



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Bureau of Air Quality

CO₂ Budget Trading Program

25 Pa. Code Chapter 145, Subchapter E
50 Pa.B. 6212 (November 7, 2020)
Environmental Quality Board Regulation #7-559
(Independent Regulatory Review Commission #3274)

Comment and Response Document

CO₂ Budget Trading Program

On November 7, 2020, the Environmental Quality Board (Board) published notice of 10 public hearings and a public comment period on the proposed rulemaking to amend Chapter 145 (relating to interstate pollution transport reduction) to add Subchapter E (relating to CO₂ budget trading program) in the *Pennsylvania Bulletin*. The Board proposed to establish a program to limit the emissions of carbon dioxide (CO₂) from fossil fuel-fired electric generating units (EGU) located in this Commonwealth, with a nameplate capacity equal to or greater than 25 megawatts (MWe). The proposed rulemaking would also provide for the Commonwealth's participation in the Regional Greenhouse Gas Initiative (RGGI), a regional CO₂ Budget Trading Program. The purpose of the proposed rulemaking is to reduce anthropogenic emissions of CO₂, 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. The declining CO₂ Emissions Budget in the proposed rulemaking would effectuate least cost CO₂ emission reductions for the years 2022 through 2030.

The public comment period opened on November 7, 2020 and closed on January 14, 2021. Ten virtual public hearings were held on the proposed rulemaking 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.

During the public comment period, the Department received more than 14,000 comments. The public hearings were advertised in a number of manners including publication in the *Pennsylvania Bulletin*, social media, the Department's website and publication in twelve newspapers of general circulation across this Commonwealth, in addition to the countless articles advertising the public comment period and the public hearings.

The public hearings were held virtually, meaning they could be accessed via phone or internet connection, over a two-week period of time. There were two hearings held each day, with alternating starting times to increase access and availability to a broader group of individuals. The Department offered live interpretation services during the public hearings as well. All commentators who registered for the public hearings were able to testify. The Department heard testimony from 449 individuals during more than 32 hours of testimony over the 10 public hearings.

Comments were provided by members of the public from all regions of this Commonwealth, representing a variety of sectors and industries. The Department estimates that nearly 90% of comments received were supportive of this final-form rulemaking.

This document summarizes the testimony received at the public hearings and the written comments received during the public comment period. In addition, the comments received from members of the General Assembly, including the Senate and House Environmental Resources and Energy Committees, and the Independent Regulatory Review Commission (IRRC) are summarized with responses provided.

In assembling this document, the Pennsylvania Department of Environmental Protection (Department) has responded to all comments related to the CO₂ Budget Trading Program rulemaking. The Department received a number of general comments related to issues including the Chesapeake Bay, methane emissions from oil and gas sources, the Delaware River Basin Commission, among many others. These issues are unrelated to the CO₂ Budget Trading Program rulemaking. However, the Department has reviewed and considered these comments. Since they are outside the scope of the CO₂ Budget Trading Program rulemaking, these comments are not included in this Comment and Response document.

Additionally, the Department received many comments regarding opportunities, suggestions and priorities for the investment of auction proceeds to maximize air quality benefits and GHG emission reductions in this Commonwealth. The ideas were unique, thoughtful and included many opportunities for leveraging the investments resulting from this final-form rulemaking to enhance the health, welfare, economy and environment of this Commonwealth. The Department specifically requested comments on ways to support Pennsylvanians and communities historically disadvantaged and disproportionately impacted by air pollution. Additionally, comments were requested on how to support workers and communities as the nation and this Commonwealth's energy sector transitions to cleaner burning energy. Stemming from this request, comments regarding support for energy communities and environmental justice communities are contained and responded to in this Comment and Response document. All comments surrounding investments are valuable and have been considered by the Department. However, these comments are not contained in this Comment and Response document. Instead, they will be used to inform the draft investment plan currently being developed by the Department.

In addition to comments received by the Department as part of this final-form rulemaking, the draft investment plan is also informed by the community-level engagement of the Delta Institute and the Department's engagement and outreach with interested stakeholders and residents. The widespread and inclusive outreach conducted prior to the development of a draft plan will aid the Department in presenting an investment plan for public comment that is thoughtful, and well-informed. The Department appreciates the feedback on this final-form rulemaking and requests similar engagement regarding the draft investment plan. It is anticipated that this draft investment plan will be published for public comment during the Summer of 2021, with a commitment to finalizing an investment plan prior to the implementation of this final-form rulemaking.

For the purposes of this document, comments of similar subject matter have been grouped together and responded to accordingly. A list of the commentators, including name and affiliation, is provided in a separate document.

All comments received by the Board are posted on the Department's e-Comment website at <https://www.ahs.dep.pa.gov/eComment/>. Additionally, copies of all comments received by the Board are posted on the IRRC website at <http://www.irrc.state.pa.us>. Search by Regulation # 7-559 or IRRC # 3274.

Acronyms used in this Comment and Response Document

ACE (Rule) – Affordable Clean Energy Rule
ACHD – Allegheny County Health Department
AEO – Annual Energy Outlook
AEPS – Alternative Energy Portfolio Standard
AMD – Acid Mine Drainage
AML – Abandoned Mine Land
AMS – Philadelphia Air Management Services
APCA – Air Pollution Control Act
AQTAC – Air Quality Technical Advisory Committee
BAT – Best Available Technology
Btu – British Thermal Unit
CAA – Federal Clean Air Act (42 U.S.C.A. §§ 7401—7671q)
CAC – Citizens Advisory Council
CAF – Clean Air Fund
CAIR – Clean Air Interstate Rule
CCAC – Climate Change Advisory Committee
CCR – Cost Containment Reserve
CFR – United States Code of Federal Regulations
CHP – Combined Heat and Power
COATS – CO₂ Allowance Tracking System
COPD – Chronic Obstructive Pulmonary Disease
CO₂ – Carbon Dioxide
CO_{2e} – Carbon Dioxide Equivalent
COATS – CO₂ Allowance Tracking System
CPSTF – Carbon Pricing Senior Task Force
CRS – Congressional Research Service
CSAPR – Cross-State Air Pollution Rule
C&I – Commercial and Industrial
CNI – Corporate Net Income
ECR – Emissions Containment Reserve
EGU – Electric Generating Unit
EIA – United States Energy Information Administration
EJ – Environmental Justice
EJA – Environmental Justice Areas
EJAB – Environmental Justice Advisory Board
eMAP – Environmental Management Assistance Program
EPA – United States Environmental Protection Agency
EQB – Environmental Quality Board
ERE – (House or Senate) Environmental Resources and Energy Committee
FERC – Federal Energy Regulatory Commission
FIP – Federal Implementation Plan
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
IMM – Independent Market Monitor

IPCC – Intergovernmental Panel on Climate Change
IPM – Integrated Planning Model
ISO – Independent System Operator
IRRC – Independent Regulatory Review Commission
LAER – Lowest Achievable Emission Rate
MATS – Mercury Air Toxics Standard
MMT – Million Metric Ton
MOPR – Minimum Offer Price Rule
MWe – Megawatt Electrical
MWh – Megawatt Hour
NAAQS – National Ambient Air Quality Standard
NAICS – North American Industry Classification System
NCA4 – Fourth National Climate Assessment
NERC – North American Electric Reliability Corporation
NO_x – Oxides of Nitrogen
OTC – Ozone Transport Commission
PAE – Projected Annualized Emissions
PIT – Personal Income Tax
PJM – PJM Interconnection, Inc.
PM – Particulate Matter
PM_{2.5} – Particulate Matter 2.5 micrometers and smaller
PSE – Penn State Extension
PUC – Public Utility Commission
PURPA – Public Utility Regulatory Policies Act
RACT – Reasonably Available Control Technology
RAF – Regulatory Analysis Form
REC – Renewable Energy Credit
REMI – Regional Economic Models, Inc.
RPS – Renewable Portfolio Standard
RRA – Regulatory Review Act
RTO – Regional Transmission Operator
RGGI – Regional Greenhouse Gas Initiative RRA – Regulatory Review Act
SBCAC – Small Business Compliance Advisory Committee
SEC – Securities and Exchange Commission
SEU – Sustainable Energy Utility
SIP – State Implementation Plan
SO₂ – Sulfur Dioxide
TABAs – Third Adjustment for Banked Allowances
UC – University of California
UIAPAA – Uniform Interstate Air Pollution Agreements Act
USGCRP – United States Global Change Research Program
VOC – Volatile Organic Compound
VRE – Voluntary Renewable Energy

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COMMENTS AND RESPONSES

IRRC and Legislative Comments

1. Comment: IRRC noted that under the RRA, the comments, objections or recommendations of a Legislative Committee is one of the criteria that IRRC must consider when determining if a regulation is in the public interest. IRRC then asks the Board to explain whether the regulation is in the public interest, particularly given the House and Senate Environmental Resources and Energy (ERE) Committee objections noted in their disapproval letters.

Response: The Department states how this final-form rulemaking is in the public interest. As required under section 745.5b of the RRA (71 P.S. §§ 745.5b), to determine whether a regulation is in the public interest, IRRC must first determine whether the agency has the statutory authority to promulgate the regulation and whether the regulation conforms to the intent of the General Assembly when it enacted the enabling statute. The Board has the authority to promulgate this final-form rulemaking under section 5(a)(1) of the APCA. Additionally, this final-form rulemaking is consistent with the purpose of the APCA and the intent of the General Assembly. That is, to, among other things, protect the air resources of the Commonwealth to the degree necessary for the protection of public health, safety, and well-being of its citizens. 35 P.S. § 4004(a)(i). Moreover, several members of the General Assembly, including minority members of the ERE committees, provided supportive comments, specifically noting that the Board has the authority under the APCA to promulgate this final-form rulemaking and that it is in the public interest.

In determining whether a regulation is in the public interest, IRRC also must consider the additional criteria for review of regulations outlined under section 745.5b(b) of the RRA. The Department explains how this final-form rulemaking satisfies the review criteria in detailed responses to comments below and specifically notes the following. First, this final-form rulemaking will have a positive economic and fiscal impact on this Commonwealth. For example, the economic modeling conducted for this final-form rulemaking shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and spur further economic growth in this Commonwealth as it will result in an additional \$1.9 billion to the Gross State Product. Second, this final-form rulemaking protects the public health, safety and welfare and the environment from harmful CO₂ pollution from fossil fuel-fired EGUs. For instance, the Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. Third, the requirements of this final-form rulemaking are both reasonable and feasible. One of the most cost-effective emissions reduction strategies to limit CO₂ emissions is through an electricity sector cap and trade program. Fourth, this final-form rulemaking does not represent a policy decision of such a substantial nature that it requires legislative review. That is, the General Assembly has already provided the Board with broad authority to promulgate this final-form rulemaking. Fifth, the Board has responded to the comments, objections and recommendations of the ERE committees in the Preamble for this final-form rulemaking and this comment and response document. Where warranted, changes were made to this final-form rulemaking in response to those comments. Sixth, the Board and the Department complied with the RRA and IRRC's regulations throughout the rulemaking process. Seventh, this final-form rulemaking is supported by a plethora of acceptable data and an extensive modeling effort as discussed throughout the Preamble and RAF. Finally, while there is not a less costly or less

intrusive method of achieving the goal of this final-form rulemaking, since a cap and trade program is the most effective means of reducing CO₂ emissions, provisions are included in this final-form rulemaking to address any impact on small business stationary sources.

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 CO₂. *Funk v. Wolf*, 144 A.3d 228, 250 (Pa. Cmwlth. 2016).

2. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating that the Board lacks statutory authority under the APCA (35 P.S. § 4001—40015) to promulgate the regulation.

Response: The Board has the authority to promulgate this final-form 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 for the protection of public health, safety and the environment. Section 5(a)(1) of the APCA provides the Board with broad authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. In *Marcellus Shale Coalition v. Commonwealth*, 216 A.3d 448 (Cmwlth. Ct. 2019), the Commonwealth Court outlined the test for determining whether a legislative rulemaking has statutory authority. To determine whether a regulation is adopted within an agency's granted power, the Commonwealth Court stated that it looks to the statutory authority authorizing the agency to promulgate the legislative rule and examines that language to determine whether the rule falls within that grant of authority. The Court also found that the legislature's delegation must be clear and unmistakable. In particular, the Court considers the letter of the statutory delegation to create the rule and the purpose of the statute and its reasonable effect. *Id.* As this final-form rulemaking would limit CO₂ pollution by regulating CO₂ emitted from fossil fuel-fired EGUs to ensure protection of public health, welfare and the environment, this final-form rulemaking is clearly within the Board's granted authority under the APCA and advances the purposes of the APCA to abate air pollution.

3. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating that the proceeds generated through the auction procedures of the rulemaking and RGGI are not a fee under the APCA, but rather an illegal tax.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for "the elimination of air pollution." Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the "air pollution control program" in accordance with section 6.3(a) of the APCA. There is also existing case law that supports the conclusion that auction

proceeds are a fee, including *National Biscuit Company v. Philadelphia*, 98 A.2d 182 (Pa. 1953) and *White v. Com. Medical Professional Liability*, 571 A.2d 9 (Pa. Cmwlth. 1990).

Under RGGI, regulated EGUs are required to purchase one CO₂ allowance per ton of CO₂ they emit through multistate auctions or on the secondary market. The proceeds of the multistate auctions and the secondary market are then provided back to the participating states. The purchase of CO₂ allowances generating auction proceeds is a fee because these purchases are one component of the “regulatory measures intended to cover the cost of administering a regulatory scheme authorized under the police power of the government.” See *City of Philadelphia v. Southeastern Pennsylvania Transp. Auth.*, 303 A.2d 247, 251 (1973). As mentioned previously, RGGI provides a “two-prong” approach to reducing CO₂ emissions from fossil fuel-fired EGUs. The second prong involves the proper investment of the auction proceeds to further reduce CO₂ emissions, as well as other harmful GHG emissions. This investment therefore fulfills the purpose and administration of this final-form rulemaking. This final-form rulemaking does not create a tax which is a “revenue-producing measure authorized under the taxing power of the government.” *Id.* The intent of RGGI is not to generate revenue for general government or public purposes, but to achieve a common goal of reducing CO₂ emissions from EGUs.

Moreover, none of the eleven participating states consider their CO₂ budget trading program regulations, or the RGGI program overall, as establishing a tax. Also, no court has determined that RGGI amounts to a tax. Recently in *California Chamber of Commerce v. State Air Res. Bd.*, 10 Cal. App. 5th 604, 650, 216 Cal. Rptr. 3d 694, 728 (2017), the California court determined that the California Air Resource Board’s cap and invest program did not create a tax.

4. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating the Department violated the APCA’s mandate for public hearings to be held in impacted communities. They also noted that citizens without internet access or broadband capability were excluded from participating in the virtual hearings that were held. A few other commentators also believe that the APCA requires the Board to hold in-person public hearings.

Response: The APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The commentators and legislators seem to be interpreting the phrase “in any region of the Commonwealth affected” in Section 7(a) as creating a requirement for “in-person” public hearings. The Department disagrees with this interpretation and contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding ten well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide. The virtual public hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of

Pennsylvanians to deliver their comments without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemakings, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period.

5. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating it will have a negative fiscal impact on this Commonwealth's economy. In particular, they argue that the coal industry, fossil-fuel-fired EGUs, large industrial users of electricity, small businesses, labor unions and individuals will be harmed financially.

Response: The implementation of this final-form rulemaking will provide public health, environmental and economic benefits to this Commonwealth. The Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. This equates to a range of \$232—\$525 million annually and is an extremely conservative estimate given these health benefits are only those benefits tied to the reduction of co-pollutants (NO_x, SO₂ and PM_{2.5}) and exclude the additional benefits provided from the reduction in CO₂ emissions. Further, calculations using the social cost of carbon would result in significantly higher benefit values for this final-form rulemaking.

The economic modeling conducted shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. Additionally, an independent study by Penn State's Center for Environmental Law and Policy confirms the economic benefits accruing as a result of this Commonwealth's participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. See Penn State Center for Energy Law and Policy, Prospects for Pennsylvania in the Regional Greenhouse Gas Initiative Working Paper, December 2020, https://sites.psu.edu/celp/files/2021/01/CELP_RGGI.pdf. In particular, the Penn State study indicates that between 2022 and 2030 this Commonwealth's participation in RGGI will yield \$2.6 billion in net economic benefits to the power sector within this Commonwealth. This study determined that economic benefits to electricity market participants include the higher net profits to the generation sector (additional revenue arising from higher wholesale electricity prices less new costs from the purchase of CO₂ allowances) and CO₂ allowance proceeds accruing to CO₂ allowance holders. Economic costs predominantly reflect the higher costs of purchasing bulk power by load-serving entities and direct access consumers in the PJM regional electricity

market. This analysis is narrower in scope than the Department's modeling but remains demonstrative of the positive economic impacts of this final-form rulemaking.

In 2010, coal generation accounted for 47 percent of the energy generated in this Commonwealth and by 2019, coal generation had decreased to 17 percent. The Department's modeling indicates that this trend will continue with the majority of coal generation (with the exception of waste coal) ceasing by 2025. This is the current trajectory of coal which has been on the decline for decades, and in 2014 was finally usurped by natural gas as the leading source of energy generation in this Commonwealth. These impacts are not resulting from RGGI participation as they will occur regardless of the implementation of this final-form rulemaking. However, RGGI participation presents an opportunity to assist transitioning communities, which would not exist without this final-form rulemaking.

While fossil fuel-fired EGUs subject to this final-form rulemaking will have costs associated with the purchase of CO₂ allowances, in most cases this minimal cost will be passed onto consumers. Cost impacts as a result of implementation of this final-form rulemaking are minimal and are less than the typical seasonal swing in electricity prices. Wholesale power prices (\$/MWh) are expected to be no more than 2.4 percent higher in 2022 and no more than 1.7 percent higher by 2030. These prices reflect the cost of a cap-and-trade program and are not reflective of the investment of the auction proceeds. Significant investments of the auction proceeds in the energy sector in this Commonwealth will have a price suppressing impact further decreasing any potential price impacts.

Additionally, based on information contained within the PUC's 2020 Rate Comparison Report, a small commercial customer's usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. See Pennsylvania PUC, 2020 Rate Comparison Report, https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

The Department understands the concerns that have been expressed regarding impacts on employees in this Commonwealth's energy sector. As mentioned previously, while there will be expansion and contraction within the energy sector as a result of implementation of this final-form rulemaking, this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs. The Department has partnered with the Delta Institute to evaluate the potential impacts of a changing energy sector on this Commonwealth's energy workers, and the

surrounding communities. This will assist the Department in identifying community-driven ways to assist this Commonwealth's transition to a cleaner energy economy.

6. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating CO₂ is not an “air pollutant” as defined by the APCA. The committee members stated that the proposal does not prevent or reduce greenhouse gases because generation will shift to fossil-fuel-fired EGUs in other states and emissions from those EGUs will pollute the environment of the Commonwealth. This is referred to as leakage. Any reduction of pollution would be insignificant; thus, this final-form rulemaking fails to meet the APCA's standard that regulations must produce a meaningful reduction of “air pollution.”

Response: The Department contends that CO₂ is in fact a regulated “air pollutant.” Specifically, section 5(a)(1) of the APCA provides the Board with authority to regulate CO₂ emissions. CO₂ falls under the definition of “air pollution” in section 3 of the APCA. First, CO₂ is a gas, and falls within the definition of “air contaminant,” under section 3 of the APCA, which is defined as “[s]moke, dust, fume, gas, odor, mist, radioactive substance, vapor, pollen or any combination thereof.” By extension, CO₂ is also “air contamination,” under section 3 of the APCA, which is defined as “[t]he presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution.” The term “air pollution” is defined as “[t]he presence in the outdoor atmosphere of any form of contaminant ... in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property.” Therefore, CO₂ is also considered to be “air pollution” under the APCA. CO₂ is also a Federally regulated air pollutant under the CAA (42 U.S.C.A. §§ 7401—7671q). See *Massachusetts v. EPA*, 549 U.S. 497 (2007). Moreover, the EPA has issued an Endangerment Finding for CO₂ emissions resulting from fossil fuel-fired EGUs. See 80 FR 64509 (October 23, 2015); *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914 (D.C. Cir. 2021).

While there is a potential for leakage as outlined in the Department's modeling for this final-form rulemaking, this potential leakage does not undermine the value of the significant benefits that will accrue to this Commonwealth and its residents as a result of this final-form rulemaking. The potential for reducing CO₂ produced in this Commonwealth by 2030 ranges from 97 million—227 million tons. The meaningful reductions of air pollution stemming from this final-form rulemaking have also been confirmed by independent power sector modeling conducted by PJM and the Penn State Center for Energy Law and Policy.

7. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating that the modeling used by the Board to justify the rulemaking is outdated and does not provide an accurate estimate of the economic impact that the rulemaking will have. They also state that the modeling does not account for leakage.

Response: The Department understands the concerns raised and wanted to make sure the modeling was as current as possible to ensure that all the provisions of this final-form rulemaking, specifically the starting CO₂ allowance budget, were still appropriate when this final-form rulemaking is implemented in 2022. Additionally, the Department wanted to verify

previous conclusions based on the modeling. For this final-form rulemaking, the Department conducted additional power sector modeling which verified earlier modeling conclusions, confirming the 78 million CO₂ allowance budget for 2022, and the significant potential for CO₂ emissions reductions in this Commonwealth. The updated modeling also showed that in comparison to the previous 2020 round of modeling, impacts on natural gas generation, this Commonwealth's energy exports, and electricity prices are even less than the slight impacts anticipated by the previous modeling. Furthermore, the modeling confirmed that the retirement of coal-fired EGUs in this Commonwealth will occur within a shorter time horizon. According to the updated modeling, most of the coal-fired generation in this Commonwealth will cease by 2025 in no part due to this final-form rulemaking, but rather decreased demand for electricity resulting in part from the COVID-19 pandemic and its impacts on the energy markets.

The Department's modeling used IPM, the Integrated Planning Model, which provides long-term projections of plant dispatch, capacity expansion and retirement, market prices, and emissions projections for the power sector across the country. This specific analysis focused on this Commonwealth, the PJM states, and the current states participating in RGGI. The results of the modeling include electricity transmission both into and out of this Commonwealth and the larger PJM and Eastern Interconnection. These values allow the Department to evaluate the changes in generation, and the flows of electricity between states and across the region. It is through this data that the Department is able to evaluate the potential for and magnitude of emissions shifts within the region.

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. Emissions leakage is the shifting of emissions from states with carbon pricing to states without carbon pricing. This leakage has no bearing on the environmental, health or economic benefits of this final-form rulemaking, and merely means that a portion of the emissions reductions achieved within this Commonwealth may shift to other states or areas without carbon pricing. Additionally, this final-form rulemaking will result in a net emissions reduction of 28 million tons of CO₂ across the broader PJM region through 2030.

It is important to note that the modeling results assume the only policy change impacting the power sector in the region between 2021 and 2030 is this Commonwealth's participation in RGGI. The Department finds that extremely unlikely given the ongoing efforts by PJM, the Federal Energy Regulatory Commission (FERC) and the Federal government. 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 FERC hosted a carbon pricing technical conference in the Fall of 2020, resulting in a policy statement requesting public comment on issues such as how to address shifting generation amongst states as a result of carbon pricing. Lastly, the Federal administration is seeking to reduce carbon emissions from the electric power sector, specifically aiming to produce 80% of the nation's electricity from zero-carbon sources. The Department anticipates actions at the regional and Federal level will mitigate potential leakage impacts that may result from this final-form rulemaking.

Although there is the potential for leakage as confirmed in both the original and updated modeling results, this leakage does not undermine the benefits of this final-form rulemaking to this Commonwealth, nor to the broader PJM region and Eastern Interconnection. The Department's modeling has not only accounted for leakage, but Department staff have actively engaged with stakeholders, PJM Interconnection and electricity generators specifically to discuss options for leakage mitigation.

8. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating that the Federal government is moving forward with climate change policies.

Response: While the current Federal Administration is currently in the process of developing climate change policies, there is no guarantee that those policies will come to fruition. For instance, the Obama Administration's regulation to control GHG emissions from existing fossil fuel-fired EGUs, commonly known as the Clean Power Plan, was stayed by the United States Supreme Court and later repealed and replaced by the Trump Administration's ACE rule. The Board contends that addressing the impacts of climate change is too pressing of an issue to wait any longer. 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.

9. Comment: IRRC noted that the House and Senate ERE Committees objected to this final-form rulemaking stating that the potential costs of the rulemaking outweigh any meaningful benefits that may result from it, especially during the time of the COVID-19 pandemic.

Response: Emerging evidence links chronic exposure to air pollution with higher rates of morbidity and mortality from COVID-19. The current pandemic underscores the need for further emissions reductions. See Harvard University Study "Fine particulate matter and COVID-19 mortality in the United States: A national study on long-term exposure to air pollution and COVID-19 mortality in the United States," 2020, <https://projects.iq.harvard.edu/covid-pm>.

The implementation of this final-form rulemaking will have climate, environmental and health benefits. While there is a cost associated with implementation, the benefits far outweigh any costs. Although the methodology to determine climate and environmental impacts are complicated, calculating the health benefits is quite simple. The Department calculated the health impacts associated with the emissions reductions stemming from the implementation of this final-form rulemaking using the EPA's Benefit-per-Ton (BPT) and Incidence-per-Ton (IPT) methodology. The Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. This equates to a range of \$232—\$525 million annually and is an extremely conservative estimate given these health benefits are only those benefits tied to the reduction of co-pollutants (NO_x, SO₂ and PM_{2.5}) and exclude the additional benefits provided from the reduction in CO₂ emissions. Further, calculations using the social cost of carbon would result in significantly higher benefit values for this final-form rulemaking.

The analysis conducted by Penn State's Center for Energy Law and Policy estimated the health benefits of this Commonwealth's participation in RGGI to be on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth's RGGI participation, specifically noting the conservative nature of the Department's calculations. Implementation of this final-form rulemaking does come with increased costs, in terms of impacts on electricity prices. Updated modeling shows that the impact on wholesale power prices is estimated to be 2.42 percent in 2022 and 1.73 percent by 2030. These minimal price impacts are exclusive of the price suppressing impacts of any investments to be made in the energy sector using the auction proceeds.

The Department's economic modeling shows that even with consideration of these electricity price increases, this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. While implementation of this final-form rulemaking is not without cost; the economic and health benefits are considerable and far outweigh any implementation costs.

10. Comment: IRRC questions whether the regulation represents a policy decision of such a substantial nature that it requires legislative review. IRRC also notes that a Senate letter signed by 29 members states the following: "The proposed regulation joining Pennsylvania to RGGI represents the single, most significant energy policy reform since the deregulation of electric generation in the 1990's." IRRC also mentions the passage of HB 2025 and that ten of the 11 states that currently participate in RGGI have done so with specific authority granted by their respective legislative branches. Additionally, IRRC notes that three advisory committees declined to support the proposed rulemaking. IRRC asks the Board to explain why it is appropriate to implement this carbon trading program through executive order and the rulemaking process instead of the legislative process.

Response: The Department contends that this final-form rulemaking is not a policy decision of such a substantial nature that it requires legislative review. The General Assembly provided the Board with broad authority to regulate sources of air pollution under the APCA. This final-form rulemaking directly falls within that statutory grant of authority as CO₂ emissions cause harmful air pollution. The APCA does not limit the Board in how it may regulate a source of pollution. This is shown by the Board's history of promulgating different types of regulations, including command and control and cap and trade regulations under the broad authority of section 5(a)(1) of the APCA. If House Bill 2025 had not been vetoed by the Governor, it would have taken away the Board's existing statutory authority to regulate CO₂ emissions. The bill went beyond preventing this Commonwealth from participating in RGGI to prohibit the Board from promulgating any regulation to address CO₂ emissions unless and until the General Assembly passed future authorizing legislation. This would have been extremely detrimental to the Department's efforts to address GHG emissions and climate change impacts. However, the General Assembly provided the Board with the authority to promulgate this final-form rulemaking through the expansive language in the APCA.

Through Executive Order 2019-07, Governor Tom Wolf directed the Department to develop and present to the Board a rulemaking to abate, control, or limit CO₂ emissions from fossil-fuel-fired EGUs, as authorized by the APCA. In other words, the Department was directed to use its

existing statutory authority, the APCA, to implement this final-form rulemaking. The Executive Order was an indication from the Governor that addressing CO₂ emissions from the electricity sector is necessary. However, this final-form rulemaking is not being implemented under the Executive Order as it is being implemented under the APCA, specifically sections 5(a)(1) and 6.3(a).

Although most of the participating states were directed to participate in RGGI through specific legislation, that does not necessarily mean that their environmental agencies lacked regulatory authority. It is more of an indication of the willingness to address climate change in those states. Furthermore, as discussed previously, four of the Department's advisory committees voted to support the Department's recommendation to move this final-form rulemaking forward to the Board. This includes the three advisory committees, AQTAC, SBCAC and CAC, which had voted against supporting the proposed rulemaking.

11. Comment: IRRC notes that some commentators have provided suggestions for amending the regulation to provide further environmental protections. These suggestions include: modifying or eliminating set-aside allowances for certain industries; inclusion of data collection mechanisms to ensure emissions are not shifted to generation facilities that fall below the 25 megawatt threshold of the rulemaking because the facilities could have a negative impact on environmental justice communities; and ensuring that imported power does not contribute to leakage. IRRC also encourages the Board to consider all the recommendations provided by commentators as a means of further protecting the public health, safety and welfare of citizens of the Commonwealth and its natural resources and meeting the goal of this rulemaking.

Response: The Department has considered all the recommendations provided by commentators as a means of further protecting the public health, safety and welfare of citizens of this Commonwealth and its natural resources and meeting the goal of this final-form rulemaking. The Department made the following changes to this final-form rulemaking in response to comments. The Department increased the value of the waste coal set-aside in response to comments received to account for the continued operation of one waste coal-fired EGU. The waste-coal set-aside was increased from 9.3 million CO₂ allowances in the proposed rulemaking to 10.4 million CO₂ allowances in this final-form rulemaking.

The Department received extensive comments on the cogeneration set-aside and made changes in response to those comments. Additionally, commentators expressed the potential for unintended consequences in the form of emissions increases potentially by disincentivizing the operation of current cogeneration facilities and the addition of future facilities. The Department was asked to clarify what was meant by cogeneration and to expand the set-aside to cover the full emissions of facilities that meet certain emissions criteria. In response, the Department clarified that its intent was to be inclusive of CHP units and as a result changed the name of the set-aside to clarify that it was not applicable to all cogeneration, but specifically to CHP units as defined in this final-form rulemaking. Additionally, the Department responded to the request for an expanded set-aside by including two tiers for qualifying CHP units to apply for CO₂ allowances to be retired on their behalf.

Commentators also requested additional clarification on the functioning of the strategic use set-aside. In response, the Department clarified the objectives for the set-aside, provided additional specifics on the types of qualifying projects and outlined the application process by which an entity could submit a project for consideration to the Department. The Department also received comments that the scope of the limited exemption from the applicability requirements was too narrow and that the term manufacturing facility should be replaced with “industrial, institutional or commercial” facility. The Department made this change in this final-form rulemaking in response to comments.

There were concerns expressed during the comment period regarding the impact of cap and trade programs on environmental justice communities. Environmental justice and other stakeholders specifically requested that the Department closely monitor the impacts of this final-form rulemaking on air quality in this Commonwealth, particularly in environmental justice communities. In response, the Department added a provision for an annual air quality impacts assessment in this final-form rulemaking. In response to comments received both prior to and during the public comment period, the Department, in partnership with external stakeholders developed equity principles for this final-form rulemaking. Through the establishment of these principles and their implementation, the Department pledged to inclusively gather public input on the rule and mitigate any adverse impacts with a focus on Environmental Justice communities.

The Department also received comments urging additional flexibility in terms of the implementation date for this final-form rulemaking. Some commentators requested that the Department consider a mid-year start date if January 1, 2022 is not possible to avoid a delay in implementation until January 1 of the following year. In response, the Department added quarterly CO₂ allowance budgets for 2022 which identify the starting CO₂ allowance budget for the beginning of each quarter. These budgets are based on the starting CO₂ allowance budget of 78 million CO₂ allowances and allocated to each quarter based on the seasonal emissions distributions during the past five years. For example, rather than assigning a value of 25 percent to each quarter, the value for each quarter is calculated based on historic emissions. The Department relied on actual historic emissions from the past five years to properly assign a quarterly emissions value.

12. Comment: IRRC asks the Board to consider all of the arguments on both sides of the statutory authority issues and provide a point-by-point analysis of why this proposal is within the statutory authority granted by the APCA and also consistent with the intent of the General Assembly when that statute was enacted.

Response: A point-by-point analysis of the Board and the Department’s statutory authority is included in the Preamble for this final-form rulemaking, as well as an explanation on how this final-form rulemaking is consistent with the intent of the General Assembly. Specifically, the Department explained how Section 5(a)(1) of the APCA provides the Board with broad authority to promulgate regulations for the “prevention, control, reduction and abatement of air pollution.” The Department also explained how CO₂ is included in the definition of “air pollutant” under section 3 of the APCA. Additionally, the Department explained how the auction proceeds are a

fee authorized under Section 6.3(a), and not an illegal tax as some commentators have claimed. Further, the Department also addressed leakage concerns.

Members of the General Assembly and others have argued that the Department is violating section 4(24) of the APCA by not submitting the interstate air pollution control compact or agreement to the General Assembly. Section 4(24) of the APCA provides that the Department shall “cooperate with the appropriate agencies of the United States or of other states or any interstate agencies with respect to the control, prevention, abatement and reduction of air pollution, and where appropriate formulate interstate air pollution control compacts or agreements for the submission thereof to the General Assembly.” See 35 P.S. § 4004(24). However, as states do not sign any sort of agreement or compact to participate in RGGI, there is no agreement to submit to the General Assembly under section 4(24) of the APCA. Instead, the key piece to becoming a “participating state,” as the term is defined in this final-form rulemaking, is the establishment of a corresponding regulation as part of the CO₂ Budget Trading Program. While this final-form rulemaking provides for this Commonwealth’s participation in RGGI by establishing a corresponding regulation, it does not amount to an agreement or compact subject to legislative approval.

In the Preamble, the Department noted that RGGI is not an interstate air pollution control compact or agreement. Instead, RGGI is a regional initiative, where participating states develop regulations that are capable of linking with similar regulations in other states. States may withdraw from participation at any time. A state may participate in RGGI once it meets the definition of a “participating state,” meaning the state has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc.

Moreover, the APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The commentators and legislators seem to be interpreting the phrase “in any region of the Commonwealth affected” in Section 7(a) as creating a requirement for “in-person” public hearings. The Board disagrees with this interpretation and contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region. For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding ten well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide.

13. Comment: IRRC questions whether the regulation is consistent with the intent of the General Assembly. The commentator notes that the current balance of the Clean Air Fund is approximately \$26 million dollars and that the Department anticipates that this rulemaking will raise over \$2 billion dollars between 2022 and 2030. IRRC is concerned that the General Assembly did not contemplate or envision the Clean Air Fund growing to that amount and that it could be spent at the discretion of the Secretary under the guidance provided by a regulation

(Chapter 143) promulgated over 40 years ago. IRRC asks the Board to explain how this process of collecting proceeds and distributing funds of this magnitude is consistent with the intent of the General Assembly when the APCA was enacted.

Response: As the Department explained in the Preamble, this final-form rulemaking is consistent with the intent of the General Assembly. The Board and the Department are acting within the existing statutory authority granted by the General Assembly. Section 6.3(a) of the APCA provides the Board with broad authority to establish fees to support the air pollution control program authorized by the APCA and not covered by fees required by section 502(b) of the Clean Air Act. As provided under section 9.2(a) of the APCA, all auction proceeds will be used to support the elimination of air pollution and in furtherance of the purpose of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

14. Comment: IRRC questions whether the regulation is consistent with the intent of the General Assembly. The commentator notes that the current balance of the Clean Air Fund is approximately \$26 million dollars and that the Department anticipates that this rulemaking will raise over \$2 billion dollars between 2022 and 2030. IRRC is concerned that the General Assembly did not contemplate or envision the Clean Air Fund growing to that amount and that it could be spent at the discretion of the Secretary under the guidance provided by a regulation (Chapter 143) promulgated over 40 years ago. IRRC asks the Board to explain how this process of collecting proceeds and distributing funds of this magnitude is consistent with the intent of the General Assembly when the APCA was enacted.

Response: As the Department explained in the Preamble, this final-form rulemaking is consistent with the intent of the General Assembly. The Department and the Board are acting within the existing statutory authority granted by the General Assembly. Section 6.3(a) of the APCA provides the Board with broad authority to establish fees to support the air pollution control program authorized by the APCA and not covered by fees required by section 502(b) of the Clean Air Act. As provided under section 9.2(a) of the APCA, all auction proceeds will be used to support the elimination of air pollution and in furtherance of the purpose of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

15. Comment: IRRC notes that many of the commentators that support this final-form rulemaking provided suggestions on how the auction proceeds could be allocated. Some of the suggestions would appear to be outside of the parameters established by 25 Pa. Code Chapter 143. IRRC agrees with comments submitted by the Pennsylvania Office of Consumer Advocate that suggest the Department should “seek further authority” to allow for a broader use of the auction proceeds. Alternatively, IRRC suggests that the Department could initiate a rulemaking to amend existing Chapter 143 to allow for a broader use of the proceeds.

Response: The Department is not planning on seeking further authority for the use of the auction proceeds as the authority provided under section 9.2(a) of the APCA is quite broad. Section

9.2(a) allows the Department to use fees to further eliminate air pollution in this Commonwealth. As required under section 9.2(a) of the APCA, the Board adopted Chapter 143 to further provide for the management and use of the money in the Clean Air Fund. Section 143.1(a) states that “monies paid into the Clean Air Fund may be disbursed at the discretion of the Secretary for use in the elimination of air pollution.” See 25 Pa. Code § 143.1(a). Under § 143.1(b), the “full and normal range of activities” of the Department are considered to contribute to the elimination of air pollution. See 25 Pa. Code § 143.1(b). Section 143.1(b) also includes a nonexclusive list of purposes that the Clean Air Fund monies can be used for, including the purchase of contractual services and payment of the costs of a public project necessary to abate air pollution. Section 143.1(b) therefore specifically provides for the Department to both use the auction proceeds to invest in projects that further reduce GHG emissions and to contract with RGGI, Inc. for administrative and technical support services. For these reasons, the Board and the Department do not find it necessary to seek further authority or to initiate a rulemaking to amend Chapter 143. However, if the General Assembly enacts legislation that extends the Department’s authority to use the auction proceeds, the Department would be able to further assist transitioning workers and environmental justice communities.

16. Comment: IRRC questions whether the regulation is needed and asks the Board to address the economic and fiscal impact. IRRC notes that questions raised about the need for this final-form rulemaking are numerous but revolve around two main issues. The first, as noted by the Senate ERE Committee, is the fact that CO₂ emissions from fossil-fuel power generation in this Commonwealth have been reduced by 38 percent since 2008. This reduction trend is likely to continue because of the price of natural gas and the development of renewable energy. Second, the rulemaking will push the generation of electricity to states like West Virginia and Ohio that do not participate in RGGI. If these states increase their production of fossil-fuel-generated electricity, as predicted by some commentators, the overall health benefits to this region of the country, and Pennsylvania specifically, will be minimal and come at a steep economic cost.

