facts that form the basis for certification under §§ 145.371—145.377 of each monitor at each unit at the source, or for using an excepted monitoring method or alternative monitoring method approved under §§ 145.371—145.377, if any, have changed.

(5) If a change is required to be reported under paragraph (c)(4), specify the nature of the change, the reason for the change, when the change occurred and how the unit's compliance status was determined subsequent to the change, including what method was used to determine emissions when a change mandated the need for monitor recertification.

§ 145.332. Department action on compliance certifications.

(a) The Department or its agent may review and conduct independent audits concerning any compliance certification or any other submission under the CO_2 Budget Trading Program and make appropriate adjustments of the information in the compliance certification or other submission.

(b) The Department or its agent may deduct CO_2 allowances from or transfer CO_2 allowances to a CO_2 budget source's compliance account based on the information in the compliance certification or other submission, as adjusted under subsection (a).

CO_2 ALLOWANCE ALLOCATIONS

Sec.

§ 145.341. Pennsylvania CO_2 Budget Trading Program base budget.

(a) For 2022, the Pennsylvania CO_2 Budget Trading Program base budget is 78,000,000 tons.

(b) For 2023, the Pennsylvania CO_2 Budget Trading Program base budget is 75,510,630 tons.

(c) For 2024, the Pennsylvania CO_2 Budget Trading Program base budget is 73,021,260 tons.

(d) For 2025, the Pennsylvania CO_2 Budget Trading Program base budget is 70,531,890 tons.

(e) For 2026, the Pennsylvania CO_2 Budget Trading Program base budget is 68,042,520 tons.

(f) For 2027, the Pennsylvania CO_2 Budget Trading Program base budget is 65,553,150 tons.

(g) For 2028, the Pennsylvania CO_2 Budget Trading Program base budget is 63,063,780 tons.

(h) For 2029, the Pennsylvania CO_2 Budget Trading Program base budget is 60,574,410 tons.

(i) For 2030 and each succeeding calendar year, the Pennsylvania CO_2 Budget Trading Program base budget is 58,085,040 tons.

§ 145.342. CO_2 allowance allocations.

(a) *General allocations*. The Department will allocate CO_2 allowances representing 100% of the tons for each allocation year from the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341 to the air pollution reduction account, less those CO_2 allowances set aside each allocation year under subsection (b).

(b) *Set-aside allocations*.

(1) *Waste coal set-aside account.* The Department will allocate CO_2 allowances to a waste coal set-aside account for each allocation year from the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341, as provided under subsection (i).

(2) *Strategic use set-aside account.* The Department will allocate undistributed CO_2 allowances to the strategic use set-aside account for each allocation year from the waste coal set-aside account, as provided under subsection (j).

(3) *Cogeneration set-aside account.* The Department will allocate CO_2 allowances to a cogeneration set-aside account for each allocation year from the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341, as provided under subsection (k).

(c) *CO_2 allowances available for allocation.* For the allocation year 2022 and each succeeding calendar year, the Pennsylvania CO_2 Budget Trading Program adjusted budget shall be the maximum number of CO_2 allowances available for allocation in a given allocation year, except for CO_2 offset allowances and CO_2 CCR allowances. In any year in which there is no adjusted budget, the adjusted budget shall equal the base budget.

(d) *Cost Containment Reserve (CCR) allocation.* To contain the cost of CO_2 allowances, the Department will allocate CO_2 CCR allowances, separate from and additional to the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341, to the air pollution reduction account. The Department will allocate CO_2 CCR allowances by doing the following:

(1) The Department will initially allocate CCR allowances for calendar year 2022 in an amount equal to 10% of the Pennsylvania CO_2 Budget Trading Program base budget for 2022 set forth in § 145.341(a).

(2) On or before January 1, 2023, and on or before January 1 of each calendar year thereafter, the Department will allocate current vintage year CCR allowances equal to 10% of the Pennsylvania CO_2 Budget Trading Program base budget for the calendar year and withdraw the number of CO_2 CCR allowances that remain in the air pollutant reduction account at the end of the prior calendar year.

(e) *Emissions Containment Reserve (ECR) Withholding.* To provide additional emissions reductions in the event of lower than anticipated emissions reduction costs, the Department will convert and transfer any CO_2 allowances that have been withheld from any auction into the Pennsylvania ECR account. The Department will withhold CO_2 ECR allowances by doing the following:

(1) If the condition in § 145.382(d)(1) is met at an auction, then the maximum number of CO_2 ECR allowances that will be withheld from that auction will be equal to 10% of the Pennsylvania CO_2 Budget Trading Program base budget for that calendar year minus the total quantity of CO_2 ECR allowances that have been withheld from any prior auction in that calendar year. Any CO_2 ECR allowances withheld from an auction will be transferred into the Pennsylvania ECR account.

(2) CO_2 allowances that have been transferred into the Pennsylvania ECR account will remain in the Pennsylvania ECR account as CO_2 ECR allowances and not be withdrawn.

(f) *Adjustment for banked allowances.* The Department may determine whether any adjustments for banked allowances will be made by using the following formula:

$$ABA = ((A - AE)/Y) \times RS\%$$

Where:

ABA = The adjustment for banked allowances quantity in tons.

A (adjustment) = The total quantity of CO_2 allowances of vintage years held in general and compliance accounts, including compliance accounts established under the CO_2 Budget Trading Program, but not including accounts opened by participating states, as reflected in COATS.

AE (adjustment emissions) = The total quantity of emissions from all CO_2 budget sources in all participating states, reported under the CO_2 Budget Trading Program as reflected in COATS prior to the year of the adjustment.

RS% = Pennsylvania's adjustment year budget divided by the adjustment year regional budget.

Y = The time period in years over which the adjustment occurs.

(g) *CO_2 Budget Trading Program adjusted budget.* The Department may establish the Pennsylvania CO_2 Budget Trading Program adjusted budget for an allocation year by the following formula:

$$AB = BB - ABA$$

Where:

AB = The Pennsylvania CO_2 Budget Trading Program adjusted budget.

BB = The Pennsylvania CO_2 Budget Trading Program base budget.

ABA = The adjustment for banked allowances quantity in tons.

(h) If the Department determines to adjust the budget for banked allowances under subsections (f) and (g), the Department will publish in the *Pennsylvania Bulletin* the CO_2 Budget Trading Program adjusted budget for the allocation year.

(i) *Waste coal set-aside allocation.* The waste coal set-aside allocation will consist of tons from the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341, as applicable. The Department will administer the waste coal set-aside account in accordance with the following:

(1) *Applicability.* This subsection applies to waste coal-fired units located in Pennsylvania that commenced operation on or before *blank* (*Editor's Note*: The blank refers to the effective date of this rulemaking, when published as a final-form rulemaking.), that are subject to the CO_2 Budget Trading Program requirements under § 145.304.

(2) *General account.* The Department will open and manage a general account for the waste coal set-aside account.

(3) *Allowance transfer.* By March 1 of each calendar year, the Department may transfer a portion of the CO_2 allowances allocated to the air pollution reduction account to the waste coal set-aside account in an amount equal to legacy emissions from waste coal-fired units applicable under paragraph (i)(1). The Department has determined that the total amount of legacy emissions equal 9,300,000 tons.

(4) *Compliance allocation.* Except for a year with an exceedance of legacy emissions under paragraph (i)(5), by March 1 of each calendar year, the Department will allocate CO_2 allowances from the waste coal set-aside account to the compliance account of each waste coal-fired unit in an amount equal to the actual number of CO_2 emissions in tons emitted from the waste coal-fired unit during the previous year.

(i) After allocating CO_2 allowances under paragraph (i)(4). the Department will transfer any undistributed CO_2 allowances from the waste coal set-aside account to the strategic use set-aside account.

(ii) CO_2 allowances allocated under this subsection must only be used for compliance with the CO_2 budget emissions limitation for the waste coal-fired unit. The sale or transfer of CO_2 allowances from the unit's compliance account will be considered a violation of this subchapter.

(5) *Exception for exceedance of legacy emissions.* If the total actual CO_2 emissions from waste coal-fired units exceed 9,300,000 tons during a calendar year, the Department will account for the exceedance as follows:

(i) By February 15 of the year following the exceedance, the Department will determine the difference between each unit's legacy emissions and the unit's actual emissions during the previous year.

(ii) By February 15 of the year following the exceedance, the Department will allocate CO_2 allowances from the waste coal set-aside account to the compliance account of each waste coal-fired unit in an amount equal to the actual number of CO_2 emissions in tons emitted from the waste coal-fired unit during the previous year minus the exceedance of legacy emissions.

(iii) After the allocation under subparagraph (i)(5)(ii), if there are CO_2 allowances remaining in the waste coal set-aside account, the Department may distribute CO_2 allowances to each waste coal-fired unit requiring CO_2 allowances to meet the CO_2 requirements under § 145.306(c) in an amount proportionate to the exceedance.

(iv) By the CO_2 allowance transfer deadline of the year following the exceedance, the owner or operator of each waste coal-fired unit requiring additional CO_2 allowances to satisfy the CO_2 requirements under § 145.306(c) must transfer CO_2 allowances for compliance deductions under § 145.355 to the compliance account of the unit.

(6) *Set-aside termination.* If no CO_2 allowances are allocated under paragraph (i)(4) in any calendar year due to the fact that there were no actual CO_2 emissions from waste coal-fired units subject to this subsection, then the CO_2 allowances remaining in the waste coal set-aside account will be transferred to the strategic use set-aside account. No additional CO_2 allowances will be allocated to the waste coal set-aside account under paragraph (i)(3) and the Department will close the waste coal set-aside account.

(j) *Strategic use set-aside allocation.* The strategic use set-aside allocation will consist of undistributed CO_2 allowances from the waste coal set-aside account. The Department will administer the strategic use set-aside account in accordance with the following:

(1) *General account.* The Department will open and manage a general account for the strategic use set-aside account.

(2) *Allowance transfer.* By April 1 of each calendar year, the Department will transfer undistributed CO_2 allowances allocated to the waste coal set-aside account to the strategic use set-aside account.

(3) *Allocation to eligible projects.* The Department may distribute CO_2 allowances from the strategic use set-aside account for the use in the elimination of air pollution including the following:

(i) Encourage and foster promotion of energy efficiency measures.

(ii) Promotion of renewable or noncarbon-emitting energy technologies.

(iii) Stimulation or reward of investment in the development of innovative carbon emissions abatement technologies with significant carbon reduction potential.

(k) *Cogeneration set-aside allocation.* The cogeneration set-aside allocation will consist of tons from the Pennsylvania CO_2 Budget Trading Program base budget set forth in § 145.341, as applicable. The Department will administer the cogeneration set-aside account in accordance with the following:

(1) *Applicability.* The Department will adjust the compliance obligation of a CO_2 budget unit that is a cogeneration unit for which a complete application has been filed under paragraph (k)(3).

(2) *General account.* The Department will open and manage a general account for the cogeneration set-aside account.

(3) *Compliance obligation adjustment application.* By January 30 of the year following the allocation year for which the compliance obligation adjustment is being requested, the CO_2 authorized account representative seeking the compliance obligation adjustment for a cogeneration unit shall submit to the Department a complete application, in a format prescribed by the Department, that includes the following:

(i) Documentation that the CO_2 budget unit is a cogeneration unit.

(ii) Identification of the compliance account for the CO_2 budget unit.

(iii) Identification of the allocation year for which an adjustment request is being made.

(iv) Specification of the amount of the adjustment being requested, as determined under paragraph (k)(4).

(v) The calculations and supporting data used to determine the compliance obligation adjustment being requested and an explanation of the data and the methods on which the calculations are based.

(4) *Compliance obligation adjustment determination.* After verifying that the information submitted in the application under paragraph (k)(3) is complete and accurate, the Department will determine the compliance obligation adjustment for a CO_2 budget unit that meets the applicability requirements under paragraph (k)(1) based on the CO_2 emissions from the CO_2 budget unit during the allocation year for which an adjustment request is being submitted. The Department will adjust the compliance obligation by reducing the total CO_2 emissions by an amount equal to the CO_2 that is emitted as a result of providing useful thermal energy or electricity, or both, supplied directly to the co-located facility during the allocation year. The compliance obligation will include CO_2 emissions associated with the production of electricity that is supplied to a regional electric grid, transmission and related distribution systems and the cogeneration unit will be responsible for securing CO_2 allowances for those emissions.

(5) *Retirement and transfer of CO_2 allowances.* At the end of each control period, the Department will retire CO_2 allowances from the cogeneration set-aside account in an amount equal to the CO_2 emissions deducted from one or more compliance obligations under paragraph (k)(4). The Department will transfer any remaining CO_2 allowances to the air pollution reduction account to be available for auction.

§ 145.343. Distribution of CO_2 allowances in the air pollution reduction account.

(a) Except for the CO_2 allowances allocated to the waste coal set-aside account under § 145.342(i), the strategic use set-aside account under § 145.342(j) and the cogeneration set-aside account under § 145.342(k), the Department will make all CO_2 allowances for an allocation year that are held in the air pollution reduction account for that allocation year available for purchase or auction by no later than the December 31 of the calendar year that corresponds to that allocation year.

(b) The Department will administer the air pollution reduction account so that CO_2 allowances will be sold in a transparent allowance auction. The proceeds of the auction will be used in the elimination of air pollution in accordance with the act and Chapter 143 and for programmatic costs associated with the CO_2 Budget Trading Program.

(c) The Department or its agent, will not be obligated to sell any CO_2 allowances for less than the reserve price.

(d) The Department may transfer to the air pollution reduction account undistributed or unsold CO_2 allowances at the end of each control period, including CO_2 allowances allocated to the waste coal set-aside account under § 145.342(i), the strategic use set-aside account under § 145.342(j) and the cogeneration set-aside account under § 145.342(k).

CO_2 ALLOWANCE TRACKING SYSTEM

Sec.

§ 145.351. CO_2 Allowance Tracking System (COATS) accounts.

(a) *Nature and function of compliance accounts.* Consistent with § 145.352(a), the Department or its agent will establish one compliance account for each CO_2 budget source. Allocations of CO_2 allowances under §§ 145.341—145.343 and deductions or transfers of CO_2 allowances under § 145.332 (relating to department action on compliance certifications), § 145.355, § 145.357 (relating to account error) or §§ 145.361—145.363 will be recorded in the compliance accounts.

(b) *Nature and function of general accounts.* Consistent with § 145.352(b), the Department or its agent will establish, upon request, a general account for any person. Transfers of CO_2 allowances under §§ 145.361—145.363 will be recorded in the general account.

§ 145.352. Establishment of accounts.

(a) *Compliance accounts.* Upon receipt of a complete account certificate of representation under § 145.314, the Department or its agent will establish a compliance account for each CO_2 budget source for which the account certificate of representation was submitted.

(b) *General accounts.*

(1) Any person may apply to open a general account for the purpose of holding and transferring CO_2 allowances by submitting a complete application for a general account to the Department or its agent that includes the following:

(i) The name, mailing address, e-mail address and telephone number of the CO_2 authorized account representative and any CO_2 authorized alternate account representative.

(ii) The organization name and type of organization.

(iii) A list of all persons subject to a binding agreement for the CO_2 authorized account representative or any CO_2 authorized alternate account representative to represent their ownership interest with respect to the CO_2 allowances held in the general account.

(iv) The following certification statement by the CO_2 authorized account representative and any CO_2 authorized alternate account representative:

"I certify that I was selected as the CO_2 authorized account representative or the CO_2 authorized alternate account representative by an agreement that is binding on all persons who have an ownership interest with respect to CO_2 allowances held in the general account. I certify that I have all the necessary authority to carry out my duties and responsibilities under the CO_2 Budget Trading Program on behalf of all persons and that each person shall be fully bound by my representations, actions, inactions or submissions and by any order or decision issued to me by the Department or its agent or a court regarding the general account."