Response: This final-form rulemaking is needed to reduce CO₂ emissions in this Commonwealth. This Commonwealth has established Statewide goals to reduce GHG emissions economy-wide by 26 percent by 2025 and 80 percent by 2050 in comparison to 2005 levels. While this Commonwealth has achieved reductions from all sectors, including the power sector, more is needed to meet these goals, set to avoid the worst impacts of climate change. This Commonwealth’s participation in RGGI would provide significant assurance that prudent investments of the auction proceeds coupled with other GHG abatement activities will allow this Commonwealth to remain on track to reach the 2025 reduction goal. Without the reductions associated with the implementation of this this final-form rulemaking, this Commonwealth will fail to reach even the interim GHG reduction goal established for this Commonwealth.

While emissions from the generation sector have decreased since 2008, the current trajectory of emissions reductions in the power sector is not sustainable. There are few remaining coal-fired EGUs, which based on updated modeling are anticipated to cease most if not all generation by 2025. The air emissions gains that were realized through fuel switching (coal to natural gas) and replacing aging coal-fired facilities with new natural gas plants have mostly occurred. Moving forward a new approach is needed to achieve further reductions. Historic trends provide no guarantee of what the emissions profile for this Commonwealth’s electricity sector will look like

in the future. For example, electricity generation is very sensitive to the costs of inputs, the major input of which is fuel. As this Commonwealth has seen over the last year, the COVID-19 pandemic led to an increase in natural gas prices, in turn generating electricity with natural gas became more expensive and in response production of electricity using coal as an input increased. In turn this led to an increase in emissions in this Commonwealth. Even though demand for electricity decreased, the method and fuel from which that electricity has being created was more energy and emissions intensive leading to increased emissions even when the overall demand for electricity had decreased. The energy market is very dynamic, and historic emissions trends and profiles are not indicative of future trends, not without concrete targets and goals regarding emissions reductions. RGGI is a proven market-based program, and one that recognizes that CO₂ emissions from fossil fuel-fired EGUs exist, and the cost of this pollution should be factored into the price of that electricity. This allows the Department to value the real cost of electricity generation when the cost of these emissions is factored in and helps position this Commonwealth to remain competitive in an ever-evolving energy market where clean energy is highly valued both in this Commonwealth and in the other states to which it export electricity.

The Department's power sector modeling indicates a potential for emissions and generation leakage, meaning that some of the emissions decrease in this Commonwealth tied to decreased generation in this Commonwealth may be made up for by increased generation in other states across the region. This shift most often occurs between states that have implemented carbon pricing programs (like RGGI) and those states that do not have carbon pricing. The modeling indicates that this Commonwealth's participation in RGGI could lead to between 97 million and 227 million tons of CO₂ reductions between 2022 and 2030. These emissions reductions are going to occur in this Commonwealth and are not tied to or dependent on actions by other surrounding states. When this Commonwealth implements this final-form rulemaking, significant CO₂ emissions reductions occur within this Commonwealth. Tied to these significant emissions reductions are the resulting health impacts. The Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. Penn State's study projected even higher health benefits, on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth's RGGI participation, specifically noting the conservative nature of the Department's calculations. These health benefits accrue within this Commonwealth as a result of this regulation, and again are not tied to decisions by outside actors.

Where leakage becomes a consideration is when the focus on emissions reductions is outside of this Commonwealth and across a broader region, for example, the PJM Interconnection, the regional transmission organization consisting of parts of 13 states and the District of Columbia. The potential for an evaluation of leakage has been a focus of PJM since the creation of the RGGI as PJM has some member states that participate in RGGI (have a carbon price) and some that do not (have no carbon price). In order to study the potential more thoroughly for leakage and the magnitude of that leakage, PJM created the Carbon Pricing Senior Task Force (CPSTF). This group, in which the Department has been an active participant, has examined the impacts of both the recent entry of Virginia into RGGI and also the potential impacts of this Commonwealth's participation in RGGI. PJM's independent power sector modeling came to the same conclusions as the Department's modeling, that though there was some potential for

leakage, this did not undermine the significant emissions reduction potential within this Commonwealth, nor did it undermine emissions benefits across the PJM region. See 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. Even with the potential for leakage, PJM determined that in addition to significant benefits within this Commonwealth there was a net benefit across the PJM region as well. When this is extrapolated further to the Eastern Interconnection, there continues to be a net benefit, the value of which decreases as the lens through which the reductions are viewed becomes wider.

In addition to the modeling conducted by the Department and PJM, the report by the Penn State Center for Energy Law and Policy also addresses leakage. Their associated modeling confirms the potential for leakage, and bolsters results from PJM and the Department in confirming that despite leakage, CO₂ emissions in the multi-state PJM region decline following this Commonwealth participating in RGGI. Though some emissions may shift to other states, the potential increases in other states' emissions do not absorb the emissions reductions occurring in this Commonwealth. This Commonwealth's EGUs with close proximity to abundant and inexpensive natural gas have a competitive advantage over similar operations in other states. While some other states may experience some increased emissions, again any increase in emissions in the region is outweighed by the decrease in this Commonwealth, thereby resulting in net benefits across the region. Additionally, these leakage estimates and models are based on current and predicted market conditions based on existing laws and policies, exclusive of any further regional or National action on carbon pricing which would minimize or entirely eliminate the potential for leakage.

The Department compiled a Pennsylvania RGGI Modeling Report which provides a detailed explanation of modeling processes, assumptions, inputs, and outputs to provide a broad understanding of the results. This summary report and all the modeling results and recordings of the public webinars providing further explanation of key results are available on the Department's RGGI webpage located at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/RGGI/PA_RGGI_Modeling_Report.pdf.

17. Comment: IRRC agrees that the goal of reducing GHGs through RGGI and this final-form rulemaking is laudable. However, IRRC mentions that the declining emissions from fossil-fueled EGUs that has occurred over recent years without participation in RGGI and the leakage that will occur if this Commonwealth does join RGGI raises the question of whether this final-form rulemaking, and its potential benefits, are needed compared to the potential negative fiscal impact that is predicted by the Committees, certain legislators and some members of the regulated community. To assist IRRC in determining if the rulemaking is in the public interest, IRRC asks the Board to explain why the benefits of the rulemaking outweigh the costs associated with its implementation.

Response: The benefits of this final-form rulemaking far exceed any associated costs. According to the Department's 2021 Pennsylvania Climate Impacts Assessment, climate change is already having a negative impact on this Commonwealth with wide-ranging economic impacts, from disruptions to recreation and tourism to agriculture and infrastructure service disruptions.

Furthermore, climate change will not affect all Pennsylvanians equally. Some may be more at risk because of their location, income, housing, health, or other factors. As this Commonwealth works to reduce its climate risks, steps should be taken to ensure that these inequitable impacts are addressed, and that efforts to address climate change do not inadvertently exacerbate inequities. The harm is already being felt by this Commonwealth's most vulnerable residents, and the Commonwealth must not delay implementation as this final-form rulemaking is clearly in the public interest. As mentioned above, failure to implement this final-form rulemaking, or even a delay in implementation will cause this Commonwealth to miss its 2025 interim GHG reduction goal with concerns regarding the trajectory toward meeting the 2050 goal.

As CO₂ budget sources would need one allowance for each ton of CO₂ emitted, the owners or operators would need to acquire 61 million CO₂ allowances at the estimated 2022 allowance price of \$3.24 (2017 \$/Ton). If these CO₂ allowances were all purchased at quarterly multistate auctions in 2022, the total purchase cost would be \$198 million. The CO₂ 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 \$198 million will be passed onto this Commonwealth's electric consumers as 25 percent of this Commonwealth's electricity is sold out of state.

Even if assuming the \$198 million is the annual price tag of the program, which as explained above is an over estimation, the resulting public health benefits alone are estimated to be higher at \$232—\$525 million annually. The value of partial benefits already exceeds the cost of the program, and this does not account for the total environmental, health and economic benefits of CO₂ reductions, nor does it include the benefits of the reinvestment of the quarterly auction proceeds, a major economic driver.

The independent Penn State study also confirms that the climate benefits for this Commonwealth exceed the monetary costs of participation in RGGI. Penn State's analysis projected even higher health benefits, on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth's RGGI participation, specifically noting the conservative nature of the Department's calculations. Looking at the benefits even through the narrow lens of health benefits, the benefits exceed the costs with additional benefits accruing from the reinvestment of the auction proceeds. This is consistent with the actual results of participation for the existing participating states over the last decade.

18. Comment: IRRC questions whether the regulation is supported by acceptable data. IRRC also notes that commentators have raised concerns about the modeling employed by the Board to quantify the economic and health benefits of the rulemaking. They question if the data considered is acceptable and appropriate. First and foremost, commentators are concerned that the underlying assumptions and data used for the modeling have not been made available to the public. IRRC urges the Board to share the underlying assumptions and data used for its modeling and address the following issues to demonstrate the validity of the data upon which the regulation is based:

- a. Emissions reductions in the Commonwealth have been overstated because of leakage; therefore, the monetized health benefits are also overstated.

- b. The modeling compares cumulative data for the time from 2019-2030, but the Commonwealth will not join RGGI until 2022.
- c. The model uses an estimate of future natural gas prices which could be much lower than predicted.
- d. The model does not account for new natural gas generation, but it does account for new renewable generation.
- e. The modeling was conducted before New Jersey and Virginia joined RGGI.
- f. The actual cost of buying an allowance will be higher than projected.
- g. The modeling fails to account for the economic downturn related to the COVID-19 pandemic.
- h. The model fails to account for the expansion of other federal and state regulations and
- i. initiatives that impact the production and distribution of electricity.

Response: The Department has been transparent in terms of the modeling and the inputs and assumptions that went into the modeling, both for the original 2020 modeling and the updated 2021 modeling runs as well. The underlying data and assumptions are sound, and the Department’s modeling aligns with the real-world benefits that have accrued to the RGGI participating states. All modeling results, assumptions and raw data have been made available to the public through the Department’s website in several areas and has been presented and discussed with thousands of stakeholders through the course of this rulemaking. The Department has also held individual meetings with stakeholders and the modeling contractor when requested to make sure that all questions and inquiries regarding the modeling were thoroughly answered. The modeling information posted to the Department’s website consists of comprehensive spreadsheets containing all the assumptions and raw data upon which the Department’s analyses and conclusions were based.

The Department also compiled a Pennsylvania RGGI Modeling Report which provides a detailed explanation of modeling processes, assumptions, inputs, and outputs to provide a broad understanding of the results. This summary report, all the modeling results and recordings of the public webinars providing further explanation of key results are available on the Department’s RGGI webpage located at www.dep.pa.gov/RGGI.

The Department addresses the issues noted by IRRC and other commentators individually below in a)–h) to demonstrate the validity of the data upon which this final-form rulemaking is based.

a) In response, the modeling indicates that this Commonwealth’s participation in RGGI could lead to between 97 million and 227 million tons of CO₂ reductions between 2022 and 2030. The Department’s modeling indicates what emissions reductions will occur in this Commonwealth. These are not based on regional benefits, but state benefits alone. When this Commonwealth implements this final-form rulemaking, significant CO₂ emissions reductions occur within this Commonwealth. Tied to these significant emissions reductions are the resulting health impacts. The Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth’s residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. Penn State’s study projected even higher health benefits, on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth’s RGGI participation, specifically

noting the conservative nature of the Department's calculations. These health benefits accrue within this Commonwealth as a result of implementation of this final-form rulemaking, and if anything, the Department's health benefits are understated.

b) In response, when evaluating the impacts of RGGI participation on the power sector, there are two separate modeling runs or scenarios. The first scenario, the Reference Case or Business-as-Usual Case projects what this Commonwealth's power sector will look like in the future without this Commonwealth's participation in RGGI, and the Policy Case or the RGGI case projects what this Commonwealth's power sector will look like with RGGI participation. These two modeling cases are then compared to help project the impacts of RGGI participation on electric transmission and generation and electric sector emissions, among others in this Commonwealth. When this modeling was first completed in 2020 for the proposed rulemaking, the most recent year of available data was 2019. Therefore, the 2019 data was included in the 2020 round of modeling. While the time period for the IPM analysis was 2019 through 2030, the modeling specifically provided projections for 2020, 2022, 2025, 2028, and 2030. When the modeling was updated in early 2021 for this final-form rulemaking, the most recent year of available data was 2020. Therefore, the 2020 data was included in the 2021 round of modeling and as such the time period for the updated IPM analysis was 2020 through 2030.

The time period for the IPM analysis includes years prior to the implementation of this final-form rulemaking for two reasons. First, as stated, the only available data for each round of modeling was either 2019 or 2020. Second, the Policy Case assumes this final-form rulemaking will be in effect in 2022, so the modeling needs to account for certain assumptions, for example legal or policy requirements that are projected to change, in years before 2022. This accounts for any differences between the Reference Case and the Policy Case in years prior to 2022. Lastly, these assumptions are not only a factor in the Department's modeling, but can also be seen by the functioning of the actual energy market. For example, on March 13, 2020, Energy Harbor, the owner of the Beaver Valley nuclear power plant, responsible for 1,845 MW of carbon free generation, withdrew its closure announcement, specifically citing this Commonwealth's intended participation in RGGI as a key determinant in continuing operations.

c) In response, the modeling includes natural gas prices that are the average of the Annual Energy Outlook (AEO) Reference Case and the High Gas Resources Case which are published annually by the EIA. The AEO Reference Case is used as a starting point, and then averaged with the High Gas Resources Case because of this Commonwealth's location within the shale region. This hybrid method is used because neither the AEO Reference Case nor the AEO High Gas Resources Case are singularly representative of gas prices in this Commonwealth. Averaged together, the two cases provide as accurate a forecast as possible for modeling purposes. However, the Board notes that these are forecasted prices and there is a possibility that future prices could vary.

d) In response, the modeling accounts for all available data for new generation within this Commonwealth and the surrounding states despite the fuel source. The specific list of projects that were included as firm capacity additions for this Commonwealth is included in the publicly available modeling results on the "Assumptions Overview- Firm Capacity Changes in PA" tab on the Department's RGGI webpage located at www.dep.pa.gov/RGGI. In the 2020 power sector

modeling, the Department included 3,131 MW of new natural gas combined cycle capacity and 251 MW of new solar generation capacity.

e) In response, in the Reference Case for the modeling, RGGI was modeled as an 11-state program including the 9 states participating in RGGI at the end of 2019 — Massachusetts, Connecticut, Maine, New Hampshire, Rhode Island, Vermont, New York, Delaware, and Maryland. Additionally, New Jersey and Virginia were included in the modeling as projected to begin participation on January 1, 2020, and January 1, 2021, respectively. In particular, the starting CO₂ allowance budget for New Jersey was input at 18 million short tons, and the starting CO₂ allowance budget for Virginia was input at 27.16 million short tons. The IPM Policy Case uses similar assumptions as the Reference Case with the key difference that it assumes that this Commonwealth will begin participation in RGGI on January 1, 2022.

f) In response, the RGGI auction clearing prices in late 2020 and early 2021 had a higher price compared to the projected CO₂ allowance prices in the Department's 2020 modeling. The difference between projected CO₂ allowance prices and actual CO₂ allowance prices can be due to a number of factors, including the end of the RGGI three-year control period, the change of the Federal administration, the fact that Virginia began participating in RGGI at the start of 2021, among others. The IPM model generates a CO₂ allowance price based on actual market fundamentals, including the projected supply and demand of CO₂ allowances during the modeling period. However, the model does not take into account behavioral considerations that impact auction bidder behavior and expectations. Bidder expectations can influence the CO₂ allowance price, and therefore lead to a difference from the projected CO₂ allowance price.

g) In response, the Board and the Department received comments and feedback on the power sector modeling through our extensive advisory committee meetings, webinars, public hearings, and the formal public comment period. Understanding the concerns that were raised, the Department conducted a second round of modeling to ensure that the modeling was as up to date as possible, specifically to confirm that the starting CO₂ allowance budget for 2022 and other components of this final-form rulemaking were still appropriate. In February of 2021, the Department updated the power sector modeling assumptions and inputs previously included in the 2020 round of modeling. These assumptions and inputs include the following: 2021 PJM electricity demand forecast, 2021 AEO Natural Gas Prices, updated capacity additions and retirements, updated technology costs and revisions to State law and policies which encompasses the new in-state generation requirement for Tier II resources under the Alternative Energy Portfolio Standards Act (73 P.S. §§ 1648.1—1648.8).

Most notably, the main difference in the modeling assumptions between 2020 and 2021 was the demand forecast for electricity. As a direct impact of the COVID-19 pandemic, the projections for the future demand of electricity are below the 2020 projections made prior to the onset of the pandemic. In sum, while the original 2020 modeling did not account for the impacts of the COVID-19 pandemic, the updated 2021 modeling conducted for this final-form rulemaking includes those impacts.

h) In response, the IPM model properly takes into account the expansion of other Federal and State regulations and initiatives that impact the production and distribution of electricity. IPM is

a dynamic linear programming model that generates optimal decisions under the assumption of perfect foresight. It determines the least-cost method of meeting energy and peak demand requirements over a specified period. In its solution, the model considers several key operating or regulatory constraints that are placed on the power, emissions and fuel markets. The constraints include, but are not limited to, emission limits, transmission capabilities, renewable generation requirements and fuel market constraints. The model is designed to accommodate complex treatment of emission regulations involving trading, banking and special provisions affecting emission allowances, as well as traditional command-and-control emission policies. The specific Federal and State laws and policies that are included in the modeling runs are outlined on the “Assumptions Overview” tab on the Department’s RGGI webpage located at www.dep.pa.gov/RGGI, the very first tab located in each of the modeling results files.

19. Comment: IRRC notes that there is no consensus on how this final-form rulemaking will affect the economy of this Commonwealth. IRRC asks the Board to review the concerns of those commentators that have raised issues related to the effect on the economy and provide updated and revised information in the RAF related to the potential economic and fiscal impact of this final-form rulemaking. In particular, commentators believe that the requirement to purchase allowances by coal and older natural gas-fired EGUs will result in those units becoming uneconomical to operate. As a result, these EGUs will close, impacting the coal mining industry of this Commonwealth and hundreds of small businesses and labor unions that support those industries. Another concern is that the price of electricity will increase. The price that electric utilities pay for electricity from fossil fuel-fired generators will increase and the additional cost will be passed on to residential, commercial and industrial rate payers. Low-income residents and those economically affected by the COVID-19 pandemic, small businesses and large industrial users will be impacted. Large industrial users of electricity may base a decision to locate or relocate a business based on the price of electricity in this Commonwealth. Additionally, IRRC mentions that commentators also note that local governments where the coal-related industries and small businesses operate will be negatively impacted because of the tax loss that will result from the rulemaking. One commentator has stated that the fiscal impact of the rulemaking will be the loss of over 8,000 jobs, the loss of \$2.82 billion in total economic impact, the loss of \$539 million in employee compensation, and the loss of \$34.2 million in state and local tax revenue. However, other commentators believe any potential economic disruption caused by this final-form rulemaking will be negligible because of growth of other segments of the economy.

Response: The Department’s updated 2021 modeling shows that most if not all the coal-fired generation in this Commonwealth, except for waste coal-fired facilities, will cease generation by 2025. These are the results of the Business-as-Usual or Reference case which does not take into consideration the impacts of this Commonwealth’s participation in RGGI on the power sector. Notably, this is a divergence from the results of the Business-as-Usual or Reference case from the 2020 modeling which had projected that coal generation was expected to cease by 2030, though this Commonwealth’s participation in RGGI and the associated CO₂ allowance price were previously shown to accelerate these retirements to some extent.

The Department’s economic modeling shows that this Commonwealth’s participation in RGGI will lead to a net increase of more than 30,000 jobs and an addition of \$1.9 billion to the Gross

State Product, a measurement of the value of the State's economy, indicating economic growth. The Department's modeling incorporates any impacts to economic activity, divestment and loss of tax base that would occur as a result of this final-form rulemaking. Further, the Department's modeling projects this Commonwealth will continue to have lower electricity prices than nearly all of the participating states from 2022-2030, demonstrating the continued advantage of operating a business in this Commonwealth relative to nearby states.

Additionally, Penn State's study confirms the economic benefits accruing as a result of this Commonwealth's participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. Penn State indicates that between 2022 and 2030, this Commonwealth's participation in RGGI will yield \$2.6 billion in net economic benefit to this Commonwealth. These have also been the results reported by the participating states and summarized in the RGGI review conducted by the Analysis Group.

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 CO₂ 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. In sum, 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.

The Department agrees with other commentators that any potential economic disruption caused by this final-form rulemaking will be negligible because of growth of other segments of the economy.

20. Comment: IRRC requests additional information and more complete answers to the following sections of the RAF, in addition to the more thorough analysis regarding potential fiscal or economic impact requested. First, Section 17 of the RAF asks an agency to identify the financial, economic and social impact of the regulation on individuals, small businesses, businesses and labor organizations and other public and private organizations. It also asks an agency to evaluate the benefits expected as a result of the regulation. The Board provides a detailed explanation of the expected environmental, health and economic benefits of the regulation for society as a whole. It also provides a dollar estimate of the potential cost to residential customers in terms of monthly electricity bills. However, the explanation does not provide a similar estimate for small businesses and other businesses. IRRC asks the Board to provide that information in the RAF submitted with the final regulation. Second, Section 19 of the RAF asks an agency to estimate any costs or savings to the regulated community associated with legal, accounting or consulting procedures. IRRC asks the Board to estimate the cost associated with an owner or operator having an account representative required to participate in allowance auctions under RGGI.

Response: The Department added supplementary information to the responses to sections 17 and 19 of the RAF. The Department particularly added more detail regarding the estimates for small

businesses and other businesses. Additionally, potential costs and savings to the regulated community are discussed in more detail in the RAF, including the estimated cost associated with an owner or operator having an account representative required to participate in the multistate auctions under RGGI.

21. Comment: IRRC questions whether a less costly or less intrusive alternative method of achieving the goal of the regulation has been considered for the regulation impacting small businesses. IRRC asks the Board to consider the following options, and if it decides to proceed with the current rulemaking, provide an explanation of why these alternatives are not appropriate. First suggestion is do nothing: A comment letter signed by 40 Representatives of the General Assembly states that the current regulatory environment and existing market forces have already significantly reduced CO₂ emissions in the Commonwealth. The “status quo is a far less costly and intrusive method than RGGI at achieving tremendous reductions in carbon emissions.” Second, the letter states the Department could achieve its objective with a “gradually declining CO₂ emissions budget without the exorbitant costs proposed by this submission.” This could be accomplished by calculating a price to auction emissions that would cover the cost needed to administer RGGI.

Response: The Department contends that the status quo will not achieve the emissions reductions needed to protect public health and the environment, nor are current measures adequate to address climate change. The Department’s modeling effort as mentioned above included two separate modeling runs, the first of which is (a) the reference case which reflects business-as-usual with no regulatory or policy changes, and (b) the policy case which is reflective of the impacts of this final-form rulemaking. In comparing these modeling scenarios, without this final-form rulemaking in place, this Commonwealth will emit 97-227 million tons of CO₂ more than with the implementation of this final-form rulemaking. Additionally, residents of this Commonwealth will not benefit from improved air quality or realize the economic, job impacts or health benefits that result from this final-form rulemaking.

Furthermore, rather than benefitting from implementation of this final-form rulemaking, there will be a deleterious impact on the environment, health and the economy without this meaningful and decisive action. Business-as-usual or status quo does not address climate change in a meaningful way. While there may be emissions reductions in the future, they do not occur at the rate or level at which is required to avoid the worst impacts of climate change. Additionally, as a Commonwealth we will not be capable of honoring our commitment to address climate change and will fall short of meeting the interim 2025 GHG reduction goal.

Part of what makes RGGI economically efficient is that it is a regional program, allowing for EGUs to achieve least cost compliance by buying and selling CO₂ allowances whether in multistate auctions or in the secondary market. CO₂ allowances are fungible, meaning that though this Commonwealth has an established CO₂ allowance budget for each year, this Commonwealth’s CO₂ allowances are available to meet the compliance obligations in any other participating state and vice versa. Therefore, emissions from this Commonwealth’s power sector are not limited to strictly the amount of this Commonwealth’s CO₂ allowances. This cooperation allows EGUs more flexibility in terms of compliance and allows the market to signal entrance and exit of generation. In this respect, the market assists in achieving least cost compliance for

all participating states. Furthermore, strategic investments of the auction proceeds within this Commonwealth reduce GHG emissions even further than this Commonwealth's annual CO₂ allowance budget alone.

22. Comment: IRRC asks the Board to respond to technical comments for and against the set-aside provisions and comments requesting full exemptions instead of set-asides. Additionally, IRRC asks the Board to respond to technical comments suggesting ways to improve the implementation of the set-asides and exemptions.

Response: Each state has the authority and discretion as to how CO₂ allowances are treated which is memorialized in each state's CO₂ Budget Trading Program regulation. Allocation of the CO₂ allowances is just one mechanism through which states further public policy goals. For example, each state must decide how to make the CO₂ allowances available. In addition to states offering CO₂ allowances for sale through the multistate auctions, most participating states also opt to have set-aside accounts. These states specifically carve out or "set aside" a portion of the state's CO₂ allowance budget to assist certain sectors with part or all of their compliance obligations or allow other sectors to monetize the CO₂ allowances for further investment.

In this final-form rulemaking, the Department has provided three set-aside options, which are discussed in detail in this preamble. First, the Department is setting aside CO₂ allowances to assist this Commonwealth's waste coal generation sector with compliance with this final-form rulemaking. While waste coal facilities are not exempt from this final-form rulemaking, the Department will oversee the sector's compliance using CO₂ allowances that have specifically been carved out or "set aside" for this purpose. In other words, the compliance costs for waste coal-fired EGUs will be minimal.

At the beginning of each compliance year, the Department will set-aside CO₂ allowances for the waste coal facilities, thereby eliminating the need for the facilities to purchase these allowances in either the multistate auctions or on the secondary market. The waste coal set-aside is equal to 10.4 million tons of CO₂ emissions, an increase from the 9.3 million as outlined in the proposed rulemaking, in response to comments received during the public comment period.

Some commentators requested an increase in the set-aside allocation to allow for future expansion of the waste coal industry, while others requested that the set aside allocation be reduced or completely eliminated. In response, the Department slightly increased the value of the set-aside to account for a facility previously marked for closure that will now remain in operation.

Much like the comments received on the waste coal-set aside, the Board received comments asking for both the expansion and elimination of the cogeneration (now CHP) set-aside. Furthermore, commentators asked for clarification as to what facilities would qualify for the set-aside and how those calculations would be performed. In response to comments, the Board changed the name and description of the set-aside to clarify that the specific type of cogeneration facilities the set-aside covers are CHP facilities.

Some commentators requested the elimination of the CHP set-aside, indicating the anti-competitive nature of this set-aside. The Department notes that facilities that would qualify for

this set-aside are not strictly electricity producers in the plainest sense but have on-site generation that is feeding an interconnected facility. In other words, while these facilities do have some electricity that is sold to the grid, that is not the key focus of their business model nor is the amount of electricity sold to the grid in a volume that allocation of CO₂ allowances would create an anti-competitive environment.

Comments were also made requesting that the Department expand the value of the CHP set-aside to account not only for a portion of the qualifying facility's compliance obligation, but to account for all of a qualifying facility's compliance obligation. Commentators indicated that without a full set-aside the Department may be creating a disincentive for existing CHP facilities to operate efficiently and a potential disincentive for the future buildout of additional CHP facilities. The commentators emphasized that this runs counter to the recommendations outlined in the Department's Climate Action Plan and the PUC's Policy Statement on Combined Heat and Power. Commentators indicated that any disincentive for these facilities to operate at anything, but peak efficiency was undermining the environmental benefits of CHP and may lead to other facilities with higher emissions intensity generating the lost electricity.

In response, the Department developed a two-tier approach to the CHP set-aside whereby facilities meeting strict efficiency criteria may be eligible for a full set-aside while other qualifying CHP facilities that do not meet those criteria may qualify for the partial set-aside. This allows for efficient operation of existing CHP facilities and does not interfere with the potential for future buildout of CHP in this Commonwealth.

The Department received comments asking that rather than depositing undistributed CO₂ allowances from the waste coal set-aside account into the strategic use set-aside account, that the strategic use set-aside account have its own independent CO₂ allowance allocation. In response, the Board notes that the Department has the flexibility in future years to deposit CO₂ allowances into the strategic use set-aside if the undistributed CO₂ allowances are not sufficient to support activity in this set-aside account. Because the Department has this flexibility already, the Department decided to maintain the allowance allocation structure as proposed.

Furthermore, comments were received asking that the Department add a new set-aside or modify the strategic use set-aside to develop a Voluntary Renewable Energy Set-aside akin to those established by a few of the participating states. In response, the Department elected to keep the strategic use set-aside as proposed, with some clarifications to explain that renewable and other non-emitting energy technologies would qualify for allocation of allowances under the strategic use set-aside. Rather than restrict the types of projects that would qualify for allowances, the Department has elected to keep the broader, more inclusive nature of the strategic use set-aside.

The Department also received comments requesting that the process by which applicants could apply for allowance allocations be more clearly outlined in the regulation. The Department responded with modifications to the regulation clearly outlining the set-aside application process and requirements. An additional requirement was added clarifying that CO₂ allowances are distributed upon the completion of a project which is not legally required. Projects that are completed for compliance purposes or as the result of settlements do not qualify for an allocation of allowances under the strategic use set-aside account.

23. Comment: IRRC asks the Board to consider delaying the implementation of the rulemaking for one year. IRRC suggests that this additional time would allow the regulated community an opportunity to adjust their business plans to account for the potential increased costs associated with this Commonwealth joining RGGI.

Response: The Department understands the concerns expressed by IRRC and other commentators; however, this Commonwealth cannot wait any longer to address CO₂ emissions from fossil-fuel fired EGUs. On October 3, 2019, it was announced that the Department was going to begin this rulemaking process, which provided more than two years' notice to the regulated community of the forthcoming regulation. As has been stated above, further delay would compromise this Commonwealth's ability to meet the GHG emissions reductions goals, and cause harm to public health and the environment which the Department is responsible for protecting under the APCA. Furthermore, due to the nature of compliance in the RGGI program, the first real compliance deadline occurs more than a year after the anticipated January 1, 2022 start date, further extending the compliance horizon for covered facilities.

RGGI operates on a three-year compliance schedule whereby only partial compliance is required within the first two years, and then full compliance is required after the end of the third year. The current RGGI three-year compliance period began in 2021, so 2021 and 2022 are interim compliance years while 2023 is a full compliance year. What this means is that facilities only need to acquire 50 percent of the necessary CO₂ allowances during the interim compliance years, but need to hold 100 percent of CO₂ allowances for the entire three-year control period by March 1 of the following year.

For example, while January 1, 2022 or the first day of the next calendar quarter following publication is the date upon which the CO₂ requirements begin for this Commonwealth, the first compliance deadline is not until more than a year later on March 1, 2023 with full compliance not required until March 1, 2024 providing ample time to comply.

24. Comment: IRRC says the applicability provision under § 145.304 is unclear because it does not specify that only units that are operating would have to comply with the regulation. IRRC suggests that the final regulation be amended to improve the clarity of this requirement.

Response: The Department amended § 145.304 to remove the language related to a unit operating at any time on or after January 1, 2005 to clarify that only fossil fuel-fired EGUs currently operating in this Commonwealth need to comply with this final-form rulemaking.

25. Comment: IRRC is concerned that § 145.314 does not require the owner or operator of a unit to verify anything. Section 145.314 specifies what must be included in a complete account certificate of representation for a CO₂ authorized account representative or a CO₂ authorized alternate account representative. IRRC recommends that the final-form regulation be amended to require the owner or operator of a unit to sign or verify in some manner that the representative is authorized to represent their interests under the CO₂ budget trading program.

Response: In addition to the language pertaining to the account representatives in § 145.314, there is language in § 145.311 providing that “the representative of the CO₂ budget source shall be selected by an agreement binding on the owner or operator of the source and all CO₂ budget units at the source and must act in accordance with the certificate of representation under § 145.314.” Additionally, the owner or operator should already have a designated representative who submits data to the EPA on behalf of the owner or operator. To participate in COATS, a representative of the CO₂ budget source must complete a Certificate of Representation form and submit the form to the EPA. The account representative listed on the form for a CO₂ budget source must match the representative for that facility in the EPA’s Clean Air Market Division system. The regulatory language in sections 145.311 and 145.314 is also consistent with the existing language in the Board’s NO_x Budget Trading Program regulation in 25 Pa. Code Chapter 145, Subchapter A and the RGGI Model Rule.

26. Comment: Numerous members of the General Assembly expressed their support of this final-form rulemaking and this Commonwealth’s participation in RGGI. Some even highlighted that polling consistently shows that more than 70 percent of Pennsylvanians strongly support action on climate change and that this final-form rulemaking has diverse support from businesses and institutions to environmental nonprofits and health organizations. Members also stressed that it is crucial to address climate change, lower emissions of harmful air pollutants, particularly given the COVID-19 pandemic, and consider environmental justice concerns. They noted that RGGI has proven successful and that RGGI participation will provide a multitude of benefits to public health, safety, and welfare, as well as benefits to the environment and the economy. In particular, they stated that participating in RGGI will spur additional investments in renewable energy throughout this Commonwealth, ensuring that this Commonwealth’s vital position in national energy markets is maintained. They also emphasized that reducing CO₂ emissions from the power generation sector would improve the environment for this Commonwealth’s citizens and make this Commonwealth a more sustainable and innovative place in the future.

Response: The Department acknowledges these comments and thanks the members for their support.

27. Comment: A few members of the General Assembly commented that the process has not included input from the legislative branch.

Response: The Department disagrees with this characterization of the regulatory process. The House and Senate ERE Committees and members of the Legislature have extensive involvement in the development of the Department’s rulemakings, including appointed members on the Department’s advisory committees and 4 seats on the Board, in addition to the review outlined under the Regulatory Review Act (RRA). The Board and the Department consistently seek opportunities to engage productively with interested parties, including the Legislature. The Department’s Legislative Office works to address issues and ensure that the Legislature is informed of actions by the Department and the Board. Throughout the development of this final-form rulemaking, the Department met with individual legislators and responded to questions on this rulemaking and RGGI participation during several legislative hearings. Additionally, several members of the Legislature including the ERE Committees submitted comments on the proposed rulemaking.

General Comments

28. Comment: Several municipalities and townships passed resolutions urging the Independent Regulatory Review Commission to reject the proposed Carbon Dioxide Budget Trading Regulation as contrary to state statute and against the best interests of Pennsylvanians.

Response: The Department acknowledges these resolutions. However, the APCA, a state statute, provides the Department and the Board with broad authority to promulgate and implement this final-form rulemaking. Additionally, this final-form rulemaking is necessary to ensure CO₂ emissions continue to decrease and at a rate that shields this Commonwealth from the worst impacts of climate change, benefitting public health, the environment and all sectors of the Pennsylvania economy, all of which is in the best interests of Pennsylvanians.

29. Comment: Several municipalities and townships passed resolutions urging the Independent Regulatory Review Commission to approve the proposed Carbon Dioxide Budget Trading Regulation as necessary for addressing climate change citing the health, economic and environmental benefits.

Response: The Department acknowledges the comment and appreciates the support for the final-form rulemaking.

30. Comment: The commentator expressed general support for the proposed rulemaking and encouraged the Board to adopt the rulemaking.

Response: The Department acknowledges this comment and appreciates the commentator's support.

31. Comment: The commentator expressed general opposition to the proposed rulemaking and encouraged the Board to not move forward with the rulemaking.

Response: The Department acknowledges this comment.

32. Comment: The commentator states that additional regulation by the Department is not necessary and would only be a burden on Pennsylvanians.

Response: The Department disagrees. The purpose of this final-form rulemaking is to reduce anthropogenic emissions of CO₂, a 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 final-form rulemaking is necessary to reduce CO₂ emissions from sources within this Commonwealth and will benefit public health, the environment, and all sectors of the Pennsylvania economy, for the benefit of all Pennsylvanians.

33. Comment: The commentator states that there are significant health benefits for Pennsylvanians as a result of the emissions reductions associated with this proposed rulemaking.

Response: The Department agrees. In fact, 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 percent of CO₂ 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>.

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 PM_{2.5} 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, <http://ehp.niehs.nih.gov/doi/10.1289/EHP6706>.

Further, when looking specifically at this final-form rulemaking, the Department’s modeling projects that sources within this Commonwealth will reduce CO₂ emissions by 97-227 million tons over the next decade. The Department used the EPA’s 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. Based on an assumption that 188 million tons of CO₂ emissions are avoided through 2030, the Department estimated that between 283 and 641 premature deaths will be avoided in this Commonwealth due to emission reductions resulting directly from this final-form 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 will be healthier as well which results in over 83,000 avoided lost workdays due to health impacts. Health benefits were also calculated using EPA’s Benefit-per-Ton methodology, which indicates that the public health benefits to this Commonwealth of these avoided SO₂ and NO_x emissions range between \$2.79 billion to \$6.3 billion by 2030, averaging between \$232 million to \$525 million per year.

34. Comment: The commentator states that a national carbon pricing program or a regional program through the PJM market would be a more effective climate mitigation effort than this proposed rulemaking.

Response: The Department appreciates the comment and supports ongoing efforts to price carbon through the electricity sector at the regional or national level by PJM, the FERC, and the Federal government. Both regional and federal implementation of a carbon pricing mechanism would either partially or entirely address leakage concerns. There would be no potential shifting of generation or emissions from carbon pricing to non-carbon pricing regions as a large portion of or all surrounding states would be subject to the same requirements. However, since neither a national carbon pricing program nor a regional program through PJM currently exists, the Department is focused on addressing CO₂ emissions at the state level while exploring opportunities for leakage mitigation.

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. Additionally, the FERC hosted a carbon pricing technical conference in the Fall of 2020, resulting in a policy statement requesting public comment on issues such as how to address shifting generation amongst states as a result of carbon pricing. Lastly, the Federal administration is seeking to reduce carbon emissions from the electric power sector, specifically aiming to produce 80 percent of the nation's electricity from zero-carbon sources.

If there is future action to address climate change on a regional or national level, this Commonwealth will be well positioned, through implementation of this rulemaking, to meet any future requirements.

35. Comment: The commentator states that joining RGGI is not in Pennsylvania's best interests, necessary or cost-effective to reduce CO₂ emissions in Pennsylvania. The commentator also disputes that CO₂ is a problem and disagrees that climate change is actually occurring.

Response: The Department disagrees with the commentator. While CO₂ emissions from the electricity sector have decreased in recent years, the Department projects that, without this rulemaking, CO₂ emissions 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. Participation in RGGI will ensure that CO₂ emissions continue to decrease in this Commonwealth as needed to protect public health, safety, and welfare, as well as the environment.

The Department concurs with the EPA's determination 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.

RGGI has proven beneficial for the current participating states and the Department's modeling and other independent studies have shown that RGGI participation will also be beneficial for this Commonwealth. CO₂ emissions are inimical to public health, safety and welfare. In the Fifth

Assessment Report of the Intergovernmental 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 CO₂ is a necessary element of life on Earth and acts as a fundamental aspect of nearly every critical system on the planet, CO₂ in high concentrations in the atmosphere leads to the greenhouse effect. The greenhouse effect occurs when CO₂ (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/>.

36. Comment: The commentator states that RGGI participation is unnecessary as PA CO₂ emissions have decreased without RGGI.

Response: The Department acknowledges this comment. While CO₂ emissions from the electricity sector have decreased in recent years, the Department projects that, without this rulemaking, looking forward CO₂ emissions 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. Participation in RGGI will ensure that CO₂ emissions continue to decrease in this Commonwealth as needed to protect public health, safety, and welfare, as well as the environment.