(v) The signature of the CO_2 authorized account representative and any CO_2 authorized alternate account representative and the dates signed.

(vi) Unless otherwise required by the Department or its agent, documents of agreement referred to in the application for a general account should not be submitted to the Department or its agent. The Department and its agent are not under any obligation to review or evaluate the sufficiency of any documents of agreement, if submitted.

(2) *Authorization of CO_2 authorized account representative.*

(i) Upon receipt by the Department or its agent of a complete application for a general account under paragraph (b)(1), the Department or its agent will establish a general account for the person for whom the application is submitted.

(ii) The CO_2 authorized account representative and any CO_2 authorized alternate account representative for the general account shall represent and, by their representations, actions, inactions or submissions, legally bind each person who has an ownership interest with respect to CO_2 allowances held in the general account in all matters pertaining to the CO_2 Budget Trading Program, notwithstanding an agreement between the CO_2 authorized account representative or any CO_2 authorized alternate account representative and the person. This person shall be bound by any order or decision issued to the CO_2 authorized account representative or any CO_2 authorized

alternate account representative by the Department or its agent or a court regarding the general account.

(iii) Any representation, action, inaction or submission by any CO_2 authorized alternate account representative shall be deemed to be a representation, action, inaction or submission by the CO_2 authorized account representative.

(iv) Each submission concerning the general account shall be submitted, signed and certified by the CO_2 authorized account representative or any CO_2 authorized alternate account representative for the persons having an ownership interest with respect to CO_2 allowances held in the general account. Each submission shall include the following certification statement by the CO_2 authorized account representative or any CO_2 authorized alternate account representative:

"I am authorized to make this submission on behalf of the persons having an ownership interest with respect to the CO_2 allowances held in the general account. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties under 18 Pa.C.S. § 4904 for submitting false statements and information or omitting required statements and information."

(v) The Department or its agent will accept or act on a submission concerning the general account only if the submission has been made, signed and certified in accordance with subparagraph (b)(2)(iv).

(3) *Changing CO_2 authorized account representative and CO_2 authorized alternate account representative; changes in persons with ownership interest.*

(i) The CO_2 authorized account representative or the CO_2 authorized alternate account representative for a general account may be changed at any time upon receipt by the Department or its agent of a superseding complete application for a general account under paragraph (b)(1). Notwithstanding a change, the representations, actions, inactions and submissions by the previous CO_2 authorized account representative, or the previous CO_2 authorized alternate account representative, prior to the time and date when the Department or its agent receives the superseding application for a general account shall be binding on the new CO_2 authorized account representative or the new CO_2 authorized alternate account representative and the persons with an ownership interest with respect to the CO_2 allowances in the general account.

(ii) A revision of ownership listing shall include the following:

(A) If a new person having an ownership interest with respect to CO_2 allowances in the general account is not included in the list of persons in the application for a general account, the new person shall be deemed to be subject to and bound by the application for a general account, the representations, actions, inactions and submissions of the CO_2 authorized account

representative and any CO_2 authorized alternate account representative, and the decisions, orders, actions and inactions of the Department or its agent, as if the new person were included in the list.

(B) Within 30 days following any change in the persons having an ownership interest with respect to CO_2 allowances in the general account, including the addition or deletion of persons, the CO_2 authorized account representative or any CO_2 authorized alternate account representative shall submit a revision to the application for a general account amending the list of persons having an ownership interest with respect to the CO_2 allowances in the general account to include the change.

(4) *Objections concerning CO_2 authorized account representative.*

(i) Once a complete application for a general account under paragraph (b)(1) has been submitted and received, the Department or its agent will rely on the application until a superseding complete application for a general account under subparagraph (b)(3)(i) is received by the Department or its agent.

(ii) Except as provided in subparagraphs (b)(3)(i) and (ii), no objection or other communication submitted to the Department or its agent concerning the authorization, or any representation, action, inaction or submission of the CO_2 authorized account representative or any CO_2 authorized alternate account representative for a general account will affect any representation, action, inaction or submission of the CO_2 authorized account representative or any CO_2 authorized alternate account representative or the finality of any decision or order by the Department or its agent under the CO_2 Budget Trading Program.

(iii) The Department or its agent will not adjudicate a private legal dispute concerning the authorization or any representation, action, inaction or submission of the CO_2 authorized account representative or any CO_2 authorized alternate account representative for a general account, including private legal disputes concerning the proceeds of CO_2 allowance transfers.

(5) *Delegation by CO_2 authorized account representative and CO_2 authorized alternate account representative.*

(i) A CO_2 authorized account representative or a CO_2 authorized alternate account representative may delegate, to one or more persons, their authority to make an electronic submission to the Department or its agent under § 145.361.

(ii) In order to delegate authority to make an electronic submission to the Department or its agent in accordance with subparagraph (b)(5)(i), the CO_2 authorized account representative or CO_2 authorized alternate account representative must submit to the Department or its agent a notice of delegation, in a format prescribed by the Department that includes the following:

(A) The name, address, e-mail address and telephone number of the CO_2 authorized account representative or CO_2 authorized alternate account representative.

(B) The name, address, e-mail address and telephone number of each electronic submission agent.

(C) For each electronic submission agent, a list of the type of electronic submissions under subparagraph (b)(5)(i) for which authority is delegated.

(D) The following certification statements by the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative:

(I) "I agree that any electronic submission to the Department or its agent that is by an electronic submission agent identified in this notice of delegation and of a type listed for the electronic submission agent in this notice of delegation and that is made when I am a CO_2 authorized account representative or CO_2 authorized alternate account representative before this notice of delegation is superseded by another notice of delegation under subparagraph (b)(5)(ii) shall be deemed to be an electronic submission by me."

(II) "Until this notice of delegation is superseded by another notice of delegation under subparagraph (b)(5)(ii), I agree to maintain an e-mail account and to notify the Department or its agent immediately of any change in my e-mail address unless all delegation authority by me under subparagraph (b)(5)(ii) is terminated."

(iii) A notice of delegation submitted under subparagraph (b)(5)(ii) shall be effective, with regard to the delegating CO_2 authorized account representative or CO_2 authorized alternate account representative identified in the notice, upon receipt of the notice by the Department or its agent and until receipt by the Department or its agent of a superseding notice of delegation by the CO_2 authorized account representative or CO_2 authorized alternate account representative. The superseding notice of delegation may replace any previously identified electronic submission agent, add a new electronic submission agent, or eliminate entirely any delegation of authority.

(iv) Any electronic submission covered by the certification in clause (b)(5)(ii)(D) and made in accordance with a notice of delegation effective under subparagraph (b)(5)(ii) shall be deemed to be an electronic submission by the CO_2 authorized account representative or CO_2 authorized alternate account representative submitting the notice of delegation.

(c) *Account identification.* The Department or its agent will assign a unique identifying number to each account established under subsections (a) or (b).

§ 145.353. COATS responsibilities of CO_2 authorized account representative and CO_2 authorized alternate account representative.

Following the establishment of a COATS account, the submissions to the Department or its agent pertaining to the account, including submissions concerning the deduction or transfer of CO_2 allowances in the account, shall be made only by the CO_2 authorized account representative or CO_2 authorized alternate account representative for the account.

§ 145.354. Recordation of CO_2 allowance allocations.

(a) By January 1 of each calendar year, the Department or its agent will record the CO_2 allowances allocated for the air pollution reduction account under § 145.342(a).

(b) By January 1 of each calendar year, the Department or its agent will record the CO_2 allowances allocated for the waste coal set-aside account under § 145.342(b)(1), for the strategic use set-aside account under § 145.342(b)(2) and for the cogeneration set-aside account under § 145.342(b)(3) for the year after the last year for which CO_2 allowances were previously allocated to the set-aside account.

(c) The Department or its agent will assign each CO_2 allowance a serial number that will include digits identifying the year for which the CO_2 allowance is allocated.

§ 145.355. Compliance.

(a) *Allowances available for compliance deduction.* The CO_2 allowances are available to be deducted for compliance with the CO_2 requirements under § 145.306(c) for a control period or an interim control period only if the CO_2 allowances meet the following:

(1) The CO_2 allowances, other than CO_2 offset allowances, are allocated for a prior control period, the same control period or the interim control period for which the allowances will be deducted.

(2) The CO_2 allowances are held in the CO_2 budget source's compliance account as of the CO_2 allowance transfer deadline for that control period or the interim control period or are transferred into the compliance account by a CO_2 allowance transfer correctly submitted for recordation under § 145.361 by the CO_2 allowance transfer deadline for that control period or the interim control period.

(3) For CO_2 offset allowances, the number of CO_2 offset allowances available to be deducted in order for a CO_2 budget source to comply with the CO_2 requirements under § 145.306(c) for a control period or an interim control period may not exceed 3.3% of the CO_2 budget source's CO_2 emissions for that control period or 3.3% of 0.50 times the CO_2 budget source's CO_2 emissions for an interim control period, as determined in accordance with §§ 145.351—145.358 and §§ 145.371—145.377.

(4) The CO_2 allowances are not necessary for deductions for excess emissions for a prior control period under subsection (d).

(b) *Deductions for compliance.* Following the recordation, in accordance with § 145.362 (relating to recordation), of CO_2 allowance transfers submitted for recordation in the CO_2 budget source's compliance account by the CO_2 allowance transfer deadline for a control period or interim control period, the Department or its agent will deduct CO_2 allowances available under subsection (a) to cover the source's CO_2 emissions for the control period or interim control period, as follows:

(1) Until the amount of CO_2 allowances deducted equals the number of tons of total CO_2 emissions, or 0.50 times the number of tons of total CO_2 emissions for an interim control period, less any CO_2 emissions attributable to the burning of eligible biomass, determined in accordance with §§ 145.371—145.377, from all CO_2 budget units at the CO_2 budget source for the control period or interim control period.

(2) Until there are no more CO_2 allowances remaining in the compliance account that are available to be deducted under subsection (a), if there are insufficient CO_2 allowances to complete the deductions in paragraph (b)(1).

(c) *Allowance identification.*

(1) The CO_2 authorized account representative for a CO_2 budget source's compliance account may identify by serial number the CO_2 allowances to be deducted from the compliance account for emissions or excess emissions for a control period or an interim control period in accordance with subsection (b) or (d). The identification shall be made in the compliance certification report submitted in accordance with § 145.331.

(2) The Department or its agent will deduct CO_2 allowances for a control period or an interim control period from the CO_2 budget source's compliance account, in the absence of an identification or in the case of a partial identification of available CO_2 allowances by serial number under paragraph (c)(1), in the following order:

(i) CO_2 offset allowances subject to the relevant compliance deduction limitations under paragraph (a)(3) will be deducted in chronological order. In the event that some, but not all, CO_2 offset allowances from a particular allocation year are to be deducted, CO_2 offset allowances will be deducted by serial number, with lower serial number allowances deducted before higher serial number allowances.

(ii) CO_2 allowances, other than CO_2 offset allowances, that are available for deduction under subsection (a) will be deducted in chronological order. In the event that some, but not all, CO_2 allowances from a particular allocation year are to be deducted, CO_2 allowances will be deducted by serial number, with lower serial number allowances deducted before higher serial number allowances.

(d) *Deductions for excess emissions.*

(1) After making the deductions for compliance under subsection (b), the Department or its agent will deduct from the CO_2 budget source's compliance account a number of CO_2 allowances, equal to 3 times the number of the CO_2 budget source's excess emissions.

(2) If the compliance account does not contain sufficient CO_2 allowances to cover 3 times the number of the CO_2 budget source's excess emissions, the CO_2 budget source shall immediately transfer CO_2 allowances into its compliance account in an amount equal to 3 times the number of the CO_2 budget source's excess emissions. No CO_2 offset allowances may be deducted to account for the source's excess emissions.

(3) A CO_2 allowance deduction required under paragraph (d)(1) will not affect the liability of the owner or operator of the CO_2 budget source or the CO_2 budget units at the source for any fine, penalty or assessment, or their obligation to comply with any other remedy, for the same violation, as ordered under the Clean Air Act or the act. The following guidelines will be followed by the Department in assessing fines, penalties or other obligations:

(i) For purposes of determining the number of days of violation, if a CO_2 budget source has excess emissions for a control period or an interim control period, each day in the control period or an interim control period constitutes a day of violation unless the owner or operator of the unit demonstrates that a lesser number of days should be considered.

(ii) Each ton of excess emissions is a separate violation.

(e) *Recordation.* The Department or its agent will record in the appropriate compliance account all deductions from the account under subsections (b) and (c) and (d).

(f) *Action by the Department on submissions.*

(1) The Department may review and conduct independent audits concerning any submission under the CO_2 Budget Trading Program and make appropriate adjustments of the information in the submissions.

(2) The Department may deduct CO_2 allowances from or transfer CO_2 allowances to a CO_2 budget source's compliance account based on information in the submissions, as adjusted under paragraph (f)(1).

§ 145.356. Banking.

A CO_2 allowance that is held in a compliance account or a general account will remain in the account until the CO_2 allowance is deducted or transferred under § 145.332, § 145.355, § 145.357 or §§ 145.361—145.363.

§ 145.357. Account error.

The Department or its agent may correct any error in a COATS account. Within 10 business days of making the correction, the Department or its agent will notify the CO_2 authorized account representative for the account.

§ 145.358. Closing of general accounts.

(a) The CO_2 authorized account representative of a general account may instruct the Department or its agent to close the account by submitting a statement requesting deletion of the account from COATS and by correctly submitting for recordation under § 145.361 a CO_2 allowance transfer of all CO_2 allowances in the account to one or more other COATS account.

(b) If a general account shows no activity for 1 year or more and does not contain any CO_2 allowances, the Department or its agent may notify the CO_2 authorized account representative for the account that the account will be closed in COATS following 30 business days after the notice is sent. The Department or its agent will close the account after the 30-day period unless before the end of the 30-day period the Department or its agent receives a correctly submitted transfer of CO_2 allowances into the account under § 145.361 or a statement submitted by the CO_2 authorized account representative requesting that the account should not be closed. The Department or its agent will have sole discretion to determine if the owner or operator of the unit demonstrated that the account should not be closed.

CO_2 ALLOWANCE TRANSFERS

Sec.
145.361 Submission of CO_2 allowance transfers.
145.362 Recordation.
145.363 Notification.

§ 145.361. Submission of CO_2 allowance transfers.

The CO_2 authorized account representatives seeking recordation of a CO_2 allowance transfer shall submit the transfer to the Department or its agent. The CO_2 allowance transfer shall include the following, in a format prescribed by the Department:

(1) The numbers identifying the accounts of the transferor and transferee.

(2) A specification by serial number of each CO_2 allowance to be transferred.

(3) The printed name and signature of the CO_2 authorized account representative of the transferor account and the date signed.

(4) The date of the completion of the last sale or purchase transaction for the CO_2 allowance, if any.

(5) The purchase or sale price of the CO_2 allowance that is the subject of a sale or purchase transaction under paragraph (4).

§ 145.362. Recordation.

(a) Within 5 business days of receiving a CO_2 allowance transfer, except as provided in subsection (b), the Department or its agent will record a CO_2 allowance transfer by moving each CO_2 allowance from the account of the transferor to the account of the transferee as specified by the request, if the following are met:

(1) The transfer is correctly submitted under § 145.361.

(2) The account of the transferor includes each CO_2 allowance identified by serial number in the transfer.

(b) A CO_2 allowance transfer into or out of a compliance account that is submitted for recordation following the CO_2 allowance transfer deadline and that includes any CO_2 allowance allocated for a control period or interim control period prior to or the same as the control period or interim control period to which the CO_2 allowance transfer deadline applies will not be recorded until after completion of the process in § 145.355(b).

(c) A CO_2 allowance transfer submitted for recordation that fails to meet the requirements of subsection (a) will not be recorded.

§ 145.363. Notification.

(a) *Notification of recordation.* Within 5 business days of recordation of a CO_2 allowance transfer under § 145.362, the Department or its agent will notify each party to the transfer. Notice will be given to the CO_2 authorized account representative of the account of the transferor and the CO_2 authorized account representative of the account of the transferee.

(b) *Notification of non-recordation.* Within 10 business days of receipt of a CO_2 allowance transfer that fails to meet the requirements of § 145.362(a), the Department or its agent will notify the CO_2 authorized account representative of the account of the transferor and the CO_2 authorized account representative of the account of the transferee of the following:

(1) A decision not to record the transfer.

(2) The reasons for the non-recordation.

(c) *Resubmission.* Nothing in this section precludes the resubmission of a CO_2 allowance transfer for recordation following notification under subsection (b).

MONITORING, REPORTING AND RECORDKEEPING REQUIREMENTS

Sec.

§ 145.371. General monitoring requirements.

The owner or operator, and to the extent applicable, the CO_2 authorized account representative of a CO_2 budget unit, shall comply with the monitoring, recordkeeping and reporting requirements as

provided in this section and §§ 145.372—145.377 (relating to monitoring, reporting, and recordkeeping requirements) and all applicable sections of 40 CFR Part 75. Where referenced in §§ 145.371—145.377, the monitoring requirements of 40 CFR Part 75 shall be adhered to in a manner consistent with the purpose of monitoring and reporting CO_2 mass emissions under this subchapter. For purposes of complying with these requirements, the definitions in § 145.302 and in 40 CFR 72.2 (relating to definitions) apply, and the terms "affected unit," "designated representative" and "continuous emissions monitoring system" in 40 CFR Part 75 shall be replaced by the terms "CO_2 budget unit," "CO_2 authorized account representative" and "continuous emissions monitoring system," respectively, as defined in § 145.302. For units not subject to an acid rain emissions limitation, the term "Administrator" in 40 CFR Part 75 shall be replaced with "the Administrator, Department or its agent." The owner or operator of a CO_2 budget unit who monitors a unit that is not a CO_2 budget unit pursuant to the common, multiple or bypass stack procedures in 40 CFR 75.72(b)(2)(ii) (relating to determination of NO_x mass emissions for common stack and multiple stack configurations) or 40 CFR 75.16(b)(2)(ii)(B) (relating to special provisions for monitoring emissions from common, bypass, and multiple stacks for SO_2 emissions and heat input determinations) as pursuant to 40 CFR 75.13 (relating to specific provisions for monitoring CO_2 emissions) for purposes of complying with this subchapter, shall monitor and report CO_2 mass emissions from a unit that is not a CO_2 budget unit in accordance with the monitoring, reporting and recordkeeping requirements for a CO_2 budget unit under §§ 145.371—145.377.

(1) *Requirements for installation, certification and data accounting.* The owner or operator of each CO_2 budget unit must meet the following:

(i) Install all monitoring systems necessary to monitor CO_2 mass emissions in accordance with 40 CFR Part 75, except for equation G-1. This includes all systems required to monitor CO_2 concentration, stack gas flow rate, O_2 concentration, heat input and fuel flow rate, in accordance with 40 CFR Part 75, Subpart H (relating to NO_x mass emissions provisions).

(ii) Successfully complete all certification tests required under § 145.372 (relating to initial certification and recertification procedures) and meet all other provisions of this subchapter and 40 CFR Part 75 applicable to the monitoring systems under subparagraph (1)(i).

(iii) Record, report and quality-assure the data from the monitoring systems under subparagraph (1)(i).

(2) *Compliance dates.* The owner or operator of a CO_2 budget unit shall meet the monitoring system certification and other requirements of paragraph (1) and shall record, report and quality-assure data from the monitoring systems under subparagraph (1)(i) according to the following schedule:

(i) Except for a CO_2 budget unit under subparagraph (2)(ii), a CO_2 budget unit that commences commercial operation before July 1, 2021, shall comply with this section and §§ 145.372—145.377 by January 1, 2022.

(ii) A CO_2 budget unit that commences commercial operation on or after July 1, 2021, shall comply with the requirements of this section and §§ 145.372—145.377 by the later of the following dates:

(A) January 1, 2022.

(B) The earlier of:

(I) 90-unit operating days after the date on which the unit commences commercial operation.

(II) 180 calendar days after the date on which the unit commences commercial operation.

(iii) The owner or operator of a CO_2 budget unit for which construction of a new stack or flue installation is completed after the applicable deadline under paragraph (2)(i) or (2)(ii) by the earlier of:

(A) 90-unit operating days after the date on which emissions first exit to the atmosphere through the new stack or flue.

(B) 180 calendar days after the date on which emissions first exit to the atmosphere through the new stack or flue.

(3) *Reporting data.*

(i) Except as provided in subparagraph (3)(ii), the owner or operator of a CO_2 budget unit that does not meet the applicable compliance date set forth in paragraph (2) for any monitoring system under subparagraph (1)(i) shall, for each monitoring system, determine, record and report maximum potential, or as appropriate minimum potential, values for CO_2 concentration, CO_2 emissions rate, stack gas moisture content, fuel flow rate, heat input and any other parameter required to determine CO_2 mass emissions under 40 CFR 75.31(b)(2) or (c)(3) (relating to initial missing data procedures), or 40 CFR Part 75, Appendix D, Section 2.4, as applicable.

(ii) The owner or operator of a CO_2 budget unit that does not meet the applicable compliance date set forth in subparagraph (2)(iii) for any monitoring system under subparagraph (1)(i) shall, for each monitoring system, determine, record and report substitute data using the applicable missing data procedures in 40 CFR Part 75, Subpart D (relating to missing data substitution procedures) or Appendix D, in lieu of the maximum potential, or as appropriate minimum potential, values for a parameter if the owner or operator demonstrates that there is continuity between the data streams for that parameter before and after the construction or installation under subparagraph (2)(iii).

(A) A CO_2 budget unit subject to an acid rain emissions limitation that qualifies for the optional SO_2, NO_x and CO_2 emissions calculations for low mass emissions (LME) units under 40 CFR 75.19 (relating to optional SO_2, NO_x, and CO_2 emissions calculation for low mass emissions (LME) units) and report emissions for the acid rain program using the calculations under 40 CFR

75.19, shall also use the CO_2 emissions calculations for LME units under 40 CFR 75.19 for purposes of compliance with this subchapter.

(B) A CO_2 budget unit subject to an acid rain emissions limitation that does not qualify for the optional SO_2, NO_x and CO_2 emissions calculations for LME units under 40 CFR 75.19, shall not use the CO_2 emissions calculations for LME units under 40 CFR 75.19 for purposes of compliance with this subchapter.

(C) A CO_2 budget unit not subject to an acid rain emissions limitation shall qualify for the optional CO_2 emissions calculation for LME units under 40 CFR 75.19, if the unit emits less than 100 tons of NO_x annually and no more than 25 tons of SO_2 annually.

(4) *Prohibitions.*

(i) An owner or operator of a CO_2 budget unit may not use an alternative monitoring system, alternative reference method or another alternative for the required CEMS without having obtained prior written approval in accordance with § 145.376 (relating to petitions).

(ii) An owner or operator of a CO_2 budget unit may not operate the unit so as to discharge, or allow to be discharged, CO_2 emissions to the atmosphere without accounting for the emissions in accordance with the applicable provisions of this subchapter and 40 CFR Part 75.

(iii) An owner or operator of a CO_2 budget unit may not disrupt the CEMS, a portion thereof or another approved emissions monitoring method, and thereby avoid monitoring and recording CO_2 mass emissions discharged into the atmosphere, except for periods of recertification or periods when calibration, quality assurance testing or maintenance is performed in accordance with the applicable provisions of this subchapter and 40 CFR Part 75.

(iv) An owner or operator of a CO_2 budget unit may not retire or permanently discontinue use of the CEMS, any component thereof or another approved emissions monitoring system under this subchapter, except under one of the following circumstances:

(A) The owner or operator is monitoring emissions from the unit with another certified monitoring system approved, in accordance with the applicable provisions of this subchapter and 40 CFR Part 75, by the Department for use at the unit that provides emissions data for the same pollutant or parameter as the retired or discontinued monitoring system.

(B) The CO_2 authorized account representative submits notification of the date of certification testing of a replacement monitoring system in accordance with § 145.372(d)(3)(i) (relating to initial certification and recertification procedures).

§ 145.372. Initial certification and recertification procedures.

(a) *Exemption.* The owner or operator of a CO_2 budget unit shall be exempt from the initial certification requirements for a monitoring system under § 145.371(1)(i) if the following conditions are met:

(1) The monitoring system has been previously certified in accordance with 40 CFR Part 75.

(2) The applicable quality-assurance and quality-control requirements of 40 CFR 75.21 (relating to quality assurance and quality control requirements) and 40 CFR Part 75, Appendix B (relating to quality assurance and quality control procedures) and Appendix D are fully met for the certified monitoring system described in paragraph (a)(1).

(b) *Applicability.* The recertification provisions of this section shall apply to a monitoring system under § 145.371(1)(i) that is exempt from initial certification requirements under subsection (a).

(c) *Petitions.* Notwithstanding subsection (a), if the Administrator approved a petition under 40 CFR 75.72(b)(2)(ii) or 40 CFR 75.16(b)(2)(ii)(B) as pursuant to 40 CFR 75.13 for apportioning the CO_2 emissions rate measured in a common stack or a petition under 40 CFR 75.66 (relating to petitions to the administrator) for an alternative requirement in 40 CFR Part 75, the CO_2 authorized account representative shall submit the petition to the Department under § 145.376(a) to determine if the approval applies under the CO_2 Budget Trading Program.

(d) *Certification and recertification.* Except as provided in subsection (a), the owner or operator of a CO_2 budget unit shall comply with the initial certification and recertification procedures for a CEMS and an excepted monitoring system under 40 CFR Part 75, Appendix D and under § 145.371(1)(i). The owner or operator of a CO_2 budget unit that qualifies to use the low mass emissions excepted monitoring methodology in 40 CFR 75.19 or that qualifies to use an alternative monitoring system under 40 CFR Part 75, Subpart E (relating to alternative monitoring systems) shall comply with the procedures in subsections (e) or (f), respectively.

(1) *Requirements for initial certification.* The owner or operator of a CO_2 budget unit shall ensure that each CEMS required under § 145.371(1)(i), including the automated data acquisition and handling system, successfully completes all of the initial certification testing required under 40 CFR 75.20 (relating to initial certification and recertification procedures) by the applicable deadlines specified in § 145.371(2). In addition, whenever the owner or operator installs a monitoring system to meet the requirements of this subchapter in a location where no monitoring system was previously installed, initial certification in accordance with 40 CFR 75.20 is required.

(2) *Requirements for recertification.*

(i) Whenever the owner or operator makes a replacement, modification or change to a certified CEMS under § 145.371(1)(i) that the Administrator or the Department determines significantly affects the ability of the system to accurately measure or record CO_2 mass emissions or to meet the quality-assurance and quality-control requirements of 40 CFR 75.21 or 40 CFR Part 75, Appendix B, the owner or operator shall recertify the monitoring system according to 40 CFR 75.20(b).

(ii) For a system using stack measurements including stack flow, stack moisture content, CO_2 or O_2 monitors, whenever the owner or operator makes a replacement, modification or change to the flue gas handling system or the unit's operation that the Administrator or the Department

determines to significantly change the flow or concentration profile, the owner or operator shall recertify the CEMS according to 40 CFR 75.20(b).

(3) *Approval process for initial certification and recertification.*

(i) *Notification of certification.* The CO_2 authorized account representative shall submit to the Department and the appropriate EPA Regional Office a written notice of the dates of certification in accordance with § 145.374 (relating to notifications).

(ii) *Certification application.* The CO_2 authorized account representative shall submit to the Department a certification application for each monitoring system required under 40 CFR 75.63 (relating to initial certification or recertification application). A complete certification application shall include the information specified in 40 CFR 75.63.

(iii) *Provisional certification data.* The provisional certification date for a monitor shall be determined in accordance with 40 CFR 75.20(a)(3). A provisionally certified monitor may be used under the CO_2 budget Trading Program for a period not to exceed 120 days after receipt by the Department of the complete certification application for the monitoring system or component thereof under subparagraph (d)(3)(ii). Data measured and recorded by the provisionally certified monitoring system or component thereof, in accordance with the requirements of 40 CFR Part 75, will be considered valid quality-assured data (retroactive to the date and time of provisional certification), if the Department does not invalidate the provisional certification by issuing a notice of disapproval within 120 days of receipt of the complete certification application by the Department.

(iv) *Certification application approval process.* The Department will issue a written notice of approval or disapproval of the certification application to the owner or operator within 120 days of receipt of the complete certification application under subparagraph (d)(3)(ii). If the Department does not issue the notice within the 120-day period, each monitoring system which meets the applicable performance requirements of 40 CFR Part 75 and is included in the certification application will be deemed certified for use under the CO_2 Budget Trading Program.

(A) *Approval notice.* If the certification application is complete and shows that each monitoring system meets the applicable performance requirements of 40 CFR Part 75, the Department will issue a written notice of approval of the certification application within 120 days of receipt.

(B) *Incomplete application notice.* If the certification application is not complete, the Department will issue a written notice of incompleteness that sets a date by which the CO_2 authorized account representative must submit the additional information required to complete the certification application. If the CO_2 authorized account representative does not comply with the notice of incompleteness by the specified date, then the Department may issue a notice of disapproval under clause (d)(3)(iv)(C). The 120-day review period may not begin prior to receipt of a complete certification application.

(C) *Disapproval notice.* If the certification application shows that any monitoring system or component thereof does not meet the performance requirements of 40 CFR Part 75, or if the certification application is incomplete and the requirement for disapproval under clause (d)(3)(iv)(B) is met, then the Department will issue a written notice of disapproval of the certification application. Upon issuance of the notice of disapproval, the provisional certification is invalidated by the Department and the data measured and recorded by each uncertified monitoring system or component thereof will not be considered valid quality-assured data beginning with the date and hour of provisional certification. The owner or operator shall follow the procedures for loss of certification in subparagraph (d)(3)(v) for each monitoring system or component thereof which is disapproved for initial certification.

(D) *Audit decertification.* The Department may issue a notice of disapproval of the certification status of a monitor in accordance with § 145.373(b) (relating to out-of-control periods).

(v) *Procedures for loss of certification.* If the Department issues a notice of disapproval of a certification application under clause (d)(3)(iv)(C) or a notice of disapproval of certification status under clause (d)(3)(iv)(D), the following apply:

(A) The owner or operator shall substitute the following values, for each disapproved monitoring system, for each hour of unit operation during the period of invalid data beginning with the date and hour of provisional certification and continuing until the time, date and hour specified under 40 CFR 75.20(a)(5)(i) or 40 CFR 75.20(g)(7):

(I) For a unit using or intending to monitor for CO_2 mass emissions using heat input or for a unit using the low mass emissions excepted methodology under 40 CFR 75.19, the maximum potential hourly heat input of the unit.