37. Comment: The commentator states that the Commonwealth has already reduced emissions in the electricity generation sector without this proposed rulemaking due to market, financial, and technological changes, therefore this proposed rulemaking is not needed for emissions reductions.

Response: The Department recognizes that Pennsylvania's electricity generation sector has decreased emissions in recent years, but further emissions reductions are necessary to achieve the necessary GHG reduction targets. 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 CO₂ equivalent (MMTCO₂e) statewide, the vast majority of which are CO₂ emissions. In the global context, this Commonwealth's electricity generation sector alone emits more CO₂ than many entire countries including Greece, Sweden, Israel, Singapore, Austria, Peru and Portugal. Historically, the electricity generation sector has been the leading source of CO₂ emissions in this Commonwealth. Based upon data contained in the Department's 2020 GHG Inventory, 29 percent 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 CO₂ 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 percent and 5 percent, respectively, from 2015 to 2050. 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.

This proposed rulemaking is necessary to ensure CO₂ 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 CO₂ emissions using a market-based approach. As the electricity generation sector remains one of the leading sources of CO₂ in this Commonwealth, it is imperative that emissions continue to decrease from that sector.

38. Comment: The commentator states that this regulation will not reduce emissions in the Commonwealth.

Response: The Department disagrees. The design of the CO₂ Budget Trading Program within this final-form rulemaking ensures emissions from the electricity generation sector are decreased over time. Between 2022 and 2030, the program's CO₂ emissions budget will decrease 19,914,960 tons, equal to a reduction of 25.532 percent. 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.

The Department estimated in 2020 that this Commonwealth will experience CO₂ emission reductions of 188 million tons over the decade as a direct result of participation in RGGI. The Department's updated modeling in 2021 estimated a range of reductions between 97-227 million tons from sources within this Commonwealth between 2021-2030. This results in CO₂ 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.

39. Comment: The commentator states that the Department should remove "inimical" and replace with a more customarily used word.

Response: The Department acknowledges this comment. The term "inimical" is appropriate for this final-form rulemaking as it is used in the definition of "air pollution" under section 3 of the APCA.

40. Comment: Even if the presence of CO₂ in the atmosphere amounts to "air pollution," any attempt by the EQB to employ RGGI's carbon taxing program to regulate emissions of that gas would not meaningfully "prevent[], control, reduc[e], and abate[]" climate change, as required for the agency to adopt regulations under APCA. On a percentage basis, Pennsylvania's fossil fuel-fired power plants make only a miniscule contribution to total worldwide GHG emissions. The consequence is that, even if implementing RGGI in Pennsylvania were to completely eliminate carbon emissions from all regulated power plants in the Commonwealth (which, of course, it would not be designed to do), it would not materially impact the concentration of ambient CO₂ in the outdoor atmosphere.

Response: As stated in this final-form rulemaking, the purpose of this rulemaking is not to solve global climate change, but to address this Commonwealth's share of CO₂ emissions from one of its highest emitting sectors. Although this final-form 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. This Commonwealth has the fifth leading CO₂ emitting electricity generation sector in the country, and this final-form rulemaking is a significant component in achieving the Commonwealth's goals to reduce GHG emissions.

41. Comment: The commentator states that the proposed rulemaking will cause widespread economic harm across the Commonwealth due to increased electricity prices, decreased investment, or other various economic reasons related to implementation of this final-form rulemaking.

Response: The Department disagrees as the associated Pennsylvania-specific economic benefits are evident. The Department's 2020 modeling estimates that from 2022 to 2030, this final-form 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.

Additionally, this final-form rulemaking provides an opportunity to assist residents of this Commonwealth impacted by changes in the energy sector, as this Commonwealth and the rest of the country transitions to a new energy future. Without this final-form 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.

The Department recognizes the potential for short-term, minimal increases in electricity prices to consumers as a result of this final-form rulemaking, however the Department's 2020 modeling indicates that investments made in energy efficiency, renewable energy, and GHG abatement as a result of RGGI proceeds would 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 final-form 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 final-form rulemaking.

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 percent while prices have increased in the rest of the country by 8.6 percent. 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. Also see the Modeling and Data Analysis section of this document for information on the electricity cost impacts of RGGI.

42. Comment: The commentator states this final-form rulemaking will benefit the Pennsylvania economy due to increased competitiveness, program investments, public health benefits, or other various economic reasons related to implementation of this final-form rulemaking.

Response: The Department agrees. In addition to the benefits of this final-form rulemaking discussed above, the public health benefits to this Commonwealth of avoided SO₂ and NO_x emissions as a result of RGGI participation range between \$2.79 billion to \$6.3 billion by 2030, averaging between \$232 million to \$525 million per year. Additionally, it is estimated that between 283 and 641 premature deaths will be avoided in this Commonwealth by 2030 due to emission reductions directly resulting from this final-form rulemaking.

Further, this Commonwealth is anticipated to experience no loss of competitive advantage over neighboring states as a result of this rulemaking, and should experience greater competitive advantage in the future. In the 2020 modeling, 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 2020 modeling estimates that total electricity exports from this Commonwealth will be higher by 2030 with this final-form rulemaking than without it. Any price differential resulting from the addition of the CO₂ 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 and Utica shale formations. Even with the price adder of the CO₂ allowance price, the modeling shows that natural gas generation in this Commonwealth continues to be extremely competitive. Meanwhile, renewable energy sources in Pennsylvania will become more competitive under this rulemaking than without RGGI participation.

These factors, combined with the investment of program proceeds in energy efficiency, renewable energy, and communities as a result of RGGI participation, will increase public health, create job opportunities, and enable a competitive economy while producing substantial environmental benefits.

43. Comment: The commentator states that this regulation will make the Commonwealth less economically competitive.

Response: The Department disagrees. The Department's economic modeling shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. Additionally, Penn State's study confirms the economic benefits accruing as a result of this Commonwealth's participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. Penn State indicates that between 2022 and 2030 this Commonwealth's participation in RGGI will yield \$2.6 billion in net economic benefit to this Commonwealth. These have also been the results reported by the RGGI participating states and summarized in the RGGI review conducted by the Analysis Group.

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 CO₂ 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. 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.

44. Comment: The commentator states that the last sentence in the paragraph preceding *Compliance assistance plan* "then" needs replaced with "than".

Response: The Department has corrected the typographical error in the Preamble.

45. Comment: The commentator states that Pennsylvania's air pollution is at historically low levels and that Pennsylvania's air quality does not cause any harm.

Response: The Department acknowledges that there have been certain air quality improvements in this Commonwealth. However, CO₂ falls under the definition of "air pollution" in section 3 of the APCA. First, CO₂ is a gas, and falls within the definition of "air contaminant," under section 3 of the APCA, which is defined as "[s]moke, dust, fume, gas, odor, mist, radioactive substance, vapor, pollen or any combination thereof." By extension, CO₂ is also "air contamination," under section 3 of the APCA, which is defined as "[t]he presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution." The term "air pollution" is defined as "[t]he presence in the outdoor atmosphere of any form of contaminant ... in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which

unreasonably interferes with the comfortable enjoyment of life or property.” Therefore, CO₂ is also considered to be “air pollution” under the APCA. Additionally, there is a significant body of scientific literature to show that CO₂ meets the definition of air pollution under the APCA. As the Department has mentioned in the regulatory documents of this final-form rulemaking, numerous sources, including the EPA, the Penn State University, the United States Global Change Research Program (USGCRP) and the IPCC, have confirmed that CO₂ emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life.

The Department acknowledges that this Commonwealth has reduced carbon emissions in certain sectors, however, those reductions are not yet enough to meet statewide goals to reduce GHG emissions by 26 percent by 2025 and 80 percent by 2050 in comparison to 2005 levels. While this Commonwealth has achieved reductions from all sectors, including the power sector, more is needed to meet these goals, set to avoid the worst impacts of climate change. Further, CO₂ emissions are projected to increase, as the Department’s Climate Action Plan predicts that total and net GHG emissions (including emissions sinks) will increase by 4 percent and 5 percent, respectively, from 2015 to 2050. 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.

Additionally, as shown by the Department’s modeling, the reduction of co-pollutants, in addition to the direct CO₂ emission reductions, results in significant public health and environmental benefits. For decades the EPA has included co-pollutant reductions when calculating the benefits of a regulation.

46. Comment: The commentator states that since the goal of RGGI is to decrease pollution, the Department should not allow fossil fuel power plants to increase their emissions once RGGI is implemented.

Response: This final-form rulemaking will lead to decreased CO₂ emissions across this Commonwealth, which is the intent of the Department. The design of this final-form rulemaking will not limit emissions from specific EGUs, as a command and control rulemaking would do.

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 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 in the guide that banking of allowances, which this final-form 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 final-form 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>.

47. Comment: The commentator states that due to the growth in electric generation from natural gas, Pennsylvania has reduced emissions and improved public health across the Commonwealth.

Response: The Department acknowledges that the growth of natural gas generation in this Commonwealth has reduced emissions; however, more reductions are needed to address climate change and meet the Commonwealth's GHG reduction goals. Historically, the electricity generation sector has been the leading source of CO₂ emissions in this Commonwealth. Based upon data contained in the Department's 2020 GHG Inventory, 29 percent of this Commonwealth's total GHG emissions are produced by the electricity generation sector. See 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>. The Department's GHG inventory and related information is available at www.dep.pa.gov/Citizens/climate/Pages/CCAC.aspx.

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. All of these factors contributed to decreasing CO₂ emissions from the electricity sector and therefore reduced co-pollutants and increased public health benefits.

However, looking forward, the Department projects CO₂ 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.

Further, the Department’s Climate Action Plan predicts that total and net GHG emissions (including emissions sinks) will increase by 4 percent and 5 percent, respectively, from 2015 to 2050. See 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%2Fspan%3e>. 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. See Pennsylvania Department of Environmental Protection, 2020 Pennsylvania Greenhouse Gas Inventory Report, July 2020, <https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/Climate%20Change%20Advisory%20Committee/2020/Pennsylvania%202020%20GHG%20Inventory%20Report.pdf>.

48. Comment: The commentator states that the following statement should be removed “Emerging evidence links chronic exposure to air pollution with higher rates of morbidity and mortality from the novel coronavirus (COVID-19). As such, reductions in CO₂ 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.” This statement could correlate to a myriad of illnesses. Without identifying Chronic Obstructive Pulmonary Disease (COPD), pneumonia, asthma or other health ailments this appears as bias or sensationalism. Certainly, until 2020, the aforementioned were most likely to have increased mortality rates when living in air-polluted environments. Specifically, the correlation is with particulate matter and ground-level ozone. Reference March 12, 2009 The New England Journal of Medicine article on UC Berkley Air Pollution study. If the Department decides to use the language contained in the draft rule, it would more accurately convey the message if it were rewritten. “...reduction in CO₂ emissions are needed now more than ever before.” “Significantly” does not convey “need”.

Response: The Department disagrees with this comment suggesting a language change and notes that the statement is based on a recent study from Harvard University. See Harvard University Study “Fine particulate matter and COVID-19 mortality in the United States: A national study on long-term exposure to air pollution and COVID-19 mortality in the United States, 2020, <https://projects.iq.harvard.edu/covid-pm>. Additionally, the term “significant” does convey “need” as it conveys how important, which is synonymous with significant, the need is to reduce emissions.

49. Comment: The commentator states that climate change is not an adequate enough concern to warrant this proposed rulemaking.

Response: The Department disagrees. Climate change impacts endanger the lives and livelihoods of the people of this Commonwealth. On May 5, 2021, the Department with support from ICF and Penn State University, released the most recent Pennsylvania Climate Impacts

Assessment. The 2021 Pennsylvania Climate Impacts Assessment found that the average annual temperature Statewide has risen and will continue to rise, as much as 5.9°F (3.3°C) by midcentury compared to a baseline period of 1971-2000. Additionally, this Commonwealth could experience more total average rainfall, occurring in less frequent but heavier rain events. Extreme rainfall events are projected to increase in magnitude, frequency, and intensity, while drought conditions are also expected to occur more frequently due to more extreme, but less frequent precipitation patterns.

There will also be more frequent and intense extreme heat events with temperatures expected to reach at least 90°F on 37 days per year on average across the State, up from the 5 days during the baseline period. Days reaching temperatures above 95°F and 100°F will become more frequent as well. These increasing temperatures will continue to alter the growing season and increase the number of days that individuals and businesses will have to run air conditioning. As heat waves become increasingly common, individuals will be more susceptible to health and economic risks. This is particularly true for vulnerable populations, including low-income populations, the elderly, pregnant women, people with certain mental illnesses, outdoor workers, and those with cardiovascular conditions. Most notable from the 2021 Pennsylvania Climate Impacts Assessment is that climate change will not affect all Pennsylvanians equally. Some may be more at risk because of their location, income, housing, health, or other factors. As shown by all of the Pennsylvania Climate Change Impacts Assessments, climate risks and related impacts in Pennsylvania could be severe, potentially causing increased infrastructure disruptions, higher risks to public health, economic impacts, and other changes, unless actions are taken by this Commonwealth to avoid and reduce the consequences of climate change. Moreover, participation in RGGI will aid this Commonwealth in the just transition to a lower-carbon future in line with existing market and regulatory trends on a global scale.

50. Comment: In the absence of federal policy, the commentator supports Pennsylvania's creation of goals, and the development of policy to meet those goals.

Response: The Department thanks the commentator for their support of this final-form rulemaking.

51. Comment: The commentator states that even if implementing RGGI in Pennsylvania were to completely eliminate carbon emissions from all regulated power plants in the Commonwealth (which, of course, it would not be designed to do), it would not materially impact the concentration of ambient CO₂ in the outdoor atmosphere.

Response: As stated in this final-form rulemaking, the purpose is not to solve global climate change, but to address this Commonwealth's share of CO₂ emissions from one of its highest emitting sectors. Although this final-form 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. This Commonwealth has the fifth leading CO₂ emitting electricity generation sector in the country, and this final-form rulemaking is a significant component in achieving the Commonwealth's goals to reduce GHG emissions.

52. Comment: The commentator states that putting a price on electricity use through RGGI and Pennsylvania’s outdated AEPS, without also putting a price on GHG emissions from direct use of fossil fuels and industrial processes burning those fuels, poses an economic deterrent to the electrification in other sectors that will be necessary to achieve deep decarbonization by 2050.

Response: The Department disagrees with this comment. Implementation of this final-form rulemaking will not be a deterrent to electrification in other sectors. The Department’s modeling indicates a minimal impact to electricity rates as a result of this final-form rulemaking, with significant opportunities for implementation of energy efficiency measures to further address any limited impact. Furthermore, pricing is not impacted to the level that would signal electricity demand reductions or limit future electrification. Modeling confirms this as it does not project significant declines in electricity demand as a result of this final-form rulemaking.

The Department is regulating CO₂ emissions from the electricity generation sector, one of the largest sources of GHG emissions in this Commonwealth. It is imperative to reduce the amount of GHG emissions released from the electricity sector as other sectors are switching from burning fossil fuels directly to using electricity instead.

53. Comment: Pennsylvania’s Alternative Energy Portfolio Standards and energy efficiency requirements are not adequate substitutes for a RGGI compliant regulation. Arresting emissions of GHG pollution in a way sufficient to prevent severe climate disruption requires an all-of-the-above approach.

Response: The Department agrees that this final-form rulemaking and the AEPS are complementary policies that reduce GHG emissions in different ways.

54. Comment: The commentator states that the policy indicates climate change as a primary reason for increases in tick-related Lyme disease. “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.” The commentator agrees with the first part of this statement, but would reference a connection between West Nile and climate change instead of ticks and Lyme disease. Without proof or a reference, the commentator would contend that ticks and Lyme disease are more appropriately influence by lack of rodent predation, especially mice, that are vectors. As urban and suburban development has disrupted the natural balance of mammalian ecology, so has this development increased Lyme exposure. Though West Nile arguably is a by-product of urban and suburban development too, it is a better example as increased temperature and rainfall, as well as standing pools of water, more accurately correlate with climate change.

Response: The Department acknowledges this comment. However, the Department’s climate change impacts assessment indicates that the Department’s statement is appropriate.

55. Comment: The commentator states that in general, there is a large volume of unsubstantiated claims in this draft that use presumptive language (could, may, might, likely, etc.). As a document drafted by a science-based Department on a science-based issue, the commentator would suggest removing such claims that are not based on existing knowledge or

modeling, e.g., “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.”

Response: The Department disagrees as the development of and basis for this final-form rulemaking has been based on science and quantitative analysis both by the Department, and other respected governmental and nongovernmental organizations.

56. Comment: The commentator states that Governor Wolf’s GHG emissions goals could not be achieved if the reductions are not proportional to each sector’s contributions to annual GHG emissions, and the electricity sector has already adequately reduced its sectoral share of emissions relative to the statewide emissions reductions goal.

Response: The Department disagrees with that assessment. The Department recognizes that this final-form rulemaking alone will not achieve Governor Wolf’s GHG emissions reduction goals and emphasizes that this final-form rulemaking is part of a suite of emissions reduction efforts currently underway or planned in this Commonwealth. Moreover, this Commonwealth has the fifth largest CO₂ emissions from the electricity sector of all states, proving the need for additional reductions from this sector. Methods for achieving emissions reductions across all sectors of the economy are outlined in the Department’s Climate Action Plan, released in 2018, that details many recommendations to reduce GHG emissions across all sectors. See Pennsylvania Climate Action Plan

<http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1454161&DocName=2018%20PA%20CLIMATE%20ACTION%20PLAN.PDF%20%20%20%20%3cspan%20style%3D%22color:blue%3b%22%3e%28NEW%29%3c/span%3e>.

57. Comment: The commentator states that there is nothing that Pennsylvania can do that will provide CO₂ reductions beyond those that have already occurred, or will occur through current market forces, or other non-carbon regulations that are already “on the books,” that will result in CO₂ reductions that provide any quantifiable local, regional or global effect on climate change.

Response: The Department disagrees with that assessment and specifically strongly disagrees with the commentator’s assertion that this rulemaking will not achieve emissions reductions. The Department’s modeling shows that this final-form rulemaking would result in CO₂ emission reductions by sources in this Commonwealth of 97—227 million short tons by 2030, improving the health and welfare and the environment of this Commonwealth, including communities most impacted by marginal air quality. Moreover, other states currently participating in RGGI have demonstrated quantifiable emissions reductions as a result of participation.

58. Comment: Given widespread concern over potential impacts from leakage, job loss and electricity bill impacts, the Department should include a safety valve in the final rule that at minimum provides that the Secretary of the Department may at his or her discretion direct the agency to repeal the regulation and not enforce compliance should the Secretary determine continuing to participate in RGGI runs counter to Pennsylvania’s interests. Codifying such an option in a final regulation, along with several criteria which would inform the Secretary’s review and decision-making under such an option, would protect against litigation by third-

parties who may allege Pennsylvania no longer participating in RGGI would be arbitrary and capricious. Criteria for exiting RGGI may include a diminishment in Pennsylvania's energy exports, continued legal challenges by other RGGI states against Pennsylvania's industries over energy and environmental policy or against gas and electric infrastructure that would deliver energy produced in Pennsylvania to other jurisdictions, increases in electricity costs, or the adoption at the federal level of more sweeping environmental requirements.

Response: The Department acknowledges this comment. In this final-form rulemaking, the Department included a provision for this Commonwealth to participate in multistate CO₂ 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. The Department has determined that participation in RGGI would provide those benefits to this Commonwealth. Additionally, the multistate auction process must be consistent with the process described in this final-form rulemaking and include monitoring of each CO₂ 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, 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 auction in this final-form rulemaking, the Board provides for flexibility in case the benefits of the multistate auctions diminish in the future.

59. Comment: The commentator states that oil and natural gas and coal are essential to life, and essential for the foreseeable future, certainly through 2035 and 2050. Many people also do not realize the real costs of renewable energy or the essential role that oil and natural gas and coal play in actually providing the renewable energy to consumers.

Response: The Department recognizes the role that fossil fuels play in the current energy landscape; however, fossil fuel-fired EGUs are also significant GHG emitters and controlling those emissions is necessary to address climate change. The use of fossil fuels in the production of renewable energy infrastructure is outside of the scope of this final-form rulemaking.

Support for Action on Climate Change

60. Comment: The commentator states that this Commonwealth emitted more energy-related carbon pollution in 2015 than 172 of the 194 nations that signed the Paris Climate Agreement. This Commonwealth therefore has a moral imperative, particularly in the absence of meaningful federal action, to do our fair share to significantly reduce greenhouse gas emissions within our borders and add to multistate and international efforts to avoid potentially catastrophic levels of climate disruption.

Response: The Department acknowledges this comment. This final-form rulemaking is a critical part of this Commonwealth's response to the threat of climate change.

61. Comment: The commentator states that many Pennsylvanians support climate action and therefore the Department should advance this proposed rulemaking.

Response: The Department agrees. The public comments on this proposed rulemaking were overwhelmingly supportive and many commentators supported this proposed rulemaking because of its climate mitigation impacts. Further, public opinion polls have shown a majority of Pennsylvanians support climate action. In fact, 67 percent of Pennsylvanians believe global warming will harm future generations and 72 percent support regulating CO₂ as a pollutant. Those results come from a large national survey dataset (>24,000 respondents) collected between 2008 through 2019 as part of the Climate Change in the American Mind project led by the Yale Program on Climate Change Communication and the George Mason University Center for Climate Change Communication.

62. Comment: The commentator states that climate change is a threat to the environment and must be addressed by reducing greenhouse gas emissions.

Response: The Department agrees. 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.

This final-form rulemaking will contribute to reducing Pennsylvania's GHG emissions from the electricity generation sector.

63. Comment: The commentator states that this commonwealth is already experiencing impacts from climate change.

Response: The Department agrees. On May 5, 2021, the Department with support from ICF and Pennsylvania State University, released the most recent Pennsylvania Climate Impacts Assessment. The 2021 Pennsylvania Climate Impacts Assessment found that the average annual temperature Statewide has risen and will continue to rise, as much as 5.9°F (3.3°C) by midcentury compared to a baseline period of 1971-2000. Additionally, this Commonwealth could experience more total average rainfall, occurring in less frequent but heavier rain events. Extreme rainfall events are projected to increase in magnitude, frequency, and intensity, while

drought conditions are also expected to occur more frequently due to more extreme, but less frequent precipitation patterns.

There will also be more frequent and intense extreme heat events with temperatures expected to reach at least 90°F on 37 days per year on average across the State, up from the 5 days during the baseline period. Days reaching temperatures above 95°F and 100°F will become more frequent as well. These increasing temperatures will continue to alter the growing season and increase the number of days that individuals and businesses will have to run air conditioning. As heat waves become increasingly common, individuals will be more susceptible to health and economic risks. This is particularly true for vulnerable populations, including low-income populations, the elderly, pregnant women, people with certain mental illnesses, outdoor workers, and those with cardiovascular conditions. Most notable from the 2021 Pennsylvania Climate Impacts Assessment is that climate change will not affect all Pennsylvanians equally. Some may be more at risk because of their location, income, housing, health, or other factors. As shown by all of the Pennsylvania Climate Change Impacts Assessments, climate risks and related impacts in Pennsylvania could be severe, potentially causing increased infrastructure disruptions, higher risks to public health, economic impacts, and other changes, unless actions are taken by this Commonwealth to avoid and reduce the consequences of climate change.

64. Comment: The commentator states that the appropriate conclusion is not that RGGI is unnecessary but rather that it will not be enough for Pennsylvania to achieve the GHG reductions necessary to avoid the worst impacts of climate disruption.

Response: The Department acknowledges this comment. This final-form rulemaking is a significant component in achieving the Commonwealth's goals to reduce net GHG emissions from 2005 levels by 26 percent by 2025 and 80 percent by 2050. The Department is taking actions in other sectors to further reduce GHG emissions in this Commonwealth.

65. Comment: The commentator states that the most basic and powerful reason for taking meaningful action to limit emissions of GHG pollution concerns the duty of humans not to cause harm to life. Whether phrased as a religious mandate to protect the “creation,” or as an ethical mandate to respect the rights of others, the world’s leading religious and ethical leaders have reached an overwhelming consensus on the importance of taking strong and immediate action on reducing GHG emissions. This is not a choice right now for Pennsylvania but a duty, a more fundamental moral or ethical duty that fully justifies the corresponding legal duty.

Response: The Department acknowledges this comment and is taking much-needed steps to reduce GHG emissions through this final-form rulemaking.

66. Comment: The commentator states that this Commonwealth is currently bearing the costs of carbon dioxide pollution from emitting generators, effectively providing those generators with an unfair subsidy. RGGI partially addresses this problem by requiring these generators to pay a portion of the cost of these emissions, which encourages cleaner generation to run at any given moment while encouraging the gradual shift to a cleaner fleet. Importantly, the revenue raised through RGGI will support measures that will further reduce emissions while minimizing the program’s overall cost.

Response: The Department acknowledges this comment.

67. Comment: The commentator states that the proposed RGGI Regulation is a necessary but insufficient action to address the threat of climate disruption from GHG pollution. It is necessary to establish a cap on GHG emissions and to reduce that cap annually. Given that there is a cap, an auction with provision for trading is the fairest way to allocate permission to emit GHGs. A descending cap with an announced schedule and an auction is not only necessary but will also likely generate significant economic benefits for the Commonwealth and its residents. Arguments that RGGI or the California-Quebec auction-cap-trade-and-invest programs have not driven emissions reductions or that they inherently produce outcomes that disproportionately burden environmental justice communities are misplaced.

Response: The Department acknowledges this comment and agrees with the importance of reducing GHG emissions in this Commonwealth.

68. Comment: The commentator states that RGGI is insufficient, by itself, to address climate disruption. It is necessary to include additional sectors in the auction-cap-trade-and-invest program so that the entire economy will be under the proposed auction-cap-trade-and-invest program. Deep decarbonization will require electrification of many sectors. Putting a cost on GHG emissions for the electricity sector without reflecting that cost in other sectors could reduce the incentive for operators in other sectors to electrify. Pennsylvania should therefore expand the auction-cap-trade-and-invest program to its entire economy. The most expeditious way to do so would be to adopt the proposed regulation set forth in the *Climate Protection Petition*, which is already before the EQB. This could be accomplished in a separate rulemaking proceeding following the adoption of the proposed RGGI regulation. The proposed regulation in the *Climate Protection Petition* can readily be modified to make it consistent with the RGGI regulation and not impair the Commonwealth's ability to participate in the RGGI program.

Response: The Department acknowledges this comment. The Department understands that this final-form rulemaking will not solve climate change on its own. However, it will help this Commonwealth achieve the statewide goals to reduce GHG emissions by 26 percent by 2025 and 80 percent by 2050 in comparison to 2005 levels.

Additionally, the Department's modeling does not project significant declines in electricity demand as a result of this final-form rulemaking. This is supported by the minimal impact to monthly electricity rates as a result of this final-form rulemaking. The Department disagrees that this final-form rulemaking will be a deterrent to widespread electrification.

69. Comment: The commentator states that joining RGGI provides Pennsylvania with a proven, efficient tool to begin addressing climate change and supporting the preservation and deployment of clean sources of electricity, including nuclear. It is a prudent insurance policy to help maintain our existing clean electricity resources and encourage continued expansion of emission-free electricity.

Response: The Department acknowledges and agrees with this comment.

70. Comment: The commentator states that in the case of both RGGI and California’s programs, it is the state’s overall program that is successfully reducing emissions so that the economy-wide emissions are being reduced in accordance with the descending cap. Where an integrated program is achieving documented reductions, it defies common sense to claim, without significant and appropriate statistical analysis, that a single element of that program is unnecessary.

Response: The Department acknowledges this comment and agrees that both prongs of the two-prong RGGI cap-and-invest program are necessary to fulfill the purpose of reducing GHG emissions from the electricity sector.

71. Comment: The commentator states that although there are emissions reductions as a result of this proposed rulemaking, there must be further action taken by the Department to continue to reduce statewide emissions and mitigate climate change.

Response: The Department acknowledges this comment and has a number of existing programs that currently incentivize lower-carbon and emissions-free transportation options, energy efficiency programs, methane reduction strategies, amongst other efforts to reduce GHG emissions across all sectors. Further, the Department published a Climate Action Plan in 2018 that details many recommendations to reduce GHG emissions across all sectors. See Pennsylvania Climate Action Plan

<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%2Fspan%3e>.

72. Comment: The commentator supports putting a price on GHG emissions and capping those emissions with flexible trading, as it is a critical tool in each sector. A cap is a necessary backstop, and a cap cannot be applied without allowances, trading, and an initial distribution mechanism. No one should be allowed to dispose of waste GHGs in the atmosphere without paying for such use.

Response: The Department acknowledges this comment. Cap and trade programs have proven successful, particularly for addressing emissions from the electricity sector.

73. Comment: The commentator states that adopting a RGGI-compliant regulation and the further actions proposed by the commentators will help Pennsylvania meet anticipated federal requirements under the Biden Administration. President-elect Biden has adopted the science-based goals of achieving GHG emissions neutrality in the electricity sector by 2035 and economy-wide GHG emissions neutrality by 2050. These goals are likely to become federal mandates under the Clean Air Act when the incoming Administration adopts regulations to implement the President-elect’s vision. Pennsylvania will need to submit regulations as part of its SIP and the proposed regulation will put Pennsylvania ahead in meeting these anticipated requirements.

Response: The Department acknowledges this comment and agrees that the GHG emission reductions resulting from implementation of this final-form rulemaking are necessary. This regulation is a significant step toward addressing climate change in this Commonwealth.

74. Comment: The commentator states that meaningful action to address the climate crisis by limiting and reducing emissions of GHG pollutants is required by ethical principles. The arguments against taking action are inconsistent with well-established ethical principles.

Response: The Department acknowledges this comment and agrees that the GHG emission reductions resulting from this final-form rulemaking are necessary.

75. Comment: The commentator states that further details on any Department analysis of research, use, and deployment of carbon capture technology that could reduce emissions would be helpful in determining the full toolbox available in addressing climate change.

Response: The Department acknowledges this comment. The Department is currently participating in an Interagency Carbon Capture Utilization and Storage workgroup to help develop a regional CO₂ transport infrastructure action plan. In terms of this final-form rulemaking, carbon capture technology would be an acceptable project under the strategic use set-aside as a project that reduces GHGs through energy efficiency measures, renewable or non-carbon emitting energy technologies, or innovative GHG emissions abatement technologies with significant GHG reduction potential.

Additionally, the Pennsylvania Climate Change Act requires not only a report on greenhouse gas impacts every three years but also requires the Department to develop a climate change action plan for submission to the Governor identifying “cost-effective strategies for reducing and offsetting GHG emissions.” 71 Pa. Cons. Stat. §§ 1361.3, 1361.7 (2018). The most recent Climate Action Plan, published in 2018, details many recommendations to reduce GHG emissions across all sectors including carbon capture technology. See Pennsylvania Climate Action Plan

<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>.

76. Comment: While establishing a price on carbon will not accomplish the goals outlined in the January 2019 order alone, the commentator states that it will create a competitive advantage to less carbon-intensive energy sources to expedite their growth in the electric market and will demonstrate Pennsylvania’s willingness to lead and build cooperation among states as the economy moves toward a cleaner energy future.

Response: The Department acknowledges this comment and that additional action is needed beyond this final-form rulemaking to reduce GHG emissions in other sectors.

77. Comment: The commentator states that the Department claims RGGI-related CO₂ reductions by 2030 are imperative to advance the Commonwealth’s climate goals, and without

RGGI, the Commonwealth would not even meet the interim goal of 26 percent reduction from 2005 emissions by 2025.

Response: The Department agrees with this comment, as implementation of this regulation will achieve significant CO₂ reductions in this Commonwealth. Though this regulation alone will not address all impacts of climate change, without it, Pennsylvania would be challenged to meet even the interim goal of a 26 percent reduction of GHGs compared to 2005 by 2025.

78. Comment: The commentator states that climate change will present significant challenges, and addressing these challenges will require a private sector that can develop and implement solutions and technologies. The commentator advocates for balanced environmental policy that promotes stewardship and economic growth. Legislatures have embedded statements of policy in state and federal air quality law that resonate with this approach. Market-based programs can be more efficient than command-and-control approaches, but costs must not exceed benefits and flexibility with respect to compliance and implementation is key.

Response: The Department acknowledges and appreciates this comment, and underscores that as RGGI is a market-based approach, this Commonwealth will be well positioned to advance environmental and economic goals.

79. Comment: The regulation contained in the Climate Protection Petition can readily be modified to make it consistent with the proposed RGGI Regulation without endangering Pennsylvania's participation in RGGI.

Response: The Department acknowledges this comment; however, the economy-wide cap-and-trade petition is outside the scope of this final-form rulemaking. The Department also notes that the petition is currently under review by the Department.

80. Comment: The commentator requests that the full Climate Protection Petition be included in the record for the RGGI Regulation Rulemaking Docket in that its content strongly supports adoption of the proposed RGGI Regulation, as well as further action that could build on and expand the RGGI Regulation, including implementation of the Transportation Climate Initiative.

Response: The Department acknowledges this comment and receipt of the petition as part of the comments; however, the economy-wide cap and trade petition is outside the scope of this final-form rulemaking. The Department is currently evaluating the economy-wide cap and trade petition that was submitted to the Board.

81. Comment: The commentator urges the Board to take further action to adopt the regulation proposed in the February 28, 2019 petition that would expand the program to all sectors of the economy and continue emissions reductions to achieve GHG emissions neutrality no later than 2052. See Petition Pursuant to 25 Pa. Code §§ 23.1-23.5, Article I, §27 of the Pennsylvania Constitution, and the Pennsylvania Air Pollution Control Act to Adopt the Attached Regulation Establishing a Comprehensive Program to Limit Greenhouse Gas Emissions Through an Auction-Cap-and-Trade Program to Conserve and Maintain a Stable Climate and Other Public Resources for Which the Commonwealth is a Trustee (Feb. 28, 2019),

http://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2019/02_Petition_GHG%20Emissions/GHG%20Emission%20Petition_February%202028,%202019.pdf

Response: The Department acknowledges this comment; however, the economy-wide cap and trade petition is outside the scope of this final-form rulemaking. The Department acknowledges that this rulemaking alone is not sufficient to address climate change in this Commonwealth, but it will lead to significant reductions in GHG emissions. Additionally, the referenced petition is under review by the Department at this time.

Regional Greenhouse Gas Initiative

82. Comment: The commentator highlighted the historic success of RGGI and other cap and trade programs, commenting on their effectiveness at reducing emissions in a cost-effective manner.

Response: The Department acknowledges this comment and agrees that RGGI and other cap and trade programs have proven to be successful.

83. Comment: The commentator cites the economic benefits, including increase in GDP and job creation, seen in other RGGI states as support for the notion that this final-form rulemaking will benefit this Commonwealth. The benefits arise both from the existence of the cap with trading, itself, as well as the reinvestment of proceeds.

Response: The Department agrees.

84. Comment: The commentator states that other cap and trade programs were intentionally designed to control costs. RGGI, on the other hand, is specifically designed to increase costs to the level that some generating units' operations will be reduced and ultimately (in some cases immediately) retired and in the process create considerable revenue to be spent by the Commonwealth for activities well beyond the fees necessary 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.

Response: The Department acknowledges this comment and disagrees with the characterization of the other cap and trade programs referenced. RGGI is designed to price carbon, which is a pollutant, the cost of which is not currently taken into consideration when pricing electricity. This program assigns a price and a compliance obligation to CO₂ emissions from EGUs, thereby including the price of CO₂ emissions in electricity prices, signaling the market to value cleaner sources and aid in the transition to a clean energy economy. Additionally, section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for "the elimination of air pollution." Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the "air pollution control program" in accordance with section 6.3(a) of the APCA. While the

auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

85. Comment: The commentator notes that a balanced approach to economic growth and environmental stewardship is also written into the federal Clean Air Act itself, where Section 101(b) directs EPA to implement the provisions of the Act in a manner “to promote public health and welfare and the productive capacity of [the] population.” The General Assembly struck a similar tone in its statement of policy within the Air Pollution Control Act, which predated the federal Clean Air Act by a decade.

Response: The Department acknowledges this comment. The Department agrees and concurs with the EPA’s determination 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 EQB has a decades-long history of promulgating regulations that have established this Commonwealth’s participation in successful cap and trade programs.

86. Comment: The commentator states that this rulemaking provides a level of regulatory certainty to guide future investment decisions for energy producers or investors.

Response: The Department agrees. Although RGGI is a market-based approach, there are also price fluctuation protections that are built into the auction platform to help ensure that CO₂ 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 CO₂ 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 CO₂ 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. These mechanisms provide predictability in terms of the cost of compliance for covered entities. CO₂ allowances may also be purchased through the secondary market when costs are low and held for future compliance years.

87. Comment: The commentator states that the financial benefit of the carbon price automatically adjusts according to the carbon intensity of resources that are operating; in hours where carbon intensive resources are online, lower emitting resources will benefit as the energy price will reflect the higher cost of producing power and paying for more emissions allowances, and when only renewables are online, lower emitting resources will benefit less as the energy price will reflect the lower cost of producing power and paying for fewer emissions allowances. This provides valuable information and incentives to guide investment not just in lower carbon resources, but in lower carbon resources that can produce power when they can offset more carbon emissions.

Response: The Department acknowledges this comment and recognizes the impact the allowance price can have on the electricity market.

88. Comment: The commentator states that natural gas is essential to the reliability and resiliency of the electric grid with increased use of wind and solar energy. RGGI is an unneeded and bad social policy for Pennsylvania and natural gas will remain a clean and reliable source of electric energy for many years to come.

Response: The Department acknowledges this comment and disagrees that RGGI is unneeded. RGGI has proven beneficial for the current participating states and the Department's modeling and other independent studies have shown that RGGI participation will also be beneficial for this Commonwealth.

Cap and trade programs have an established track record as economically efficient, market-driven mechanisms for reducing pollution in a variety of contexts. Beginning in 1995, Pennsylvania 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 SO₂ 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 SO₂ emissions by 14.5 million tons (92 percent) from 1990 levels and 16.0 million tons (93 percent) 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 percent, 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.

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 CO₂ pollution by over 45 percent since 2009, while experiencing per capita Gross Domestic Product growth and reduced energy costs. The program design of RGGI would enable the Board to regulate CO₂ 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.

89. Comment: The commentator states that utilizing an established regional cap and trade program allows Pennsylvania’s resources to compete on a broader scale, increasing market efficiencies that come with RGGI’s scale, which spans 10 states. It also allows the transition to a clean energy future to occur in a more efficient manner by eliminating the “growing pains” associated with new program development

Response: The Department agrees with the comment as RGGI is an established program, that has a proven track record of success in the region for over a decade now. In addition to building on the existing program, its auction platform and compliance systems, the Department is able to use this regional approach to transition to a clean energy future at least cost using this regional construct.

90. Comment: The commentator states that adopting a RGGI-compliant regulation and the further actions proposed here will help Pennsylvania meet anticipated federal requirements under the Biden administration. However, the proposed regulation is only a first step and more will be required to meet these anticipated federal requirements and to give Pennsylvania businesses the regulatory certainty that they need. To satisfy future federal requirements, the budget in the proposed RGGI regulation should be amended to provide for 7.7 percent annual reductions in the emissions cap to achieve carbon neutrality by 2035 consistent with President-elect Biden’s current plans. Likewise, Pennsylvania should proceed to propose and adopt the economy-wide auction-cap-trade-and-invest program that is the subject of the proposed rulemaking petition to achieve carbon neutrality by 2050.