(II) For a unit intending to monitor for CO_2 mass emissions using a CO_2 pollutant concentration monitor and a flow monitor, the maximum potential concentration of CO_2 and the maximum potential flow rate of the unit under 40 CFR Part 75, Appendix A, Section 2.1 (relating to specifications and test procedures).

(B) The CO_2 authorized account representative shall submit a notification of certification retest dates and a new certification application in accordance with subparagraphs (d)(3)(i) and (ii).

(C) The owner or operator shall repeat all certification tests or other requirements that were failed by the monitoring system, as indicated in the Department's notice of disapproval, no later than 30-unit operating days after the date of issuance of the notice of disapproval.

(e) *Initial certification and recertification procedures for low mass emissions units using the excepted methodologies under § 145.371(3)(ii).* The owner or operator of a unit qualified to use the low mass emissions excepted methodology under § 145.371(3)(ii) shall meet the applicable certification and recertification requirements of 40 CFR 75.19(a)(2), 40 CFR 75.20(h) and this section. If the owner or operator of the unit elects to certify a fuel flow meter system for heat

input determinations, the owner or operator shall also meet the certification and recertification requirements in 40 CFR 75.20(g).

(f) *Certification and recertification procedures for an alternative monitoring system.* The CO_2 authorized account representative of each unit for which the owner or operator intends to use an alternative monitoring system approved by the Administrator and, if applicable, by the Department under 40 CFR Part 75, Subpart E shall comply with the applicable notification and application procedures of 40 CFR 75.20(f).

§ 145.373. Out-of-control periods.

(a) *Quality assurance requirements.* Whenever a monitoring system fails to meet the quality assurance and quality control requirements or data validation requirements of 40 CFR Part 75, data shall be substituted using the applicable procedures in 40 CFR Part 75, Subpart D or Appendix D.

(b) *Audit decertification.* Whenever both an audit of a monitoring system and a review of the initial certification or recertification application reveal that any monitoring system should not have been certified or recertified because it did not meet a particular performance specification or other requirement under § 145.372 or the applicable provisions of 40 CFR Part 75, both at the time of the initial certification or recertification application submission and at the time of the audit, the Department will issue a notice of disapproval of the certification status of the monitoring system. For the purposes of this paragraph, an audit shall be either a field audit or an audit of any information submitted to the Department or the Administrator. By issuing the notice of disapproval, the Department revokes prospectively the certification status of the monitoring system. The data measured and recorded by the monitoring system will not be considered valid quality-assured data from the date of issuance of the notification of the revoked certification status until the date and time that the owner or operator completes subsequently approved initial certification or recertification tests for the monitoring system. The owner or operator shall follow the initial certification or recertification procedures in § 145.372 for each disapproved monitoring system.

§ 145.374. Notifications.

The CO_2 authorized account representative for a CO_2 budget unit shall submit written notice to the Department and the Administrator in accordance with 40 CFR 75.61 (relating to notifications).

§ 145.375. Recordkeeping and reporting.

(a) *General provisions.* The CO_2 authorized account representative shall comply with the recordkeeping and reporting requirements in this section, the applicable recordkeeping and reporting requirements under 40 CFR 75.73 (relating to recordkeeping and reporting) and with the requirements of § 145.311(e).

(b) *Monitoring plans.* The owner or operator of a CO_2 budget unit shall submit a monitoring plan in the manner prescribed in 40 CFR 75.62 (relating to monitoring plan submittals).

(c) *Certification applications.* The CO_2 authorized account representative shall submit an application to the Department within 45 days after completing all CO_2 monitoring system initial certification or recertification tests required under § 145.372 including the information required under 40 CFR 75.63 (relating to initial certification or recertification application) and 40 CFR 75.53(g) and (h) (relating to monitoring plan).

(d) *Quarterly reports.* The CO_2 authorized account representative shall submit quarterly reports, as follows:

(1) The CO_2 mass emissions data for the CO_2 budget unit, in an electronic format prescribed by the Administrator unless otherwise prescribed by the Administrator or the Department for each calendar quarter beginning with one of the following:

(i) For a unit that commenced commercial operation before January 1, 2022, the calendar quarter covering January 1, 2022 through March 31, 2022.

(ii) For a unit that commenced commercial operation on or after January 1, 2022, the calendar quarter corresponding to, the earlier of the date of provisional certification or the applicable deadline for initial certification under § 145.371(2).

(2) The CO_2 authorized account representative shall submit each quarterly report to the Administrator and the Department or its agent within 30 days following the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the manner specified in 40 CFR Part 75, Subpart H and 40 CFR 75.64 (relating to quarterly reports).

(i) Quarterly reports shall be submitted for each CO_2 budget unit, or group of units using a common stack, and shall include all the data and information required in 40 CFR Part 75, Subpart G (relating to reporting requirements) except for opacity, heat input, NO_x and SO_2 provisions.

(3) The CO_2 authorized account representative shall submit to the Administrator or the Department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all the unit's emissions are correctly and fully monitored. The certification shall state that the following conditions have been met:

(i) The monitoring data submitted were recorded in accordance with the applicable requirements of this subchapter and 40 CFR Part 75, including the quality assurance procedures and specifications.

(ii) For a unit with add-on CO_2 emissions controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1) (relating to units with add-on emission controls), the add-on emissions controls were operating within the range of parameters listed in

the quality assurance/quality control program under 40 CFR Part 75, Appendix B and the substitute values do not systematically underestimate CO_2 emissions.

(iii) The CO_2 concentration values substituted for missing data under 40 CFR Part 75, Subpart D do not systematically underestimate CO_2 emissions.

§ 145.376. Petitions.

(a) Except as provided in subsection (c), the CO_2 authorized account representative of a CO_2 budget unit that is subject to an acid rain emissions limitation may submit a petition to the Administrator under 40 CFR 75.66 and to the Department requesting approval to apply an alternative to any requirement of 40 CFR Part 75.

(b) Application of an alternative to any requirement of 40 CFR Part 75 is in accordance with this subchapter only to the extent that the petition is approved in writing by the Administrator and subsequently approved in writing by the Department.

(c) The CO_2 authorized account representative of a CO_2 budget unit that is not subject to an acid rain emissions limitation may submit a petition to the Administrator under 40 CFR 75.66 and to the Department requesting approval to apply an alternative to any requirement of 40 CFR Part 75. Application of an alternative to any requirement of 40 CFR Part 75 is in accordance with this subchapter only to the extent that the petition is approved in writing by the Administrator and subsequently approved in writing by the Department.

(d) In the event that the Administrator declines to review a petition under subsection (c), the CO_2 authorized account representative of a CO_2 budget unit that is not subject to an acid rain emissions limitation may submit a petition to the Department requesting approval to apply an alternative to any requirement of §§ 145.371—145.377. That petition shall contain all of the relevant information specified in 40 CFR 75.66. Application of an alternative to any requirement of §§ 145.371—145.377 is in accordance with §§ 145.371—145.377 only to the extent that the petition is approved in writing by the Department.

(e) The CO_2 authorized account representative of a CO_2 budget unit that is subject to an acid rain emissions limitation may submit a petition to the Administrator under 40 CFR 75.66 and to the Department requesting approval to apply an alternative to a requirement concerning any additional CEMS required under the common stack provisions of 40 CFR 75.72 or a CO_2 concentration CEMS used under 40 CFR 75.71(a)(2) (relating to specific provisions for monitoring NO_x and heat input for the purpose of calculating NO_x mass emissions). Application of an alternative to any requirement is in accordance with §§ 145.371—145.377 only to the extent the petition is approved in writing by the Administrator and subsequently approved in writing by the Department.

§ 145.377. CO_2 budget units that co-fire eligible biomass.

(a) The CO_2 authorized account representative of a CO_2 budget unit that co-fires eligible biomass as a compliance mechanism under this subchapter shall report the following information to the Department or its agent for each calendar quarter:

(1) For each shipment of solid eligible biomass fuel fired at the CO_2 budget unit:

(i) The total eligible biomass fuel input, on an as-fired basis, in pounds.

(ii) The moisture content, on an as-fired basis, as a fraction by weight.

(2) For each distinct type of gaseous eligible biomass fuel fired at the CO_2 budget unit:

(i) The density of the biogas, on an as-fired basis, in pounds per standard cubic foot.

(ii) The moisture content of the biogas, on an as-fired basis, as a fraction by total weight.

(iii) The total eligible biomass fuel input, in standard cubic feet.

(3) For each distinct type of eligible biomass fuel fired at the CO_2 budget unit:

(i) The dry basis carbon content of the fuel type, as a fraction by dry weight.

(ii) The dry basis higher heating value, in MMBtu per dry pound.

(iii) The total dry basis eligible biomass fuel input, in pounds, calculated in accordance with subsection (b).

(iv) The total eligible biomass fuel heat input, in MMBtu, calculated in accordance with paragraph (d)(1).

(v) A chemical analysis, including heating value and carbon content.

(4) The total amount of CO_2 emitted from the CO_2 budget unit due to firing eligible biomass fuel, in tons, calculated in accordance with subsection (c).

(5) The total amount of heat input to the CO_2 budget unit due to firing eligible biomass fuel, in MMBtu, calculated in accordance with paragraph (d)(2).

(6) A description and documentation of the monitoring technology employed, and a description and documentation of the fuel sampling methodology employed, including sampling frequency and carbon ash testing.

(b) An owner or operator of a CO_2 budget unit shall calculate and submit to the Department or its agent on a quarterly basis the total dry weight for each distinct type of eligible biomass fired by the CO_2 budget unit during the reporting quarter. The total dry weight shall be determined for each fuel type as follows:

(1) For solid fuel types:

$$F_j = \sum_{i=1}^{m} (1 - M_i) \times F_i$$

Fj = Total eligible biomass dry basis fuel input (lbs) for fuel type j.

Fi = Eligible biomass as fired fuel input (lbs) for fired shipment i.

Mi = Moisture content (fraction) for fired shipment i.

i = Fired fuel shipment.

j = Fuel type.

m = Number of shipments.

(2) For gaseous fuel types:

Fj = Dj x Vj x (1 – Mj)

Where:

Fj = Total eligible biomass dry basis fuel input (lbs) for fuel type j.

Dj = Density of biogas (lbs/scf) for fuel type j.

Vj = Total volume (scf) for fuel type j.

Mj = Moisture content (fraction) for fuel type j.

j = Fuel type.

(c) CO_2 emissions due to firing of eligible biomass shall be determined as follows:

(1) For any full calendar quarter during which no fuel other than eligible biomass is combusted at the CO_2 budget unit, as measured and recorded in accordance with §§ 145.371—145.376 or for any full calendar quarter during which fuels other than eligible biomass are combusted at the CO_2 budget unit, as determined using the following equation:

$$CO_2\ tons = \sum_{j=1}^{n} F_j \times C_j \times O_j \times \frac{44}{12} \times 0.0005$$

Where:

CO_2 tons = CO_2 emissions due to firing of eligible biomass for the reporting quarter.

Fj = Total eligible biomass dry basis fuel input (lbs) for fuel type j, as calculated in subsection (b).

Cj = Carbon fraction (dry basis) for fuel type j.

Oj = Oxidation factor for eligible biomass fuel type j, derived for solid fuels based on the ash content of the eligible biomass fired and the carbon content of this ash, as determined under subparagraph (a)(3)(v); for gaseous eligible biomass fuels, a default oxidation factor of 0.995 may be used.

44/12 = The number of tons of carbon dioxide that are created when one ton of carbon is combusted.

0.0005 = The number of short tons which is equal to one pound.

j = Fuel type.

n = Number of distinct fuel types.

(d) Heat input due to firing of eligible biomass for each quarter shall be determined as follows:

(1) For each distinct fuel type:

Hj = Fj x HHVj

Where:

Hj = Heat input (MMBtu) for fuel type j.

Fj = Total eligible biomass dry basis fuel input (lbs) for fuel type j, as calculated in subsection (b).

HHVj = Higher heating value (MMBtu/lb), dry basis, for fuel type j, as determined through chemical analysis.

j = Fuel type.

(2) For all fuel types:

$$Heat\ input\ MMBtu = \sum_{i=1}^{n} H_j$$

Where:

Hj = Heat input (MMBtu) for fuel type j.

j = Fuel type.

n = Number of distinct fuel types.

AUCTION OF CO_2 CCR AND ECR ALLOWANCES

Sec.
145.381. Purpose.
145.382. General requirements.

§ 145.381. Purpose.

The following requirements shall apply to each allowance auction. The Department or its agent may specify additional information in the auction notice for each auction. Such additional information may include the time and location of the auction, auction rules, registration deadlines and any additional information deemed necessary or useful.

§ 145.382. General Requirements.

(a) In the auction notice for each auction, the Department or its agent shall include the following:

(1) The number of CO_2 allowances offered for sale at the auction, not including any CO_2 CCR allowances.

(2) The number of CO_2 CCR allowances that will be offered for sale at the auction if the condition in paragraph (b)(1) is met.

(3) The minimum reserve price for the auction.

(4) *The CCR trigger price for the auction.* The CCR trigger price in calendar year 2022 shall be $13.91. Each calendar year after 2022, the CCR trigger price shall be 1.07 multiplied by the CCR trigger price from the previous calendar year, rounded to the nearest whole cent, as shown in Table 1.

Table 1. CO_2 CCR Trigger Price

2023	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*
$14.88	$15.92	$17.03	$18.22	$19.50	$20.87	$22.33	$23.89

(5) The maximum number of CO_2 allowances that may be withheld from sale at the auction if the condition in paragraph (d)(1) is met.

(6) *The ECR trigger price for the auction.* The ECR trigger price in calendar year 2022 shall be $6.42. Each calendar year after 2022, the ECR trigger price shall be 1.07 multiplied by the ECR trigger price from the previous calendar year, rounded to the nearest whole cent, as shown in Table 2.

Table 2. CO_2 ECR Trigger Price

2023	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*	*2030*
$ 6.87	$ 7.35	$ 7.86	$ 8.41	$ 9.00	$ 9.63	$10.30	$11.02

(b) For the sale of CO_2 CCR allowances, the Department or its agent will do the following:

(1) CO_2 CCR allowances will only be sold at an auction in which the total demand for allowances, above the CCR trigger price, exceeds the number of CO_2 allowances available for purchase at the auction, not including any CO_2 CCR allowances.

(2) If the condition in paragraph (b)(1) is met at an auction, then the number of CO_2 CCR allowances offered for sale by the Department or its agent at the auction will be equal to the number of CO_2 CCR allowances in the air pollution reduction account at the time of the auction.

(3) After all of the CO_2 CCR allowances in the air pollution reduction account have been sold in a given calendar year, no additional CO_2 CCR allowances will be sold at any auction for the remainder of that calendar year, even if the condition in paragraph (b)(1) is met at an auction.

(4) At an auction in which CO_2 CCR allowances are sold, the reserve price for the auction shall be the CCR trigger price.

(5) If the condition in paragraph (b)(1) is not satisfied, no CO_2 CCR allowances will be offered for sale at the auction and the reserve price for the auction will be equal to the minimum reserve price.

(c) The Department or its agent will implement the reserve price in the following manner:

(1) No CO_2 allowances will be sold at any auction for a price below the reserve price for that auction.

(2) If the total demand for CO_2 allowances at an auction is less than or equal to the total number of CO_2 allowances made available for sale in that auction, then the auction clearing price for the auction shall be the reserve price.

(d) For the withholding of CO_2 ECR allowances from an auction, the Department or its agent will do the following:

(1) CO_2 ECR allowances will only be withheld from an auction if the demand for allowances would result in an auction clearing price that is less than the ECR trigger price prior to the withholding from the auction of any ECR allowances.