Response: The Department appreciates the support for this final-form rulemaking and acknowledges that implementation of this regulation is a large step forward in addressing climate change, but is not alone able to reach the climate change goals set forth by Governor Tom Wolf in Executive Order 2019-01, or potential future Federal requirements. In order to reduce net GHG emissions from 2005 levels by 26 percent by 2025 and 80 percent by 2050, a combination of efforts are needed. However, without the reductions provided by this final-form rulemaking between now and 2025, the Commonwealth would not be on course to meet even the interim goal.

91. Comment: The commentator appreciates the fact that RGGI is an example of a sectoral program that aims to be field and technology neutral.

Response: The Department agrees, that RGGI, as a market-based, technology neutral solution for emissions reductions is a sound approach.

92. Comment: The ability to bank and trade allowances in RGGI and other allowance markets has led to the development of well-functioning futures markets, which provide industry with greater predictability and transparency.

Response: The Department acknowledges this comment and agrees that regulatory certainty and regional trading are important tenets of this program.

93. Comment: The commentator disputes that “RGGI provides regulatory certainty” as claimed in the proposed rulemaking; as point of fact it adds to uncertainty, particularly given the proposed rulemaking is silent with respect to how the program would interplay with the EPA’s Affordable Clean Energy rule (greenhouse gas emission standards for existing fossil fuel electric generation units, promulgated under Section 111(d) of the federal Clean Air Act) or new source performance standards for EGUs (promulgated under Section 111(b) of the same statute), or how it might interplay should the incoming Biden administration impose more stringent greenhouse gas emission rules on the energy sector through EPA environmental rules. The Biden administration’s nominees to the Federal Energy Regulatory Commission may also advance or welcome carbon pricing at PJM, and Congress may establish further national goals or mandates with respect to reduction of greenhouse gas emissions.

Response: The Department explained in the RAF for the proposed rulemaking how it was implementing the ACE Rule in this Commonwealth. However, on January 19, 2021, the D.C. Circuit Court of Appeals vacated the "Affordable Clean Energy Rule or ACE rule" and remanded it back to the EPA. See *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914, 977 (D.C. Cir. 2021). Additionally, the Department cannot predict what regulations the EPA may propose to control GHG emissions or what Federal policy may be announced in the future. While the current Federal Administration is in the process of developing climate change policies, there is no guarantee that those policies will come to fruition. For instance, the Obama Administration’s regulation to control GHG emissions from existing fossil fuel-fired EGUs, commonly known as the Clean Power Plan, was stayed by the United States Supreme Court and later repealed and replaced by the Trump Administration’s ACE rule. Addressing the impacts of climate change is too pressing of an issue to wait any longer. As one of the top GHG emitting states in the country, the Department and the Board have a compelling interest to reduce GHG emissions to address climate change and protect public health, welfare and the environment.

94. Comment: The commentator references the CATO Institute study whereby comparison states economies grew 2.5 times faster than the RGGI states. The commentator states that the RGGI states lost 35 percent of energy intensive businesses (primary metals, food processing, paper products, petroleum refining, and chemicals), while the comparison states only lost 4 percent. The commentator states that the RGGI states lost 13 percent of overall goods production, while the comparison states grew by over 15 percent. The comparison states economies grew 2.5 times faster than the RGGI states.

Response: The Department disagrees with this assessment. 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 CO₂ 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/>

95. Comment: The commentator states that enacting a policy such as RGGI will have dire economic consequences, as has been proven in other RGGI states. The commentator cites a study from the CATO Institute that states that RGGI allowance costs added to already high regional electric bills. The combined pricing impact resulted in a 12 percent drop in goods production and a 34 percent drop in the production of energy-intensive goods. The commentator states that comparison states increased goods production by 20 percent and lost only five percent of energy-intensive manufacturing. The commentator states that power imports from other states increased from eight percent to 17 percent.

Response: The Department disagrees with the assertion that other states have suffered deleterious economic impacts as a result of RGGI participation. 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 RGGI's first three control periods, 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 CO₂ 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.

96. Comment: The commentator states that this proposed rulemaking is necessary to improve the air quality and continue to reduce GHG emissions from the electricity sector in this Commonwealth.

Response: The Department agrees. This final-form rulemaking would provide public health benefits due to the expected reductions in emissions of CO₂ and the ancillary emission reductions or co-benefits of SO₂ and NO_x reductions. The Department's 2020 modeling projects cumulative emission reductions of 112,000 tons of NO_x and around 67,000 tons of SO₂ over the decade. Further reducing NO_x and SO₂ emissions is beneficial to public health because NO_x and SO₂ contribute to several health problems.

Short-term exposure to SO₂ emissions can be harmful to public health because it impacts the ability to breathe especially in children and those with asthma. 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.

NO_x and SO₂ 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.

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. 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.

The Department has confirmed the potential for significant reductions in GHG emissions. Specifically, the 2021 modeling projected a range of 97-227 million short tons of CO₂ will not be emitted by sources within this Commonwealth over the decade as a result of this final-form rulemaking. The 2021 modeling does not include all the results that the 2020 modeling did, including projected co-pollutant emissions, health benefits, and broader economic metrics. Additionally, the 2021 modeling does not factor in how program proceeds are invested, while the 2020 modeling assumed strategic investments were made back into the energy sector. Nonetheless, both the 2020 modeling and the 2021 modeling efforts are useful indicators to evaluate implementation of this final-form rulemaking and both will be referenced throughout this document. All modeling results are available publicly at <https://www.dep.pa.gov/Citizens/climate/Pages/RGGI.aspx>.

97. Comment: The commentator states that the reductions of CO₂ emissions attributable to the RGGI states are overstated. Specifically, the commentator references the Acadia Center report cited by the Department and states that the calculations within the report capture emissions reductions from years before the first states began participating in RGGI. 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. Additionally, the commentator states that in referencing that report, the Department compares emissions reduction in RGGI states, which includes only RGGI covered sources, to emissions reductions in Pennsylvania which includes total net CO₂ emissions.

Response: The emissions reductions attributed to power plants in participating states described in the Acadia Center report use a baseline of 2008, one year prior to the first year the first participating states entered the program. The Department's comparison between emissions from this commonwealth and emissions from participating states clearly delineates that the participating states estimate is based on covered sources.

98. Comment: The commentator states that an appropriate comparison of emissions reductions in other states would be 2009 through the most recently available year of data, which for the U.S. Energy Information Agency's State energy-related carbon dioxide emissions by year is 2017. From 2009 to 2017, the RGGI states' energy related emissions decreased from 490.1 million short tons to 459.9 million short tons, or -16 percent. Over the same period of time,

Pennsylvania's energy-related emissions decreased from 242.4 million short tons to 216.7 million short tons, or -10 percent, while RGGI states within PJM increased their reliance on imports.

Response: The Department acknowledges that there are multiple ways to compare changes in GHG emissions and electricity generation across the PJM region since 2009. The Department acknowledges that some RGGI participating states may have decreased emissions and increased electricity imports between 2009-2017. The Department's modeling projects that this Commonwealth would experience decreased emissions with this final-form rulemaking while experiencing minimal impact on electric generation and remaining a leading energy exporter through 2030.

99. Comment: The commentator states that RGGI is one opportunity to continue Pennsylvania's trajectory of emissions reductions while preserving the proud status as an economic powerhouse and an energy producing state.

Response: The Department thanks the commentator for their support of this rulemaking and agrees that this final-form rulemaking allows for the continued growth of energy production in this Commonwealth.

100. Comment: The commentator states that a market-based approach to reducing carbon emissions that starts with RGGI and expands to all sectors of the economy will be the most efficient way of achieving GHG emission reduction goals as it will minimize any financial burden on consumers as the economy transitions from fossil fuels.

Response: The Department thanks the commentator for their support of this rulemaking, and agrees that a market-based approach to emissions reduction in the electricity generation sector is the most effective for this Commonwealth. The Department does not commit to expansion of cap and trade mechanisms for other sectors of this Commonwealth's economy.

101. Comment: The commentator states that after the Department adopts the proposed RGGI regulation, it must continue to regulate across the economy and to achieve net zero GHG emissions by 2050.

Response: The Department acknowledges this comment and is committed to reducing GHG emissions in sectors beyond the electricity sector.

102. Comment: The commentator states that any discussion of Pennsylvania possibly joining interstate efforts with respect to energy and environmental policy would be deficient without noting that several states involved in RGGI have taken actions through the Federal Clean Air Act to request more onerous regulatory obligations on Pennsylvania businesses. These states, including New York, New Jersey, Connecticut, Delaware, and Maryland, have petitioned EPA to establish more stringent emissions rules on manufacturing and energy infrastructure facilities, alleging that it is the fault of Pennsylvania businesses that these states cannot meet their federal air quality obligations under the National Ambient Air Quality Standards. These petitions have

repeatedly, and properly, been rejected by the EPA, but the commentator notes that our state must expend considerable time and resources in responding to these petitions.

Response: The Department understands the commentator’s concerns; however, this is outside of the scope of the rulemaking as the 184(c) petitions are being addressed separately from this final-form rulemaking.

Implementation Timeline

103. Comment: The commentator urges finalization of this rule in time to enter RGGI on January 1, 2022, and underscores the importance of avoiding undue delay that would impede this timeline.

Response: The Department acknowledges this comment and agrees that it is important to avoid undue delay to the finalization of this final-form rulemaking. The Department intends to begin participation in RGGI on January 1, 2022.

104. Comment: The commentator states that due to the impacts to society from the spread of COVID-19 or other various reasons, the Department should delay implementation of the proposed rulemaking.

Response: The Department disagrees. This Commonwealth cannot wait any longer to address CO₂ emissions from fossil-fuel fired EGUs. On October 3, 2019, it was announced that the Department was going to begin this rulemaking process, which provided more than two year’s notice to the regulated community of the forthcoming regulation. Further delay would compromise this Commonwealth’s ability to meet the GHG emissions reductions goals, and cause harm to public health and the environment which the Department is responsible for protecting under the APCA. Furthermore, due to the nature of compliance in the RGGI program, the first real compliance deadline occurs more than a year after the anticipated January 1, 2022 start date, further extending the compliance horizon for covered facilities.

RGGI operates on a three-year compliance schedule whereby only partial compliance is required within the first two years of the compliance period, and then full compliance is required after the end of the third year. The current RGGI three-year compliance period began in 2021, so 2021 and 2022 are interim compliance years while 2023 is a full compliance year. What this means is that facilities only need to acquire 50 percent of the necessary CO₂ allowances during the interim compliance years but need to hold 100 percent of CO₂ allowances for the entire three-year control period by March 1 of the following year.

For example, while January 1, 2022 or the first day of the next calendar quarter following publication is the date upon which the CO₂ requirements begin for this Commonwealth, the first compliance deadline is not until more than a year later on March 1, 2023 with full compliance not required until March 1, 2024 providing ample time to comply.

Further, in addition to decreasing CO₂ emissions and addressing this Commonwealth's contribution to regional climate change impacts, this final-form rulemaking would provide

numerous co-benefits to public health and welfare and the environment. The co-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, SO₂ and 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 the novel coronavirus (COVID-19). As such, reductions in CO₂ 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.

105. Comment: The commentator states the Department should not use the impacts of COVID-19 as a reason to delay implementation of the proposed rulemaking.

Response: The Department agrees. This Commonwealth cannot wait any longer to address CO₂ emissions from fossil-fuel fired EGUs. On October 3, 2019, it was announced that the Department was going to begin this rulemaking process, which provided more than two year's notice to the regulated community of the forthcoming regulation. Further delay would compromise this Commonwealth's ability to meet the GHG emissions reductions goals, and cause harm to public health and the environment which the Department is responsible for protecting under the APCA. Furthermore, due to the nature of compliance in the RGGI program, the first real compliance deadline occurs more than a year after the anticipated January 1, 2022 start date, further extending the compliance horizon for covered facilities.

106. Comment: The commentator states that in the numerous public comment opportunities the Department has conducted prior to offering this Proposed Rule, a handful of commentators raised the suggestion that this important regulatory action be delayed due to the ongoing COVID-19 pandemic. The commentator urges the Department not to delay for two main reasons. First, the current regulatory timeline would enable Pennsylvania to join RGGI a full year from now, in 2022. Second, the value of clean air has never been clearer, and these important protections should not be delayed, particularly given emerging evidence that long-term exposure to air pollution increases risk of death from COVID-19.

Response: The Department acknowledges and agrees with this comment.

107. Comment: The commentator states that participating in RGGI beginning January 1, 2022, at the proposed budget level would help support the continued and long-term operation of the Commonwealth's remaining nuclear plants. Energy Harbor Corporation's announcement to rescind the shutdown decision for the Beaver Valley nuclear facility in Shippingport, which previously had been scheduled to retire prematurely in 2021, highlighted the role RGGI can play in helping to preserve this Commonwealth's nuclear capacity. But for this action, this Commonwealth would have lost another nearly 2,000 MW of emissions-free generation, along with over a thousand high-paying, highly skilled local jobs. The announcement explained that this Commonwealth's decision to begin this regulatory process in time for a 2022 program start date was a large driver for rescinding the retirement plans, and those plans would need to be

revisited if Pennsylvania does not begin participation in RGGI next year as proposed. The harm retirement of Beaver Valley would have caused the greater Shippingport community, to say nothing of all Pennsylvanians' air and climate, is highlighted by the 2019 closure of the remaining unit at Three Mile Island, which cost the Harrisburg area 650 family-sustaining jobs in addition to more than 7 million MW-hours of zero emission electricity output annually.

Response: The Department acknowledges this comment. The Department's modeling conducted for this final-form rulemaking predicts no further nuclear power plant retirements through 2030 with implementation of this final-form rulemaking. Without this final-form rulemaking, this Commonwealth's nuclear fleet may remain at-risk of closure.

108. Comment: Implementing the RGGI Rule in January 2022 would result in the likely deactivation or retirement of at least three affected coal-fired stations, the KEY-CON and Homer City Stations. The Department asserts that it needs about \$20 million annually from Title V fees to maintain the Title V program. The KEY-CON stations each remit \$900,000 - \$1,000,000 annually, and the Homer City Station remits a similar amount. Together, these stations pay a disproportionate share of the total funding. These three facilities pay about 15 percent of the total funding, while the hundreds of other Title V facilities in the Commonwealth pay the remainder. If the three facilities were to dramatically curtail operations or deactivate simultaneously in a single calendar year (as is predicted by the Department's RGGI modeling with the rule in effect), the Department would lose a significant portion of its Title V funding. A revised RGGI Rule that includes a glide path to retirement for these facilities would provide sufficient time for the Department to develop alternate funding sources for their Title V budget.

Response: The Department acknowledges this comment and is continuing to move forward with a January 1, 2022 implementation date. Note that RGGI operates on a three-year compliance schedule whereby only partial compliance is required within the first two years, and then full compliance is required after the end of the third year. The current RGGI three-year compliance period began in 2021, so 2021 and 2022 are interim compliance years while 2023 is a full compliance year. What this means is that facilities only need to acquire 50 percent of the necessary CO₂ allowances during the interim compliance years but need to hold 100 percent of CO₂ allowances for the entire three-year control period by March 1 of the following year.

For example, while January 1, 2022 or the first day of the next calendar quarter following publication is the date upon which the CO₂ requirements begin for this Commonwealth, the first compliance deadline is not until more than a year later on March 1, 2023 with full compliance not required until March 1, 2024 providing ample time to comply.

Additionally, in January 2021, the Department finalized the Air Quality Fee Schedule Amendments rulemaking which spread the financial burden of supporting the Title V Operating Permit Program across almost three times as many Title V facility owners and operators as the prior fee schedule. The new fee schedule spreads the cost obligation for supporting the Title V Operating Permit Program across 289 Title V facility owners where the prior fee schedule spread the cost obligations of supporting the Title V Operating Permit Program across 102 Title V facility owners and operators. This final-form rulemaking does not impact the Department's existing Title V fee program structure.

Statutory Authority

109. Comment: The commentator submits that the specific aim of the proposed rulemaking, to "reduce anthropogenic emissions of CO₂ . . . from CO₂ budget sources in a manner that is protective of public health, welfare and the environment," is a regulatory goal that, if enforceable by the Commonwealth of Pennsylvania at all, is enforceable strictly by the Department.

Response: The Department agrees that it has the authority under the APCA to regulate CO₂ emissions.

110. Comment: The Committees, individual legislators and public commentators opposed to the proposal disagree that the Board has the statutory authority to promulgate the rulemaking. First, the commentator states that CO₂ is not included in the definition of "air pollutant" under Section 3 of the APCA. (35 P.S. § 4003). They contend that CO₂ is naturally occurring, not inimical to humans or animals and is necessary for human life. In addition, the commentators claim that CO₂ was not considered a greenhouse gas under a Federal court ruling regarding the CAA and the cited statutory authority for this rulemaking is the APCA. Therefore, the Board does not have statutory authority to regulate CO₂.

Response: The Board has the statutory authority to promulgate this final-form rulemaking, as provided by the General Assembly through the APCA. CO₂ is in fact a regulated "air pollutant." Specifically, section 5(a)(1) of the APCA provides the Board with authority to regulate CO₂ emissions. CO₂ falls under the definition of "air pollution" in section 3 of the APCA. First, CO₂ is a gas, and falls within the definition of "air contaminant," under section 3 of the APCA, which is defined as "[s]moke, dust, fume, gas, odor, mist, radioactive substance, vapor, pollen or any combination thereof." By extension, CO₂ is also "air contamination," under section 3 of the APCA, which is defined as "[t]he presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution." The term "air pollution" is defined as "[t]he presence in the outdoor atmosphere of any form of contaminant . . . in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property." Therefore, CO₂ is also considered to be "air pollution" under the APCA. The U.S. Environmental Protection Agency (EPA), the Penn State University, the USGCRP and the IPCC, have all confirmed that CO₂ emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life. CO₂ is also a Federally regulated air pollutant under the CAA (42 U.S.C.A. §§ 7401—7671q). See *Massachusetts v. EPA*, 549 U.S. 497 (2007). Moreover, the EPA has issued an Endangerment Finding for CO₂ emissions resulting from fossil fuel-fired EGUs. See 80 FR 64509 (October 23, 2015); *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914 (D.C. Cir. 2021). This is in addition to the 2009 Endangerment Finding issued by the EPA 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). The Endangerment Finding was in response to the remand issued by the U.S. Supreme Court in *Massachusetts v. EPA*, 549 U.S. 497 (2007), where the court found that the CAA allows EPA to regulate GHGs because they qualify as air pollutants.

111. Comment: The commentators believe Section 4(24) of the APCA (35 P.S. 4004(24)) allows the Department to formulate “interstate air pollution control compacts or agreements,” but any such agreement must be submitted to the General Assembly. The commentators argue that the submittal to the General Assembly has not occurred.

Response: RGGI is not an interstate air pollution control compact or agreement. Participating states do not sign any sort of agreement, so there is no agreement to submit to the General Assembly under Section 4(24) of the APCA. While this final-form rulemaking provides for this Commonwealth’s participation in RGGI, it does not amount to an agreement or compact subject to legislative approval. RGGI is a regional initiative, where participating states develop regulations that are capable of linking with similar regulations in other states. States may withdraw from participation at any time. A State may participate in RGGI once it meets the definition of a “participating state,” meaning the State has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc.

112. Comment: The commentator states that Pennsylvania’s participation in RGGI without Pennsylvania legislative authorization is unlawful.

Response: The Department disagrees with the commentator. The Board has the statutory authority to promulgate and the Department has the authority to implement this final-form rulemaking, as provided by the General Assembly through the APCA.

113. Comment: The commentator states that Pennsylvania’s Air Pollution Control Act does not authorize the regulation of CO₂. No Pennsylvania court has ever held that CO₂ constitutes air pollution or is a GHG under the APCA. The commentator quotes testimony provided at the July 21, 2020 hearing of the House ERE committee concerning House Bill 2025 which stated that CO₂ is not inimical to the public health, safety or welfare or injurious to human, plant or animal life or to property, and does not unreasonably interfere with the comfortable enjoyment of life or property. The testimony also stated that the APCA indicates that it does not allow for the regulation of substances whose sole environmental consequence is that they contribute to global climate change.

Response: The Board has the statutory authority to promulgate this final-form rulemaking, as provided by the General Assembly through the APCA. CO₂ is in fact a regulated “air pollutant.” Specifically, section 5(a)(1) of the APCA provides the Board with authority to regulate CO₂ emissions. CO₂ falls under the definition of “air pollution” in section 3 of the APCA. First, CO₂ is a gas, and falls within the definition of “air contaminant,” under section 3 of the APCA, which is defined as “[s]moke, dust, fume, gas, odor, mist, radioactive substance, vapor, pollen or any combination thereof.” By extension, CO₂ is also “air contamination,” under section 3 of the APCA, which is defined as “[t]he presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution.” The term “air pollution” is defined as “[t]he presence in the outdoor atmosphere of any form of contaminant ... in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property.” Therefore, CO₂ is also considered

to be “air pollution” under the APCA. The EPA, the Penn State University, the USGCRP and the IPCC, have all confirmed that CO₂ emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life.

CO₂ is also a Federally regulated air pollutant under the CAA (42 U.S.C.A. §§ 7401—7671q). See *Massachusetts v. EPA*, 549 U.S. 497 (2007). Moreover, the EPA has issued an Endangerment Finding for CO₂ emissions resulting from fossil fuel-fired EGUs. See 80 FR 64509 (October 23, 2015); *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914 (D.C. Cir. 2021). This is in addition to the 2009 Endangerment Finding issued by the EPA 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). The Endangerment Finding was in response to the remand issued by the U.S. Supreme Court in *Massachusetts v. EPA*, 549 U.S. 497 (2007), where the court found that the CAA allows EPA to regulate GHGs because they qualify as air pollutants. 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 CO₂. *Funk v. Wolf*, 144 A.3d 228, 250 (Pa. Cmwlth. 2016).

114. Comment: The commentator argues that the general rulemaking authority granted to the Board under Section 5(a)(1) of the APCA for the “prevention, control, reduction and abatement of air pollution” is not a broad grant of authority to enter into a multistate agreement such as RGGI. It is also argued that joining RGGI will have minimal impact on the air pollution in the Commonwealth because of leakage. Therefore, the proposal fails to meet the standard of preventing, controlling, reducing and abating air pollution required by the APCA.

Response: The Department is not entering into a multistate agreement. RGGI is not an interstate air pollution control compact or agreement. While this final-form rulemaking provides for this Commonwealth's participation in RGGI, it does not amount to an agreement or compact subject to legislative approval. RGGI is a regional initiative, where participating states develop regulations that are capable of linking with similar regulations in other states. States may withdraw from participation at any time. A State may participate in RGGI once it meets the definition of a “participating state,” meaning the State has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc. This final-form rulemaking satisfies section 5(a)(1) of the APCA as the declining CO₂ Emissions Budget in this final-form rulemaking directly results in CO₂ emission reductions of around 20 million short tons in this Commonwealth as well as emission reductions across the broader PJM regional electric grid. Including investments of the auction proceeds, the Department projects that 97—227 million short tons of CO₂ that would have been emitted in this Commonwealth over the next decade are avoided by this Commonwealth's participation in RGGI.

115. Comment: The commentators argue that Section 6.3(a) of the APCA only allows the EQB to establish fees to cover the costs of administering the air pollution control plan. The projected amount of fees collected through the auction mechanism of the proposed regulation and RGGI far exceeds the costs of administering the program. Since the EQB projects that five percent of the auction proceeds will be used for administrative purposes and one percent will be allocated to RGGI, the remaining proceeds would qualify as a tax. Since the power to tax lies solely with the General Assembly, the revenue raising mechanism of the regulation is illegal.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

116. Comment: The commentator mentions the CCR and ECR allowances and trigger prices and states that an essentially guaranteed revenue stream having only a small portion dedicated to administrative purposes to fund the program and contract with RGGI to run the auction effectively constitutes an unauthorized tax.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. The entirety of the auction proceeds would be used to reduce GHG emissions in furtherance of the purpose of this final-form rulemaking and to invest in projects that assist transitioning energy workers and environmental justice communities.

117. Comment: The commentator states that a private corporation, RGGI, Inc., would determine the amount of the tax – which would fluctuate over time – and do so by using auction methodologies and standards that no Pennsylvania statute or regulation required it to use. The EQB, in this regard, characterizes RGGI, Inc.’s auction process as “consistent with the process described in this proposed rulemaking[,]” which is a tacit acknowledgment that Pennsylvania law would not, in fact, govern the process. 50 Pa. Bull. 6187, 6218 (Nov. 7, 2020) (emphasis added). Because there would be no Pennsylvania statutory or regulatory standard to bind or constrain RGGI, Inc. as it set the amount of the tax that regulated entities were required to pay, the corporation would be engaged in legislating (as opposed to fact-finding or implementing legislation), which would amount to a violation of the “non-delegation doctrine” that arises out of Article II, Section 1 of the Pennsylvania Constitution. See *West Philadelphia Achievement*

Charter Elem. Sch. v. Sch. Dist. of Philadelphia, 132 A.3d 957, 965 (Pa. 2016) (statute that gave School Reform Commission “what amounts to carte blanche powers to suspend” provisions of Public School Code violated non-delegation doctrine because it failed to “impose[] any discernable standards or restraints in relation to the selection of School Code provisions for suspension”). As the Pennsylvania Supreme Court has explained, private entities like RGGI, Inc. “are isolated from the political process, and, as a result, are shielded from political accountability. Because of this, it is perhaps unsurprising that our precedents have long expressed hostility toward delegations of governmental authority to private actors.” *Protz v. Workers’ Comp. Appeal Bd.*, 161 A.3d 827, 837 (Pa. 2017).

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. This final-form rulemaking includes §§ 145.401—145.409 (relating to CO₂ allowance auctions) outlining the procedure for auctioning CO₂ allowances through multistate auctions conducted by RGGI, Inc. 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 CO₂ Budget Trading Programs. Each participating state is also allotted two positions on the Board of Directors of RGGI, Inc. Under this final-form rulemaking, RGGI, Inc. would provide technical and administrative services to support the Department's implementation of this final-form 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 final-form 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 final-form rulemaking. The Department is not violating the non-delegation clause of the Pennsylvania Constitution, as it is not delegating any authority to RGGI, Inc. or any of the participating states.

118. Comment: The commentator raised concerns regarding the Board’s compliance with Section 7(a) of the APCA. (35 P.S. § 4007(a)). This section states, in part, the following: “Public hearings shall be held by the board or the Department... in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” It is argued by the commentator that the virtual public hearings held by the Department, do not satisfy this requirement.

Response: The APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The commentator seems to be interpreting the phrase “in any region of the Commonwealth affected” in Section 7(a) as creating a requirement for “in-person” public hearings. The Department disagrees with this interpretation and contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding 10 well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide. The virtual public hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemakings, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period.

119. Comment: The commentator states that as the Board's and the Department authority to enroll Pennsylvania unilaterally in RGGI under the Air Pollution Control Act, 35 P.S. §§ 4001 et seq., is questionable and fraught with legal uncertainty, proceeding with the proposed rulemaking increases the likelihood of protracted litigation, thus resulting in additional costs to the Commonwealth, its businesses, and its residents.

Response: The Department disagrees with the commentator. The Board has broad rulemaking authority under section 5(a)(1) of the APCA and this final-form rulemaking is being promulgated in accordance with that authority.

120. Comment: The commentator strongly encourages the Board to provide a mechanism or procedure that would act as a safety valve, such as by including in the proposed rulemaking a set of triggering events (e.g., energy price increases or the loss of energy exports above certain threshold levels) that, upon occurrence, would automatically result in a suspension of enforcement, obligate the Board to initiate the necessary rulemaking process to repeal Chapter 145, Subchapter E, and formally withdraw the Commonwealth from RGGI.

Response: The Department will closely monitor this final-form rulemaking after promulgation as a final-form rulemaking in the Pennsylvania Bulletin for its effectiveness and recommend updates to the Board as necessary. 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 CO₂ 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 scheduled to begin in late Summer/early Fall of 2021. The program review in 2021 will evaluate energy trends, performance of the amendments, and other program design elements. Upon implementation of this final-form rulemaking, this Commonwealth would participate in the periodic program reviews to ensure this final-form rulemaking is implemented effectively.

121. Comment: The commentator states that the Department also has the authority to design a GHG emissions reduction program so as to minimize the incentives to move GHG-emitting entities to other states, a phenomenon known as leakage. The Department is charged with developing a “general comprehensive plan for the control and abatement of existing air pollution and air contamination and for the abatement, control and prevention of any new air pollution and air contamination.” Under this broad language, the Department’s authority is not limited to sources that must obtain permits; rather, the EQB is authorized to adopt regulations “applicable to all air contamination sources regardless of whether such source is required to be under permit by this act.” The term “air contamination source” means “any place, facility or equipment, stationary or mobile, at, from *or by reason of which* there is emitted into the outdoor atmosphere any air contaminant.” The phrase “by reason of which” shows that the APCA authorizes the regulation at various places along the supply chain, not just at the location of the emission. The sale of electricity within the state would be the “reason by which” the electricity source is emitting carbon, so the Department has clear authority to regulate such sale within the state as a “source,” such as at the first point of sale in the state.

Response: The Department acknowledges this comment. Sources in this case will be regulated consistent with the provisions of this final-form rulemaking.

122. Comment: The APCA further authorizes the Department to contract with third-party vendors in order to administer a trading program, pursuant to broad enabling language. Accordingly, the Department can link with and participate in RGGI’s emissions trading program and utilize the services of RGGI, Inc. to administer allowance auctions.

Response: The Department acknowledges this comment and agrees that it has the authority to implement this final-form rulemaking and contract with third-party entities, including RGGI, Inc.

123. Comment: The APCA broadly authorizes the Department to collect fees to “to support the air pollution control program authorized by this act,” in addition to other specifically enumerated fees. Fees collected by the Department are to be deposited in the state treasury, in a fund called the Clean Air Fund, in which the agency may establish separate accounts. It further specifies that the money in the Clean Air Fund is to be used to eliminate air pollution. Notably, the APCA does not limit the amounts to be collected or deposited into the Clean Air Fund. The broad statutory purpose for the Clean Air Fund, combined with the Department expansive authority to collect fees to support its air control program, indicate that the agency has ample authority to collect auction proceeds as part of a cap-and-trade program, and to use such proceeds for the further elimination of air pollution.

Response: The Department acknowledges this comment and agrees that it has authority to collect fees resulting from the purchase of CO₂ allowances through auctions and to use the proceeds to further eliminate air pollution.

124. Comment: The commentator states that the Department has the authority to “formulate” interstate air pollution agreements “for the submission thereof to the General Assembly.” Therefore, while APCA envisions that the Department will negotiate interstate air pollution control agreements, it does not authorize the agency to actually execute such agreements, without first submitting them to the General Assembly for approval. The statute signals that neither the Governor nor the Department can unilaterally bind the Commonwealth to implement an agreement like RGGI without the General Assembly’s consent.

Response: The Department is not entering into a multistate agreement. RGGI is not an interstate air pollution control compact or agreement. While this final-form rulemaking provides for this Commonwealth’s participation in RGGI, it does not amount to an agreement or compact subject to legislative approval. RGGI is a regional initiative, where participating states develop regulations that are capable of linking with similar regulations in other states. States may withdraw from participation at any time. A State may participate in RGGI once it meets the definition of a “participating state,” meaning the State has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc.

125. Comment: Even apart from the tax issue, the EQB lacks the statutory authority to implement RGGI in Pennsylvania. Regardless of whether APCA authorizes the regulation of CO₂ emissions generally, the statute does not authorize the adoption of regulations to implement RGGI. While the APCA gives the Department the authority to impose various requirements regarding air emissions – including recordkeeping, reporting, monitoring, and sampling requirements – and gives the EQB the authority to issue certain categories of regulations regarding air emissions, the statute is devoid of any clear authorization for any agency to adopt regulations that implement the detailed carbon-emission program, including the CO₂ allowances regime, that forms the foundation of RGGI. The result is that, if the EQB were to adopt the Proposed Rulemaking, its action would be *ultra vires* and void. Indeed, unlike Pennsylvania, every state that currently participates in RGGI has express statutory authority to do so or, like New York, has enacted an express statutory mandate to regulate CO₂ emissions.

Response: This final-form rulemaking is consistent with the broad purpose of the APCA and there is nothing in the APCA that says the Board cannot regulate CO₂ through a regional cap and trade program. In fact, the Board has promulgated several cap and trade program regulations. Further, although most of the participating states were directed to participate in RGGI through specific legislation, that does not necessarily mean that their environmental agencies lacked regulatory authority. It is more of an indication of the willingness to address climate change in those states.

126. Comment: Under Section 6.3(a), the EQB may only establish “fees sufficient to cover the indirect and direct costs of administering” APCA and the CAA, and therefore may not adopt regulations, like the Proposed Rulemaking, that would require entities to pay “fees” (by purchasing emission allowances) that would generate revenues that far exceeded those costs.

Response: Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

127. Comment: APCA establishes procedures that the EQB must follow in order to adopt a rulemaking. In this case, the EQB has failed to follow the procedures under Section 7(a) of APCA. In its most natural reading, therefore, this provision contemplates that, in order to adopt a rulemaking regarding air pollution, the EQB must hold hearings and the hearings must be physical, in-person meetings – given that they must take place “in” the “regions” or multi-region “areas” of the Commonwealth that the rulemaking would impact. But here, in connection with the Proposed Rulemaking, the EQB has not taken this approach. Instead, it held five WebEx sessions, each punctuated by a break, or, as the EQB describes it, “ten virtual public hearings for the purpose of accepting comments on this proposed rulemaking.”

Response: The APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The commentator seems to be interpreting the phrase “in any region of the Commonwealth affected” in Section 7(a) as creating a requirement for “in-person” public hearings. The Department disagrees with this interpretation and contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding 10 well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide. The virtual public hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing.

Additionally, as with all the Department’s rulemakings, members of the public also had the opportunity to provide written comments by regular mail, the Department’s eComment system, or email during the comment period.

128. Comment: The EQB lacks the authority to adopt the Proposed Rulemaking. Moreover, in connection with the Proposed Rulemaking, the EQB has failed to follow certain administrative procedures that it is required to follow under Pennsylvania law. And, from a public policy perspective, adopting the Proposed Rulemaking would not materially benefit the natural environment and yet would have devastating, wide-ranging economic and other impacts on the Commonwealth’s citizens.

Response: The Department acknowledges this comment and disagrees with the commentator. The Board has broad rulemaking authority under section 5(a)(1) of the APCA and this final-form rulemaking is being promulgated in accordance with that authority. The Board has followed all procedures required under the APCA and the Regulatory Review Act, as well as other relevant laws. As shown by the Department’s modeling, this final-form rulemaking will have a positive impact on this Commonwealth, including the economy and power prices in the future will be lower than if Pennsylvania was not participating in RGGI.

129. Comment: The cornerstone of RGGI is a revenue-raising auction program that would qualify as a “tax” under Pennsylvania law. Only the General Assembly, not the Board, has the power to impose such a tax. Under prevailing Pennsylvania case law, something qualifies as a “tax” if it is a “revenue-producing measure.” Regulatory “fees,” by contrast, are merely “intended to cover the cost of administering a regulatory scheme.” And therefore, as Pennsylvania’s courts have explained, whether an income-producing mechanism imposes a “tax” or a “fee” turns on the volume of income that the mechanism generates and the proportion of the income that goes to cover the program’s administrative costs. Under this standard, RGGI’s quarterly auction mechanism – which is the heart of the program – would qualify as a “tax,” not a “fee,” because the proceeds of the auctions are grossly disproportionate to the costs of administering RGGI. Through 2018, in fact, the RGGI states had directed less than 6 percent of the proceeds toward the program’s administration.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

130. Comment: Under Section 6.3(a) of APCA, the Board may *only* establish “fees sufficient to cover the indirect and direct costs of administering” APCA and the federal Clean Air Act (“CAA”). The Board therefore may *not* adopt regulations that would require regulated entities to

pay emission “fees” (by purchasing emission allowances) that would generate revenues that were far in excess of the “indirect and direct costs of administering” APCA and the CAA. And yet the Board would need to take *precisely* that approach in order to implement RGGI.

Response: Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

131. Comment: The commentator states that the Preamble cites Section 5(a)(1) of the Pennsylvania Air Pollution Control Act (APCA – 35 P.S. § 4005(a)(1)), which authorizes the adoption of rules to prevent, control, reduce and abate air pollution, as the legal authority to promulgate the proposed RGGI regulations. The Department states CO₂ constitutes “air pollution” under Section 3 of the statute. This raises the question as to whether the Administration has the authority to sign a memorandum of understanding with existing RGGI states to establish an interstate compact or agreement to implement the regulations without General Assembly authorization, even assuming that Section 5(a)(1) provides adequate authority to promulgate them. It would be helpful if the Department addresses these contentions in the Preamble or the RAF.

Response: The Administration is not signing a memorandum of understanding to participate in RGGI nor establishing an interstate compact or agreement. This final-form rulemaking will be implemented as authorized under the APCA. The Department has addressed this in both the Preamble and the RAF for this final-form rulemaking.

132. Comment: The commentator states that the authority to promulgate air pollution regulations under the APCA, however, is not a grant of authority by the General Assembly to participate in interstate programs for the prevention and reduction of air pollution. The Pennsylvania Supreme Court has made clear that grants of authority must demonstrate the legislature’s basic policy choice and standards to restrain the exercise of the delegated authority. Neither the Governor nor the Department has been granted the power by the General Assembly to promulgate the proposed Chapter 145 regulations or participate in a regional CO₂ emissions budget and allowance trading program. Some legislative action by the General Assembly will be necessary to effectuate the proposed CO₂ Budget Trading Program.

Response: The Department acknowledges this comment and disagrees with the commentator. The Board has broad rulemaking authority under section 5(a)(1) of the APCA and this final-form rulemaking is being promulgated in accordance with that authority.

133. Comment: The commentator states the Department is bound to the RGGI Model Rule and that the IRRC has limited ability to recommend alterations to the proposed rule.

Response: The Department is not bound to the RGGI Model Rule. The Model Rule is a framework for each state to use in developing its independent CO₂ Budget Trading Program

regulation. While this final-form 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. As explained in detail in the Preamble for this final-form rulemaking, there are six main areas in which this final-form rulemaking differs from the Model Rule. This includes the waste coal set-aside, the CHP set-aside, the strategic use set-aside, the limited exemption, the Annual Air Quality Impacts Assessment, and the inclusion of the auction procedure.

134. Comment: The commentator states that it is reasonable to conclude that APCA does not even authorize the regulation of CO₂ emissions generally. Section 5(a)(1) of APCA, in this regard, provides that when the Board adopts the types of regulations (*e.g.*, regulations that set maximum allowable emission rates) it must do so “for the prevention, control, reduction and abatement of *air pollution*[.]” No Pennsylvania court has held that the presence of ambient CO₂ or other greenhouse gases (“GHGs”) in the outdoor atmosphere constitutes “air pollution” within the meaning of the statute. And, in fact, ambient CO₂ does *not* meet the statute’s definition of “air pollution” because, unlike conventional pollutants (for example, lead, mercury, particulates, nitrogen oxides, and sulfur oxides), the inhalation of carbon dioxide or direct exposure to it at typical atmospheric concentrations is not “inimical to the public health, safety or welfare” or “injurious to human, plant or animal life or to property” and does not “unreasonably interfere[] with the comfortable enjoyment of life or property.” By its plain language, in other words, APCA signals that it does not allow for the regulation of substances whose sole environmental consequence is that they contribute to global climate change.

Response: The Board has the statutory authority to promulgate this final-form rulemaking, as provided by the General Assembly through the APCA. CO₂ is in fact a regulated “air pollutant.” Specifically, section 5(a)(1) of the APCA provides the Board with authority to regulate CO₂ emissions. CO₂ falls under the definition of “air pollution” in section 3 of the APCA. First, CO₂ is a gas, and falls within the definition of “air contaminant,” under section 3 of the APCA, which is defined as “[s]moke, dust, fume, gas, odor, mist, radioactive substance, vapor, pollen or any combination thereof.” By extension, CO₂ is also “air contamination,” under section 3 of the APCA, which is defined as “[t]he presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution.” The term “air pollution” is defined as “[t]he presence in the outdoor atmosphere of any form of contaminant ... in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property.” Therefore, CO₂ is also considered to be “air pollution” under the APCA. The EPA, the Penn State University, the USGCRP and the IPCC, have all confirmed that CO₂ emissions cause harmful air pollution that is inimical to the public health, safety and welfare, as well as human, plant and animal life.

CO₂ is also a Federally regulated air pollutant under the CAA (42 U.S.C.A. §§ 7401—7671q). See *Massachusetts v. EPA*, 549 U.S. 497 (2007). Moreover, the EPA has issued an Endangerment Finding for CO₂ emissions resulting from fossil fuel-fired EGUs. See 80 FR 64509 (October 23, 2015); *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914 (D.C. Cir. 2021). This is in addition to the 2009 Endangerment Finding issued by the EPA 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). The Endangerment Finding was in response to the remand issued by the U.S. Supreme Court in *Massachusetts v. EPA*, 549 U.S. 497 (2007), where the court found that the CAA allows EPA to regulate GHGs because they qualify as air pollutants. 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 CO₂. *Funk v. Wolf*, 144 A.3d 228, 250 (Pa. Cmwlth. 2016).

135. Comment: The commentator states that RGGI is distinguishable from cap-and-trade programs like the acid rain SO₂ emissions program, premised on Section 401 of the CAA, and the Cross-State Air Pollution Rule (CSAPR), premised on Sections 108 and 109 of the CAA. Unlike RGGI, each of these programs is rooted in the CAA and allows the owners of the regulated units to install controls on a specific project, manage multiple units at the fleet level, or trade or “average” emission allowances with other affected units. The allowances are budgeted at the particular emissions levels to be achieved and then allocated to the owners of the affected units, at no cost to them. The overall intent of the programs is to minimize emissions-control costs while still achieving the specified environmental benefit. This approach stands in contrast to RGGI, which requires owners of power plants to choose between paying a unit-specific tax for each ton of CO₂ that the unit emits or shuttering the unit. Under the RGGI framework, these options are the only ones that are available because the allowances are not allocated and instead need to be purchased. Importantly, there are no control options other than fuel switching, reduced utilization, or unit retirement. Fleetwide management is not an option. The notion that RGGI is a “cap and trade” program is therefore misguided.

Response: RGGI, like the other cap-and-trade programs identified above, are premised on Section 5(a)(1) of the APCA. The fact that the acid rain program and CSAPR are also CAA programs does not mean that there was no stand-alone state authority to develop those programs. Just like the SO₂ and CSAPR programs, sources under RGGI can fuel switch, reduce utilization, or use a combination of other techniques to come into compliance with the rule. Sources do not need to shut down as a compliance option. RGGI is a “cap and trade” program that sets a regulatory limit on CO₂ emissions from fossil fuel-fired EGUs and permits trading of CO₂ 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 CO₂ emissions from fossil fuel-fired EGUs. The first prong is a declining CO₂ emissions budget and the second prong involves investment of the proceeds resulting from the auction of CO₂ allowances to further reduce CO₂ emissions.

136. Comment: The commentator states that RGGI is constitutionally mandated under Article I, Section 27 of the Pennsylvania Constitution. The Constitution places a trustee responsibility on the state to conserve and maintain Pennsylvania’s natural resources for the benefit of all people.

Consistent with this mandate, it is incumbent upon the state at all levels of government to ensure clean air and a clean atmosphere. The proposed RGGI regulation enhances the state's ability to fulfill its duty as trustee and should therefore be approved.

Response: The Department acknowledges this comment and agrees that this rulemaking is consistent with the Commonwealth's duties as a trustee of the environment, set forth in Article I, Section 27 of the Pennsylvania Constitution and the PA Supreme Court Ruling on the Environmental Rights Amendment in *Pennsylvania Environmental Defense Foundation v. Commonwealth of Pennsylvania*, 161 A.3d 911 (Pa. 2017) during the development of this rulemaking. This rulemaking was developed under the authority of Sections 5(a)(1) and 6(a)(3) of the APCA. 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. This rulemaking would help the Department protect the air resources of this Commonwealth as well as public health and welfare by reducing harmful GHG emissions from the electricity sector. The Department recognizes Pennsylvanians' rights and the Commonwealth's obligations under the Pennsylvania Constitution and must meet those obligations in every action the agency takes. Because this rulemaking reduces GHG emissions, resulting in considerable benefits to public health among others, the Department is satisfied that its Article I, Section 27 obligations have been met with the development of this rulemaking.

137. Comment: The commentator states that the proposed RGGI Regulation as well as the further action that would be implemented by the proposed regulation that is the subject of the Climate Protection Petition are constitutionally mandated and statutorily authorized.

Response: The Department acknowledges this comment and agrees that this final-form rulemaking is authorized under the APCA.

138. Comment: The commentator states that the RGGI regulation and the Commonwealth's participation in the RGGI program are specifically authorized by the law and consistent with the Commonwealth and federal Constitutions. In fact, action to reduce GHG Pollution is mandated by Article I, § 27 of the Pennsylvania Constitution. The promulgation of the proposed regulation is not merely a policy preference of the Wolf Administration. Rather, it represents the Commonwealth's fulfillment of its constitutional duty as a trustee under Article I, § 27 of the Pennsylvania Constitution to address climate disruption caused by GHG emissions. Robert B. McKinstry, Jr. & John C. Dernbach, *Applying the Pennsylvania Environmental Rights Amendment Meaningfully to Climate Disruption*, 9 Mich. J. Env't'l & Admin. L. 50 (2018) ("McKinstry-Dernbach"). At minimum, the constitutional duty to conserve a natural climate "requires Pennsylvania to do as much as it can, using existing authority." Because the Pennsylvania Air Pollution Control Act provides ample legal authority, Pennsylvania can and must use that authority to promulgate the proposed RGGI regulation to achieve its projected GHG emissions reductions from fossil fuel-fired power plants.

Response: The Department agrees that this final-form rulemaking is authorized under the APCA and is consistent with both the Pennsylvania and U.S. Constitutions. Specifically, the

Department agrees it has fulfilled its duties as a trustee of the environment, set forth in Article I, Section 27 of the Pennsylvania Constitution and the PA Supreme Court Ruling on the Environmental Rights Amendment in *Pennsylvania Environmental Defense Foundation v. Commonwealth of Pennsylvania*, 161 A.3d 911 (Pa. 2017) during the development of this rulemaking. This rulemaking was developed under the authority of Sections 5(a)(1) and 6(a)(3) of the APCA. 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. This rulemaking would help the Department protect the air resources of this Commonwealth as well as public health and welfare by reducing harmful GHG emissions from the electricity sector. The Department recognizes Pennsylvanians' rights and the Commonwealth's obligations under the Pennsylvania Constitution and must meet those obligations in every action the agency takes. Because this rulemaking reduces GHG emissions, resulting in considerable benefits to public health among others, the Department is satisfied that its Article I, Section 27 obligations have been met with development of this rulemaking.

139. Comment: The commentator states that the proposed RGGI Regulation and its implementation through participation in the cooperative interstate RGGI program is expressly authorized by the APCA. Moreover, the Pennsylvania Uniform Interstate Air Pollution Agreements Act authorizes participation in air pollution control programs on a regional basis, encouraging the Department to coordinate and cooperate with "State and local authorities of other states affected by air sheds or regional air masses lying partly within another state or states, or moving between or among this State and another state or states." 35 Pa. Cons. Stat. §§ 4101-4106. This authorizes the provision for interstate trading in the RGGI Program as provided by the proposed RGGI regulation. The Commonwealth currently participates in the interstate NOx trading program pursuant to this same authority. 25 Pa. Code §§ 123.101-123.121.

Response: The Department agrees that this final-form rulemaking is authorized under the APCA.

140. Comment: The commentator states that the participation in RGGI does not violate the Compacts Clause of the United States Constitution. U.S. Const. Art. I, § 10, cl. 1. That Clause limits the ability of states to enter into binding agreements with one another or foreign governments. The Compacts Clause requires that states obtain the consent of Congress to "enter into any Agreement or Compact with another State, or with a foreign Power." U.S. Const. Art. I, § 10, cl. 3. States can enter into non-binding cooperative arrangements with each other, as eleven states and a Canadian province have already done in both the existing Regional Greenhouse Gas Initiative and the California-Quebec program, without violating the clause. Furthermore, Pennsylvania would have independent authority under state law to implement this CO₂ Budget Trading Program even if RGGI did not exist, and the Commonwealth maintains authority and discretion under §145.401 to conduct Pennsylvania-run auctions if the Department determines this would exceed the benefits of participation in the multistate auction process.

Response: The Department agrees that this final-form rulemaking does not violate the Compacts Clause of the United States Constitution.

141. Comment: The commentator states that the APCA grants authority to promulgate the proposed RGGI regulation under two independent lines of reasoning. First, it is authorized by virtue of the state statute’s authorization to implement the provisions of the federal Clean Air Act, under which GHG emissions from fossil-fired power plants are pollutants that can be and are regulated. Second, the Act also provides independent authority to regulate GHG emissions.

Response: The Department agrees that this final-form rulemaking is authorized under the APCA.

142. Comment: The commentator states that the Department must regulate greenhouse gases, at least to the extent required under the Federal Clean Air Act. Pennsylvania currently has a mandate to regulate GHG emissions from power plants under the Federal Clean Air Act and that mandate is very likely to be strengthened in the near future. The proposed RGGI regulation would be consistent with that mandate. It could, in fact, be incorporated into the State Implementation Plan (“SIP”) required by the ACE Rule to be filed by July 8, 2022.

Response: The Department acknowledges this comment. However, on January 19, 2021, the D.C. Circuit Court of Appeals vacated the "Affordable Clean Energy Rule or ACE rule" and remanded it back to the EPA. See *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914, 977 (D.C. Cir. 2021).

143. Comment: The commentator states that there is no statute that provides the executive Department or agencies authority to adopt regulations to conform with RGGI, even if the executive Department or agencies sign the memorandum of understanding to participate in RGGI. While it is highly debatable that the executive Department or agencies even have the power to sign the memorandum of understanding, the provisions of the regulations necessary to be able to participate in the program are not expressed powers in the Air Pollution Control Act or the Uniform Interstate Air Pollution Agreements Act.

Response: The Department is not signing a memorandum of understanding to participate in RGGI nor establishing an interstate compact or agreement. This final-form rulemaking will be implemented as authorized under the APCA.

144. Comment: The commentator states that the Board’s duty to adopt regulations limiting GHG emissions goes beyond the minimum that may be required under the Clean Air Act, even without considering the Commonwealth’s duty as a trustee under Article I, § 27 of the Pennsylvania Constitution. The Department, accordingly, has authority under existing law to regulate GHGs through adoption of regulations by Board, even in the absence of regulations under the federal Clean Air Act. The Pennsylvania Climate Change Act requires not only a report on greenhouse gas impacts every three years but also requires the Department to develop a climate change action plan for submission to the Governor identifying “cost-effective strategies for reducing and offsetting GHG emissions.” 71 Pa. Cons. Stat. §§ 1361.3, 1361.7 (2018). This provision would not make sense unless the APCA authorized the adoption of regulations that controlled GHGs so as to provide for their reduction or offsetting. The fact that the plan is submitted to the administrative branch rather than the legislative branch suggests that the

General Assembly contemplated that the administrative branch could implement those strategies through rule-making and other actions already authorized by the General Assembly.

Response: The Department acknowledges this comment and agrees that it has the authority to regulate GHG emissions.

145. Comment: The commentator states that the fact that the RGGI regulation is more stringent than the ACE rule is immaterial. Both the APCA and Article I, § 27 authorize the Department to adopt regulations more stringent than federal regulations and require more stringent regulations where necessary to protect health and conserve the Commonwealth’s public natural resources.

Response: The Department acknowledges this comment and agrees that it has the authority under the APCA to adopt regulations more stringent than Federal regulations.

146. Comment: The commentator states that the argument that the RGGI Rule requires authorization beyond that already provided because the auction is a tax is a red herring. There is no right to pollute. By causing GHG pollution by creating carbon dioxide through combustion of fossil fuels, a polluter is appropriating a public natural resource, whose ownership is committed to the Commonwealth, including future generations. Requiring that this right be auctioned with an appropriate reserve price means that the polluter must pay for the resources, just as those who acquire other public natural resources must pay. Thus, private parties must acquire timber or mineral resources from public lands through auctions with a reserve price and hunters and fishers must pay the Commonwealth for a license to take those public resources. The failure of the Commonwealth to charge for GHG polluters’ use of a public resource (i.e., the capacity of the atmosphere to absorb GHGs without causing climate disruption) is a failure of the Commonwealth’s duty as a trustee under Article I, § 27 of the Pennsylvania Constitution. The issue of whether a cap-and-trade program distributing allowances by way of an auction with a reserve price was a tax was specifically considered and rejected by the California Court of Appeals. The Court’s reasoning in *Cal. Chamber of Commerce v. State Air Res. Bd.*, 216 Cal. Rptr. 3d 694, 700 (Cal. Ct. App. 2017) is equally applicable to the proposed RGGI regulation.

Response: The Department acknowledges this comment and agrees that this final-form rulemaking does not establish a tax.

147. Comment: The commentator states that while the Commonwealth Court accepted the Department’s self-serving assertion of authority to regulate CO₂ as a GHG in *Funk v. Wolf*, the court’s rationale was based upon the Department’s authority to implement the federal Clean Air Act and its “sweeping definition of ‘air pollutant’.” The EQB has emphasized that this proposed rulemaking is being promulgated “under the authority of the APCA, not the CAA.” Accordingly, *Funk v. Wolf* does not support the EQB’s reliance upon the APCA as authority for this proposed rulemaking.

Response: The Department disagrees with the commentator’s characterization of *Funk v. Wolf*. The decision is not as narrow as the commentator suggests. The court specifically identified the APCA as part of the current legislative scheme to address climate change.

148. Comment: The commentator states that neither the APCA nor Pennsylvania’s Uniform Interstate Air Pollution Agreements Act authorizes Pennsylvania to participate in RGGI through this rulemaking. Section 4004(24) of the APCA merely authorizes the Department to “formulate” interstate air pollution control agreements for consideration by the General Assembly.

Response: This final-form rulemaking is authorized under sections 5(a)(1) and 6.3(a) of the APCA. RGGI is not an interstate air pollution control compact or agreement. Participating states do not sign any sort of agreement, so there is no agreement to submit to the General Assembly under Section 4(24) of the APCA. While this final-form rulemaking provides for this Commonwealth’s participation in RGGI, it does not amount to an agreement or compact subject to legislative approval. RGGI is a regional initiative, where participating states develop regulations that are capable of linking with similar regulations in other states. States may withdraw from participation at any time. A State may participate in RGGI once it meets the definition of a “participating state,” meaning the State has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc.

149. Comment: The commentator states that the proposed mandatory CO₂ emission allowance fees constitute taxes that Pennsylvania’s General Assembly has not authorized. Under Pennsylvania law only the General Assembly has the authority to impose taxes, and the difference under Pennsylvania law between “taxes” and “fees” is clear. The proceeds from the emissions allowance auctions are expected to generate income greatly in excess of the administrative costs of the program for various programs and activities not authorized by the APCA.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

150. Comment: The commentator states that the investment of the auction proceeds is the primary purpose of this proposed rulemaking and not a significant or meaningful reduction of CO₂ emissions in this Commonwealth or regionally, nationally or globally is shown by the relatively small, estimated reductions in CO₂ emissions in Pennsylvania, the RGGI states, nationally and globally. That the proposed regulations are primarily intended to raise revenue is shown by the fact that there is no discussion in the Preamble or RAF regarding how or whether reducing CO₂ emissions through RGGI will improve or even affect Pennsylvania climate and precipitation.

Response: The Department acknowledges this comment, but strongly disagrees with this assertion that the primary purpose of this rulemaking is investment of revenue. This Commonwealth's participation in RGGI, and the investment of auction revenues into programs that will curb carbon emissions, will achieve a reduction of 97—227 million short tons of CO₂ that would have been emitted by sources in this Commonwealth over the next decade. Moreover, climate change is a global phenomenon, and carbon emissions and their environmental impacts cross state and national boundaries. It is not possible to quantify the temperature or precipitation impacts avoided by a single subnational government's participation in a cap and trade mechanism to limit emissions. Participation in RGGI allows this Commonwealth to contribute to an international effort to draw down carbon emissions using a market-driven approach that supports businesses and communities in the transition to a lower-carbon economy. The Department recognizes that Pennsylvania's participation in RGGI is only part of what will need to be a global effort to mitigate climate change and avoid the worst of its impacts.

151. Comment: The commentator claims that the Department must obtain approval from the General Assembly to participate in RGGI. They state that RGGI functions as an interstate agreement or compact and the Pennsylvania Constitution does not provide the Governor or any Executive agency the authority to unilaterally enter into interstate compacts or agreements – only the General Assembly has that power. The General Assembly can enact legislation authorizing the Executive Department to enter into such agreements, but has not done so in the case of RGGI. They also state that since RGGI establishes a regional CO₂ Budget Trading Program among its member states, it clearly falls within the scope of Section 4004(24) of the APCA and Pennsylvania's participation in RGGI clearly requires approval of the General Assembly.

Response: States do not execute a multistate agreement or compact to participate in RGGI, and States may withdraw from participation at any time. There is also no central RGGI authority as States jointly oversee the program. The key piece to become a “participating state,” as the term is defined under § 145.302 (relating to definitions), is the establishment of a corresponding regulation as part of the CO₂ Budget Trading Program. As defined under § 145.302, the “CO₂ Budget Trading Program” is a multi-state CO₂ air pollution control and emissions reduction program established under this final-form rulemaking and corresponding regulations in other participating states as a means of reducing emissions of CO₂ from CO₂ budget sources. For this Commonwealth to participate in RGGI, the Board is promulgating this final-form rulemaking which is consistent with the Model Rule.

152. Comment: The commentator states that the proposed rule fails the most important requirement for promulgating regulations in Pennsylvania: “First and foremost” the promulgating agency must have “the statutory authority to promulgate the regulation,” and the regulation must conform “to the intention of the General Assembly” based on “the statute upon which the regulation is based.” Here, the EQB is proposing a rule that contravenes clear statutory language and the intent of the General Assembly. This is further supported not only by comments submitted by individual legislators, including the Chair of the Environmental Resources and Energy Committee of the House of Representatives for the 2019-20 Legislative Session, but also reflected by both chambers of the General Assembly passing House Bill 2025 in the 2019-20 legislative session, which declares that the Department does not have the authority to join RGGI unless authorized by the General Assembly.

Response: The Board has the authority to promulgate this final-form rulemaking under section 5(a)(1) of the APCA. Additionally, this final-form rulemaking is consistent with the purpose of the APCA and the intent of the General Assembly. That is, to, among other things, protect the air resources of the Commonwealth to the degree necessary for the protection of public health, safety, and well-being of its citizens. 35 P.S. § 4004(a)(i). The General Assembly provided the Board with broad authority to regulate sources of air pollution under the APCA. This final-form rulemaking directly falls within that statutory grant of authority as CO₂ emissions cause harmful air pollution. The APCA does not limit the Board in how it may regulate a source of pollution. This is shown by the Board's history of promulgating different types of regulations, including command and control and cap and trade regulations under the broad authority of section 5(a)(1) of the APCA. Moreover, several members of the General Assembly, including minority members of the ERE committees, provided supportive comments, specifically noting that the Board has the authority under the APCA to promulgate this final-form rulemaking and that it is in the public interest.

If House Bill 2025 had not been vetoed by the Governor, it would have taken away the Board's existing statutory authority to regulate CO₂ emissions. The bill went beyond preventing this Commonwealth from participating in RGGI to prohibit the Board from promulgating any regulation to address CO₂ emissions unless and until the General Assembly passed future authorizing legislation. This would have been extremely detrimental to the Department's efforts to address GHG emissions and climate change impacts. However, the General Assembly provided the Board with the authority to promulgate this final-form rulemaking through the expansive language in the APCA.

153. Comment: The commentator states that the Uniform Interstate Air Pollution Agreements Act ("UIAPAA") does not authorize the Department to enter into a mandatory CO₂ Budget Trading Program such as RGGI. The administrative agreements allowed under UIAPAA may provide for, among other things, coordinated administration of air pollution control programs, consultation on technical issues, securing of contract services, and development of recommendations concerning air quality standards. The proposed rule exceeds the scope of administrative agreements authorized under the UIAPAA in that it would impose mandatory CO₂ budget limits and require participation in the regional CO₂ allowance trading program.

Response: The Department has not referenced the Uniform Interstate Air Pollution Agreements Act as providing authority for this final-form rulemaking. This final-form rulemaking is authorized under the APCA. The Department is not signing an agreement to participate in RGGI. A state may participate in RGGI once it meets the definition of a "participating state," meaning the state has promulgated a regulation consistent with the RGGI Model Rule and has executed a service contract with RGGI, Inc.

154. Comment: The commentator states that contrary to the Board's assertion that it has authority under APCA § 5(a)(1) to promulgate the proposed rule, there is no statutory authority for this rulemaking. While this particular statute authorizes the EQB to promulgate rules setting allowable emission rates, regulating combustion of certain fuels and specifying pollution control equipment, it does not provide clear authorization for adopting detailed regulations for a CO₂ cap

and trade system. Furthermore, while APCA § 5(a)(1) may have been used to authorize rules for other air pollutant cap and trade programs, those programs were established under the federal Clean Air Act and the rules only implemented the federally mandated programs. By contrast, the proposed rule would unilaterally implement the RGGI cap and trade program, which has no federal counterpart, and would impose a host of detailed requirements and substantial costs on regulated sources, well beyond the scope set forth in APCA § 5(a)(1).

Response: This final-form rulemaking is consistent with the broad purpose of the APCA and there is nothing in the APCA that says the Board cannot regulate CO₂ through a regional cap and trade program. The APCA does not limit the Board in how it may regulate a source of pollution. This is shown by the Board's history of promulgating different types of regulations, including command and control and cap and trade regulations under the broad authority of section 5(a)(1) of the APCA. Section 5(a)(1) of the APCA does not state that the Board is limited to only promulgating cap and trade programs that were established under the CAA. Instead, Section 5(a)(1) provides the Board with the power and duty to "adopt rules and regulations, for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth or to such parts or regions or subregions thereof specifically designated in such regulation which shall be applicable to all air contamination sources regardless of whether such source is required to be under permit by this act." 35 P.S. § 4005(a)(1).

155. Comment: The commentator states that under Pennsylvania law, a tax is a revenue producing measure, whereas a regulatory fee is a charge intended to cover the cost of a regulatory scheme. Under the Pennsylvania Constitution, the power to impose a tax is vested only in the General Assembly. By this standard, the RGGI allowance program is clearly a tax. As stated in the Board's Regulatory Analysis Form ("RAF"), CO₂ allowance auction proceeds are projected to be over \$330 million in the first year and over \$2.3 billion through 2030. Of this, only 6 percent is directed toward programmatic costs related to the CO₂ budget trading program. Given the vast sums that will be generated, with only a small portion used for program administration, the costs for purchasing allowances is clearly a tax, which can only be imposed by the General Assembly.

Response: The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for "the elimination of air pollution." Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the "air pollution control program" in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

156. Comment: The commentator states that to the extent the costs of CO₂ allowances are fees, and not a tax, the Department lacks authority under the APCA to assess such fees. Of the categories of funds under section 9.2(a) of the APCA, the auction proceeds most closely resemble fees. As set forth in the proposed rule, the CO₂ allowance auction proceeds would not

be subject to any of the limitation in section 6.3 of the APCA. Accordingly, the Department would be exceeding its authority in collecting such fees.

Response: Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. While the auction proceeds may appear to be significant, the fee amounts are necessary to further achieve through investments the GHG emission reductions needed to address climate change and protect public health and welfare.

157. Comment: The commentator states that the proposed regulations arguably violate the Compact Clause and the Dormant Commerce Clause of the U.S. Constitution. Interstate agreements that tend to enhance state power at the expense of federal supremacy by affecting interstate commerce violate the Compact Clause. *U.S. Steel Corp. v. Multistate Tax Comm'n*, 434 U.S. 452, 470 (1978). The RGGI program provides the RGGI states more authority to control CO₂ emissions than EPA, which does not regulate CO₂ emissions under the federal Clean Air Act. Likewise, under the Dormant Commerce Clause, state law may not place an undue burden on interstate commerce. By imposing significant additional costs on Pennsylvania power generators, the proposed RGGI regulations would treat in-state and out-of-state fossil-fuel-fired power generators differently. The very significant financial burden imposed on Pennsylvania generators is excessive in relation to the benefits claimed from controlling emissions, as explained elsewhere in these comments. That result violates the Dormant Commerce Clause.

Response: The Department strongly disagrees with the commentator. This final-form rulemaking does not violate the Compact Clause or the Dormant Commerce Clause of the U.S. Constitution. First, the Department is not executing a multistate compact. Second, the Department is regulating CO₂ emissions to effectuate a legitimate local public purpose of addressing the public health and environmental impacts of climate change, and any effects on interstate commerce as a result of this final-form rulemaking are only incidental.

158. Comment: The commentator states that the Department modeled an allowance revenue investment scenario with 31 percent of annual proceeds used for energy efficiency, 32 percent for renewable energy and 31 percent for greenhouse gas abatement. Presumably, proceeds from allowance auctions initially would be placed in the Department’s Clean Air Fund. However, Section 9.2(a) of the APCA (35 P.S. § 4009.2(a)) limits disbursements from the Fund only “for use in the elimination of air pollution.” Distributing revenue from the Fund for the wide range of energy efficiency and renewable energy projects discussed in the Preamble (e.g., upgrading appliances and weatherizing buildings) is well beyond the Department’s current authority under the APCA.

Response: The Department disagrees that such uses are beyond its current authority under the APCA. Investing in renewable energy and energy efficiency projects will directly reduce CO₂ emissions in this Commonwealth by reducing the demand for fossil fuel derived energy.

159. Comment: The commentator states that an endangerment finding by the Department does not mandate this action, it simply acts as the cloak under which the Department chooses to proceed with this action. Other cap and trade programs were specifically mandated under the Clean Air Act, in particular Acid Rain, or to meet the requirements of § 108 and § 109 of the Clean Air Act which relate to the National Ambient Air Quality Standards (NAAQS).

Response: The Department is not issuing an endangerment finding. In 2009, 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). The EPA's 2009 endangerment finding particularly concerned GHG emissions released from motor vehicles. However, in 2015, the EPA issued an endangerment finding for GHG emissions released from new EGUs through the promulgation of its regulation concerning "Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units." See 80 FR 64509 (October 23, 2015). On January 19, 2021, the D.C. Circuit Court of Appeals affirmed that the endangerment finding issued for new EGUs provided a sufficient basis for the EPA's regulation controlling GHG emissions from existing EGUs, commonly known as the "Affordable Clean Energy Rule or ACE rule" in its decision vacating the rule and remanding it back to the EPA. See *Am. Lung Ass'n v. Env't Prot. Agency*, 985 F.3d 914, 977 (D.C. Cir. 2021). In other words, the EPA made a source-specific finding that GHG emissions, principally CO₂, from EGUs endanger public health and welfare and cause or contribute to climate change. Additionally, the EPA's Endangerment Findings are further reinforced by the findings of the USGCRP's Fourth National Climate Assessment (NCA4) which is consistent with the Commonwealth's 2015, 2020, and 2021 Climate Change Impacts Assessments. While these Federal studies inform the Department's decision to regulate CO₂ emissions within this Commonwealth, they are not determinative because this final-form rulemaking is being promulgated by the Board under the authority of the APCA, not the CAA.

160. Comment: The commentator states that the APCA defines the term *air pollution* broadly and includes "any form of contaminant...in such place, manner or concentration inimical or which may be inimical to the public health, safety or welfare..." The fact that carbon dioxide, as a greenhouse gas and a key factor in climate change, is "inimical to the public health, safety or welfare" has been extensively documented by the Intergovernmental Panel on Climate Change, the U.S. Global Change Research Program, and by the Department itself. The Supreme Court of the United States has also found that "the harms associated with climate change are serious and well recognized" and that the failure to regulate greenhouse gas emissions presented a risk of harm that was both actual and imminent. Furthermore, carbon dioxide is included in the definition of the term "regulated pollutant" found in APCA, Section 502 of the CAA, and Pennsylvania's existing air quality regulations. All of those rules and regulations define the term *regulated pollutant* to include those compounds regulated under CAA sections 111 or 112. The Affordable Clean Energy (ACE) rule, finalized in 2019, specifically regulates greenhouse gases—including carbon dioxide—under section 111(d) of the CAA thus including carbon dioxide in the list of regulated pollutants.

Response: The Department acknowledges this comment and agrees with the commentator.

161. Comment: The commentator states that courts have repeatedly found that the reduction of air pollution is in the public interest. In *Com., Dep't of Env'tl. Prot. v. Pennsylvania Power Co.*, the court found: "...[T]he purpose behind the Pennsylvania Air Pollution Control Act (APCA) and the provisions contained therein is to provide the people of this Commonwealth with air which is of a higher quality than that required by federal law. Examining this purpose, there is little doubt that the reduction of air pollution to such a degree is a valid public interest. In speaking on this same question in the case of *Bortz Coal Co. v. Commonwealth*, Pa.Cmwlt. 441, 444-45, 279 A.2d 388, 391 (1971), this Court pointed out that the regulation of air pollution has long been a valid public interest." In *Com., Dep't of Env'tl. Res. v. Locust Point Quarries, Inc.*, the court stated, "The Commonwealth is committed to the conservation and maintenance of clean air by Art. I, s 27 of the Pennsylvania Constitution. To that effect, through Section 4002 of the Air Pollution Control Act, the legislature has declared as policy the protection of air resources to the degree necessary for the protection of the health, safety and well-being of the citizens; the prevention of injury to plant and animal life and property; the protection of public comfort and convenience and Commonwealth recreational resources; and the development, attraction and expansion of industry, commerce, and agriculture. In sum, protection of air resources is a matter of highest priority in the Commonwealth."

Response: The Department acknowledges this comment and agrees with the commentator.

162. Comment: The commentator states that having established carbon dioxide as a pollutant, the APCA specifically grants EQB the authority to establish and publish a maximum quantity of carbon dioxide emissions that are permitted. The EQB's proposed CO₂ Budget Trading Program regulation accomplishes this by establishing a statewide emissions cap. APCA also directs EQB to establish various conditions under which pollution is permissible and to establish emission fees. The proposed rule accomplishes both these tasks through an allowance mechanism. Covered sources must obtain either emissions allowances or allowable offsets for each ton of emissions. While EQB could set emission fees directly, it has chosen to use an auction system to distribute the bulk of allowances, thus allowing the market to discover the minimum appropriate fee to achieve the targeted emissions limits.

In addition, several different methods are used to further control potential costs for the regulated community. By cooperating with the Regional Greenhouse Gas Initiative in establishing a multi-state allowance trading program, the fees will likely be lower than would result from a state-only auction. The proposal also provides a cost containment reserve feature that will release additional allowances in the market if fees exceed certain metrics. Finally, the regulated community has the option to invest in certain offset projects in lieu of purchasing allowances for a percentage of their compliance obligation.

This use of a cap-and-trade system rather than a command-and-control approach where EQB requires facilities to adopt specific pollution control technology regardless of cost is not a new approach in Pennsylvania. Similar programs have been successfully used to reduce the SO₂ emissions that cause acid rain since the mid-1990s and the NO_x emissions that contribute to

ozone smog since the late 1990s. Both programs have since been revised with the 2009 Clean Air Interstate Rule and the 2015 Cross-State Air Pollution Rule, but the fundamental structure of trading allowances remains. At no time has it been determined that APCA's language prohibits such programs.

Response: The Department acknowledges this comment and agrees with the commentator.

163. Comment: The commentator states that Pennsylvania law specifies that, when interpreting statutes such as APCA, the object of all interpretation and construction is to ascertain and effectuate the intention of the General Assembly. This begins by, first and foremost, giving effect to any unambiguous words in the statute.

The proposed regulation responds to two unambiguous requirements. First, the APCA specifies that it is the duty of EQB to adopt regulations for the control of air pollution. Second, the Environmental Rights Amendment of Pennsylvania's Constitution requires that the Commonwealth shall conserve and maintain public natural resources, including clean air, for the benefit of all people, including generations yet to come. Certain members of the legislature have claimed that the APCA does not permit regulation of carbon dioxide emissions because that legislation lacks a specific reference to the RGGI. The language that authorizes the regulation of pollution contains no expressed limitation that would limit the regulation of carbon dioxide. It is also clear that such regulation is not preempted. The PA Supreme Court has held that "the state is not presumed to have preempted a field merely by legislating in it. The General Assembly must clearly show its intent to preempt a field in which it has legislated." Here there is simply no preemption language anywhere in the act. Furthermore, as there is expressed authority to implement the CAA, and the CAA contains provisions regulating greenhouse gasses such as carbon dioxide, interpreting the APCA to exclude the authority to regulate carbon dioxide would create absurd results having provisions that are impossible of execution; such an interpretation is counter to the Statutory Construction Act.

The legislature also revisited the issue of greenhouse gas emissions in passing the Climate Change Act of 2008 which requires the development of a climate change action plan. Had the General Assembly believed that the administration lacked authority to regulate greenhouse gases, the entire plan would need to be submitted for consideration and action by the legislature prior to implementation. Instead, the act only requires that the plan identify those legislative changes necessary for implementation. The plain language used by the General Assembly implies that there are potential aspects of implementation that do not require legislative changes.

This is further evidenced by the fact that a bill to prevent the regulation of carbon dioxide in the manner proposed by this action was vetoed by Governor Wolf in September of 2020. If the existing APCA and the Climate Change Act already preempted such regulation, that later attempt to prohibit such action would be unnecessary.

Finally, because administrative agencies are often in the best position to evaluate their own enabling legislation, both federal and state courts give such agencies significant deference in their interpretations. Absent specific legislation to the contrary, it must be concluded that the

proposed regulation is permissible under the APCA.

Response: The Department acknowledges this comment and agrees with the commentator.

164. Comment: The commentator states that the APCA provides clear authority to regulate air pollution, including CO₂, and improve air quality in the interest of the health, welfare, and environment of the Commonwealth. This authority clearly extends to regulatory activities that contribute to health, welfare, and environmental protection outside of the Commonwealth, as well. But the authority is at its strongest ebb in relation to the protection of the public health, welfare, and environmental resources of the Commonwealth, and there are multiple statements in the proposed rule that would benefit from highlighting the benefits that the CO₂ Budget Trading Program would have for Pennsylvanians' health and welfare, or the quality of the Commonwealth's air quality resources, to clarify the rule's firm footing under APCA legal authority.

Discussion of certain impacts of climate change are arguably beyond the purview of the APCA – i.e. discussions of increases in infectious diseases and weather events. However, the proposed rule's "background and purpose" section describes the connection between reducing GHG pollution to address climate change and associated benefits to air quality, public health, and reduced co-pollutants. Since addressing these issues are more solidly within the APCA's purpose, it would bolster the legal defensibility of the rule to clearly prioritize the health and welfare benefits as the issues the rule is crafted to address and the associated climate change benefits as ancillary.

Ideally, the background and purpose section should lead with its language most aligned with the statutory authority of the APCA: "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," as this clarifies that while addressing climate change is not the driving purpose behind the rule, EQB has the authority to regulate the pollutants contributing to climate change impacts on public health in Pennsylvania. The rule's function to limit climate change impacts should be discussed as a benefit of a regulation targeted at protecting public health, welfare, and environmental resources in the Commonwealth, not the other way around.

Response: The Department acknowledges this comment and agrees that the APCA provides clear authority for this final-form rulemaking. As authorized under the APCA, the purpose of this final-form rulemaking is to protect public health, welfare and the environment through reduced CO₂ emissions. Additionally, this final-form rulemaking will simultaneously address part of this Commonwealth's contribution to climate change. This final-form rulemaking is clear on the purpose as the Preamble begins by stating, "the purpose of this final-form rulemaking is to reduce anthropogenic emissions of CO₂, 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." The Department also disagrees with the commentator that certain impacts of climate change discussed in the regulatory documents are beyond the purview of the APCA. Climate change is caused by air pollution which the APCA was specifically

enacted to address and climate change also negatively impacts public health, welfare and the environment. As such, a discussion of the harmful effects of climate change is appropriate.

165. Comment: The Board’s authority under section 5(a)(1) includes the ability to impose fees for the control of air pollution, so long as they do not constitute an impermissible tax. Courts will examine both the nature and purpose of an exaction in determining its definition as a fee or tax. Under Pennsylvania law, the auction charges operate either as a licensing or user fee, not a tax. The Pennsylvania Supreme Court set out a four-part test in *National Biscuit Co. v. Philadelphia* to distinguish a license fee from a tax: 1) fees are only applicable to a type of business that is subject to supervision and regulation by the licensing authority under its police power; 2) the supervision and regulation are in fact conducted by the licensing authority; 3) the payment of the fee is a condition upon which the licensee is permitted to transact its business or pursue his occupation; and 4) the legislative purpose in imposing the charge is to reimburse the licensing authority for the expense of the supervision and regulation it conducts.

Even when an exaction does not precisely meet the *National Biscuit* test, the Court in *White v. Commonwealth of Pennsylvania* held an exaction may be found to be a fee rather than a tax when it “more logically” falls into that category. The *White* court found it dispositive that the exacted funds were deposited into a segregated account and disbursed only for a designated purpose related to the exaction, rather than deposited into the state’s coffers for general public purposes. The Court in *Phone Recovery Services, LLC v. Verizon Pennsylvania, Inc.* interpreted the *White* holding as recognition of a distinct category of non-tax charges, characterized by the exaction raising funds to be held in trust and deposited in a segregated account for a specific purpose.

Response: The Department acknowledges this comment and agrees that the Board has the authority under the APCA to promulgate regulations that assess fees.

166. Comment: The APCA establishes the Clean Air Fund (CAF), to be administered by the Department for use in the elimination of air pollution. That any charges collected would be paid into the CAF supports the interpretation that allowance auction is logically a licensing fee rather than a tax. The Court in *Phone Recovery* further acknowledged the existence of a third category of government exaction, the user fee, distinct from both taxes and licensing fees. The *Phone Recovery* Court looked to rulings in the highest courts of Alabama and Massachusetts in defining non-tax charges, as both those states make explicit the category of a user fee. The referenced test from Supreme Judicial Court of Massachusetts defines a user fee as a charge: 1) in exchange for a particular government service which benefits the party paying the fee in a manner not shared by other members of society; 2) paid by choice, in that the party paying the fee has the option of not utilizing the governmental service and thereby avoiding the charge; and 3) not collected to raise revenues but to compensate the governmental entity providing the services for its expenses. Alabama defined a user fee as a payment in return for a government provided benefit, tied in some fashion to the payor’s use of the service. California offers a user fee framing as well in its examination of whether an emissions allowance auction is a tax or fee.