(2) If the condition in paragraph (d)(1) is met at an auction, then the maximum number of CO_2 ECR allowances that may be withheld from that auction will be equal to the quantity in § 145.342(e)(1) minus the total quantity of CO_2 ECR allowances that have been withheld from any prior auction in that calendar year. The Department will transfer any CO_2 ECR allowances withheld from an auction into the Pennsylvania ECR Account.

CO_2 EMISSIONS OFFSET PROJECTS

Sec.

§ 145.391. Purpose.

The Department may award CO_2 offset allowances to sponsors of CO_2 emissions offset projects that have reduced or avoided atmospheric loading of CO_2, CO_2 equivalent or sequestered carbon as demonstrated in accordance with the applicable provisions of §§ 145.391—145.397. The requirements of §§ 145.391—145.397 seek to ensure that CO_2 offset allowances awarded represent CO_2 equivalent emission reductions or carbon sequestration that are real, additional, verifiable, enforceable and permanent within the framework of a standards-based approach. Subject to the relevant compliance deduction limitations of § 145.355(a)(3), CO_2 offset allowances may be used by any CO_2 budget source for compliance purposes.

§ 145.392. Definitions.

The following words and terms, when used in §§ 145.391—145.397, have the following meanings, unless the context clearly indicates otherwise:

AEPS—Alternative energy portfolio standards—Standards establishing that a certain amount of energy sold from alternative energy sources, as defined under section 1648.2 of the Alternative Energy Portfolio Standards Act (73 P.S. § 1648.2). is included as part of the sources of electric generation by electric utilities within this Commonwealth.

Anaerobic digester—A device that promotes the decomposition of organic material to simple organics and gaseous biogas products, in the absence of elemental oxygen, usually accomplished by means of controlling temperature and volume, and that includes a methane recovery system.

Anaerobic digestion—The decomposition of organic material including manure brought about through the action of microorganisms in the absence of elemental oxygen.

Anaerobic storage—Storage of organic material in an oxygen-free environment, or under oxygen-free conditions, including holding tanks, ponds and lagoons.

Biogas—Gas resulting from the decomposition of organic matter under anaerobic conditions, the principle constituents of which are methane and carbon dioxide.

Conflict of interest—A situation that may arise with respect to an individual in relation to any specific project sponsor, CO_2 emissions offset project or category of offset projects, such that the individual's other activities or relationships with other persons or organizations render or may render the individual incapable of providing an impartial certification opinion, or otherwise compromise the individual's objectivity in performing certification functions.

Forest offset project—An offset project involving reforestation, improved forest management or avoided conversion.

Forest offset project data report—The report prepared by a project sponsor each year that provides the information and documentation required by §§ 145.391—145.397 or the forest offset protocol.

Forest offset protocol—The protocol titled "Regional Greenhouse Gas Initiative Offset Protocol U.S. Forest Projects," published by the participating states on June 12, 2013.

Independent verifier—An individual that has been approved by the Department or its agent to conduct verification activities.

Intentional Reversal—Any reversal caused by a forest owner's negligence, gross negligence or willful intent, including harvesting, development and harm to the area within the offset project boundary.

Market penetration rate—A measure of the diffusion of a technology, product or practice in a defined market, as represented by the percentage of annual sales for a product or practice, or as a percentage of the existing installed stock for a product or category of products, or as the percentage of existing installed stock that utilizes a practice.

Offset project—

(i) All equipment, materials, items or actions directly related to the reduction of CO_2 equivalent emissions or the sequestration of carbon specified in a consistency application submitted under § 145.394 (relating to application process).

(ii) This term does not include equipment, materials, items or actions unrelated to an offset project reduction of CO_2 equivalent emissions or the sequestration of carbon but occurring at a

location where an offset project occurs, unless specified in § 145.395 (relating to CO_2 emissions offset project standards).

Project commencement—

(i) For an offset project involving physical construction, other work at an offset project site or installation of equipment or materials, the date of the beginning of the activity.

(ii) For an offset project that involves the implementation of a management activity or protocol, the date on which the activity is first implemented or the protocol is first utilized.

(iii) For an offset project involving reforestation, improved forest management or avoided conversion, the date specified in section 3.2 of the forest offset protocol.

Project sponsor—The sponsor of an offset project under §§ 145.391—145.397.

Regional-type anaerobic digester—An anaerobic digester using feedstock from more than one agricultural operation or importing feedstock from more than one agricultural operation.

Reporting Period—The period of time covered by a forest offset project data report. The first reporting period for a forest offset project in an initial crediting period may consist of 6 to 24 consecutive months; all subsequent reporting periods in an initial crediting and all reporting periods in any renewed crediting period must consist of 12 consecutive months.

Reversal—A greenhouse gas emission reduction or greenhouse gas removal enhancement for which CO_2 offset allowances have been issued that is subsequently released or emitted back into the atmosphere due to any intentional or unintentional circumstance.

System benefit fund—Any fund collected directly from retail electricity or natural gas ratepayers.

Total solids—The total of all solids in a sample, including the total suspended solids, total dissolved solids and volatile suspended solids.

Unintentional Reversal—Any reversal, including, wildfires, insects or disease that is not the result of the forest owner's negligence, gross negligence or willful intent.

Verification—The confirmation by an independent verifier that certain parts of a CO_2 emissions offset project consistency application and measurement, monitoring or verification report conforms to the requirements of §§ 145.391—145.397.

Volatile solids—The fraction of total solids that is comprised primarily of organic matter as defined in EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020).

§ 145.393. General requirements.

(a) *Eligibility*. To qualify for the award of CO_2 offset allowances, offset projects shall satisfy all the applicable requirements of §§ 145.391—145.397.

(1) *Offset project types*. The following types of offset projects are eligible for the award of CO_2 offset allowances:

(i) Landfill methane capture and destruction.

(ii) Sequestration of carbon due to reforestation, improved forest management or avoided conversion.

(iii) Avoided methane emissions from agricultural manure management operations.

(2) *Offset project locations*. To qualify for the award of CO_2 offset allowances, an offset project must be located in:

(i) Pennsylvania.

(ii) Partly in Pennsylvania and partly in one or more other participating states, provided that more of the CO_2-equivalent emissions reduction or carbon sequestration due to the offset project is projected to occur in Pennsylvania than in any other participating state.

(b) *Project sponsor*. Any person may act as the sponsor of an offset project, provided that person meets the requirements under § 145.394.

(c) *General additionality requirements*. Except as provided under § 145.395, the Department will not award CO_2 offset allowances to an offset project that meets the following:

(1) An offset project that is required under any local, state or federal law, regulation, or administrative or judicial order. If an offset project receives a consistency determination under § 145.394 and is later required by local, state or federal law, regulation, or administrative or judicial order, then the offset project will remain eligible for the award of CO_2 offset allowances until the end of its current allocation period but its eligibility will not be extended for an additional allocation period.

(2) An offset project that includes an electric generation component, unless the project sponsor transfers legal rights to any and all attribute credits, other than the CO_2 offset allowances awarded under § 145.397, generated from the operation of the offset project that may be used for compliance with AEPS or a regulatory requirement, to the Department or its agent.

(3) An offset project that receives funding or other incentives from any system benefit fund or other incentives provided through revenue from the auction or sale of CO_2 allowances in the air pollution reduction account under § 145.342(a).

(4) An offset project that is awarded credits or allowances under any other mandatory or voluntary greenhouse gas program, except as described in § 145.395(b)(10).

(d) *Maximum allocation periods for offset projects.*

(1) *Maximum allocation periods.* Except as provided in paragraph (d)(2), the Department may award CO_2 offset allowances under § 145.397 for an initial 10-year allocation period. At the end of the initial 10-year allocation period, the Department may award CO_2 offset allowances for a second 10-year allocation period, provided the project sponsor has submitted a consistency application under § 145.394 prior to the expiration of the initial allocation period, and the Department has issued a consistency determination under § 145.394(e)(2).

(2) *Maximum allocation period for sequestration of carbon due to reforestation, improved forest management or avoided conversion.* The Department may award CO_2 offset allowances under § 145.397 for any project involving reforestation, improved forest management or avoided conversion for an initial 25-year allocation period. At the end of the initial 25-year allocation period, or any subsequent crediting period, the Department may award CO_2 offset allowances for a subsequent 25-year allocation period, provided the project sponsor has submitted a consistency application for the offset project under § 145.394 prior to the expiration of the initial allocation period, and the Department has issued a consistency determination under § 145.394(e)(2).

(e) *Offset project audit.* A project sponsor shall provide in writing, an access agreement to the Department granting the Department or its agent access to the physical location of the offset project to inspect for compliance with §§ 145.391—145.397.

(f) *Ineligibility due to noncompliance.*

(1) If at any time the Department determines that a project sponsor has not complied with the requirements of §§ 145.391—145.397, then the Department may revoke and retire any and all CO_2 offset allowances in the project sponsor's account.

(2) If at any time the Department determines that an offset project does not comply with the requirements of §§ 145.391—145.397, then the Department may revoke any approvals it has issued relative to the offset project.

§ 145.394. Application process.

(a) *Establishment of general account.* The sponsor of an offset project must establish a general account under § 145.352(b). All submissions to the Department required for the award of CO_2 offset allowances under §§ 145.391—145.397 must be from the CO_2 authorized account representative for the general account of the project sponsor.

(b) *Consistency application deadlines.* A consistency application for an offset project shall be submitted, in a format prescribed by the Department and consistent with the requirements of this section by the following deadlines:

(1) For an offset project not involving reforestation, improved forest management or avoided conversion, by the date that is 6 months after the offset project is commenced.

(2) For an offset project involving reforestation, improved forest management or avoided conversion the consistency application, by the date that is one year after the offset project is commenced, except as provided under § 145.395(b)(9).

(3) The Department will deny any consistency application that fails to meet the deadlines in subsection (b).

(c) *Consistency application contents*. For an offset project, the consistency application must include the following:

(1) The project's sponsor's name, address, e-mail address, telephone number, facsimile transmission number and account number.

(2) The offset project description as required by the relevant provisions under § 145.395.

(3) A demonstration that the offset project meets all applicable requirements in §§ 145.391—145.397.

(4) The emissions baseline determination as required by the relevant provisions under § 145.395.

(5) An explanation of how the projected reduction or avoidance of atmospheric loading of CO_2 or CO_2 equivalent or the sequestration of carbon is to be quantified, monitored and verified as required by the relevant provisions under § 145.395.

(6) A completed consistency application agreement signed by the project sponsor that reads as follows:

"The undersigned project sponsor recognizes and accepts that the application for, and the receipt of, CO_2 offset allowances under the CO_2 Budget Trading Program is predicated on the project sponsor following all the requirements of §§ 145.391—145.397. The undersigned project sponsor holds the legal rights to the offset project or has been granted the right to act on behalf of a party that holds the legal rights to the offset project. I understand that eligibility for the award of CO_2 offset allowances under §§ 145.391—145.397 is contingent on meeting the requirements of §§ 145.391—145.397. I authorize the Department or its agent to audit this offset project for purposes of verifying that the offset project, including the monitoring and verification plan, has been implemented as described in this application. I understand that this right to audit shall include the right to enter the physical location of the offset project. I submit to the legal jurisdiction of the Commonwealth of Pennsylvania."

(7) A statement and certification report signed by the offset project sponsor certifying that all offset projects for which the sponsor has received CO_2 offset allowances under §§ 145.391—145.397, under the sponsor's ownership or control or under the ownership or control of any entity which controls, is controlled by, or has common control with the sponsor are in compliance with all applicable requirements of the CO_2 Budget Trading Program in all participating states.

(8) A verification report and certification statement signed by an independent verifier accredited under § 145.396 (relating to accreditation of independent verifiers) that expresses that the independent verifier has reviewed the entire application and evaluated the following in relation to the applicable requirements at § 145.393 (relating to general requirements) and § 145.395, and any applicable guidance issued by the Department:

(i) The adequacy and validity of information supplied by the project sponsor to demonstrate that the offset project meets the applicable eligibility requirements of § 145.393 and § 145.395.

(ii) The adequacy and validity of information supplied by the project sponsor to demonstrate baseline emissions under the applicable requirements under § 145.395.

(iii) The adequacy of the monitoring and verification plan submitted under the applicable requirements under § 145.395.

(iv) Any other evaluations and statements as may be required by the Department.

(9) Disclosure of any voluntary or mandatory programs, other than the CO_2 Budget Trading Program, to which greenhouse gas emissions data related to the offset project has been or will be reported.

(d) The Department will not accept as submitted a consistency application for an offset project if a consistency application has already been submitted for the same project, or any portion of the same project, in another participating state, unless the consistency application was rejected by another participating state solely because more of the CO_2 equivalent emissions reduction or carbon sequestration resulting from the offset project is projected to occur in Pennsylvania than in any other participating state.

(e) *Department action on consistency applications.*

(1) *Completeness determination.* Within 30 days following receipt of the consistency application submitted under subsection (b), the Department will notify the project sponsor whether the consistency application is complete. A complete consistency application is one that is in a form prescribed by the Department and is determined by the Department to contain all applicable information and documentation required by §§ 145.391—145.397. In no event will a completeness determination prevent the Department from requesting additional information in order to make a consistency determination under paragraph (e)(2).

(2) *Consistency determination.* Within 90 days of making the completeness determination under paragraph (e)(1), the Department will issue a determination as to whether the offset project is consistent with the requirements of § 145.393 and this section and the requirements of the applicable offset project standard of § 145.395. For any offset project found to lack consistency with these requirements, the Department will inform the project sponsor of the offset project's deficiencies.

§ 145.395. CO_2 emissions offset project standards.

(a) *Landfill methane capture and destruction.* To qualify for the award of CO_2 offset allowances under §§ 145.391—145.397, an offset project that captures and destroys methane from a landfill shall meet the requirements of this subsection and all other applicable requirements of §§ 145.391—145.397.

(1) *Eligibility.* An offset project shall occur at a landfill that is not subject to the New Source Performance Standards for municipal solid waste landfills, 40 CFR Part 60, Subpart Cc and Subpart WWW (relating to emission guidelines and compliance times for municipal solid waste landfills; and standards of performance for municipal solid waste landfills).

(2) *Offset project description.* The project sponsor shall provide a detailed narrative of the offset project actions to be taken, including documentation that the offset project meets the eligibility requirements of paragraph (a)(1). The project narrative shall include the following:

(i) Identification of the owner or operator of the offset project.

(ii) Location and specifications of the landfill where the offset project will occur, including waste in place.

(iii) Identification of the owner or operator of the landfill where the offset project will occur.

(iv) Specifications of the equipment to be installed and a technical schematic of the offset project.

(3) *Emissions baseline determination.* The emissions baseline shall represent the potential fugitive landfill emissions of CH_4, in tons of CO_2e, as represented by the CH_4 collected and metered for thermal destruction as part of the offset project and calculated as follows:

$$\text{Emissions (tons } CO_2e) = (V \times M \times (1 - 0X) \times GWP)/2000$$

Where:

V = volume of CH_4 collected (ft^3).

M = Mass of CH_4 per cubic foot (0.04246 lbs/ft^3 default value at 1 atmosphere, 20° C).

OX = Oxidation factor (0.10), representing estimated portion of collected CH_4 that would have eventually oxidized to CO_2 if not collected.

GWP = CO_2e global warming potential of CH_4 (28).

(4) *Calculating emissions reductions.* Emissions reductions shall be determined based on potential fugitive CH_4 emissions that would have occurred at the landfill if metered CH_4 collected

from the landfill for thermal destruction as part of the offset project was not collected and destroyed. CO_2e emissions reductions shall be calculated as follows:

$$\text{Emissions (tons } CO_2e) = (V \times M \times (1 - 0X) \times Cef \times GWP)/2000$$

Where:

V = Volume of CH_4 collected (ft^3).