The U.S. Supreme Court has recognized the interest of a state to exact a user fee from those who avail themselves of government properties and services, so long as the charge is not

unreasonable in amount for the privilege granted. An exaction in exchange for the use of property or improvements thereon is a fee or toll, not a tax. Pennsylvania's constitution vests the state as trustee to hold the natural resources within the state in public trust for its citizens. Further, states have a "quasi-sovereign" interest separate and above that of its citizens in maintaining the air quality within its borders. Accordingly, a state possesses authority to charge a fee for the use of air as a repository for polluting emissions within its jurisdiction pursuant to its proprietary and ownership interests. Since the regulatory scheme will be grounded in the APCA, the fact that all fees so collected will be put into the Clean Air Fund and can only be disbursed for the purpose of eliminating air pollution demonstrates that the auction charge is a user fee paid in exchange for the privilege to use a resource managed and improved by the DEP, the state's air.

Response: The Department acknowledges this comment and agrees that this final-form rulemaking establishes a fee, not a tax.

167. Comment: The APCA provides ample legal authority for the promulgation and implementation of a cap and trade program to regulate CO₂ emissions from the power sector as set forth in the Proposed Rule.

Response: The Department acknowledges and agrees with this comment.

168. Comment: The APCA authorizes the regulation of CO₂ emissions. Carbon dioxide, a greenhouse gas present in the atmosphere that contributes to a condition that may be inimical to public health, safety or welfare, is clearly subject to regulation under the APCA. The APCA gives the Board the power and the duty to "[a]dopt rules and regulations, for the prevention, control, reduction and abatement of air pollution" that may, among other things, "prohibit or regulate any process or source or class of processes or sources." In addition, the APCA directs the Board to "[e]stablish and publish maximum quantities of air contaminants that may be permitted under various conditions at the point of use from any air contaminant source in various areas of the Commonwealth so as to control air pollution." Under the APCA, gases are included in the definition of "air contaminant," and "air contamination" is "the presence in the outdoor atmosphere of an air contaminant which contributes to any condition of air pollution." "Air pollution" includes "any form of contaminant, including . . . EQB has repeatedly recognized this authority and relied upon the APCA to regulate greenhouse gas emissions. Accordingly, the Commonwealth Court has recognized that the APCA bestows upon the Department a duty to promulgate regulations to reduce greenhouse gas emissions. smoke, soot, fly ash, dust, cinders, dirt, noxious or obnoxious acids, fumes, oxides, gases . . . or any other matter in such place, manner or concentration inimical or which maybe inimical to the public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property." The Board has repeatedly recognized this authority and relied upon the APCA to regulate greenhouse gas emissions. Accordingly, the Commonwealth Court has recognized that the APCA bestows upon the Department a duty to promulgate regulations to reduce greenhouse gas emissions.

Response: The Department acknowledges and agrees with this comment.

169. Comment: The APCA provides authority for a Cap-and-Invest Market-based Program. The APCA provides broad authority to control air emissions, including through market-based programs such as the Proposed Rule. Pennsylvania has repeatedly replied upon this broad authority to adopt cap-and-trade programs for other air contaminants, and no court has found that the Commonwealth lacks authority to regulate air contaminant emissions through these programs, which have long been an effective part of Pennsylvania’s efforts to protect its air resources. In 1997, Pennsylvania established the Ozone Transport Commission NOx Budget Trading Program; in 2000, the NOx SIP Call NOx Budget Trading Program; and in 2008, the CAIR NOx Trading Program. In adopting each of these programs, the Board relied upon its authority under APCA Section 5(a)(1). The Board correctly found this authority to be sufficient and did not draw on its separate statutory authority to implement the federal Clean Air Act. In fact, under the APCA, Pennsylvania has gone beyond the federal mandates of the Clean Air Act to create broader trading programs. For example, the 2008 rule responded to EPA’s Clean Air Interstate Rule (“CAIR”). CAIR required only power plants be covered, but the Board required other industrial sources to hold allowances as well.

Response: The Department acknowledges and agrees with this comment.

170. Comment: The Department has the authority to require regulatory fees for allowances and to put those proceeds into the Clean Air Fund. Importantly, the Board has the authority to require regulated entities to pay fees for emission allowances and put those proceeds into the Clean Air Fund. The APCA not only directs fees into the Clean Air Fund, but also includes specific authority for the Clean Air Fund to receive contributions from “any private source.” APCA also provides the Department the authority to administer the Clean Air fund “for use in the elimination of air pollution.” 35 Pa. Stat. § 4006.3 (2020). Significantly, the RGGI auction fees are a regulatory measure, distinct from fees established “to cover the indirect and direct costs of administering” the various regulatory programs, which are also authorized by the APCA and referred to by Pennsylvania Courts as “license fees.” See, e.g., *National Biscuit Co. v. Philadelphia*, 98 A.2d 182, 188 (Pa. 1953). In addition to supporting measures that directly reduce air pollution, auction fees can and should be used to support communities affected by power plant closures in order to facilitate the Commonwealth’s transition to a cleaner electric grid. The transition to cleaner power is already happening and will continue; inherent in that transition are social and economic changes in communities that have previously relied upon emissions-intensive generation for jobs and tax base. Making change possible and productive for these communities is integral to the elimination of air pollution.

Response: The Department acknowledges and agrees with this comment.

171. Comment: The commentator states that the fees in the proposed rule are not taxes. Allowance auction fees under the Proposed Rule do not constitute taxes requiring legislative authorization. While allowance auction fees would raise revenue, they are imposed by a regulatory measure, and they are held in a special fund and charged and expended for a specific purpose. “The question of whether an enactment is a tax or a regulatory measure is determined by the purposes for which it is enacted, and not by its title.” The primary purpose of the Proposed Rule is not to raise revenue, but rather “to reduce anthropogenic emissions of CO₂, a GHG and major contributor to climate change impacts, in a manner that is protective of public health,

welfare and the environment.” Several other characteristics of allowance auction payments under the Proposed Rule demonstrate that they do not constitute taxes: First, sources will choose to purchase allowances at auction and may alternatively choose to eliminate emissions or purchase allowances on the secondary market; second, these fees do not work like taxes: they are not deposited in the general fund, fee amount is variable, and allowances are fungible, which means proceeds from any given purchase may go outside Pennsylvania; and finally, unlike a tax, payment of a fee confers a value on the purchaser: the permission to emit a pollutant while producing electricity for sale.

Response: The Department acknowledges and agrees with this comment.

172. Comment: In addition to the Department’s statutory authority to promulgate this proposed rulemaking under the APCA, this proposal is both consistent with, and in furtherance of, the constitutional requirements of Article I, Section 27. It is clear that, as a trustee with fiduciary duties, the Commonwealth must act toward the corpus of the trust, i.e., Pennsylvania’s public natural resources, with prudence, loyalty, and impartiality.

Under Pennsylvania trust law, the duty of prudence requires a trustee to “exercise such care and skill as a man of ordinary prudence would exercise in dealing with his own property.” Prudence requires good judgment and caution, particularly when trust resources are being threatened. Participating in a well-established and effective program like RGGI is a prudent approach to protecting the public trust resources in Pennsylvania being adversely affected by greenhouse gas emissions.

The duty of loyalty imposes an obligation to manage the corpus of the trust so as to accomplish the trust’s purposes for the benefit of the trust’s beneficiaries and not for others. The Commonwealth would further this duty under the proposed rulemaking by reducing greenhouse gas emissions that are threatening the public natural resources that belong to the people of Pennsylvania, including generations yet to come.

The duty of impartiality requires the trustee to manage the trust so as to give all of the beneficiaries due regard for their respective interests in light of the purposes of the trust. The proposed rulemaking benefits all of the trust beneficiaries—present and future generations—by providing economic benefits to the present generation as well as environmental and public health benefits to present and future generations.

Establishing a price on carbon emissions is also consistent with the text of the Environmental Rights Amendment, which directs the Commonwealth, as trustee, to “conserve and maintain” the trust corpus in furtherance of the people’s enumerated rights. Having polluters obtain allowances at auction - establishing a limited authorization to pollute the air - is more consistent with the Commonwealth’s duties as a trustee for its natural resources than allowing those polluters to appropriate public resources free of charge and, as a result, deplete or damage the corpus of the trust.

Response: The Department agrees that this final-form rulemaking is authorized under the APCA and is consistent with the Pennsylvania Constitution. The Department has fulfilled its duties as a

trustee of the environment, set forth in Article I, Section 27 of the Pennsylvania Constitution and the PA Supreme Court Ruling on the Environmental Rights Amendment in *Pennsylvania Environmental Defense Foundation v. Commonwealth of Pennsylvania*, 161 A.3d 911 (Pa. 2017) during the development of this rulemaking. This rulemaking was developed under the authority of Sections 5(a)(1) and 6(a)(3) of the APCA. 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. This rulemaking would help the Department protect the air resources of this Commonwealth as well as public health and welfare by reducing harmful GHG emissions from the electricity sector. The Department recognizes Pennsylvanians' rights and the Commonwealth's obligations under the Pennsylvania Constitution and must meet those obligations in every action the agency takes. Because this rulemaking reduces GHG emissions, resulting in considerable benefits to public health among others, the Department is satisfied that its Article I, Section 27 obligations have been met with development of this rulemaking.

173. Comment: The Environmental Quality Board (the "EQB") is generally authorized to classify sources of air pollution in Pennsylvania and to adopt regulations that prevent, control, reduce, and abate air pollution from such sources. Carbon dioxide is an air pollutant that is already having a pronounced negative impact on public health and welfare, and will have an increasingly pronounced negative impact on public health and welfare in the future if carbon dioxide pollution is not addressed now. Fossil fuel-fired electric generating units ("EGUs") with nameplate capacities at or above 25 Megawatts ("MW") are a significant source of carbon dioxide pollution. Accordingly, it is clear under the Air Pollution Control Act that the EQB may adopt rules to control and reduce carbon dioxide emissions from fossil fuel-fired EGUs.

Response: The Department acknowledges this comment and agrees with the commentator that the Board has the authority under the APCA to regulate CO₂ emissions from fossil fuel-fired EGUs.

174. Comment: Given the EQB's description of the serious nature of the threat that carbon dioxide emissions pose to the public health and welfare, it is well past time for the EQB to regulate CO₂ emissions. The EQB must ensure that the Proposed Rulemaking conforms fully with the Air Pollution Control Act's requirements; if it cannot, the Administration should propose legislation that will accomplish the Proposed Rulemaking's goals of reducing Pennsylvania EGUs' carbon dioxide emissions and encouraging the development of energy efficiency and renewable energy projects in Pennsylvania.

Response: The Department and the Board have ensured that this final-form rulemaking complies with the APCA, including sections 5(a)(1) and 6(a)(3). Additional legislation is not necessary to achieve the purpose of this final-form rulemaking.

175. Comment: Section 6.3(g) of the Air Pollution Control Act provides: Any fees imposed under this section in areas with approved local air pollution control programs shall be deposited in a restricted account established by the governing body authorizing the local program for use by that program to implement the provisions of this act for which they are responsible. The

governing body shall annually submit to the Department an audit of the account in order to insure the funds were properly spent. Allegheny and Philadelphia Counties both have approved local air pollution control programs, the Allegheny County Health Department (“ACHD”) and Philadelphia Air Management Services (“AMS”), respectively. Accordingly, fees imposed on fossil fuel-fired EGUs in Allegheny and Philadelphia Counties for carbon dioxide allowances under the Proposed Rulemaking must be deposited in restricted accounts administered by ACHD and AMS, to use on energy efficiency and renewable energy projects in those counties.

Response: The Department acknowledges this comment and will further evaluate the recommendation.

176. Comment: The commentator states that the Board and the Department should proceed cautiously and avoid surrendering authority to develop programs, policies, and regulations that acknowledge, reflect, and preserve Pennsylvania's distinctive strengths, employment opportunities, energy consumers, and Pennsylvania's status as a leading energy producer and exporter.

Response: The Department is not delegating any authority to RGGI, Inc. or any of the participating states. 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 CO₂ Budget Trading Programs. Each participating state is also allotted two positions on the Board of Directors of RGGI, Inc. Under this final-form rulemaking, RGGI, Inc. would provide technical and administrative services to support the Department's implementation of this final-form 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 final-form 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 final-form rulemaking.

177. Comment: As a condition to joining RGGI, Chapter 145, Subchapter E must closely align with the RGGI Model Rule and, in the event the RGGI Model Rule is revised (as is expected in the summer of 2021), Subchapter E would necessarily require revision in order for the Commonwealth to meet its obligations under the RGGI Memorandum of Understanding. On this point, however, the Proposed Rulemaking is silent, yet by joining RGGI, the Commonwealth would surrender much of its power to directly control the content of the regulations it enforces.

Response: The Department is not delegating any authority to RGGI, Inc. or any of the participating states. 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 CO₂ Budget Trading Programs. Each participating state is also allotted two positions on the Board of Directors of RGGI, Inc. Under this final-form rulemaking, RGGI, Inc. would provide technical and administrative services to support the Department's implementation of this final-form 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 final-form 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 final-form rulemaking. Additionally, there is not a RGGI Memorandum of Understanding.

178. Comment: Legislation that reduces the existing power of the Administration to adopt regulations aimed to protect the naturally occurring climate from disruption by GHG pollution would also be unconstitutional. That would include, for example, bills introduced in the 2019-20 legislative session (likely to be re-introduced this session) that would require additional action by the General Assembly before the proposed regulation or any action to limit GHG emissions could be adopted.

Response: The Department acknowledges this comment and agrees that the legislation referenced was introduced in an attempt to eliminate the Department's existing authority to regulate CO₂ emissions under the APCA.

Regulatory Review

Public Hearings and Public Comment

179. Comment: The commentator states that the public hearings were not held in impacted areas and therefore the Department did not adequately hear from impacted communities or comply with the requirements of the APCA.

Response: The Department understands the concerns expressed by the commentator about participation in the virtual 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 COVID-19, the Board held the public hearings for this rulemaking virtually. The virtual hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments on the proposed rulemaking without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this proposed rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemaking, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period. Further, the public hearings were held in compliance with the APCA as there is not an in-person hearing requirement under the APCA.

180. Comment: The commentator states that the Department held virtual hearings in consecutive days that were not based in the areas of the commonwealth that would be most impacted. These virtual meetings were internet-based, and many of the most impacted areas lack access to affordable and/or reliable broadband internet required to participate. Governor Wolf has acknowledged the severe lack of rural broadband access as recently as December of 2020.

Response: The Department understands the concerns expressed by the commentator about participation in the virtual 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 COVID-19, the Board held the public hearings for this rulemaking virtually. The virtual hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments on the proposed rulemaking without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this proposed rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemaking, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period. Further, the public hearings were held in compliance with the APCA as there is not an in-person hearing requirement under the APCA.

181. Comment: The commentator states that the public hearing process limited testifiers to five minutes and required a complicated two-step online and email registration process to virtually participate.

Response: The Department limited testifiers to five minutes in an effort to hear from as many registered testifiers as possible- and had a total of 449 individuals provide testimony. The Department disputes that it was a difficult process as many individuals were able to complete the registration process over the phone. In order for the hearings to run as efficiently as possible, the Department kept with its standard registration process for those individuals who wanted to testify at a public hearing. This required an interested individual to contact the Department by email, phone etc. to request to provide testimony. The second part of the process was for the individual to determine how they wanted to participate in the hearings, whether that be via phone, or online access. For those who participated via the WebEx platform, this second step required them to register for the WebEx so they had the information to access the hearing. If the individual was providing testimony over the phone, they were most often provided the call-in details. For those individuals who needed assistance, the Department personally registered interested individuals to facilitate the registration process and provided a phone number to participate for those who may

not be as familiar with the WebEx technology or for those who did not have internet access. Neither technology limitations nor lack of access to broadband were limiting factors to participate in the hearings, as many individuals both listened to and provided testimony via phone.

182. Comment: The commentator states that this proposal seeks to have Pennsylvania link to RGGI markets by finalizing a regulation that is consistent with the scope and ambition of RGGI's model rule. However, as the Department is aware, RGGI states will convene this summer to review the model rule and consider more stringent goals and other program obligations. The commentator cautions the Department from jumping blindly into this program without such an offramp. Substantial revisions to the model rule, should they be finalized before the end of the Department promulgating a final regulation to join RGGI, would require a substantial revision to Pennsylvania's implementing regulations – so much so that it may require a second round of public comment.

Response: The Department will evaluate any proposed changes to the RGGI Model Rule and consider whether this final-form rulemaking needs to be amended at that time. The Department also notes that this Commonwealth is not signing a binding agreement to participate in RGGI and states may withdraw from participation at any time.

183. Comment: The commentator also questions the timeline of this rulemaking. The initial concepts were released, lacking much detail, in February of 2020, before the pandemic took hold of Pennsylvania's attention. However, the process then continued all while Pennsylvania has been operating under the Wolf Administration's emergency declaration. The final rule proposal was not made available for public comment until November of 2020, with a constitutionally mandated suspension of the General Assembly from November 30 until swearing-in on January 5, 2021. During this time, legislative committees, which are key in the analysis and comments on proposed regulations, are not permitted to convene, nor are the committees premised to have assigned members. The implementation of this timeline is a major cause of concern as the General Assembly is extremely limited in its ability to react to this rulemaking. The commentator believes this was a deliberate attempt to exclude Pennsylvania's elected representatives from participating in the process.

Response: The House and Senate ERE Committees and members of the Legislature have extensive involvement in the development of the Department's rulemakings, including appointed members on the Department's advisory committees and four seats on the Board, in addition to the review outlined under the Regulatory Review Act (RRA). The Board and the Department consistently seek opportunities to engage productively with interested parties, including the Legislature. The Department's Legislative Office works to address issues and ensure that the Legislature is informed of actions by the Department and the Board. Throughout the development of this final-form rulemaking, the Department met with individual legislators and responded to questions on this rulemaking and RGGI participation during several legislative hearings. Additionally, several members of the Legislature including the ERE Committees submitted comments on the proposed rulemaking.

184. Comment: The commentator states that although it might be argued that, for purposes of Section 7(a), virtual hearings take place “in any region of the Commonwealth affected” or “in the [multi-region] area concerned” because they take place “everywhere” at once (at least theoretically), this reasoning falls flat because it cannot be squared with some of the other language in the same Section. The Section provides, for example, that “[w]hen it becomes necessary to adopt rules and regulations for the control, abatement, prevention or reduction of air pollution for more than one region of the Commonwealth, the board may hold one hearing for any two contiguous regions to be affected by such rules and regulations. Such hearing may be held in either of the two contiguous regions.” This language makes it clear that when one of these types of hearings takes place, it takes place in one of the two contiguous regions (“either”), but not both at the same time. Unlike a physical, in-person meeting, a virtual hearing cannot meet this standard because it happens “everywhere” at once. These factors help to confirm that, for purposes of Section 7(a), a hearing must be a physical, in-person meeting. The EQB has failed to hold physical, in-person hearings in connection with the Proposed Rulemaking. The Proposed Rulemaking is therefore procedurally defective.

Response: The APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The phrase “in any region of the Commonwealth affected” in Section 7(a) does not create a requirement for “in-person” public hearings. The Department contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

185. Comment: The commentator states that the EQB says that it held the virtual meetings “[i]n 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 COVID-19[.]” 50 Pa. Bull. 6187, 6231 (Nov. 7, 2020). But the Governor never suspended Section 7(a) of APCA and there is otherwise no “COVID exception” to that Section’s requirements. See *Commonwealth v. Glenn*, 233 A.3d 842, 846 (Pa. Super. Ct. 2020) (“We are cognizant that it is not for the courts to add, by interpretation, to a statute, a requirement, or an exception, which the legislature did not see fit to include.”) (internal quotation and brackets omitted).

Response: The APCA does not require the Board to hold “in-person” public hearings. Section 7(a) of the APCA states “Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion.” The phrase “in any region of the Commonwealth affected” in Section 7(a) does not create a requirement for “in-person” public hearings. The Department contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding 10 well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide. The virtual public hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemakings, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period.

186. Comment: The regulation should be delayed until the Department holds in-person public hearings in affected areas.

Response: The Department disagrees and will continue working toward a January 1, 2022 implementation date as there has been considerable public input and public engagement regarding this regulation. Additionally, the APCA does not require the Board to hold "in-person" public hearings. Section 7(a) of the APCA states "Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion." The phrase "in any region of the Commonwealth affected" in Section 7(a) does not create a requirement for "in-person" public hearings. The Department contends that the intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation.

187. Comment: The commentator says there appears to have been a lack of public notice for the public meetings held on the rulemaking process. Section 7(c) of our Commonwealth's Air Pollution Control Act (ACPA) requires as follows: Notice to the public of the time and place of any public hearing shall be given at least thirty (30) days prior to the scheduled date of the hearing by public advertisement in a newspaper or newspapers of general circulation in the region of the Commonwealth affected. The commentator cannot locate any publication for these meetings with the exception of the original notice in the Pennsylvania Bulletin and the Department of Environmental Protection's website. The ACPA contains the public notice requirement to ensure that the public is adequately informed that there will be a hearing on any proposed rules which affect the abatement of air pollution. Without this notice, it is quite

possible that many stakeholders, interested parties and the general public missed out on attending, submitting comments, and learning from these hearings. Public notice requirements facilitate public access and increase transparency and accountability in the regulatory and policy-making process and agencies must strictly comply with their mandates.

Response: This comment is inaccurate. The Department provided public notice for the virtual public hearings in twelve newspapers of general circulation prior to the opening of the comment period on November 7, 2020. This included public notices in the Allentown Morning Call, the Altoona Mirror, the Bucks County Courier Times, the Delaware County Daily and Sunday Times, the Erie Times-News, the Indiana Gazette, the Patriot-News, the Pittsburgh Post-Gazette, the Reading Eagle, the Scranton Times-Tribune, the Wilkes Barre Times Leader, and the Williamsport Gazette. Altogether, the Board and the Department saw record participation during the virtual public hearings and 449 members of the public provided testimony on the proposed rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemaking, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period.

188. Comment: The commentator has concerns about the fact the meetings were held virtually when the APCA expressly requires in-person public meetings. The commentator recognizes and appreciates the importance of COVID mitigation requirements, and appreciates the ability to participate remotely, but points out that virtual-only settings can exclude significant numbers of Pennsylvanians who do not have access to the internet. Moreover, the APCA requirement for in-person public meetings is clear and unambiguous. The commentator recommends extending the public comment deadline and holding additional, properly noticed in-person meetings consistent with the APCA and in compliance with necessary COVID mitigation health policies.

Response: The APCA does not require the Board to hold "in-person" public hearings. Section 7(a) of the APCA states "Public hearings shall be held by the board or by the Department, acting on behalf and at the direction or request of the board, in any region of the Commonwealth affected before any rules or regulations with regard to the control, abatement, prevention or reduction of air pollution are adopted for that region or subregion." The phrase "in any region of the Commonwealth affected" in Section 7(a) does not create a requirement for "in-person" public hearings. The intent of the statutory language is to ensure that a public hearing is held in a location that is actually impacted by a regulation. For instance, section 7(a) would prevent the Board from holding one public hearing in Harrisburg for a regulation that only impacts the Northwest region.

For this final-form rulemaking, the Board satisfied the public hearing requirement in section 7(a) of the APCA by holding 10 well-attended virtual public hearings. As this final-form rulemaking impacts the entire Commonwealth, the virtual public hearings were accessible Statewide. The virtual public hearings were a necessity due to the COVID-19 pandemic and allowed hundreds of Pennsylvanians to deliver their comments without exposing themselves or their families to a widespread, communicable disease. To ensure that all Pennsylvanians had access to the ten

virtual public hearings for this rulemaking, the Department and the Board made the hearings accessible via any phone connection, including landline and cellular service, or internet connection. The public hearings were also held at varying times including evening hours, so that members of the public could provide testimony outside of typical work hours. For the first time, the Department was able to provide real time English to Spanish interpretation during the virtual public hearings. Altogether, the Board and the Department saw record participation during the virtual public hearings and over 445 members of the public provided testimony on this rulemaking. The Department also received feedback from many participants that the use of a virtual public hearing platform was preferred and resulted in savings, in both time and money, for many residents who did not have to drive or find a way to attend a public hearing. Additionally, as with all the Department's rulemakings, members of the public also had the opportunity to provide written comments by regular mail, the Department's eComment system, or email during the comment period.

Advisory Committee Engagement

189. Comment: In developing the Proposed Rulemaking, the Department, as required by statute, consulted with several statutorily-created independent advisory bodies: the Air Quality Technical Advisory Committee, Citizens Advisory Committee, and Small Business Advisory Committee. Each of those bodies formally voted *not* to approve the Proposed Rulemaking, concluding that adopting it would be contrary to the public interest. The commentator agrees that the rulemaking is not in the public interest.

Response: While that may have been the view of the Advisory Committees upon reviewing the proposed regulation in 2020, significant efforts were made to address committee concerns in this final-form rulemaking and ultimately all three advisory committees voted in support of recommending that the Department advance the final-form rulemaking to the Environmental Quality Board. Additionally, the Environmental Justice Advisory Board voted unanimously in support of the Department moving forward.

On April 8, 2021, the Department presented an update on this final-form rulemaking to AQTAC. The update included information on the regulatory process, a summary of the comments received, the Department's key proposed regulatory changes from proposed to final, and the Department's public outreach efforts. On May 17, 2021, at a special AQTAC meeting, the Department presented this final-form rulemaking and updated power sector modeling results. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in support of recommending that the Department move this final-form rulemaking forward to the Board. The supportive vote is particularly notable considering that the same committee had been divided on whether to concur with the draft proposed rulemaking.

On April 20, 2021, the Department presented an update on this final-form rulemaking to CAC. The update included information on the regulatory process, a summary of the comments received, the Department's key proposed regulatory changes from proposed to final, and the Department's public outreach efforts. On May 19, 2021, the Department presented this final-form rulemaking and updated power sector modeling results to CAC. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in

support of recommending that the Department move this final-form rulemaking forward to the Board. Again, the supportive vote is particularly notable considering that the same committee had been divided on whether to concur with the draft proposed rulemaking.

On May 19, 2021, the Department presented this final-form rulemaking and updated power sector modeling results to SBCAC. During the presentation, the Department mentioned that it had estimated that now twelve small business stationary sources, as defined under section 3 of the APCA (35 P.S. § 4003), may need to comply with this final-form rulemaking. Of those twelve sources, eight were estimated to be waste coal-fired power plants. The Department also mentioned that, in the final-form rulemaking, it had retained the CO₂ allowance set-aside provision to assist all waste coal-fired power plants located in this Commonwealth with their compliance obligation. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in support of recommending that the Department move this final-form rulemaking forward to the Board. In light of the SBCAC vote in opposition to the draft proposed rulemaking, the members' support of this final-form rulemaking is particularly significant.

Additionally, the Department provided an informational presentation on the draft proposed rulemaking to EJAB on May 21, 2020, and had further engagement with Environmental Justice stakeholder groups such as the Chester Environmental Partnership and EJ Stakeholders Group throughout 2020. On July 16, 2020, the Department participated in a discussion with EJAB members centered around recommendations to the Department regarding RGGI. This conversation continued at the August 11, 2020, meeting and resulted in recommendations shared with the Department regarding RGGI program implementation in addition to review and discussion of the draft RGGI equity principles, developed in conjunction with the Advisory Committee. Discussion and consultation with EJAB regarding the draft RGGI Equity Principles continued during the November 17, 2020, meeting.

On May 20, 2021, the Department provided a presentation on the final rulemaking and updated power sector modeling, specifically highlighting environmental justice and equity concerns and how these were addressed in the rulemaking and would be addressed in an investment plan. The Delta Institute, with whom the Department collaborated to conduct outreach and research in communities impacted by this final-form rulemaking, also presented their findings and recommendations for the Department's efforts in affected communities. The Department also provided an opportunity to present public comments at this meeting. While EJAB did not vote on the draft proposed rulemaking in 2020, the EJAB members decided to vote unanimously in support of the Department moving this final-form rulemaking forward to the Board.

190. Comment: The commentator states that the Air Quality Technical Advisory Committee, Citizens Advisory Council, and Small Business Compliance Advisory Committees all voted to not recommend that the Department advance the proposed rulemaking to the Board and therefore the proposed rulemaking should not be advanced.

Response: The Department disagrees. As required under the Regulatory Review Act and further emphasized by Executive Order 2019-07, the Department conducted robust public outreach 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. While that may have been the view of the Advisory Committees upon reviewing the proposed regulation in 2020, significant efforts were made to address committee concerns in this final-form rulemaking and ultimately all three advisory committees voted in support of recommending that the Department advance the final-form rulemaking to the Board. Additionally, the Environmental Justice Advisory Board voted unanimously in support of the Department moving forward.

On April 8, 2021, the Department presented an update on this final-form rulemaking to AQTAC. The update included information on the regulatory process, a summary of the comments received, the Department's key proposed regulatory changes from proposed to final, and the Department's public outreach efforts. On May 17, 2021, at a special AQTAC meeting, the Department presented this final-form rulemaking and updated power sector modeling results. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in support of recommending that the Department move this final-form rulemaking forward to the Board. The supportive vote is particularly notable considering that the same committee had been divided on whether to concur with the draft proposed rulemaking.

On April 20, 2021, the Department presented an update on this final-form rulemaking to CAC. The update included information on the regulatory process, a summary of the comments received, the Department's key proposed regulatory changes from proposed to final, and the Department's public outreach efforts. On May 19, 2021, the Department presented this final-form rulemaking and updated power sector modeling results to CAC. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in support of recommending that the Department move this final-form rulemaking forward to the Board. Again, the supportive vote is particularly notable considering that the same committee had been divided on whether to concur with the draft proposed rulemaking.

On May 19, 2021, the Department presented this final-form rulemaking and updated power sector modeling results to SBCAC. During the presentation, the Department mentioned that it had estimated that now twelve small business stationary sources, as defined under section 3 of the APCA (35 P.S. § 4003), may need to comply with this final-form rulemaking. Of those twelve sources, eight were estimated to be waste coal-fired power plants. The Department also mentioned that, in the final-form rulemaking, it had retained the CO₂ allowance set-aside provision to assist all waste coal-fired power plants located in this Commonwealth with their compliance obligation. After the Department answered the members remaining questions on this final-form rulemaking, the members voted in support of recommending that the Department move this final-form rulemaking forward to the Board. In light of the SBCAC vote in opposition to the draft proposed rulemaking, the members' support of this final-form rulemaking is particularly significant.

Additionally, the Department provided an informational presentation on the draft proposed rulemaking to EJAB on May 21, 2020, and had further engagement with Environmental Justice stakeholder groups such as the Chester Environmental Partnership and EJ Stakeholders Group throughout 2020. On July 16, 2020, the Department participated in a discussion with EJAB

members centered around recommendations to the Department regarding RGGI. This conversation continued at the August 11, 2020, meeting and resulted in recommendations shared with the Department regarding RGGI program implementation in addition to review and discussion of the draft RGGI equity principles, developed in conjunction with the Advisory Committee. Discussion and consultation with EJAB regarding the draft RGGI Equity Principles continued during the November 17, 2020, meeting.

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Regulatory Review Act

191. Comment: The Board should continue to consider potential alternatives to joining RGGI. Analysis of alternative measures by the Board and the Department is not only advisable from a public policy standpoint but is also mandated under the RRA. See 71 P.S. § 745.5(a)(12). On this point, the Department's Regulatory Analysis Form ("RAF") submitted to the Independent Regulatory Review Commission ("IRRC") is deficient. In conclusory fashion, the Department simply states that "[t]here are no less intrusive or less costly alternative regulatory provisions available." RAF at 47.

Response: The Department disagrees with this comment. RGGI has proven to be both successful and cost effective at reducing CO₂ emissions from the electric sector. While the Department could have developed a traditional command and control regulation to reduce CO₂ emissions from fossil fuel-fired EGUs, that would not be the most advantageous or economically beneficial method to control CO₂ emissions in this Commonwealth. In the RAF, the Department also explains the benefits of cap and trade v. traditional command and control regulations. Section 745.5(a)(12) requires the Department to 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" in the RAF. 71 P.S. § 745.5(a)(12). The Department fulfilled that requirement.

192. Comment: Under Pennsylvania's Regulatory Review Act ("RRA"), 71 P.S. §§ 745.1 et seq., the Board is required to provide an estimate "of the direct and indirect costs to the Commonwealth, its political subdivisions and to the private sector." 71 P.S. § 745.5(a)(4). In the proposed rulemaking, however, the Board indicates that any plan outlining reinvestment options for auction proceeds will be addressed separately from the proposed rulemaking. Additionally, as noted by other commentators, the Board has also failed to provide any analysis regarding the potential cost impact of the proposed rulemaking on large C&I consumers.

Response: The updated RAF includes an estimate of the direct and indirect costs to the Commonwealth, its political subdivisions and to the private sector in response to question #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.*

Based on information contained within the Pennsylvania Public Utility Commission's 2020 Rate Comparison Report, a small commercial customer's usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report, https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PA PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

193. Comment: The commentator states that the cost-benefit standard required by the Regulatory Review Act and Executive Order 1996-1 mandates that the Department demonstrate commensurate environmental and public health benefits will be achieved through adoption and implementation of this proposed rulemaking. The commentator states that considering actions of other jurisdictions or benefits from projected program investments does not meet the strict cost-benefit criteria of the Regulatory Review Act and Executive Order 1996-01.

Response: The Department disagrees with the commentator's characterization of the required cost-benefit analysis for regulations. There is nothing in the Regulatory Review Act or Executive Order 1996-01 that would exclude the benefits of investing the auction proceeds. While the specific investment programs will be discussed further in a separate investment plan, the Department is clear in this final-form rulemaking that the proceeds will be deposited in the Clean Air Fund and used to further reduce GHG emissions. The Department's modeling shows that investing the proceeds strategically will provide several benefits to this Commonwealth in addition to the GHG reductions, including public health, environmental and economic benefits. Executive Order 1996-01 provides that "costs of regulations shall not outweigh their benefits." Section 745.5b of the RRA requires the Department to consider the economic or fiscal impacts of a regulation and the protection of the public health, safety and welfare and the effect on this Commonwealth's natural resources. This final-form rulemaking is consistent with Executive Order 1996-01 and the RRA as the benefits of this final-form rulemaking substantially outweigh any associated costs.

194. Comment: The proposed rule's regulatory analysis documents fall short of various Regulatory Review Act requirements. The documents do not include an estimate of the loss of

tax revenues to the Commonwealth nor the electricity cost impacts to commercial or industrial consumers. The documents in part attempt to justify the rule on a proposed spending plan that is not part of the comment docket. The cost-benefit analysis also does not consider the impact to Pennsylvania's environment from emissions that would occur in upwind states due to leakage.

Response: The Department disagrees with the commentator as the regulatory analysis is comprehensive and includes the significant analyses conducted by the Department in support of this final-form rulemaking including all of the items mentioned above. Tax revenues are considered in the economic analysis conducted by the Department, more detail on which is provide in the Modeling and Data Analysis section of this document. Additionally, electricity sector impacts and the potential for leakage have been documented and discussed by the Department in many forums and discussion of which is also included in the regulatory documents. Finally, the Regulatory Analysis Form, specifically question #17 was updated to provide estimates of electricity cost impacts to small commercial and large commercial/industrial customers and is included below as well.

Based on information contained within the Pennsylvania Public Utility Commission's 2020 Rate Comparison Report (See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report.https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf), a small commercial customer's usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

195. Comment: The commentator states that Pennsylvania is attaining the most stringent 24-hour particulate matter standards in all but one monitoring point and is out of attainment for just four monitoring points for ozone standards, according to recent preliminary design values presented by the Department to its Air Quality Technical Advisory Committee. The NAAQS are established by EPA at a level sufficient to protect public health plus an adequate margin – therefore it is questionable that reductions of NAAQS concentrations below these thresholds will produce a meaningful health benefit. Further, it is not apparent why RGGI is needed to secure attainment with these standards. Not only is the Department obligated to implement federal air quality rules, the state's placement into the Ozone Transport Region obligates any new or expanded major source to be permitted and regulated under LAER standards – the most stringent air quality controls available. The Regulatory Review Act requires agencies to consider whether a proposed rulemaking results in a “duplication of statutes or existing regulation.” Where existing law already provides direct authorization for the Department to regulate certain

pollutants, the “potential for co-benefits” cannot be touted as a benefit. Duplicating existing regulation is not an appropriate basis for a proposed rulemaking.

Response: The Department disagrees with this comment. As shown by the Department’s modeling, the reduction of co-pollutants, in addition to the direct CO₂ emission reductions, results in significant public health and environmental benefits. Additionally, for decades the EPA has included co-pollutant reductions when calculating the benefits of a regulation. The Department also follows this approach as reducing air pollution is always beneficial, no matter the type of pollutant. Since the Department does not currently have a regulation that controls CO₂ emissions from fossil fuel-fired EGUs, this final-form rulemaking is not a duplication of an existing regulation. The Federal standards referenced by the commentator do not address CO₂ emissions.

196. Comment: The commentator state that the Commonwealth Documents Law prohibits a final rulemaking from expanding upon the purpose of a proposed rulemaking.

Response: The Department acknowledges this comment. This final-form rulemaking has not expanded the purpose of the proposed rulemaking. The purpose remains to establish the Pennsylvania component of the CO₂ Budget Trading Program, which is designed to reduce anthropogenic emissions of CO₂, a greenhouse gas, from CO₂ budget sources in a manner that is protective of public health, welfare and the environment.

197. Comment: The EQB fails to explain its consideration of FERC’s Minimum Offer Price Rule in fashioning the waste coal-fired generation set-aside. At worst, it represents an unlawful attempt to manipulate the wholesale capacity price, which is subject to the exclusive jurisdiction of FERC. At the very least, the EQB must explain how the set aside will function in light of the MOPR. See 71 P.S. § 745.5b(b)(1)(ii) (proposed regulations must consider adverse effects on prices of goods and services, productivity or competition); and 71 P.S. § 745.5b(b)(3) (proposed regulation should not conflict with existing regulations). The Board’s failure to even address the question is a violation of the Regulatory Review Act. This issue should be resolved before the proposed rule is promulgated.

Response: The Department disagrees with this comment. FERC’s Minimum Offer Price Rule (MOPR) pertains to how state policies are to be addressed in wholesale energy markets. Generally, the MOPR would require that any generation sources that receive out-of-market subsidies would be required to include the value of those subsidies in their Minimum Offer price for electricity in the wholesale market. While treatment of generation sources in the wholesale market is outside the scope of this rulemaking, the waste coal generators would be subject to the MOPR requirements as they receive out-of-market subsidies in the form of state tax rebates, and payment for Tier II renewable energy credits. While the waste coal set-aside contained in this final-form rulemaking may constitute an out-of-market payment, it would not trigger the MOPR requirement as these facilities may already be required to comply with the MOPR requirement due other programs and subsidies. It is ultimately up to the individual facilities to understand their requirements concerning the MOPR. As additional information, PJM is planning to submit a proposal to FERC later this summer that would end the MOPR’s application to state-subsidized

resources. See <https://www.pjm.com/-/media/committees-groups/cifp-mopr/2021/20210428/20210428-item-04-pjms-initial-proposal-minimum-offer-price-rule.ashx>.

198. Comment: The commentator states that the Proposed Rule is in the public interest under the Regulatory Review Act (RRA). The IRRC should find the Proposed Rule to be in the public interest; this finding is supported by the criteria provided by the RRA. The Proposed Rule will minimize consumer costs while protecting public health and the Commonwealth’s natural resources. The Proposed Rule is clear, feasible, reasonable, supported by data, and developed in full compliance with Pennsylvania’s robust procedural safeguards. Numerous reputable organizations have looked at the question of Pennsylvania participating in RGGI at the proposed emissions budget and found that it would reduce CO₂ and other harmful emissions while minimizing costs to Pennsylvanians, including through significant investments made possible through use of RGGI funds.