M = Mass of CH_4 per cubic foot (0.04246 lbs/ft^3 default value at 1 atmosphere and 20° C).

OX = Oxidation factor (0.10), representing estimated portion of collected CH_4 that would have eventually oxidized to CO_2 if not collected.

Cef = Combustion efficiency of methane control technology (0.98).

GWP = CO_2e global warming potential of CH_4 (28).

(5) *Monitoring and verification requirements.* An offset project shall employ a landfill gas collection system that provides continuous metering and data computation of landfill gas volumetric flow rate and CH_4 concentration. Annual monitoring and verification reports shall include monthly volumetric flow rate and CH_4 concentration data, including documentation that the CH_4 was actually supplied to the combustion source. Monitoring and verification is also subject to the following:

(i) As part of the consistency application, the project sponsor shall submit a monitoring and verification plan that includes a quality assurance and quality control program associated with equipment used to determine landfill gas volumetric flow rate and CH_4 composition. The monitoring and verification plan shall also include provisions for ensuring that measuring and monitoring equipment is maintained, operated and calibrated based on manufacturer recommendations, as well as provisions for the retention of maintenance records for audit purposes. The monitoring and verification plan shall be certified by an independent verifier accredited under § 145.396.

(ii) The project sponsor shall annually verify landfill gas CH_4 composition through landfill gas sampling and independent laboratory analysis using applicable EPA laboratory test methods.

(b) *Sequestration of carbon due to reforestation, improved forest management or avoided conversion.* To qualify for the award of CO_2 offset allowances under §§ 145.391—145.397, an offset project that involves reforestation, improved forest management, or avoided conversion shall meet all requirements of this subsection and the forest offset protocol, and all other applicable requirements of §§ 145.391—145.397.

(1) *Eligibility.* A forest offset project shall satisfy all eligibility requirements of the forest offset protocol and this subsection.

(2) *Offset project description.* The project sponsor shall provide a detailed narrative of the offset project actions to be taken, including documentation that the offset project meets the eligibility requirements of paragraph (b)(1). The offset project description must include all information identified in sections 8.1 and 9.1 of the forest offset protocol, and any other information deemed necessary by the Department.

(3) *Carbon sequestration baseline determination.* Baseline onsite carbon stocks shall be determined as required by sections 6.1.1, 6.1.2, 6.2.1, 6.2.2, 6.2.3, 6.3.1, and 6.3.2 of the forest offset protocol, as applicable.

(4) *Calculating carbon sequestered.* Net greenhouse gas reductions and greenhouse gas removal enhancements shall be calculated as required by section 6 of the forest offset protocol. The project's risk reversal rating shall be calculated using the forest offset protocol Determination of a Forest Project's Reversal Risk Rating assessment worksheet.

(5) *Monitoring and verification requirements.* Monitoring and verification are subject to the following:

(i) Monitoring and verification reports shall include all forest offset project data reports submitted to the Department, including any additional data required by section 9.2.2 of the forest offset protocol.

(ii) The consistency application shall include a monitoring and verification plan certified by an independent verifier accredited under § 145.396 and shall consist of a forest carbon inventory program, as required by section 8.1 of the forest offset protocol.

(iii) Monitoring and verification reports shall be submitted not less than every 6 years, except that the first monitoring and verification report for reforestation projects must be submitted within 12 years of project commencement.

(6) *Forest Offset Project Data Reports.* A project sponsor shall submit a forest offset project data report to the Department for each reporting period. Each forest offset project data report must cover a single reporting period. Reporting periods must be contiguous and there must be no gaps in reporting once the first reporting period has commenced.

(7) Prior to the award of CO_2 offset allowances under § 145.397, or to any surrender of allowances under § 145.395(b)(8)(ii)(C), any quantity expressed in metric tons, or metric tons of CO_2 equivalent, shall be converted to tons using the conversion factor specified in § 145.302.

(8) *Carbon sequestration permanence.* The project sponsor shall meet the following requirements to address reversals of sequestered carbon.

(i) *Unintentional reversals.* The project sponsor shall address an unintentional reversal of sequestered carbon as follows:

(A) Notify the Department of the reversal and provide an explanation for the nature of the unintentional reversal within 30 calendar days of its discovery.

(B) Submit to the Department a verified estimate of current carbon stocks within the offset project boundary within one year of the discovery of the unintentional reversal.

(ii) *Intentional Reversals.* The project sponsor shall address an intentional reversal of sequestered carbon as follows:

(A) Notify the Department in writing of the intentional reversal and provide a written description and explanation of the intentional reversal within 30 calendar days of the intentional reversal.

(B) Submit to the Department a verified estimate of current carbon stocks within the offset project boundary within one year of the occurrence of an intentional reversal.

(C) If an intentional reversal occurs, and CO_2 offset allowances have been awarded to the offset project, the forest owner must surrender to the Department or its agent for retirement a quantity of CO_2 allowances corresponding to the quantity of CO_2 equivalent tons reversed within 6 months of notification by the Department.

(I) The Department will provide notification after the project sponsor has submitted a verified estimate of carbon stocks to the Department, or if the project sponsor fails to submit verified estimate of carbon stocks after one year has elapsed since the occurrence of the intentional reversal.

(II) If the forest owner does not surrender valid CO_2 allowances to the Department within 6 months of notification by the Department, the forest owner will be subject to enforcement action and each CO_2 equivalent ton of carbon sequestration intentionally reversed will constitute a separate violation of this subchapter and the act.

(D) *Project Termination Requirements.*

(I) The project sponsor must surrender to the Department or its agent for retirement a quantity of CO_2 allowances in the amount calculated under project termination provisions in the forest offset protocol within 6 months of project termination.

(II) If the project sponsor does not surrender to the Department or its agent a quantity of CO_2 allowances in the amount calculated under project termination provisions in the forest offset protocol within 6 months of project termination, the project sponsor will be subject to enforcement action and each CO_2 offset allowance not surrendered will constitute a separate violation of this subchapter and the act.

(iii) *Disposition of Forest Sequestration Projects After a Reversal.* The Department will terminate a forest offset project if a reversal lowers the forest offset project's actual standing live carbon stocks below its project baseline standing live carbon stocks.

(9) *Timing of forest offset projects.* The Department may award CO_2 offset allowances under § 145.397 only for forest offset projects that are initially commenced on or after January 1, 2014.

(10) *Projects that Have Been Awarded Credits by a Voluntary Greenhouse Gas Reduction Program.* The provisions of § 145.393(c)(4) and § 145.394(b)(2) shall not apply to forest projects that have been awarded credits under a voluntary greenhouse gas reduction program. For those projects, the number of CO_2 offset allowances will be calculated under the requirements of this subsection, without regard to quantity of credits that were awarded to the project under the voluntary program, provided that the project satisfies the following:

(i) All other general requirements of §§ 145.391—145.397, including all specific requirements of this subsection, for all reporting periods for which the project has been awarded credits under a voluntary greenhouse gas program and also intends to be awarded CO_2 offset allowances under § 145.397.

(ii) At the time of submittal of the consistency application for the project, the project sponsor submits forest offset data reports and a monitoring and verification report covering all reporting periods for which the project has been awarded credits under a voluntary greenhouse gas program and also intends to be awarded CO_2 offset allowances under § 145.397. Forest offset data reports and monitoring and verification reports must meet all requirements of paragraphs (b)(5) and (b)(6).

(iii) The voluntary greenhouse gas program has published information to allow the Department to verify the information included in the consistency application and the consistency application includes information sufficient to allow the Department to determine the following:

(A) The offset project has met all legal and contractual requirements to allow it to terminate its relationship with the voluntary greenhouse gas program and the termination has been completed.

(B) The project sponsor or voluntary greenhouse gas program has cancelled or retired all credits that were awarded for carbon sequestration that occurred during the time periods for which the project intends to be awarded CO_2 offset allowances under § 145.397, and the credits were cancelled or retired for the sole purpose of allowing the project to be awarded CO_2 offset allowances under § 145.397.

(c) *Avoided methane emissions from agricultural manure management operations.* To qualify for the award of CO_2 offset allowances under §§ 145.391—145.397, an offset project that captures and destroys methane from animal manure and organic food waste using anaerobic digesters shall meet the requirements of this subsection and all other applicable requirements of §§ 145.391—145.397.

(1) *Eligibility.* To be eligible for CO_2 offset allowances, an offset project under subsection (c) shall:

(i) Consist of the destruction of that portion of methane generated by an anaerobic digester that would have been generated in the absence of the offset project through the uncontrolled anaerobic storage of manure or organic food waste.

(ii) Employ only manure-based anaerobic digester systems using livestock manure as the majority of digester feedstock, defined as more than 50% of the mass input into the digester on an annual basis. Organic food waste used by an anaerobic digester shall only be that which would have been stored in anaerobic conditions in the absence of the offset project.

(2) *Exceptions to the general requirements.* The provisions of § 145.393(c)(2) and (c)(3) shall not apply to an agricultural manure management offset project that meets the following:

(i) The offset project is located in a participating state that has a market penetration rate for anaerobic digester projects of 5% or less. The market penetration determination shall utilize the most recent market data available at the time of submission of the consistency application under § 145.394 and shall be determined as follows:

$$MP\ (\%) = MGAD / MG\ STATE$$

Where:

MGAD = Average annual manure generation for the number of dairy cows and swine serving all anaerobic digester projects in the applicable state at the time of submission of a consistency application under § 145.394.

MG STATE = Average annual manure production of all dairy cows and swine in the participating state at the time of submission of a consistency application under § 145.394.

(ii) The offset project is located at a farm with 4,000 or less head of dairy cows, or a farm with equivalent animal units, assuming an average live weight for dairy cows in pounds per cow of 1,400 pounds, or, if the project is a regional-type anaerobic digester, total annual manure input to the digester is designed to be less than the average annual manure produced by a farm with 4,000 or less head of dairy cows, or a farm with equivalent animal units, assuming an average live weight for dairy cows in pounds per cow of 1,400 pounds.

(3) *Offset project description.* The project sponsor shall provide a detailed narrative of the offset project actions to be taken, including documentation that the offset project meets the eligibility requirements of paragraph (c)(1). The offset project narrative shall include the following:

(i) Identification of the owner or operator of the offset project.

(ii) Location and specifications of the facility where the offset project will occur.

(iii) Identification of the owner or operator of the facility where the offset project will occur.

(iv) Specifications of the equipment to be installed and a technical schematic of the offset project.

(v) Location and specifications of the facilities from which anaerobic digester influent will be received, if different from the facility where the offset project will occur.

(4) *Emissions baseline determination.* The emissions baseline shall represent the potential emissions of the CH_4 that would have been produced in a baseline scenario under uncontrolled anaerobic storage conditions and released directly to the atmosphere in the absence of the offset project.

(i) Baseline CH_4 emissions shall be calculated as follows:

$$Eb = (Vm \times M)/2000 \times GWP$$

Where:

Eb = Potential CO_2e emissions due to calculated CH_4 production under site-specific anaerobic storage and weather conditions (tons).

Vm = Volume of CH_4 produced each month from decomposition of volatile solids in a baseline uncontrolled anaerobic storage scenario under site-specific storage and weather conditions for the facility at which the manure or organic food waste is generated (ft^3).

M = Mass of CH_4 per cubic foot (0.04246 lb/ft^3 default value at one atmosphere and 20°C).

GWP = Global warming potential of CH_4 (28).

(ii) The estimated amount of volatile solids decomposed each month under the uncontrolled anaerobic storage baseline scenario in kilograms (kg) shall be calculated as follows:

$$VSdec = VSavail \times f$$

Where:

VS = Volatile solids as determined from the equation:

$$VS = Mm \times TS\% \times VS\%$$

Where:

Mm = Mass of manure or organic food waste produced per month (kg).

TS% = Concentration (%) of total solids in manure or organic food waste as determined through EPA 160.3 testing method (EPA Method Number 160.3, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)).

VS% = Concentration (%) of volatile solids in total solids as determined through EPA 160.4 testing method (EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)).

VSavail = Volatile solids available for decomposition in manure or organic food waste storage each month as determined from the equation:

$$VSavail = VSp + {}^{1}/_{2}\,VSin - VSout$$

Where:

VSp = Volatile solids present in manure or organic food waste storage at beginning of month (left over from previous month) (kg).

VSin = Volatile solids added to manure or organic food waste storage during the course of the month (kg). The factor of $^{1}/_{2}$ is multiplied by this number to represent the average mass of volatile solids available for decomposition for the entire duration of the month.

VSout = Volatile solids removed from the manure or organic food waste storage for land application or export (assumed value based on standard farm practice).

f = van't Hoff-Arrhenius factor for the specific month as determined using the equation below. Using a base temperature of 30° C, the equation is as follows:

$$f = \exp\{[E(T2 - T1)]/[(GC \times T1 \times T2)]\}$$

Where:

f = Conversion efficiency of VS to CH_4 per month.

E = Activation energy constant (15,175 cal/mol).

T_2 = Average monthly ambient temperature for facility where manure or organic food waste is generated (converted from degrees Celsius to degrees Kelvin) as determined from the nearest National Weather Service certified weather station (if reported temperature ° C > 5° C; if reported temperature °C < 5° C, then f = 0.104).

T1 = 303.15 (30° C converted to °K).

GC = Ideal gas constant (1.987 cal/K mol).

(iii) The volume of CH_4 produced in cubic feet (ft^3) from decomposition of volatile solids shall be calculated as follows:

$$Vm = (VSdec \times Bo) \times 35.3147$$

Where:

Vm = Volume of CH_4 (ft^3).

VSdec = Volatile solids decomposed (kg).

Bo = Manure or organic food waste type-specific maximum methane generation constant (m^3 CH_4/kg VS decomposed). For dairy cow manure, Bo = 0.24 m^3 CH_4/kg VS decomposed. The methane generation constant for other types of manure shall be those cited at the EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010, Annex 3, Table A 180 (EPA, February 2017), unless the project sponsor proposes an alternate methane generation constant and that alternate is approved by the Department. If the project sponsor proposes to use a methane generation constant other than the ones found in the above-cited reference, the project sponsor must provide justification and documentation to the Department.

(5) *Calculating emissions reductions.* Emissions reductions shall be calculated as follows:

$$ERt = Eb - Ep$$

Where:

ERt = CO_2e emissions reductions due to project activities (tons).

Eb = Potential CO_2e emissions due to calculated CH_4 production under site-specific anaerobic storage and weather conditions (tons).

Ep = CO_2e emissions due to project activities additional to baseline (tons), including manure transportation, flaring, venting and effluent management.

(6) *Transport CO_2 emissions.* Emissions reductions may not exceed the potential emissions of the anaerobic digester, as represented by the annual volume of CH_4 produced by the anaerobic digester, as monitored under paragraph (c)(5). CO_2 emissions due to transportation of manure and organic food waste from the site where the manure and organic food waste was generated to the anaerobic digester shall be subtracted from the emissions calculated under subparagraphs (c)(4)(i)—(iii). Transport CO_2 emissions shall be determined through one of the following methods:

(i) Documentation of transport fuel use for all shipments of manure and organic food waste from off-site to the anaerobic digester during each reporting year and a log of transport miles for each shipment. Off-site is defined as a location that is not contiguous with the property where the anaerobic digester is located. CO_2 emissions shall be determined through the application of an emissions factor for the fuel type used. If this option is chosen, the following emissions factors shall be applied as appropriate:

(A) Diesel fuel: 22.912 lbs. CO_2/gallon.

(B) Gasoline: 19.878 lbs. CO_2/gallon.

(C) Other fuel: submitted emissions factor approved by the Department.

(ii) Documentation of total tons of manure and organic food waste transported from off-site for input into the anaerobic digester during each reporting year, as monitored under subparagraph (c)(7)(i), and a log of transport miles and fuel type used for each shipment. CO_2 emissions shall be determined through the application of a ton-mile transport emission factor for the fuel type used. If this option is chosen, the following emissions factors shall be applied as appropriate for each ton of manure delivered and multiplied by the number of miles transported:

(A) Diesel fuel: 0.131 lbs. CO_2 per ton-mile.

(B) Gasoline: 0.133 lbs. CO_2 per ton-mile.

(C) Other fuel: submitted emissions factor approved by the Department.

(7) *Monitoring and verification requirements.* An offset project shall employ a system that provides metering of biogas volumetric flow rate and determination of CH_4 concentration. Annual monitoring and verification reports shall include monthly biogas volumetric flow rate and CH_4 concentration determination. Monitoring and verification shall also meet the following:

(i) If the offset project is a regional-type anaerobic digester, manure and organic food waste from each distinct source supplying to the anaerobic digester shall be sampled monthly to determine the amount of volatile solids present. Any emissions reduction will be calculated according to mass of manure and organic food waste in kilograms (kg) being digested and percentage of volatile solids present before anaerobic digestion, consistent with the requirements at paragraph (c)(4) and subparagraph (c)(7)(iii) and apportioned accordingly among sources. The project sponsor shall provide supporting material and receipts tracking the monthly receipt of manure and organic food waste in kilograms (kg) used to supply the anaerobic digester from each supplier.

(ii) If the offset project includes the anaerobic digestion of organic food waste eligible under subparagraph (c)(1)(ii), organic food waste shall be sampled monthly to determine the amount of volatile solids present before anaerobic digestion, consistent with the requirements at paragraph (c)(4) and subparagraph (c)(7)(iii), and apportioned accordingly.

(iii) The project sponsor shall submit a monitoring and verification plan as part of the consistency application that includes a quality assurance and quality control program associated with equipment used to determine biogas volumetric flow rate and CH_4 composition. The monitoring and verification plan shall be specified in accordance with the applicable monitoring requirements listed in Table 3. The monitoring and verification plan shall also include provisions for ensuring that measuring and monitoring equipment is maintained, operated and calibrated based on manufacturer's recommendations, as well as provisions for the retention of

maintenance records for audit purposes. The monitoring and verification plan shall be certified by an independent verifier accredited under § 145.396.

Table 3. Monitoring requirements

Parameter	*Measurement Unit*	*Frequency of Sampling*	*Sampling Method(s)*
Influent flow (mass) into the digester	Kilograms (kg) per month (wet mass)	Monthly total into the digester	In descending order of preference: 1) Recorded mass 2) Digester influent pump flow 3) Livestock population and application of American Society of Agricultural and Biological Engineers (ASABE) standard (ASAE D384.2, March 2005)
Influent total solids concentration (TS)	Percent (of sample)	Monthly, depending upon recorded variations	EPA Method Number 160.3, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)
Influent volatile solids (VS) concentration	Percent (of TS)	Monthly, depending upon recorded variations	EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)
Average monthly ambient temperature	Temperature °C	Monthly (based on farm averages)	Closest National Weather Service-certified weather station
Volume of biogas produced by digester	Standard cubic feet (scf)	Continuous, totalized monthly	Flow meter
Methane composition of biogas produced by digester	Percent (of sample)	Quarterly	Bag sampling and third party laboratory analysis using applicable EPA test methods

§ 145.396. Accreditation of independent verifiers.

(a) *Standards for accreditation.* An independent verifier may be accredited by the Department to provide verification services as required of a project sponsor under this subchapter, provided that an independent verifier meets all the requirements of this section.

(1) *Verifier minimum requirements.* Each accredited independent verifier shall demonstrate knowledge of the following:

(i) Utilizing engineering principles.

(ii) Quantifying greenhouse gas emissions.

(iii) Developing and evaluating air emissions inventories.

(iv) Auditing and accounting principles.

(v) Information management systems.

(vi) The requirements of this subchapter.

(vii) Such other qualifications as may be required by the Department to provide competent verification services as required for individual offset categories under § 145.395.

(2) *Organizational qualifications.* An accredited independent verifier shall demonstrate that they meet the following:

(i) No direct or indirect financial relationship, beyond a contract for provision of verification services, with any offset project developer or project sponsor.

(ii) Employ staff with professional licenses, knowledge and experience appropriate to the specific category of offset projects under § 145.395 that they seek to verify.

(iii) Hold a minimum of one million U.S. dollars of professional liability insurance. If the insurance is in the name of a related entity, the verifier shall disclose the financial relationship between the verifier and the related entity, and provide documentation supporting the description of the relationship.

(iv) Implementation of an adequate management protocol to identify potential conflicts of interest with regard to an offset project, offset project developer or project sponsor, or any other party with a direct or indirect financial interest in an offset project that is seeking or has been granted approval of a consistency application under § 145.394(e), and remedy any conflicts of interest prior to providing verification services.

(3) *Pre-qualification of verifiers.* The Department may require prospective verifiers to successfully complete a training course, workshop or test developed by the Department or its agent, prior to submitting an application for accreditation.

(b) *Application for accreditation.* An application for accreditation shall not contain any proprietary information, and shall include the following:

(1) The applicant's name, address, e-mail address, telephone number and facsimile transmission number.

(2) Documentation that the applicant has at least 2 years of experience in each of the knowledge areas specified at subparagraphs (a)(1)(i)—(v), and as may be required under subparagraph (a)(1)(vii).

(3) Documentation that the applicant has successfully completed the requirements at paragraph (a)(3), as applicable.

(4) A sample of at least one work product that provides supporting evidence that the applicant meets the requirements at paragraphs (a)(1) and (2). The work product shall have been produced, in whole or part, by the applicant and shall consist of a final report or other material provided to a client under contract in previous work. For a work product that was jointly produced by the applicant and another entity, the role of the applicant in the work product shall be clearly explained.

(5) Documentation that the applicant holds professional liability insurance as required under subparagraph (a)(2)(iii).

(6) Documentation that the applicant has implemented an adequate management protocol to address and remedy any conflict of interest issues that may arise, as required under subparagraph (a)(2)(iv).

(c) *Department action on applications for accreditation.* The Department will approve or deny a complete application for accreditation within 45 days after submission. Upon approval of an application for accreditation, the independent verifier shall be accredited for a period of 3 years from the date of application approval.

(d) *Reciprocity.* Independent verifiers accredited in other participating states may be deemed to be accredited in Pennsylvania, at the discretion of the Department.

(e) *Conduct of an accredited verifier.*

(1) Prior to engaging in verification services for an offset project sponsor, the accredited verifier shall disclose all relevant information to the Department to allow for an evaluation of potential conflict of interest with respect to an offset project, offset project developer or project sponsor. The accredited verifier shall disclose information concerning its ownership, past and current clients, related entities, as well as any other facts or circumstances that have the potential to create a conflict of interest.

(2) An accredited verifier shall have an ongoing obligation to disclose to the Department any facts or circumstances that may give rise to a conflict of interest with respect to an offset project, offset project developer or project sponsor.

(3) The Department may reject a verification report and certification statement from an accredited verifier, submitted as part of a consistency application required under § 145.394(b) or submitted as part of a monitoring and verification report submitted under § 145.397(b), if the Department determines that the accredited verifier has a conflict of interest related to the offset project, offset project developer or project sponsor.

(4) The Department may revoke the accreditation of a verifier at any time for the following:

(i) Failure to fully disclose any issues that may lead to a conflict of interest situation with respect to an offset project, offset project developer or project sponsor.

(ii) The verifier is no longer qualified due to changes in staffing or other criteria.

(iii) Negligence or neglect of responsibilities pursuant to the requirements of this subchapter.

(iv) Intentional misrepresentation of data or other intentional fraud.

§ 145.397. Award and Recordation of CO_2 offset allowances.

(a) *Award of CO_2 offset allowances.* Following the issuance of a consistency determination under § 145.394(e)(2) and the approval of a monitoring and verification report under the provisions of subsection (f), the Department will award one CO_2 offset allowance for each ton of demonstrated reduction in CO_2 or CO_2 equivalent emissions or sequestration of CO_2.

(b) *Recordation of CO_2 offset allowances.* After CO_2 offset allowances are awarded under paragraph (a)(1), the Department will record the CO_2 offset allowances in the project sponsor's general account.

(c) *Deadlines for submittal of monitoring and verification reports.*

(1) For an offset project undertaken prior to January 1, 2022, the project sponsor shall submit the monitoring and verification report covering the pre-2022 period by June 30, 2022.

(2) For an offset project undertaken on or after January 1, 2022, the project sponsor shall submit the monitoring and verification report within 6 months following the completion of the last calendar year during which the offset project achieved CO_2 equivalent reductions or sequestration of CO_2 for which the project sponsor seeks the award of CO_2 offset allowances.

(d) *Contents of monitoring and verification reports.* For an offset project, the monitoring and verification report must include the following:

(1) The project sponsor's name, address, e-mail address, telephone number, facsimile transmission number and account number.

(2) The CO_2 emissions reduction or CO_2 sequestration determination as required by the relevant provisions of § 145.395, including a demonstration that the project sponsor complied with the required quantification, monitoring and verification procedures under § 145.395, as well as those outlined in the consistency application approved under § 145.394(e)(2).

(3) A signed certification statement that reads "The undersigned project sponsor hereby confirms and attests that the offset project upon which this monitoring and verification report is based is in full compliance with all of the requirements of §§ 145.391—145.397. The project sponsor holds the legal rights to the offset project or has been granted the right to act on behalf of a party that holds the legal rights to the offset project. I understand that eligibility for the award of CO_2 offset allowances under §§ 145.391—145.397 is contingent on meeting the requirements of §§ 145.391—145.397. I authorize the Department or its agent to audit this offset project for purposes of verifying that the offset project, including the monitoring and verification plan, has been implemented as described in the consistency application that was the subject of a consistency determination by the Department. I understand that this right to audit shall include the right to enter the physical location of the offset project and to make available to the Department or its agent any and all documentation relating to the offset project at the Department's request. I submit to the legal jurisdiction of the Commonwealth of Pennsylvania."

(4) A certification signed by the project sponsor certifying that all offset projects for which the sponsor has received CO_2 offset allowances under this subchapter or similar provisions in the rules of other participating states, under the sponsor's ownership or control or under the ownership or control of any entity which controls, is controlled by, or has common control with the sponsor are in compliance with all applicable requirements of the CO_2 Budget Trading Program in all participating states.

(5) A verification report and certification statement signed by an independent verifier accredited under § 145.396 that documents that the independent verifier has reviewed the monitoring and verification report and evaluated the following in relation to the applicable requirements at § 145.395, and any applicable guidance issued by the Department:

(i) The adequacy and validity of information supplied by the project sponsor to determine CO_2 emissions reductions or CO_2 sequestration under the applicable requirements at § 145.395.

(ii) The adequacy and consistency of methods used to quantify, monitor and verify CO_2 emissions reductions and CO_2 sequestration in accordance with the applicable requirements at § 145.395 and as outlined in the consistency application approved under § 145.394(e)(2).

(iii) The adequacy and validity of information supplied by the project sponsor to demonstrate that the offset project meets the applicable eligibility requirements under § 145.395.

(iv) Other evaluations and verification reviews as may be required by the Department.

(6) Disclosure of any voluntary or mandatory programs, other than the CO_2 Budget Trading Program, to which greenhouse gas emissions data related to the offset project has been or will be reported.

(e) *Prohibition against filing monitoring and verification reports in more than one participating state.* The Department will only accept a monitoring and verification report for an offset project that has received a consistency determination under § 145.394(e)(2) and will not accept a monitoring and verification report for an offset project that has received a consistency determination in other participating states.

(f) *Department action on monitoring and verification reports.*

(1) A complete monitoring and verification report is one that is in an approved form and is determined by the Department to be complete for the purpose of commencing review of the monitoring and verification report. In no event shall a completeness determination prevent the Department from requesting additional information needed by the Department to approve or deny a monitoring and verification report.

(2) Within 45 days following receipt of a complete report, the Department will approve or deny a complete monitoring and verification report, in a format approved by the Department, filed with the Department under subsections (c) and (d).

CO_2 ALLOWANCE AUCTIONS

Sec.

§ 145.401. Auction of CO_2 allowances.

(a) Except as provided under subsection (b), the Department will participate in a multistate CO_2 allowance auction in coordination with other participating states based on the following:

(1) A multistate auction capability and process is in place for the participating states.

(2) The multistate auction can provide benefits to Pennsylvania that meet or exceed the benefits conferred on Pennsylvania through its own Pennsylvania-run auction process.

(3) The multistate auction process is consistent with the process described in §§ 145.401—145.409.

(4) The multistate auction process includes monitoring of each CO_2 allowance auction by an independent monitor to identify any collusion, market power or price manipulation.

(b) Should the Department find that the conditions in subsection (a) are no longer met, the Department may determine to conduct a Pennsylvania-run auction in accordance with §§ 145.341—145.343 and §§ 145.401-145.409.

(c) The Department may delegate the implementation and administrative support functions for any CO_2 allowance auction conducted under §§ 145.401-145.409 to an agent qualified to conduct auctions, including a regional entity, provided that the agent shall perform all functions under the direction and oversight of the Department.

(d) The Department will retain its authority to enforce compliance with all sections of this subchapter and will retain control over the proceeds associated with the sale of Pennsylvania CO_2 allowances, whether sold in a multistate or Pennsylvania CO_2 allowance auction and will credit the proceeds to the Clean Air Fund established under the act.

§ 145.402. Auction format.

(a) The format of a CO_2 allowance auction will be one or more of the following:

(1) Uniform-price sealed-bid.

(2) Discriminatory-price sealed-bid.

(3) Ascending price, multiple-round.

(4) Descending price, multiple-round.

(b) CO_2 allowances will be auctioned in lots of 1,000 CO_2 allowances, unless the volume of CO_2 allowances auctioned requires an individual lot size smaller than 1,000.

(c) The Department will establish a reserve price for each CO_2 allowance auction, which will be either the minimum reserve price or the CCR trigger price, as specified under §145.382, Table 1 and §§ 145.381—145.382 (relating to auction of CO_2 CCR and ECR allowances).

§ 145.403. Auction timing and CO_2 allowance submission schedule.

(a) A CO_2 allowance auction will be held no less frequently than annually, and as frequently as the Department determines is necessary and practical to ensure the availability of CO_2 allowances to CO_2 budget units and CO_2 budget sources and to support the effective functioning of the CO_2 allowance market.

(b) Prior to the end of each control period or interim control period, the Department will make available for sale by auction, all CO_2 allowances held in the air pollution reduction account that are designated for the allocation years associated with that control period or interim control

period. This will not include CO_2 allowances set aside in the waste coal set-aside account under § 145.342(i), the strategic use set-aside account under § 145.342(j) or the cogeneration set-aside account under § 145.342(k).

(c) The number of CO_2 allowances to be made available for sale in an auction will be disclosed in the notice of CO_2 allowance auction issued under § 145.404.

(d) An auction of CO_2 allowances will include a CO_2 cost containment reserve and a CCR trigger price, as provided under § 145.342.

§ 145.404. Auction notice.

(a) A notice of each CO_2 allowance auction will be provided no later than 45 days prior to the date upon which the auction will be conducted.