Response: The Department acknowledges and agrees with this comment.

199. Comment: The commentator questions whether the regulation represents a policy decision of such a substantial nature that it requires legislative review noting that a Senate letter signed by 29 members states the following: “The proposed regulation joining Pennsylvania to RGGI represents the single, most significant energy policy reform since the deregulation of electric generation in the 1990’s.” The commentator also notes the passage of HB 2025. The commentator mentions that 10 of the 11 states that currently participate in RGGI have done so with specific authority granted by their respective legislative branches. Additionally, three advisory committees declined to support the proposed rulemaking. The commentator asks the EQB to explain why it is appropriate to implement this carbon trading program through executive order and the rulemaking process instead of the legislative process.

Response: The Department has existing authority under the Air Pollution Control Act to promulgate this regulation. HB 2025 though passed by the Legislature was not signed into law and as such has no bearing on the promulgation of this final-form regulation.

200. Comment: While the Proposed Rule is important to the Commonwealth’s efforts to mitigate climate change, it is not a policy decision of such a substantial nature as to require legislative review. Opponents have argued these actions are outside the scope of the APCA and that such air emissions control programs may only be promulgated by the Pennsylvania Legislature. This is incorrect. Rather, the Pennsylvania Legislature has already provided ample authority for the Proposed Rule by enacting the APCA, which provides an intentionally broad delegation of authority that directs EQB to fashion air quality programs to protect the Commonwealth’s air resources.

Response: The Department acknowledges and agrees with this comment.

201. Comment: The commentator disputes the contention on p. 47 of the RAF that “[t]here are no less intrusive or less costly alternative regulatory provisions available.” Section 5(a)(12) of the RRA requires more than just stating the agency’s belief there are no alternatives available – it requires a description of alternatives that have been considered and evaluated. The Department

does not show it has evaluated the merits of a Pennsylvania-only program, or joining with other jurisdictions, such as Appalachian states like Ohio and West Virginia (whose energy sectors and economies more closely reflect that of Pennsylvania than many of the New England states who are a part of RGGI) on an emissions trading program. Nor does the RAF evaluate the impacts of simply not joining RGGI.

Response: The Department's evaluation included an assessment of the RGGI program and an evaluation of not participating in RGGI via the Policy Case and Reference Case in the power sector modeling. RGGI has proven beneficial for the current participating states and the Department's modeling and other independent studies have shown that RGGI participation will also be beneficial for this Commonwealth.

Cap and trade programs have an established track record as economically efficient, market-driven mechanisms for reducing pollution in a variety of contexts. Beginning in 1995, Pennsylvania 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 SO₂ 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 SO₂ emissions by 14.5 million tons (92 percent) from 1990 levels and 16.0 million tons (93 percent) 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 percent, 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.

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 CO₂ pollution by over 45 percent since 2009, while experiencing per capita Gross Domestic Product growth and reduced energy costs. The program design of RGGI would enable the Board to regulate CO₂ 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.

Further, the Department's modeling analyzed the impact of this final-form rulemaking on the power sector the economy of this Commonwealth. The Department's 2020 modeling efforts

showed that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. Additionally, this final-form rulemaking protects the public health, safety and welfare and the environment from harmful CO₂ pollution from fossil fuel-fired EGUs. For instance, the Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. These modeling results further bolster the real-world results that have been experienced by the RGGI states.

Further, as Ohio and West Virginia do not currently participate in and have not indicated any interest in participating in an emissions trading program, that was not an available alternative for the Department to evaluate. As far as a Pennsylvania-run auction, this final-form rulemaking includes a provision for the Department to participate in multistate CO₂ 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 in this final-form rulemaking, participation in RGGI would provide those benefits to this Commonwealth. Additionally, the multistate auction process must be consistent with the process described in this final-form rulemaking and include monitoring of each CO₂ 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, 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 auction in this final-form rulemaking, the Department provides for flexibility in case the benefits of the multistate auctions diminish in the future.

202. Comment: As the Department's own modeling makes clear and as discussed elsewhere in these comments, there is a very slight difference in cumulative greenhouse gas emissions across PJM through 2030 when comparing Pennsylvania joining or not joining RGGI, and the Department is overstating the environmental and health benefits from emissions reductions achieved directly or as a co-benefit from imposing additional RGGI compliance obligations on the state's energy sector, given that much of the emissions decreases in Pennsylvania will be offset elsewhere in upwind PJM states.

Response: The Department acknowledges the comment though disagrees with the assertion that Department modeling shows implementation of this rulemaking will have a slight impact, indeed quite the opposite. There is a significant potential for greenhouse gas emissions reductions and associated health benefits. Department results were confirmed by PJM's own independent analysis and a study conducted by Penn State's Center for Environmental Law and Policy states that the Department's health benefit calculations are most likely understated. The Department has completed an updated regulatory analysis for this final-form rulemaking. The Department has also conducted updated IPM, Integrated Planning Model, power sector modeling, which provides long-term projections of plant dispatch, capacity expansion and retirement, market

prices, and emissions projections for the power sector across the country. This specific analysis focused on this Commonwealth, the PJM states, and the current states participating in RGGI. The results of the modeling include electricity transmission both into and out of this Commonwealth and the larger PJM and Eastern Interconnection. These values allow the Department to evaluate the changes in generation, and the flows of electricity between states and across the region.

The Department estimated in the 2020 modeling that this Commonwealth will experience CO₂ emission reductions of 188 million tons over the decade as a direct result of participation in RGGI. The Department's updated modeling in 2021 estimated a range of reductions from sources within this Commonwealth between 97-227 million tons over the decade. This results in CO₂ 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.

Further, PJM created the CPSTF. This group, in which the Department has been an active participant, has examined the impacts of both the recent entry of Virginia into RGGI and also the potential impacts of this Commonwealth's participation in RGGI. PJM's independent power sector modeling came to the same conclusions as the Department's modeling, that though there was some potential for leakage, this did not undermine the significant emissions reduction potential within this Commonwealth, nor did it undermine emissions benefits across the PJM region. Even with the potential for leakage, PJM determined that in addition to significant benefits within this Commonwealth there was a net benefit across the PJM region as well. When this is extrapolated further to the Eastern Interconnection, there continues to be a net benefit, the value of which decreases as the lens through which the reductions are viewed becomes wider.

In addition to the modeling conducted by the Department and PJM, the analysis by the Penn State Center for Energy Law and Policy also addresses leakage. Their associated modeling confirms the potential for leakage, and bolsters results from PJM and the Department in confirming that despite leakage, CO₂ emissions in the multi-state PJM region decline following this Commonwealth participating in RGGI. And these leakage estimates and models are based on current and predicted market conditions based on existing laws and policies, exclusive of any further regional or national action on carbon pricing which would minimize or entirely eliminate the potential for leakage.

203. Comment: The commentator states that the calculations used to estimate the program proceeds in Table 7 of the Regulatory Analysis Form does not include the cogeneration set aside, which then overstates the amount of program proceeds that were modeled to be invested into the economy, and thereby overstating the economic benefits of the program.

Response: The Regulatory Analysis Form for this final-form rulemaking includes an updated Table 7, which includes expected proceeds that factor in the set-asides within this final-form rulemaking.

204. Comment: The commentator states that the Department has not appropriately considered the effects of its proposal on small businesses. The RRA requires the Department to analyze the probable effect of a regulation on small businesses. A more thorough analysis of the projected increased cost of electricity to Pennsylvania's industrial and commercial customers is required in view of the Department's failure to do what is required by the RRA. The Department's complete failure to do its duty required by the RRA with respect to small business is inexplicable and should be unacceptable to the Independent Regulatory Review Commission, which is charged with ensuring compliance with the RRA.

Response: The Department has considered the effects of the proposal on small businesses that may have a compliance obligation under the regulation as required under the Regulatory Review Act, and made specific provisions in the regulation to assist the majority of those facilities that qualify as small businesses with most if not all of their compliance requirement. Additionally, on several occasions the Department sought the input and advice of the Small Business Compliance Assistance Committee (SBCAC) which under section 7.8 of the APCA (35 P.S. § 4007.8), the SBCAC is required to review and advise the Department on rulemakings which affect small business stationary sources.

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 2020, 63 CO₂ budget sources (facilities) with 150 CO₂ budget units (EGUs) would have a compliance obligation under this final-form rulemaking. However, due to the dynamic nature of the electricity generation sector, the number of covered facilities will likely change by the time this final-form rulemaking is implemented. The Department projects based on announced closures and future firm capacity builds that in 2022, there will be 66 CO₂ budget sources with 158 CO₂ budget units with a compliance obligation under this final-form rulemaking. The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this final-form rulemaking and determined that around 99 percent of this Commonwealth's power sector CO₂ emissions would be covered under this final-form 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 58 facility owners or operators identified by NAICS code 221112, three 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 three facility owners or operators identified by NAICS code 322121, for a total of 66 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 twelve of these

potentially affected entities may be small businesses by that definition. Of these twelve entities, eight 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 final-form rulemaking.

205. Comment: The Regulatory Review Act requires the Department to analyze the probable effect of a regulation on small businesses. As currently written, Section 24 of the RAF simply states that ten businesses, most of which are waste coal fired facilities, would be subject to the regulations and that the waste coal CO₂ allowance set aside will minimize the impact on them. However, the majority of Pennsylvania's commercial electricity consumers are small businesses of less than 500 employees. They are not necessarily electric generators covered by the regulations, yet they could be impacted by them. Additional discussion regarding how the regulations may affect costs for small businesses, particularly those stressed by the current pandemic, would be very helpful.

Response: The Department has considered the effects of the proposal on small businesses that may have a compliance obligation under the regulation as required under the Regulatory Review Act, and made specific provisions in the regulation to assist the majority of those facilities that qualify as small businesses with most if not all of their compliance requirement. Additionally, on several occasions the Department sought the input and advice of the SBCAC which under section 7.8 of the APCA (35 P.S. § 4007.8), the SBCAC is required to review and advise the Department on rulemakings which affect small business stationary sources.

Though not required as part of the small business analysis, the Department calculated potential rate impacts to residential, small commercial and large commercial customers. Based on information contained within the Pennsylvania Public Utility Commission's 2020 Rate Comparison Report, a small commercial customer's usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report, https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

206. Comment: The RAF does not consider the impact of the regulations on small businesses that provide materials and support to the coal-fired powerplants that would shut down as a result of this regulation, such as engineering and environmental consulting firms, equipment maintenance and support companies, waste haulers and plant maintenance contractors, and analytical laboratory services, to name only a few. These small businesses would lose a

significant portion of their revenue as a result. The Department should be required to investigate further the impact of this proposed regulation on the Commonwealth's small businesses.

Response: The Department acknowledges this concern. Communities throughout the country are dealing with vacancy and environmental stressors from displaced and departed industry, which limit investment and degrade economic health as well as quality of life. This reality disproportionately hits communities of color and rural areas, especially those reliant on the fossil fuel industry and the potential economic impacts that facilities could have on their employees, the surrounding communities and small businesses that serve these entities. Pennsylvania has a unique opportunity to creating an equitable, inclusive, and innovative investment mechanism through RGGI auction proceeds that can both directly assist communities and workers impacted by the ongoing (and accelerating) energy sector transformation, and prioritize investment in communities that have been impacted by long-standing environmental pollution.

The Department has partnered with the Delta Institute, which has an extensive history of helping agencies, community groups, and coalitions transition from planning to implementation. Delta achieves this through convening and facilitation expertise, data analysis and visualization, technical, planning and policy assistance, business research and modeling, and backbone support of administration and activity coordination of complex projects with many stakeholders with different priorities. Delta has leveraged its technical, planning, and engagement expertise to assist communities across the Midwest in tackling challenges like coal-based economy transition, community investment, brownfield redevelopment, and poor air quality, and now they are assisting in Pennsylvania. Delta is in the process of directly engaging local practitioners, legislative members, change-makers, employees and residents to participate in both strategy and facilitation, ensuring that solutions are collaborative, not prescriptive and will lay a strong foundation for these communities to thrive now and into the future. Delta's work product, informed by this extensive stakeholder outreach, will be used by the Department in drafting an investment framework.

207. Comment: The RAF states that “[t]he Department estimates that the costs related to monitoring, recordkeeping and reporting will be minimal . . . and, in most instances, will require no additional emissions reporting.” The commentator disagrees. This rulemaking will require additional administrative expenses for facilities, particularly for CHP and cogeneration facilities who, at least as written in the proposed rulemaking, need to be in constant vigilance of stumbling over the sales threshold for compliance. Management of power plants and cogeneration facilities may also need to report compliance obligations and associated risks on public SEC filings.

Response: The Department estimates that the costs related to monitoring, recordkeeping and reporting will be minimal as this final-form rulemaking utilizes current methods and, in most instances, will require no additional emissions reporting. For instance, the continuous emission monitoring required under this final-form rulemaking is already in existence at the regulated source and the necessary emissions data is currently reported to the EPA. The Department acknowledges that there may be minimal programmatic costs related to the submittal of compliance certification reports and auction, account, and offset project related forms. The RGGI auction services provider estimates that the owner, operator or representative on their behalf, will need to spend approximately 16 hours for the initial auction participation (including

opening a COATS account, registration, and training). In subsequent auctions, the estimate drops to about 4-8 hours.

208. Comment: The commentator states that Section 5(a)(1) requires agencies to provide “[e]stimates of the direct and indirect costs to the Commonwealth, its political subdivisions and to the private sector.” The RAF notes the Department may keep 5 percent of proceeds for administrative costs, but the document does not include an analysis of potential loss of revenue to the Commonwealth as a result of the expected loss in investment and jobs due to leakage or higher electricity costs. The RAF includes a discussion of an increase to residential customers but does not include an estimate on the costs to commercial and industrial customers. The RAF attempts to justify the increases in costs to residential customers (and the regulation writ large) based on modeling that shows macroeconomic outputs resulting from implementation of a separately proposed plan to spend RGGI proceeds, but this investment plan is not part of the public comment document for this rulemaking. The EQB suggests, without statutory support, that auction proceeds could be used to mitigate impacts to communities and employees impacted by power plant closures. However, the proposed rulemaking fails to adequately consider the loss of the tax base associated with power plant closure in addition to other indirect costs, such as reductions in PIT, CNI and sales and use tax revenues to the Commonwealth.

Response: The Department disagrees with the commentator as the regulatory analysis is comprehensive and includes the significant analyses conducted by the Department in support of this final-form rulemaking including all of the items mentioned above. Tax revenues are considered in the economic analysis, and electricity price changes in the power sector analysis conducted by the Department, more detail on which is provide in the Modeling and Data Analysis section of this document. Additionally, the Regulatory Analysis Form, specifically question #17 was updated to provide estimates of electricity cost impacts to small commercial and large commercial/industrial customers and is included below as well. Based on information contained within the Pennsylvania Public Utility Commission’s 2020 Rate Comparison Report, a small commercial customer’s usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report, https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

Furthermore, the Department has partnered with the Delta Institute, which has an extensive history of helping agencies, community groups, and coalitions transition from planning to

implementation. Delta achieves this through convening and facilitation expertise, data analysis and visualization, technical, planning and policy assistance, business research and modeling, and backbone support of administration and activity coordination of complex projects with many stakeholders with different priorities. Delta has leveraged its technical, planning, and engagement expertise to assist communities across the Midwest in tackling challenges like coal-based economy transition, community investment, brownfield redevelopment, and poor air quality, and now they are assisting in Pennsylvania. Delta is in the process of directly engaging local practitioners, legislative members, change-makers, employees and residents to participate in both strategy and facilitation, ensuring that solutions are collaborative, not prescriptive and will lay a strong foundation for these communities to thrive now and into the future. Recommendations from the Delta Institute will help inform the draft investment plan which will be shared for public comment.

209. Comment: The Department’s Regulatory Analysis Form for this proposed rulemaking explains the health impacts of air pollution from sulfur dioxide, oxides of nitrogen, and particulate matter, and the health benefits in the Commonwealth due to the expected ancillary emission reductions of these pollutants with the adoption of this regulation. See e.g., RAF at 16-20. These particular pollutants are “criteria pollutants” regulated under Title I of the Clean Air Act, which requires the U. S. EPA to set and periodically review the National Ambient Air Quality Standards (NAAQS). These standards are already in place to protect the nation’s public health and environment. Nearly all areas in the Commonwealth are in attainment with the NAAQS. See 40 C.F.R. §81.339. Furthermore, the Department should note that as part of its recent review of the MATS Rule, U.S. EPA noted that accounting for environmental benefits solely attributable from reductions in criteria pollutants not targeted by a subject rule is “particularly inappropriate[:]” The EPA believes that relying almost exclusively on benefits accredited to reductions in pollutants not targeted by CAA section 112 is particularly inappropriate given that those other pollutants are already comprehensively regulated under other CAA provisions, such as those applying to the NAAQS. As the EPA outlined in the 2019 Proposal, the determination that it is not appropriate to give equal weight to non-HAP co-benefits in making the appropriate and necessary determination is further supported by the fact that Congress established a rigorous system for setting standards of acceptable levels of criteria air pollutants and provided a comprehensive framework directing the implementation of those standards in order to address the health and environmental impacts associated with those pollutants. See, e.g., 42 U.S.C. 7409; 7410; 7501; 7502; 7505a; 7506; 7506a; 7507; 7509; 7509a; 7511; 7511a; 7511b; 7511c; 7511d; 7511e; 7511f; 7512; 7512a; 7513; 7513a; 7513b; 7514; and 7515.

National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review, 85 Fed. Reg. 31286, 31299-300 (May 22, 2020). The Department has not explained why further regulation of these pollutants is necessary to protect public health.

Response: The Department disagrees with this comment. As shown by the Department’s modeling, the reduction of co-pollutants, in addition to the direct CO₂ emission reductions, results in significant public health and environmental benefits. Additionally, for decades the EPA has included co-pollutant reductions when calculating the benefits of a regulation. The

Department also follows this approach as reducing air pollution is always beneficial, no matter the type of pollutant. On May 14, 2021, the EPA published an interim final rule to rescind the previous administration's rule entitled "Increasing Consistency and Transparency in Considering Benefits and Costs in the Clean Air Act Rulemaking Process," also known as the Benefit-Cost Rule. See 86 FR 26406 (May 14, 2021). The interim final rule is effective as of June 14, 2021. The EPA reviewed the Benefit-Cost Rule and found that it imposed procedural restrictions and requirements that would have limited EPA's ability to use the best available science in developing Clean Air Act regulations, and would be inconsistent with economic best practices.

210. Comment: The commentator states that this regulation will negatively impact small businesses.

Response: The Department determined that twelve of these potentially affected entities may be small businesses. Of these twelve entities, eight are waste coal facilities, for which a set-aside provision has been established to assist with most if not all of their compliance obligation under this final-form rulemaking. The rulemaking also offers the opportunity to use offsets as a compliance method, and establishes the Compliance Assistance Program to address additional needs of businesses including small businesses.

Regulatory Language

211. Comment: The commentator states that many sections within the proposed rulemaking are not complete and include vague, general summaries, and this impedes the commentator's – and all interested parties' – ability to provide public comments. This proposed rulemaking differs greatly from most proposed rulemakings because a majority of proposed sections do not contain any definitive language, but rather simply a general statement as to what each section will cover. For instance, Section 7(c) of the APCA is an example of a complete section regarding notice. However, the Proposed Rulemaking's section on notice reads as follows: “§ 145.404. Auction notice This section proposes to establish the requirement for notice to be provided of each CO₂ allowance auction and the required contents of the notice.” There is no indication of the method or content of notice or the timeline regarding notice. It is simply a general note that there should be a notice section in this place. The vast majority of the proposed rules themselves are written in this manner with this vague language. More concerning is the fact that the public cannot ascertain which sections they might want to weigh in on when they have no language by which to tell whether these sections might affect their interests.

Response: The commentator appears to have only read the Preamble of the proposed rulemaking and not the Annex, which contains the actual regulatory language, as published in the *Pennsylvania Bulletin*. As required under the Regulatory Review Act and the Commonwealth Documents Law, every regulatory package must include a Preamble to a regulation which provides an overview of the regulation so interested persons have context for reading the actual regulatory language. There is a link at the bottom of the webpage of the *Pennsylvania Bulletin* that states “Continued on Next Webpage.” The first webpage is the Preamble and the second page starts the Annex containing the definitive language that the commentator claimed was missing.

Applicability

212. Comment: The final rulemaking should also expressly state that the exemption criteria in terms of determining applicability of RGGI compliance obligations are determined by the capacity and sales of an individual unit, not the entire facility.

Response: The Department agrees that the applicability threshold is determined on a unit-by-unit basis and not through facility-level aggregation. The Department has added language to the preamble of the regulation to highlight the determination of applicability on a unit-by-unit basis.

213. Comment: In the event that a unit designated as a grid support generation resource is requested to run at maximum output to provide support during a generation or transmission emergency, as defined by the PJM Operating Agreement and Open Access Transmission Tariff, the operator should not be required to purchase credits for associated emissions.

Response: The Department agrees with the need to provide flexibility, which is why the efficiency thresholds are calculated on an annual basis, to provide flexibility for just these events. However, if a permit issued by the Department to a CO₂ budget source contains a condition restricting the supply of the CO₂ budget unit's annual electrical output to the electric grid to no

more than 10 percent of the annual gross generation of the unit to qualify for the exemption and if such a source subsequently exceeds the restriction, the permittee will be subject to enforcement for the non-compliance. The enforcement consequence may also include purchase of credits for the associated emissions. The continued eligibility of such exemption will also be re-evaluated if repeated exceedance occurs. The Department does not believe it is necessary to add this language to the regulation but will consider force majeure events when evaluating permit exceedances if they occur.

214. Comment: In the event that a unit designated as a grid support generation resource is requested to run at maximum output to provide support during a generation or transmission emergency, as defined by the PJM Operating Agreement and Open Access Transmission Tariff, electricity supplied during these instances should not count toward the 10 percent annual gross generation threshold and should be eligible for allowance credits.

Response: If a permit issued by the Department to a CO₂ budget source contains a condition restricting the supply of the CO₂ budget unit's annual electrical output to the electric grid to no more than 10 percent of the annual gross generation of the unit to qualify for the exemption and if such a source subsequently exceeds the restriction, the permittee will be subject to enforcement for the non-compliance. The enforcement consequence may also include purchase of credits for the associated emissions. The continued eligibility of such exemption will also be re-evaluated if repeated exceedance occurs.

215. Comment: The commentator supports the proposal's recognition of the GHG reduction benefits of biomass energy. Specifically, Section 145.355 (Compliance) states in subsection (b)(1) that allowances in a budget unit's account are to be deducted for compliance "less any CO₂ emissions attributable to the burning of eligible biomass."

Response: The Department acknowledges the comment and the support for the biomass provisions which are also contained in the final-form rulemaking.

216. Comment: Due to Pennsylvania's unique position as a leading energy exporter and developer of natural gas technologies, the commentator recommends that the Board revise Sections 145.304 and 145.305 of the proposed rulemaking to further limit the potential adverse impacts on energy-intensive businesses with cogeneration and CHP resources. To this end, the commentator recommends that the Board revise Sections 145.304 and 145.305 by tying the applicability of the proposed rulemaking to existing regulatory regimes, such as by exempting qualifying facilities under the federal Public Utility Regulatory Policies Act ("PURPA"), 16 U.S.C. § 824a-3. See 16 U.S.C. § 796(17)-(18) (defining "qualifying small power production facility" and "qualifying cogeneration facility").

Response: The Department acknowledges the comment though under § 145.304 (relating to applicability), 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 percent of its annual gross generation to the electric grid will have a compliance obligation under the final-form regulation. The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this final-form rulemaking and determined that around 99 percent of this

Commonwealth's power sector CO₂ emissions would be covered under this final-form rulemaking. This matches the stringency of the existing RGGI program and that necessary to meet the Greenhouse Gas reduction goals established for this Commonwealth.

217. Comment: The commentator recommends that the Board revise Section 145.305 to incorporate additional exemptions based on the definitional exclusions for cogeneration units and CHP systems under the federal Environmental Protection Agency's air quality regulations. See, e.g., 40 C.F.R. §§ 51.123(cc), 60.5509(b), 97.404(b). Specifically, a cogeneration unit or CHP system that is subject to a federally enforceable permit condition limiting the unit's net-electric sales to no more than one-third of its potential electric output or 219,000 MWh, whichever is greater, should be exempted from the proposed rulemaking.

Response: Under § 145.305 (relating to limited exemption for CO₂ budget units with electrical output to the electric grid restricted by permit conditions), the Board provides additional flexibility in the form of a limited exemption for CHP units that are interconnected and supply power to an industrial, institutional or commercial facility. In the proposed rulemaking, the interconnected facility was required to be a manufacturing facility. In response to comments received, in this final-form rulemaking, the Department broadened the language to allow for the interconnected facility to be an industrial, institutional, or commercial facility. A CHP unit that supplies less than 15 percent of its annual total useful energy to the electric grid, not including energy sent to the interconnected facility, does not have a compliance obligation under this final-form rulemaking. The owner or operator of the CHP 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 percent of annual gross generation to the electric grid. The Board is including this additional exemption for CHP units that primarily send energy to an interconnected facility because these CHP units provide a CO₂ emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the interconnected facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO₂ emissions.

Additionally, the Department added in this final-form rulemaking that if the unit is requesting total retirement of CO₂ allowances, then the unit must satisfy the more stringent requirements. The unit must submit an application including documentation that the useful thermal energy is at least 25 percent of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit is at least 60 percent on an annual basis. If the unit is requesting partial retirement of CO₂ allowances, the unit must submit an application which includes documentation of the amount of useful thermal energy or electricity, or both, supplied to an interconnected industrial, institutional, or commercial facility. Unlike the waste coal set-aside, the Department would not distribute CO₂ allowances directly to the unit, but rather retire CO₂ allowances on behalf of the unit to reduce its compliance obligation. The owner or operator of a unit requiring additional CO₂ allowances to satisfy the CO₂ requirements under § 145.306(c) shall transfer CO₂ allowances for compliance deductions to the compliance account of the unit. Therefore, while the CHP facilities remain covered

facilities under the final-form regulation, significant modifications have been made to the regulation to accommodate existing and future CHP facilities.

218. Comment: The commentator recommends “industrial and commercial facilities” replace manufacturing facility in § 145.305.

Response: The Department agrees and has modified the limited exemption by striking the phrase manufacturing facility and replacing it with industrial and commercial facilities as suggested.

219. Comment: The commentator requests that references to the unit and associated interconnected facility within the proposed rulemaking be updated to account for “one or more” to not exclude operators.

Response: The Department does not believe this change is necessary as the current wording does not exclude operators.

220. Comment: The commentator appreciates the Cost Containment Reserve (CCR) provision in the proposed regulations to guard against higher than projected emissions reduction costs. It appears from Section 145.382 that CCR additional allowances will only be sold if the auction trigger price exceeds \$14.88 in 2023 (and increasing in following years) and the demand for allowances exceeds the number available. The commentator requests further information about how this trigger was selected.

Response: The trigger price levels for the Cost Containment Reserve were set during the Second RGGI Program Review, and were informed by IPM modeling conducted to analyze a “base” policy case, as well as sensitivity runs of the policy case to analyze potential scenarios that may cause allowance prices to be higher or lower than the base policy case. The CCR trigger prices were informed by the high sensitivity modeling and the RGGI states’ discussions and the Emissions Containment Reserve (ECR) trigger prices were informed by the low sensitivity modeling.

221. Comment: The commentator suggests that the Emissions Containment Reserve (ECR), under which allowances will be withheld if the trigger price falls below \$6.87 in 2023 (and increasing in following years), is intended to provide a relatively predictable stream of revenue for Pennsylvania and requests further clarification regarding the Department’s analysis as to the reason an artificial floor for auction purposes is necessary.

Response: This final-form rulemaking provides regulatory certainty for CO₂ 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 CO₂ 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 CO₂ 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 CO₂ 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 the cost of compliance for covered entities. The ECR and CCR are both a fundamental part of the RGGI auction mechanism and related policies which are associated with the regional auction to provide regulatory certainty.

222. Comment: The commentator states that section 145.342 subsection (f) and (g) do not provide criteria for determining whether the allowance budget adjustment described in that section is necessary, and the supporting regulatory documents do not explain why an adjustment is needed or when it could be triggered. The commentator states that it is unclear if the Department will be compelled to make an adjustment for banked allowances if other RGGI states adjust their allowance budgets to account for banked allowances. The commentator states that these sections should be removed from the regulation because Pennsylvania sources have not historically banked allowances, so it is unfair to Pennsylvania sources as they have not had the opportunity to bank allowances.

Response: Adjustments to the RGGI cap to address banked allowances are integral to maintaining the environmental integrity of all RGGI participating states' CO₂ budget trading programs. The current cap adjustment, the Third Adjustment for Banked Allowances (TABAs), was calculated on March 15, 2021, and will be implemented over the years 2021-2025 by the current RGGI participating states. Pennsylvania was not a RGGI participating state at the time of the March 15, 2021 calculation and therefore would not be able to implement the TABAs. Any additional cap adjustments would be determined via consensus by all RGGI participating states during RGGI Program Review.

Note that banked allowances currently held are available for purchase by all market participants via secondary markets (i.e., Pennsylvania CO₂ budget sources have access to these banked allowances).

223. Comment: The commentator states that the Department proposes to allow any individual or entity which meets the requirements of an auction participant to participate as a bidder in a CO₂ auction. The commentator states that this is inappropriate and can increase compliance costs for regulated facilities or result in manipulation or distortion of the allowance market. The commentator recommends that the Department require all auction participants to have a compliance obligation under this proposed rulemaking.

Response: Auctions are open to any bidder who can meet the application and financial requirements, and are designed to allow for unrestricted access to the market. However, the auction has protections in place, such as the rule that no single bidder or group of related bidders (e.g. bidders with any corporate or bidding association) may purchase more than 25 percent of the available allowances in each of the quarterly auctions. Furthermore, there are additional auction mechanisms in place to prevent market manipulation and collusion. 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 auctions, CO₂ allowance holdings, and CO₂ 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 also monitors bidder behavior in each auction and reports to the participating states any activities that may have a material impact on the efficiency and performance of the auction. To date, with over 52 auctions, the independent market monitor for the RGGI market has found no evidence of anticompetitive conduct in the RGGI CO₂ allowance market.

A Market Monitor Report is released by the independent market monitor shortly after each CO₂ 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. Please note that over the first 52 RGGI auctions, Compliance Entities purchased 73 percent of the total allowances sold.

CO₂ allowances may be acquired through purchases in quarterly multistate auctions, through secondary markets, or by obtaining CO₂ offset allowances. Once a CO₂ allowance is purchased in an auction, it can then be resold in the secondary market. Non-compliance market participants are essential to a liquid, transparent and stable secondary market that assists compliance entities in procuring CO₂ allowances during the three months between quarterly auctions., as well as providing price signals to assist compliance entities and reduce future price volatility.

224. Comment: The commentator asks the Department to clarify that the 25 MWe applicability threshold in Section 145.304(a) will be determined on a unit-by-unit basis, rather than through facility-level aggregation, consistent with the implementing regulations of other RGGI member states.

Response: Correct, the applicability threshold is determined on a unit-by-unit basis and not through facility-level aggregation. The Department has added language to the preamble of the regulation to highlight the determination of applicability on a unit-by-unit basis.

225. Comment: The commentator requests that the Board revise the proposed rulemaking to include additional flexibility or a safe harbor for facilities with co-located cogeneration and CHP systems that experience force majeure events, resulting in anomalous electricity exports above the threshold.

Response: The Department agrees with the need to provide flexibility, which is why the efficiency thresholds are calculated on an annual basis, to provide flexibility for just these events. The Department does not believe it is necessary to add this language to the regulation but will consider force majeure events when evaluating permit exceedances if they occur.

226. Comment: The commentator requests that the Department modify the proposed rulemaking such that, in the event an otherwise exempt electric generation unit ("EGU") loses its exemption under Section 145.305, the total number of CO₂ allowances that the owner or operator must

obtain be measured by the percentage of output that exceeds the applicable percentage limitation in the facility's operating permit, rather than the EGU's total annual gross generation.

Response: A facility that loses its exemption is then subject to the applicable requirements of the regulation including procurement of allowances for CO₂ emissions for the entire control period.

227. Comment: The commentator requests that the Department clarify that, in the event an otherwise exempt EGU loses its exemption under Section 145.305 in a given year, the EGU regains its exemption at the beginning of the next calendar year.

Response: The supply restriction applicable to the EGU will remain a separately enforceable permit condition even after the EGU loses its exemption under Section 145.305.

228. Comment: The commentator recommends that the Department remove the exemption and charge a minimum of twenty-five percent (25 percent) the price of regular allowances for CHP plants.

Response: The Department acknowledges the comment, though has maintained the limited exemption criteria for CHP facilities. Those facilities that do not qualify for the exemption would be required to obtain one allowance for every ton of CO₂ emitted. They could do this through the quarterly auctions, secondary market, or if applicable apply for allowances from the CHP set-aside to assist with compliance.

229. Comment: The commentator asks under the § 145.305 Cogeneration exemption, if a facility is sold are credits transferrable? The commentator would oppose transfer of credits upon sale.

Response: Under the limited exemption in § 145.305, qualifying combined heat and power units would be exempted from the requirement to obtain one CO₂ allowance for each ton of CO₂ emitted. The answer to the commentator's question is no because there would not be any CO₂ allowances provided to the facility.

230. Comment: The commentator states that the proposed rule should be amended to align with the federal non-EGU definition found in various federal air quality rules – specifically, should the Department move forward with RGGI, the final rulemaking should exempt for purposes of compliance or establishing the state's budget any unit subject to a federally enforceable permit condition limiting annual net-electric sales to no more than one-third of its potential electric output or 219,000 MWh, whichever is greater.

Response: The purpose, scope, and programs for which the federal non-EGU definition apply are significantly different than those of this final-form rulemaking, including their minimal and tangential relevance to air emissions, particularly GHGs. Use of the definition set forth in the final-form is appropriate and consistent with the existing RGGI program.

CO₂ Allowance Budget and Trajectory

231. Comment: The commentator appreciates the detailed modeling analysis - including projected retirements and additions of electricity generators by 2022 - undertaken by the Department to inform this initial CO₂ budget.

Response: The Department appreciates the comment.

232. Comment: The commentator states that the base budget in the final-form rule must be no higher than the final emissions inventory for covered sources from the most recent year for which a complete dataset is available in January 2022.

Response: The Department acknowledges the comment and appreciates the importance of having an adequately stringent starting allowance budget. The most recent year for which a complete dataset would be in available in January 2022 is for the calendar year 2020. The Department has maintained the starting allowance budget or base budget in this final form rulemaking of 78 million allowances or tons of CO₂. Updated modeling indicated that perhaps an 81.1-million-ton base budget would be appropriate; however, the recent actual year emissions indicated a lower amount would be appropriate. Actual CO₂ emissions from covered sources under this final regulation were 84.5 million tons in 2019 and 77.4 million tons in 2020. This led the Department to maintaining the more stringent 78 million ton starting allowance budget.

233. Comment: There is a long history of emissions trading systems that have established initial budgets based on modeled projections that frequently prove to be too high in practice, resulting in emissions caps that are non-constraining. Indeed, this occurred in the RGGI participating states after the initial budget took effect in 2009; the emissions cap exceeded actual emissions by a wide margin, thereby limiting the program's ability to compel regulated entities to make internal emission reductions. The delta between the cap and actual emissions was driven by a variety of factors, including the economic downturn resulting from the Great Recession and market forces driving a shift to less carbon-intensive fuels. Regardless, the regional budget needed to be readjusted during two different program review processes completed in 2013 and 2017, respectively, which necessitated additional statutory or regulatory action in the RGGI participating states. Given Pennsylvania's unique regulatory review process, where rulemakings routinely take multiple years to promulgate, it is critical that the Department finalize a sufficiently constraining cap at the outset.

Response: The Department appreciates the comment and agrees with the importance of setting an adequately stringent starting allowance budget. Ensuring an appropriate starting allowance budget, given the power sector impacts of the recent pandemic was one of the primary drivers for completing the 2021 modeling. As noted in the response above, the Department included in the final-form rulemaking a starting allowance budget of 78 million tons of CO₂ – which the Department determined was adequately stringent.

234. Comment: There is a risk that offering 68.7 million additional allowances for sale at regional auctions in 2022 could flood the regional market, resulting in suppressed prices and distorted market signals across the region.

Response: The Department acknowledges the comment but disagrees with the outcome of Pennsylvania joining RGGI as suggested. Both the 2020 modeling and 2021 modeling indicates that with Pennsylvania participation beginning in 2022 with a 78-million ton starting allowance budget will not suppress allowance prices nor created distorted model signals. These are among several of the factors that are analyzed to ensure that Pennsylvania begins participation with an adequately stringent starting allowance budget, specifically to avoid any market disruption and seamlessly integrate into the regional program.

235. Comment: The Board should consider several modifications to strengthen the proposed regulation. The proposed budget should be lowered to put Pennsylvania on track to achieve the Biden Administration’s goal of achieving GHG emissions neutrality in the electricity sector by 2035. Assuming a 2022 start, this will require that the GHG budgets provide for annual reductions of 7.7 percent, rather than the reductions in the proposed RGGI regulation.

Response: The Department acknowledges this comment. The Department’s updated 2021 modeling confirmed the sufficiency of the 2022 CO₂ allowance base budget that was included in the proposed rulemaking and is maintained in this final-form rulemaking. This is also consistent with the Commonwealth’s GHG reduction goals.

236. Comment: The commentator states that the Proposed Emissions Budget is reasonable and must not be increased. RGGI works in part by sending a positive price signal to clean generation sources through the energy markets, ramping up cleaner generation and ramping down relatively dirtier generation through the instantaneous dispatch of the electricity markets. This reordering can occur between types of generation, such as from coal to natural gas, or within fuel type, such as from a less-efficient to a more-efficient natural gas turbine. The efficacy of RGGI’s price signal is a direct consequence of whether the emissions budget is set appropriately – too high a budget, and demand for allowances will be weak, resulting in an inconsequential price signal. By requiring emitting generators to internalize some portion of the cost of their CO₂ pollution, the price signal also encourages the preservation of low- and non-emitting resources and the development of new clean generation capacity. Current and forward electricity market prices that reflect some portion of the cost of CO₂ are visible to all market participants, including potential investors in clean energy projects and purchasers of generation and other products from existing and new clean resources. This transparency, combined with the certainty of a long-term emissions-reduction trajectory, are necessary for the transition to a cleaner generation fleet.

Response: The Department acknowledges this comment and the CO₂ emissions budget in this final-form rulemaking has not changed from the proposed rulemaking.

237. Comment: The Proposed Rule’s emissions budget trajectory, which starts at recent historical annual emissions and decreases each year at a rate in line with other RGGI states, establishes a framework for meaningful emissions reductions while minimizing consumer costs. This budget level also retains and in fact likely encourages maintenance of Pennsylvania’s status as an electricity exporter, particularly to other RGGI states that have stated a preference for cleaner electricity. In the numerous public comment opportunities, the Department has provided prior to offering this Proposed Rule, some argued that the 2030 budget level is too close to the

reference or business-as-usual case, such that joining RGGI would be wasted effort. While the commentator would support a more stringent budget, the commentator disagrees that the Proposed Rule would not result in significant emissions reductions – the nine million tons avoided per year by 2030 is itself significant. Further, there is no guarantee that the reference case reflects what would occur or that emissions would not be even higher without participation in RGGI, particularly if Pennsylvania were to lose another nuclear plant like Beaver Valley.