(b) In addition to the information specified under § 145.382(a), the notice of a CO_2 allowance auction will include the following:

(1) The date, time and location of the CO_2 allowance auction.

(2) The format for the CO_2 allowance auction.

(3) The categories of bidders who will be eligible to bid.

(4) The number and allocation years of Pennsylvania CO_2 allowances to be auctioned.

(5) The minimum reserve price.

(6) All information regarding the CO_2 cost containment reserve, required to be in the notice under § 145.382(a).

(7) The procedures for conducting the CO_2 allowance auction, including the required bid submission format and process, and information regarding financial settling of CO_2 allowance payments.

(8) All CO_2 allowance auction participation requirements.

(9) The amount and type of financial security required and instructions for submitting acceptable financial surety.

(10) Participation limits, including bidding limits that may apply to an individual bidder or a group of related bidders.

(11) Application instructions for applying to participate in the CO_2 allowance auction.

(12) Identification of a Pennsylvania auction contact person for further information.

(13) Other pertinent rules or procedures of the auction as may be required to ensure a transparent, fair and competitive auction.

§ 145.405. Auction participant requirements.

(a) To be classified by the Department as a bidder eligible to participate in a specific CO_2 allowance auction, a qualified participant must meet the following:

(1) Be a member of a category of those eligible to participate in the specified CO_2 allowance auction as indicated by the notice of CO_2 allowance auction issued under § 145.404(b).

(2) Open and maintain a compliance account or general account, established under § 145.351.

(3) Submit financial security, such as a bond, cash, certified funds or an irrevocable stand-by letter of credit, in a manner and form acceptable to the Department, as specified in the notice of CO_2 allowance auction issued under § 145.404(b).

(b) The Department will announce the categories of parties that are eligible to participate in a specific CO_2 allowance auction as part of the notice of the CO_2 allowance auction, provided that an owner or operator of a CO_2 budget unit located in Pennsylvania is always eligible to participate in a CO_2 allowance auction.

(c) For a CO_2 allowance auction, the following categories of parties may be eligible to participate:

(1) The owner or operator of a CO_2 budget unit located in Pennsylvania.

(2) The owner or operator of a CO_2 budget unit located in a participating state.

(3) A broker.

(4) An environmental organization.

(5) A financial or investment institution.

(6) Any other market participant, as may be specified in the notice of the CO_2 allowance auction.

§ 145.406. Auction participant qualification.

(a) A person who intends to participate in a CO_2 allowance auction shall submit a qualification application to the Department, in the form and manner specified in the notice of the CO_2 allowance auction.

(b) The deadline for submitting a qualification application will be established in the notice of the CO_2 allowance auction.

(c) As part of a qualification application, an applicant shall provide information and documentation relating to the ability and authority of the applicant to execute bids and honor contractual obligations, including the following:

(1) Identification by the applicant of either a compliance account or general account established under § 145.351 and identification of the CO_2 authorized account representative for the compliance account or general account.

(2) Information and documentation regarding the corporate identity, ownership, affiliations and capital structure of the entity represented by the applicant.

(3) Identification of any indictment or felony conviction of the applicant or any member, director, principal, partner or officer of the entity represented by the applicant or any affiliate or related entity.

(4) Identification of any previous or pending investigation of the applicant or the entity represented by the applicant or any affiliate or related entity, with respect to any alleged violation of any rule, regulation or law associated with any commodity market or exchange.

(5) Other information and declarations as the Department determines may be required of an applicant to ensure the integrity of the CO_2 allowance auction process.

(d) The Department will determine whether a qualification application is complete, or incomplete, or otherwise deficient. If the Department determines that an application is incomplete or otherwise deficient, the applicant will be given 10 business days to provide additional information to the Department in order to complete the application or remedy any application deficiency.

(e) The Department will review a complete qualification application, make a determination as to whether the applicant is qualified to participate in the CO_2 allowance auction and notify the applicant in writing not later than 15 days before the CO_2 allowance auction.

(f) The Department may deny qualification to an applicant based on information submitted in a qualification application to ensure the integrity of the CO_2 allowance auction process in accordance with the requirements and procedures for auctions established under § 145.405, § 145.407 (relating to submission of financial security) and § 145.408 (relating to bid submittal requirements).

(g) The Department may revoke the qualification status of a qualified participant, if the participant fails to comply with the applicable requirements of this subchapter, or if the Department determines that they have knowingly provided false or misleading information or withheld pertinent information from the qualification application submitted under subsection (a). The Department may also prohibit the qualified participant from participating in a future CO_2

allowance auction where the Department determines that the prior conduct could compromise the integrity of a subsequent CO_2 allowance auction.

(h) A qualified participant will remain qualified to participate in future CO_2 allowance auctions after the Department's qualification determination, provided that there has been no material change to the information supplied to the Department in the qualification application submitted under subsection (a). If there is a material change to the information in the qualification application submitted under subsection (a), the qualification status will expire as of the date of the change, pending the submission of a new qualification application under subsection (a) and a determination by the Department that the applicant is qualified to participate in a CO_2 allowance auction.

(i) Prior to each CO_2 allowance auction, a qualified participant who intends to participate in the auction shall notify the Department, through a notice of intent to bid, that they intend to participate in the upcoming CO_2 allowance auction. The notice shall be submitted to the Department by the same date as that required for submitting a qualification application established in the notice of the CO_2 allowance auction.

(j) As part of a notice of intent to bid submitted to the Department under subsection (i), a qualified participant shall notify the Department whether there has been a material change to the information supplied in the qualification application submitted under subsection (a).

§ 145.407. Submission of financial security.

(a) To participate in a CO_2 allowance auction, a qualified participant shall provide financial security to the Department, including a bond, cash, certified funds or an irrevocable stand-by letter of credit, in a form and manner prescribed by the Department in the notice of the CO_2 allowance auction.

(b) The Department will approve the qualified participant to participate as a bidder in the specified CO_2 allowance auction after the Department has approved the financial security submitted under subsection (a). The eligibility to bid in any auction shall be limited to the level of financial security provided.

(c) A qualified participant who submits financial security may request return of the financial security at any time prior to or following a CO_2 allowance auction, subject to the following limitations:

(1) A request for the return of financial security prior to a CO_2 allowance auction will result in the Department revoking approval to participate in the CO_2 allowance auction, as of the date of the request.

(2) The Department will not return the financial security if the Department has a current or pending claim to the financial security as a result of the failure of the bidder to abide by the requirements of this subchapter or to pay the full amount of a submitted bid when payment is due.

§ 145.408. Bid submittal requirements.

(a) A bidder shall submit a bid, in a form and manner prescribed by the Department, in an amount that does not exceed the amount of financial security provided to the Department.

(b) A bidder, including any affiliate or agent of the bidder, or any combination of bidders with related beneficial interests, shall purchase no more than 25% of the CO_2 allowances offered for sale in a CO_2 allowance auction. The limitation, which will not be increased by CCR allowances, will be published in the auction notice under § 145.404(b) (relating to auction notice).

(c) A bidder shall not use or employ any manipulative, misleading or deceptive practice in connection with its prequalification application or purchase of CO_2 allowances from the Department, including, any practice that contravenes or violates any applicable Federal or participating state law, rules or regulation.

(d) A bid submitted at a CO_2 allowance auction is a binding offer for the purchase of CO_2 allowances.

§ 145.409. Approval of auction results.

(a) An independent monitor, such as a certified public accounting firm or similar entity, shall observe the conduct and outcome of each auction and issue a report to the Department in accordance with professional auditing standards addressing whether the auction was conducted in accordance with the procedures and requirements under §§ 145.341—145.343 and §§ 145.401—145.409 and whether there was any indication of collusive behavior among auction participants or attempts at market manipulation that impacted the results of the auction.

(b) The independent monitor shall monitor allowance market data and information known to the Department, including CO_2 allowance transactions and associated pricing reported in COATS, and other relevant data and information to ensure fair competition, efficient pricing and protection against collusive or manipulative behavior in the CO_2 allowance auctions and the CO_2 Budget Trading Program.

(c) The Department may approve the outcome of a CO_2 allowance auction following the completion of the auction, based on an evaluation of the report from the independent monitor.

(d) Upon receipt and approval by the Department of the report and upon payment in full by successful bidders, the Department or its agent shall transfer and record the corresponding CO_2 allowances to the compliance or general account of each successful bidder.

(e) After the Department has approved the results of a CO_2 allowance auction, the Department will make available the auction clearing price and the number of CO_2 allowances sold in the auction.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

October 21, 2020

David Sumner
Executive Director
Independent Regulatory Review Commission
333 Market Street, 14th Floor
Harrisburg, PA 17120

Re: Proposed Rulemaking: CO_2 Budget Trading Program (#7-559)

Dear Mr. Sumner:

Pursuant to Section 5(a) of the Regulatory Review Act, please find enclosed a copy of the CO_2 Budget Trading Program (#7-559) proposed rulemaking for review by the Independent Regulatory Review Commission (Commission). This proposal is scheduled for publication in the *Pennsylvania Bulletin* on November 7, 2020, with a 69-day public comment period. The Environmental Quality Board adopted this proposal on September 15, 2020.

This proposed rulemaking would establish a program to limit the emissions of carbon dioxide (CO_2) from fossil fuel-fired electric generating units, with a nameplate capacity equal to or greater than 25 megawatts (MWe). The purpose of this proposed rulemaking is to reduce anthropogenic emissions of CO_2, a greenhouse gas and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment. The proposed rulemaking would establish the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI), a regional CO_2 Budget Trading Program.

As set forth in the Regulatory Review Act, the Department will consider any comments and recommendations made by the Commission, as well as the House and Senate Environmental Resources and Energy Committees and the public, prior to final adoption of the enclosed rulemaking.

Please contact me by e-mail at laurgriffi@pa.gov or by telephone at 717.783.8727 if you have any questions or need additional information.

Sincerely,

Laura Griffin
Regulatory Coordinator

Enclosures

0120-FM-PO0011 6/2015

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
POLICY OFFICE

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER: 7-559

SUBJECT: CO_2 Budget Trading Program

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION, Environmental Quality Board

TYPE OF REGULATION

- [x] Proposed Regulation
- [ ] Final Regulation
- [ ] Final Regulation with Notice of Proposed Rulemaking Omitted
- [ ] 120-day Emergency Certification of the Attorney General
- [ ] 120-day Emergency Certification of the Governor
- [ ] Delivery of Tolled Regulation
  a. [ ] With Revisions b. [ ] Without Revisions

RECEIVED
OCT 21 2020
Independent Regulatory Review Commission

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
10/21/2020	Pam Nevgard	Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Representative Daryl Metcalfe
10/21/2020		Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Representative Greg Vitali
10/21/2020	electronic submittal	Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Senator Gene Yaw
10/21/2020	electronic submittal	Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Senator Steven Santarsiero
		INDEPENDENT REGULATORY REVIEW COMMISSION David Sumner
		ATTORNEY GENERAL (for Final Omitted only)
10/21/2020	electronic submittal	LEGISLATIVE REFERENCE BUREAU (for Proposed only)

Kathy Cooper

From:	Bulletin <bulletin@palrb.us>
Sent:	Wednesday, October 21, 2020 10:26 AM
To:	steve.santarsiero@pasenate.com; gyaw@pasen.gov; Collins, Tim; Troutman, Nick
Cc:	Shirley, Jessica; Reiley, Robert A.; Kauffman, Gregory; Martin, Megan; Vincent Deliberato; Duane Searle; A.J. Mendelsohn; Griffin, Laura
Subject:	[External] Delivery of Proposed Rulemaking--: CO2 Budget Trading Program #7-559
Attachments:	Santarsiero_Senate ERE_07-559_Proposed.pdf; Yaw_SenateERE_07-559_Proposed.pdf

We have attached Proposed Rulemaking No. 7-559 from the Department of Environmental Protection.

Please confirm receipt of this email by replying to all.

Thank you.

The Pennsylvania Code & Bulletin Office

Kathy Cooper

From: Collins, Timothy <Timothy.Collins@pasenate.com>
Sent: Wednesday, October 21, 2020 3:22 PM
To: Bulletin; Santarsiero, Senator Steve; Yaw, Senator Gene; Troutman, Nick
Cc: Shirley, Jessica; Reiley, Robert A.; Kauffman, Gregory; Martin, Megan; Vincent Deliberato; Duane Searle; A.J. Mendelsohn; Griffin, Laura
Subject: Re: Delivery of Proposed Rulemaking--: CO2 Budget Trading Program #7-559

Received.

Thank you.

Timothy Collins
Executive Director
Senate Environmental Resources & Energy Committee
Senator Steve Santarsiero, Democratic Chairman
184 Main Capitol Building
717-783-8235

From: Bulletin <bulletin@palrb.us>
Sent: Wednesday, October 21, 2020 10:25 AM
To: Santarsiero, Senator Steve <Steve.Santarsiero@pasenate.com>; Yaw, Senator Gene <gyaw@pasen.gov>; Collins, Timothy <Timothy.Collins@pasenate.com>; Troutman, Nick <ntroutman@pasen.gov>
Cc: Shirley, Jessica <jesshirley@pa.gov>; Reiley, Robert A. <rreiley@pa.gov>; Kauffman, Gregory <grekauffma@pa.gov>; Martin, Megan <mtmartin@os.pasen.gov>; Vincent Deliberato <vdeliberato@palrb.us>; Duane Searle <dsearle@palrb.us>; A.J. Mendelsohn <amendelsohn@palrb.us>; Griffin, Laura <laurgriffi@pa.gov>
Subject: Delivery of Proposed Rulemaking--: CO2 Budget Trading Program #7-559

■ EXTERNAL EMAIL ■

We have attached Proposed Rulemaking No. 7-559 from the Department of Environmental Protection.

Please confirm receipt of this email by replying to all.

Thank you.

The Pennsylvania Code & Bulletin Office

Kathy Cooper

From:	Troutman, Nick <ntroutman@pasen.gov>
Sent:	Wednesday, October 21, 2020 10:35 AM
To:	Bulletin; Santarsiero, Steven; Yaw, Senator Gene; Collins, Tim
Cc:	Shirley, Jessica; Reiley, Robert A.; Kauffman, Gregory; Martin, Megan; DeLiberato, Vincent C. (LRB); Duane Searle; A.J. Mendelsohn; Griffin, Laura
Subject:	RE: Delivery of Proposed Rulemaking--: CO2 Budget Trading Program #7-559

Senator Yaw's office has received the proposed rulemaking. Thank you

From: Bulletin <bulletin@palrb.us>
Sent: Wednesday, October 21, 2020 10:26 AM
To: Santarsiero, Steven <steve.santarsiero@pasenate.com>; Yaw, Senator Gene <gyaw@pasen.gov>; Collins, Tim <timothy.collins@pasenate.com>; Troutman, Nick <ntroutman@pasen.gov>
Cc: Shirley, Jessica <jesshirley@pa.gov>; Reiley, Robert A. <rreiley@pa.gov>; Kauffman, Gregory <grekauffma@pa.gov>; Martin, Megan (OS) <mtmartin@os.pasen.gov>; DeLiberato, Vincent C. (LRB) <vdeliberato@palrb.us>; Duane Searle <dsearle@palrb.us>; A.J. Mendelsohn <amendelsohn@palrb.us>; Griffin, Laura <laurgriffi@pa.gov>
Subject: Delivery of Proposed Rulemaking--: CO2 Budget Trading Program #7-559

We have attached Proposed Rulemaking No. 7-559 from the Department of Environmental Protection.

Please confirm receipt of this email by replying to all.

Thank you.

The Pennsylvania Code & Bulletin Office