Response: The Department acknowledges this comment and agrees that this final-form rulemaking will result in significant CO₂ emission reductions, as well as co-pollutant reductions.

238. Comment: The commentator states that the emissions budget is accurately projected at 78 million tons of carbon dioxide in 2022.

Response: The Department appreciates the comment and has confirmed the starting budget through two rounds of modeling.

239. Comment: The commentator recommends that the Department consider a more protective emissions budget to lock in additional emissions reductions.

Response: The Department completed modeling in 2020 whereby the 2022 emissions were estimated to be 78 million tons of CO₂ in 2022- and as such the starting point for the allowance budget. When the modeling was updated in 2021, the 2022 emissions were estimated to be 81 million tons of CO₂ in 2022, signaling that perhaps the starting allowance budget should be three million tons higher, however the Department opted to keep the starting allowance budget at the 78 million ton value thereby selecting a slightly more protective emissions budget. The methodology used to determine the Department’s starting allowance budget and the calculation of reductions over the 2022-2030 time period match not only the methodology, but the stringency employed by the other RGGI participating states.

240. Comment: The commentator states that there should be a regulatory mechanism that automatically reduces emissions if actual emissions are much lower than the annual allowance budget.

Response: While each state has its own independent regulation that facilitates participation, each state makes a commitment in the regulation as to how many allowances they will provide on an annual basis to the regional auctions. This allows for regulatory certainty and an adequate provision of allowances, resulting in a steady decline of both available allowances and CO₂ emissions. If there are excess allowances in the regional market, there are existing regulatory mechanisms through which the RGGI participating states can decrease the amount of available allowances to better align the supply and demand of allowances.

241. Comment: A descending cap, as provided by the RGGI Rule but going to the point of carbon neutrality by a given date, is a necessary element of a suite of measures to reduce GHG pollution. A steadily descending cap provides industry and society as a whole the planning certainty to support capital investment for infrastructure that will need to be in place in 2050 and beyond. This is particularly true for the electricity generation, transmission, and distribution

sector, which must make large capital investments through that period. The need for a descending cap to provide guidance for long term capital investments extends well beyond the electricity industry. To prevent the worst impacts of climate disruption, Pennsylvania, like the rest of the world must achieve carbon neutrality in all sectors of the economy by 2050. While there are many possible pathways to achieve this “deep decarbonization,” electrification of other sectors of the economy – transportation, buildings, industry, and waste - is widely expected to be required. These measures will increase electricity demand, while also requiring decarbonization of the electricity sector. Agriculture and forestry will also need to be addressed. Deep decarbonization will require electrification of our buildings, transportation, and much of our industrial infrastructure before and by 2050.

Response: The Department acknowledges this comment and agrees that this final-form regulation is a major step, though not the only necessary action needed to address climate change.

242. Comment: The commentator proposes that Pennsylvania conduct a Pennsylvania-only auction with a reserve price for at least the first compliance period and adjust the proposed GHG budget to reflect allowance sales during that period. Pennsylvania should establish a Pennsylvania-only reserve price equal to the highest of the actual allowance clearing price in RGGI markets over the previous six years and the projected allowance price in RGGI modeling for the next year (assuming that Pennsylvania were not participating). Both RGGI allowances and Pennsylvania-only allowances then could be traded and used throughout the RGGI region. If Pennsylvania-only allowances are not sold during this “training wheels” period, they should be retired, and Pennsylvania’s baseline GHG budget should be reduced to reflect the lower sales. Thus, the GHG budget for the year after this training wheels period would be the lower of the proposed budget and 92.3 percent of the derived budget (so that emissions would drop by an annual percentage necessary to achieve carbon neutrality by 2035).

Response: The Department is proposing to participate in the multistate auction as it provides 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. The multistate auction process must be consistent with the process described in the final-form rulemaking and include monitoring of each CO₂ 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 final-form rulemaking, the Board provides for flexibility in case the benefits of the multistate auctions diminish in the future.

CO₂ Allowance Set Aside Accounts

243. Comment: The commentator states that the Department's proposal establishes two discriminatory set-asides, waste coal and coal generation for covered sources that would result in disparate treatment among various generation technologies and distort competitive market efficiencies. They should both be removed from the final regulation.

Response: The Department acknowledges the comment, disagrees that the set-aside provisions distort the competitive market and have maintained the set-asides in the final-form rulemaking.

244. Comment: The commentator asks why the Department directly allocating CO₂ emissions credits to waste coal resources, but also retiring compliance credits on behalf of CHP or cogeneration units, would not be considered to be arbitrary and capricious, particularly if the Department does not adopt the federal non-EGU threshold criteria for CHP and cogeneration units. As proposed, the Department would, for some types of power generation resources, require the purchase and retirement of emissions allowances and for some other types of resources award those allowances gratis, and for yet some other types of resources retire the allowances on behalf of the resources.

Response: The Department acknowledges this comment. Any CO₂ allowances allocated to waste coal-fired units must be used to satisfy the unit's compliance under this final-form rulemaking. Deducting the CO₂ allowances for compliance is equivalent to retiring the CO₂ allowances on the unit's behalf. The Department also revised the CHP set-aside in this final-form rulemaking to provide two tiers for requesting the retirement of CO₂ allowances. Under the first tier, which is an addition at final-form, applicable CHP units may request that the Department retire CO₂ allowances equal to the total amount of CO₂ emitted as a result of providing all useful thermal energy and electricity during each allocation year. Under the second tier, which was included in the proposed rulemaking, applicable CHP units may request that the Department retire CO₂ allowances equal to the partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year. This two-tier approach aligns the overall environmental benefits of CHP units with the CO₂ allowances that may be requested.

245. Comment: Where natural gas resources are deployed in the Real-Time and Day-Ahead markets to supplement variable sources, the commentator suggests allowance credits be issued to offset those emissions to support the viability of renewables in the competitive market, while encouraging investments in natural gas generators to improve ramp rate performance and capabilities.

Response: The Department acknowledges the comment and retains the three set-aside provisions as included on proposed in the final-form regulation.

246. Comment: The commentator recommends any natural gas entity designated as a Load Management Demand Resource receive allowances for emissions resulting from required deployment. This will encourage investments in technologies to improve baseload capabilities and the reliability of natural gas generation.

Response: The Department acknowledges this comment; however, it has maintained the three set-aside accounts as outlined in this final-form rulemaking. Though Load Management Demand Resources are important to grid reliability, this is not a designation from the Department. Furthermore, a designation of such neither exempts them from this regulation nor qualifies them for the existing set-asides.

247. Comment: In no event should an individual waste coal power plant receive allowances from a set aside if the plant (a) is polluting in excess of any federal air or water pollution standard that applies to conventional coal-fired power plants, including and especially the requirements of the Mercury and Air Toxics Standards, or has been shown to be contributing to an exceedance of the National Ambient Air Quality Standards; or (b) the plant receives waste coal from a site or operation that has been issued a citation or enforcement action for violations related to coal refuse extraction or site restoration in the previous 12 months.

Response: The Department acknowledges the comment, and though no additional eligibility criteria have been added to the final-form rulemaking, any exceedances or violations will be addressed separately as appropriate.

248. Comment: The Department should add a voluntary renewable energy (VRE) set-aside in section 145.342. Such a set-aside would incentivize additional in-state renewable generation, which in turn would reduce demand for fossil generation from non-covered sources and thereby reduce leakage.

Response: The Department acknowledges the comment and the importance of incentivizing additional in-state carbon free generation. The Strategic use set-aside account has been designed to allow for allocation of allowances to a broad range of projects located in Pennsylvania that result in a greenhouse gas reduction benefit including among others, the implementation of renewable or noncarbon-emitting energy technologies. With the applicability of the strategic use set-aside including renewable generation, the Department did not add a stand-alone VRE set-aside as that would have been duplicative.

249. Comment: The commentator states that allowances could also be used to promote new renewable electricity. As EQB works toward finalizing the Proposed Rule, the commentator supports a clarification, either through a minor revision of the regulatory text or in the preamble published in connection with the Final Rule, to ensure that support for voluntary renewable electricity within the Commonwealth is not inadvertently affected by its participation in RGGI. This need not and must not delay finalization in time for a 2022 start. Specifically, the commentator supports confirmation that, under the Final Rules, CO₂ emission allowances could be retired on behalf of voluntary renewable electricity sales made and sourced within the Commonwealth. This approach, a version of which has been adopted by Connecticut, Maine, Massachusetts, New Hampshire, New York, and Rhode Island, allows customers to retain, and claim, the emission avoidance value associated with their voluntary renewable electricity purchases. This would further the purpose of the Proposed Rule “to reduce anthropogenic emissions of CO₂, a greenhouse gas (GHG) and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment.” The commentator

does not believe this would necessarily require a change to the Proposed Rule, which already has an allowance set-aside that could be used for this purpose, but suggests that a clarification or confirmation that the set-aside could be used for this purpose would help provide certainty for voluntary renewable electricity customers.

Response: The Department acknowledges the comment and agrees that claiming the emission avoidance value associated with voluntary renewable electricity purchase would be an eligible project under the strategic use set-aside account, as long as the other project eligibility criteria are met. The Department does not believe a regulatory language change is necessary as the current definition allows for this use.

250. Comment: There are cases where providing free allowances or allowances at a reduced price can be warranted. For example, providing free allowances to waste coal facilities that are burning legacy waste coal piles that would otherwise burn in uncontrolled waste and gob piles while contaminating Pennsylvania streams can be constitutionally justified, since the allowances are, in a sense, paying for environmental remediation. Likewise, awarding free allowances or allowances at reduced cost as a means of preventing leakage to jurisdictions that do not put a price on GHG emissions may also be justifiable.

Response: The Department acknowledges this comment and appreciates the support for the waste coal set-aside. The final-form rulemaking does not include allocation to generators outside of the three set-aside accounts, though the Department is continuing to explore options for addressing the potential for leakage through regional and national solutions.

Combined Heat and Power Set-Aside

251. Comment: The commentator states that the proposed rulemaking will serve as a disincentive for manufacturers to install these systems as once the regulations are in place, as the parameters can be altered in future. Limiting CHP is the opposite of policy the commonwealth should be enacting. A recent report endorsed by the Pennsylvania Department of Community and Economic Development, dozens of state-wide and regional business organizations, and top industries states, “Pennsylvania’s low-cost natural gas resource can create significant economic benefits for energy-intensive manufacturers when used as a source of heat and power. In order to tap into those benefits, we need to identify ways to make it easier for manufacturers to adopt CHP (Combined Heat and Power) solutions...”

Response: The Department acknowledges the concern and has made changes to the final-form rulemaking to address this concern. Specifically, due to the efficiency and environmental benefits that CHP units provide; the Department understands that it is beneficial to incentivize new CHP buildout in this Commonwealth. In addition, incentivizing future CHP units provides economic development benefits and can be a significant factor for manufacturers and other industrial facilities looking to expand operations within or to this Commonwealth. In fact, the most recent Pennsylvania Climate Action Plan recognized the benefits and importance of incentivizing CHP. In the proposed rulemaking, the Department included a set provision that involved adjusting the compliance obligation of a unit. As proposed, the Department would have adjusted the compliance obligation by reducing the total CO₂ emissions by an amount equal to

the CO² 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. In this final-form rulemaking, the Department instead includes two tiers for the retirement of CO₂ allowances from the combined heat and power set-aside account. Under the first tier, which is an addition at final-form, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the total amount of CO₂ emitted as a result of providing all useful thermal energy and electricity during each allocation year. Under the second tier, which was included in the proposed rulemaking, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year. This two-tier approach aligns the overall environmental benefits of CHP units with the CO₂ allowances that may be requested.

252. Comment: The commentator submitted an analysis of the proposed rulemaking on their facility which illustrates that, with the implementation of the proposed RGGI rule and requirements to purchase allowances, their plant will realize a reduction in operating days due to the increased cost of producing electricity for sale to the PJM regional electric grid. This reduction in CHP operating days and electric output to the grid will result in the electric power being replaced and produced by less efficient, non-baseload electric generating units (EGUs), which also results in a net increase in the amount of CO₂ emissions generated to supply power to the PJM region.

Response: The Department acknowledges the comment and has addressed this concern through two separate changes to the final-form rulemaking. The first, as described above, expands the existing partial CHP set-aside to include a full set-aside for those qualifying CHP facilities that meet certain efficiency criteria. Additionally, under § 145.305 (relating to limited exemption for CO₂ budget units with electrical output to the electric grid restricted by permit conditions), the Department provided additional flexibility in the form of a limited exemption for CHP units that are interconnected and supply power to an industrial, institutional or commercial facility. In the proposed rulemaking, the interconnected facility was required to be a manufacturing facility. In response to comments received, in this final-form rulemaking, the Department broadened the language to allow for the interconnected facility to be an industrial, institutional, or commercial facility. A CHP unit that supplies less than 15 percent of its annual total useful energy to the electric grid, not including energy sent to the interconnected facility, does not have a compliance obligation under this final-form rulemaking. The owner or operator of the CHP 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 percent of annual gross generation to the electric grid. The Department included this additional exemption for CHP units that primarily send energy to an interconnected facility because these CHP units provide a CO₂ emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the interconnected facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO₂ emissions.

253. Comment: The commentator recommends tightening the definition of co-generation unit. Cogeneration unit should be defined as — an electric-generating unit that uses a steam-generating unit or stationary combustion turbine to simultaneously produce both electric or mechanical and useful thermal energy from the same primary energy facility, where the useful thermal energy produced is at least 25 percent of the total energy output of the facility on an annual basis, having an Electric Allocation Factor of less than 0.75 on an annual basis as defined in the United States Environmental Protection Agency eGRID database or its successor.

Response: The Department agrees and has changed the regulatory language to include similar criteria for a CHP unit to now qualify for the full Combined Heat and Power set-aside. The regulation now includes a useful thermal energy threshold of 60 percent or greater, and where total electric generation sent to the grid in comparison to total useful thermal energy is 25 percent.

254. Comment: While the adoption of a CHP set aside program in the proposed rule is a good first step, the provision does not capture the full carbon reduction attributes of CHP and especially CHP-fed district energy systems. It will result in the unintended consequence of producing an immediate spike in carbon emissions. The commentator recommends the regulation offset the full compliance obligation of qualifying cogeneration units and allow for the retirement of allowances associated with cogeneration including electricity production to remedy this issue.

Response: The Department understands the concern and has adjusted the language in the final-form rulemaking as a result. As in the proposed rulemaking, the combined heat and power units must submit a complete application to request that CO₂ allowances be retired by the Department on behalf of the unit. The Department added in this final-form rulemaking that if the unit is requesting total retirement of CO₂ allowances (covering all emissions), then the unit must satisfy the more stringent requirements. The unit must submit an application including documentation that the useful thermal energy is at least 25 percent of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit is at least 60 percent on an annual basis. If the unit is requesting partial retirement of CO₂ allowances, the unit must submit an application which includes documentation of the amount of useful thermal energy or electricity, or both, supplied to an interconnected industrial, institutional, or commercial facility.

255. Comment: The commentator is recommending that the term combined heat and power unit be specifically added to the applicability section regarding the cogeneration set-aside to clarify that combined heat and power units also qualify.

Response: The Department agrees with the comment and whereas the proposed rulemaking included a set-aside provision for cogeneration units, which also covered CHP systems, in this final-form rulemaking, the Department changed the name of the set-aside from “cogeneration” to “combined heat and power.” This change was made to clarify that it is CHP units that will be qualified for CO₂ allowances under the set-aside provision, where a CHP unit is defined as an electric-generating unit that simultaneously produces both electricity and useful thermal energy.

256. Comment: As an efficient technology that has been used to improve sustainability and the competitiveness of manufacturers, health systems and universities, the final rule should afford greater flexibility to combined heat and power systems by incorporating federal definitions of non-EGU facilities, as well as greater flexibility with respect to compliance obligations.

Response: The Department agrees, and as is explained further above, the Department understands the concern and has adjusted the language in the final-form rulemaking as a result. As in the proposed rulemaking, the combined heat and power units must submit a complete application to request that CO₂ allowances be retired by the Department on behalf of the unit. The Department added in this final-form rulemaking that if the unit is requesting total retirement of CO₂ allowances (covering all emissions), then the unit must satisfy the more stringent requirements. The unit must submit an application including documentation that the useful thermal energy is at least 25 percent of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit is at least 60 percent on an annual basis. If the unit is requesting partial retirement of CO₂ allowances, the unit must submit an application which includes documentation of the amount of useful thermal energy or electricity, or both, supplied to an interconnected industrial, institutional, or commercial facility.

Furthermore, under § 145.305 (relating to limited exemption for CO₂ budget units with electrical output to the electric grid restricted by permit conditions), the Department provided additional flexibility in the form of a limited exemption for CHP units that are interconnected and supply power to an industrial, institutional or commercial facility. In the proposed rulemaking, the interconnected facility was required to be a manufacturing facility. In response to comments received, in this final-form rulemaking, the Department broadened the language to allow for the interconnected facility to be an industrial, institutional, or commercial facility. A CHP unit that supplies less than 15 percent of its annual total useful energy to the electric grid, not including energy sent to the interconnected facility, does not have a compliance obligation under this final-form rulemaking. The owner or operator of the CHP 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 percent of annual gross generation to the electric grid. The Department included this additional exemption for CHP units that primarily send energy to an interconnected facility because these CHP units provide a CO₂ emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the interconnected facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO₂ emissions.

257. Comment: The commentator appreciates the set-aside provision in the proposed rulemaking for these technologies by reducing the compliance obligation for CO₂ emissions associated with the generation of thermal energy and/or electricity supplied to interconnected facilities.

Response: The Department appreciates the support for the CHP set-aside.

258. Comment: The commentator believes that CHP should be clearly exempt from the RGGI regulation. The energy efficiency and GHG reduction benefits of CHP are well-recognized in federal and Pennsylvania policy. Subjecting CHP to the compliance obligations, reporting and other requirements of the RGGI program would be detrimental to existing CHP in Pennsylvania and a significant disincentive to investments in new CHP.

Response: While CHP systems are not exempt from the final-form rulemaking, as explained above due to the energy efficiency and GHG reduction benefits as cited in the comment, the Department made changes to the final-form rulemaking to allow for expanded limited exemption criteria and set-aside opportunities.

259. Comment: Given the benefits CHP facilities offer, the Commonwealth should take a measured approach to the application of RGGI to CHP facilities to avoid that outcome and exclude newer, more efficient facilities as the regulation could discourage such facilities from being built in the Commonwealth.

Response: The Department acknowledges the comment, and though CHP units are not exempt from the regulation, changes to the final-form rulemaking both in terms of expansion of the limited exemption and set-aside provisions provide expanded compliance options for CHP units.

260. Comment: The commentator does not support inclusion of a CHP set aside.

Response: The Department established the CHP set-aside because CHP units concurrently produce electricity and useful thermal energy, making them energy efficient and environmentally beneficial. In the final-form rulemaking, the Department includes two tiers for the retirement of CO₂ allowances from the combined heat and power set-aside account. Under the first tier, which is an addition at final-form, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the total amount of CO₂ emitted as a result of providing all useful thermal energy and electricity during each allocation year. Under the second tier, which was included in the proposed rulemaking, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year. This two-tier approach aligns the overall environmental benefits of CHP units with the CO₂ allowances that may be requested. 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 CO₂ 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.

261. Comment: The commentator supports inclusion of CHP set aside.

Response: The Department appreciates this comment.

262. Comment: The commentator stated an increased CHP set aside is necessary.

Response: The Department agrees with the comment and has adjusted the language of the final-form rulemaking. In the proposed rulemaking, the Department included a set provision that involved adjusting the compliance obligation of a unit. As proposed, the Department would have adjusted the compliance obligation by reducing the total CO₂ emissions by an amount equal to the CO₂ 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. In this final-form rulemaking, the Department instead includes two tiers for the retirement of CO₂ allowances from the combined heat and power set-aside account. Under the first tier, which is an addition at final-form, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the total amount of CO₂ emitted as a result of providing all useful thermal energy and electricity during each allocation year. Under the second tier, which was included in the proposed rulemaking, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year. This two-tier approach aligns the overall environmental benefits of CHP units with the CO₂ allowances that may be requested.

263. Comment: The commentator suggests including avoided transmission line losses in § 145.342(k) as an additional benefit of combined heat and power systems.

Response: While the Department agrees that avoided transmission line losses are an additional benefit of CHP, the section to which the language addition was requested has been removed from the Annex.

264. Comment: The commentator recommends that rather than using the term “co-located facility” in reference to CHP units, the Department should indicate systems are “interconnected” to a facility.

Response: The Department agrees and replaced the term “co-located” with “interconnected” in the final-form Annex A.

265. Comment: Under § 145.305 (relating to limited exemption for CO₂ budget units with electrical output to the electric grid restricted by permit conditions), the Board proposes to provide 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 percent 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.

Response: The commentator has correctly portrayed the limited exemption which also appears in the final-form rulemaking.

266. Comment: The Department should provide additional flexibility in the form of a limited exemption for cogeneration units that are interconnected and supply power to not only manufacturing facilities, but other sectors beyond industrial that utilize the thermal capabilities and emission benefits of CHP, including: critical infrastructure, healthcare, higher education, and other emerging markets for CHP application in the Commonwealth.

Response: The Department understands the concern and has adjusted the language in the final-form rulemaking as a result. Under § 145.305 (relating to limited exemption for CO₂ budget units with electrical output to the electric grid restricted by permit conditions), the Board provides additional flexibility in the form of a limited exemption for CHP units that are interconnected and supply power to an industrial, institutional or commercial facility. In the proposed rulemaking, the interconnected facility was required to be a manufacturing facility. In response to comments received, in this final-form rulemaking, the Department broadened the language to allow for the interconnected facility to be an industrial, institutional or commercial facility. A CHP unit that supplies less than 15 percent of its annual total useful energy to the electric grid, not including energy sent to the interconnected facility, does not have a compliance obligation under this final-form rulemaking. The owner or operator of the CHP 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 percent of annual gross generation to the electric grid. The Department is including this additional exemption for CHP units that primarily send energy to an interconnected facility because these CHP units provide a CO₂ emission reduction benefit. These units provide useful thermal energy, a byproduct of electricity generation, to the interconnected facility which helps prevent the need for the facility to run additional boilers onsite to generate electricity which in turn avoids additional CO₂ emissions.

267. Comment: The Department should adjust the language within §145.305, limited exemption, from gross generation to net generation to account for the sale and purchase of electricity from the grid. Recommend “no more than 10% of the annual **gross** generation to the electric grid” to instead say “...the annual **net** generation to the electric grid.” This would be consistent with the Commonwealth of Virginia, which utilizes the term net instead of gross as stated in the Virginia Clean Energy Act.

Response: The Department acknowledges this comment. However, the Department has maintained the term “annual gross generation” in the limited exemption in this final-form rulemaking. The Department used “gross” vs “net” in the limited exemption because the term “gross” further supports the purpose of this final-form rulemaking, particularly as it relates to differences in carbon-intensity of electricity provided from the grid versus the facility.

268. Comment: The commentator references an analysis that increasing CHP deployment in Pennsylvania through investments could reduce annual CO₂ emissions by more than 1.1-million tons in 2030- Save nearly 6-million megawatt-hours of electricity in 2030, and save businesses \$3.3 billion in cumulative cost savings (2016-2030) from avoided electricity purchases.

Response: The Department acknowledges the comment and has relied upon similar analyses for the basis of establishing the CHP set-aside.

269. Comment: The commentator recommends removing the allocation of free emission allowances for CHP facilities. This will ensure that emission allowance prices are not artificially depressed through the allocation of free allowances, and that these facilities do not receive windfall profits and environmental subsidies that would increase their competitiveness in wholesale energy markets.

Response: The Department acknowledges the comment, and notes that the power sector modeling conducted includes the allocation of allowances through the set-aside provisions which do not have a price suppressing effect on the allowances. Additionally, the comment regarding competition in the wholesale energy market is outside of the scope of this rulemaking.

270. Comment: As proposed the commentator indicates that the Department regulation will have a significant negative impact on CHP units that provide electricity to the grid. The commentator indicated that the draft PA RGGI regulation would increase the time periods when it is not economically feasible for its CHP units to sell power to the electric grid. This reduction in CHP generation will, based on a review of historical generation, result in electricity production from a much higher CO₂ emitting power generation unit.

Response: The Department acknowledges this comment and has made changes to the final-form regulation to address these concerns in terms of an expanded CHP set-aside and expanded criteria for the CHP-related limited exemption.

271. Comment: The commentator requests that the Department exclude or provide a full exemption for CHP units in the final regulation due to the substantial energy efficiency and avoided GHG emissions benefits provided by these sources.

Response: The Department acknowledges the comment and has developed a full set-aside for qualifying CHP facilities in the final-form rulemaking. As in the proposed rulemaking, combined heat and power units must submit a complete application to request that CO₂ allowances be retired by the Department on behalf of the unit. The Department added in this final-form rulemaking that if the unit is requesting total retirement of CO₂ allowances (covering all emissions), then the unit must satisfy the more stringent requirements. The unit must submit an application including documentation that the useful thermal energy is at least 25 percent of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit is at least 60 percent on an annual basis. If the unit is requesting partial retirement of CO₂ allowances, the unit must submit an application that includes documentation of the amount of useful thermal energy or electricity, or both, supplied to an interconnected industrial, institutional or commercial facility.

272. Comment: While the commentator appreciates the Board's motivations underlying the proposed rulemaking, in its current form, the proposed rulemaking creates significant regulatory uncertainty and would impose additional, unpredictable costs and burdensome compliance

obligations on Pennsylvania businesses that own and operate cogeneration units and CHP systems.

Response: The Department acknowledges the comment and the concern regarding regulatory uncertainty and has made specific changes to the final form regulation to address this.

First, the proposed rulemaking included a set-aside provision for cogeneration units, which also covered CHP systems. In this final-form rulemaking, the Department changed the name of the set-aside from “cogeneration” to “combined heat and power.” This change was made to clarify that it is CHP units that will qualify for CO₂ allowances under the set-aside provision, eliminating stated uncertainty as to what units may qualify. A CHP unit is defined as an electric-generating unit that simultaneously produces both electricity and useful thermal energy.

Second, in the proposed rulemaking, the Department included a set provision that involved adjusting the compliance obligation of a unit. As proposed, the Department would have adjusted the compliance obligation by reducing the total CO₂ emissions by an amount equal to the CO₂ 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. In this final-form rulemaking, the Department instead includes two tiers for the retirement of CO₂ allowances from the combined heat and power set-aside account. Under the first tier, which is an addition at final-form, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the total amount of CO₂ emitted as a result of providing all useful thermal energy and electricity during each allocation year. The unit must submit an application including documentation that the useful thermal energy is at least 25 percent of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit is at least 60 percent on an annual basis in order to qualify for the first tier. Under the second tier, which was included in the proposed rulemaking, applicable combined heat and power units may request that the Department retire CO₂ allowances equal to the partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year. This two-tier approach aligns the overall environmental benefits of CHP units with the CO₂ allowances that may be requested.

Third, in response to comments received, in this final-form rulemaking, the Department broadened the limited exemption language to allow for the interconnected facility to be an industrial, institutional or commercial facility. A CHP unit that supplies less than 15 percent of its annual total useful energy to the electric grid, not including energy sent to the interconnected facility, does not have a compliance obligation under this final-form rulemaking.

273. Comment: The proposed RGGI regulations as currently written will have a very significant impact on the implementation and operation of CHP by industrial sources and commercial entities. This would create a disincentive for existing CHP facilities to operate as intended and potential deter future CHP investment and utilization.

Response: The Department acknowledges this comment and has made changes to the final-form regulation to address these concerns by the addition of an expanded CHP set-aside and expanded criteria for the CHP-related limited exemption.

274. Comment: Qualifying CHP facilities should be exempt from the regulation if they meet the following criteria: a useful thermal efficiency greater than 60 percent and its total electric generation sold to the grid, in comparison to its total useful thermal energy, is less than 50 percent”. If a facility meets these criteria than the facility should be exempt from the regulation.

Response: While the Department maintains the CHP limited exemption, it modified the set-aside provision in the regulation. The Department added regulatory language to include similar criteria for a CHP unit to now qualify for the full Combined Heat and Power set-aside. The regulation now includes language that the useful thermal energy has to be at least 25% of the total energy output of the combined heat and power unit on an annual basis and that the overall efficiency of the combined heat and power unit has to be at least 60% on an annual basis.

275. Comment: The commentator indicates that an exemption is preferred to the current proposed set-aside allocation as an exemption would eliminate the need for the complicated process of completing annual requests for allowance allocations.

Response: The Department acknowledges the comment. This final-form rulemaking does not categorically exempt CHP units because doing so would not account for the CO₂ emissions resulting from these units in this Commonwealth's annual budget.

276. Comment: The commentator proposes to modify the regulation so that the final regulations do not create a disincentive for cogeneration and specifically Combined Heat and Power facilities. Qualifying CHP facilities should be exempt -both existing and future- from the requirements associated with this regulation.

Response: The Department has amended the final-form regulation to address the concerns regarding regulatory uncertainty and disincentives for the future buildout of CHP. Though the facilities have more compliance flexibility, they are still subject to the regulation if they do not meet the CHP limited exemption criteria.

277. Comment: The commentator supports the proposed set-aside provisions under § 145.342(k) and § 145.305 for cogeneration units, which includes CHP systems. The commentator also thanks the Department for realizing CHP is both energy efficient and environmentally beneficial given that CHP concurrently produces electricity and useful thermal energy.

Response: The Department acknowledges the comment and appreciates the support for the CHP set-aside.

Waste Coal Set-Aside

278. Comment: The commentator supports the inclusion of the waste coal set-aside and states that waste-coal plants play a critical role in environmental remediation in the coal regions where they are located by removing coal refuse piles, remediating, and reclaiming mining affected lands and reducing or even eliminating surface and groundwater pollution caused by acid mine drainage (AMD) from coal refuse piles.

Response: The Department agrees and has cited these benefits as the reason for the establishment of the waste coal set-aside.

279. Comment: The commentator recognizes the goal of addressing CO₂ emissions from the electric generating sector while at the same time prioritizing the need to address abandoned mine land (AML) pollution from the Commonwealth's historic mining operations and ensuring an adequate and reliable supply of electricity to power our homes and businesses.

Response: The Department appreciates the comment.

280. Comment: The commentator appreciates the changes made during the process of developing this rule to extend the lookback period for legacy emissions considering recent market trends and provide greater regulatory certainty to individual plants.

Response: The Department appreciates the comment.

281. Comment: The commentator does not support the inclusion of a waste coal set aside in the proposed rulemaking.

Response: The Department included a 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 Pennsylvania. Coal piles are a significant environmental issue in Pennsylvania, 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 Pennsylvania. 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 Department 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 Pennsylvania'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 CO₂ emissions from waste coal-fired units are included in Pennsylvania's CO₂ 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.

While Pennsylvania'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 the 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 Pennsylvania'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.

282. Comment: The commentator suggests waste coal-fired units be required to purchase the allowances for associated emissions and these funds be utilized for environmental site remediation for sites not currently associated with, or in close proximity to, an existing coal refuse EGU.

Response: The Department acknowledges the comment though for the reasons stated above have maintained the waste coal set-aside in the final-form rulemaking.

283. Comment: The commentator states that the Department should consider simply excluding waste coal units from the proposed CO₂ budget trading program and reducing the 78-million-ton Pennsylvania CO₂ budget by an amount representing their legacy emissions. By excluding these facilities from the proposed rule, the Department would not only appropriately recognize the great environmental and safety and health benefits of this unique environmental remediation industry, but the Department would also provide environmental justice to the communities where the polluting coal refuse is located and to areas downstream from these coal refuse piles.

Response: The waste coal facilities are covered EGUs which would be subject to the final-form regulation. In balancing the goals of the regulation, and the benefits to the commonwealth from these facilities, it was decided not to exclude them from the regulation, but rather to keep them as part of the regulation with the associated set-aside account.

284. Comment: The commentator states that the program currently over-allocates allowances to the set-aside by setting it equal to the total of each waste coal-fired unit's highest year of CO₂ emissions from an identified 5-year period (equal to 9,300,000 tons). This creates an artificially high emissions budget that allows a greater aggregate level of emissions from these facilities than they have produced historically. The set-aside should not exceed the actual emissions from existing waste coal plants for the year during the 5-year period in which they generated the greatest amount of emissions in aggregate.

Response: The definition of legacy emissions remains unchanged in the final-form regulation, as the Department balances both the benefits provided by the industry and the need to assign a reasonable value to the set-aside. The set-aside value does not in itself limit the generation of the waste coal facilities, but rather establishes the amount of allowances available to those facilities, above which the facility would be required to acquire additional CO₂ allowances. Any unused allowances are transferred to the strategic use set-aside.

285. Comment: The commentator states that the set-aside should not be granted to facilities that are currently subject to any permit violations or enforcement proceedings regarding noncompliance with health and air quality protections. If a facility is not compliant with existing state or federal law – and is therefore damaging human health and the environment – the facility should be required to remedy the violation before being eligible for the set-aside.

Response: The Department acknowledges the comment, and any violations or enforcement proceedings will be handled by the Department apart from this final-form regulation.

286. Comment: The commentator states that recipients of the set-aside should be required to submit a plan to either reduce their emissions by implementing both conventional pollution and GHG control technologies or commit to facility retirement by 2030. In addition to implementing available pollution controls, facilities should be required to install and operate monitoring programs to ensure that local air quality does not worsen.

Response: The Department acknowledges the comment and the concern regarding maintaining local air quality. Under § 145.306(b)(3) (relating to standard requirements), the Department is making an annual commitment to assess changes in emissions and air quality in this Commonwealth as it relates to implementation of this final-form rulemaking. To address these concerns, the Department is committing to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emissions data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department’s regulations. The Department will assess the emissions data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the *Pennsylvania Bulletin* on an annual basis.

287. Comment: The commentator states that the definition of waste coal should be limited to coal abandoned prior to July 1982 and should not include any permitted disposal of coal refuse after that date.

Response: The Department acknowledges the comment, though the definition of “waste coal” used in this final-form rulemaking, for consistency purposes, is as defined within the definition of “alternative energy sources” under section 2 of the Alternative Energy Portfolio Standards Act (73 P.S. § 1648.2).

288. Comment: The commentator states that the waste coal set-aside should have a prescribed sunset date of December 31, 2029. The Department would have the option before that date, after reviewing emission trends and the amount of pre-1982 waste coal remaining in the Commonwealth, to extend that sunset or otherwise modify the rulemaking. There should also be verification of actual remediation benefits of waste coal-fired facilities before any decision is made to continue the set aside.

Response: The Department acknowledges the comment and notes that §145.342 (relating to CO₂ allowance allocations) contains a set-aside termination provision for the waste coal set-aside. The final-form regulation indicates that if no CO₂ allowances are allocated under subsection (i)(4) in any calendar year due to the fact that there were no actual CO₂ emissions from waste coal-fired units subject to this subsection, then the CO₂ allowances remaining in the waste coal set-aside account will be transferred to the strategic use set-aside account. No additional CO₂ allowances will be allocated to the waste coal set-aside account under subsection (i)(3) and the Department will close the waste coal set-aside account.

289. Comment: The commentator states that the Colver Green Energy facility should be included in any calculation of the Waste Coal Set Aside Account.

Response: The Department agrees and adjusted the value of the waste coal set-aside to from 9.3 to 10.4 million tons to account for the continued operation of the Colver facility in this final-form regulation.

290. Comment: The commentator states that the Waste Coal Set Aside Account should be adjusted to account for the higher operating capacity of these facilities that will be required to meet new in-state credit restrictions under Tier II of the AEPS program. The definition of “legacy emissions” should therefore be extended to encompass a timeframe when the majority of the industry was operating under PPAs and wholesale energy prices offered sufficient incentives for facilities without PPAs to operate at base load.

Response: The definition of legacy emissions remains unchanged in the final-form regulation, as the Department balances both the benefits provided by the industry and the need to assign a reasonable value to the set-aside. The set-aside value does not in itself limit the generation of the waste coal facilities, but rather establishes the amount of allowances available to those facilities, above which the facility would be required to acquire additional CO₂ allowances.

291. Comment: The commentator states that the Department should amend the waste coal set aside to reflect the tonnages of legacy emissions as the highest year of CO₂ emissions from a waste coal-fired unit during the time period that includes annual emissions for all years through at least 2010.

Response: The Department appreciates the comment, but has maintained the proposed definition of legacy emissions in the final-form rulemaking, which limits legacy emissions to the highest year of CO₂ emissions during the last five years.

292. Comment: The commentator states that if the Department is to use a 5-year timeframe to calculate the set aside in the proposed rule, the commentator recommends using Projected Annualized Emissions (PAE) to calculate legacy emissions for establishing the amount of the waste coal set aside account. Legacy emissions would be defined as the amount of CO₂ emissions in tons equal to the annualized total of the highest month of CO₂ emissions from a waste coal-fired unit during the 5-year period beginning January 1, 2015 through December 31, 2019. The amount of the set aside using the PAE during this timeframe would be 14.2 million tons. If the legacy emission definition remains unchanged, the proposed rule creates a

fundamental unfairness to those waste coal-fired facilities that operated at a reduced capacity during the proposed 5-year period.

Response: After evaluating a considerable number of options regarding the calculation of legacy emissions and the options of creating one central pool of allowances or individual allowance set-asides for each facility, the Department retained the calculation and definition used upon proposed for legacy emissions.

293. Comment: The commentator states that the combination of the projected increase in wholesale electricity prices in Pennsylvania from this proposed rulemaking and the allowance set aside, would likely make it economic for waste coal plants to operate and emit more than they currently do. Such an outcome thwarts RGGI and any clean air policy goals.

Response: The Department acknowledges the comment and the concern regarding achievement of clean air policy goals. The Department has set the value of the waste coal set-aside based on historical emissions, creating a ceiling for allowance allocation through the set-aside. Additionally, under § 145.306(b)(3) (relating to standard requirements), the Department is making an annual commitment to assess changes in emissions and air quality in this Commonwealth as it relates to implementation of this final-form rulemaking. To address these concerns, the Department is committing to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emissions data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emissions data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the Pennsylvania Bulletin on an annual basis.

294. Comment: The commentator states that because the Department is including a Waste Coal set aside, the Department is explicitly recognizing that the environmental challenges posed by the existence of waste coal are greater environmental threats than mitigating climate change.

Response: The final-form regulation allows Pennsylvania to create a regulation that is sufficiently aligned with the RGGI model rule to allow for participation in the regional auction, while enabling the Department to tailor the regulation through set-asides and other provisions to Pennsylvania's unique energy landscape. In creation of a waste coal set-aside in this program, the Department is able to advance the goals of reducing CO₂ emissions in this commonwealth, while acknowledging the unique benefits of the waste coal generation sector. They remain regulated by the Department and have a compliance obligation under this regulation.

295. Comment: The commentator states that the Department does not provide a rational basis for not acknowledging the environmental attributes of other sources of electric generation, and not providing commensurate recognition of these benefits in the rulemaking. The commentator

references acid mine draining and plugging of conventional orphaned and abandoned oil & gas wells as examples.

Response: As mentioned in the response above, the Department has tailored the regulation to include set-aside provisions to acknowledge the benefits and attributes of other sources of electric generation, including combined heat and power, waste coal and other non-carbon emitting sources such as those noted in the Strategic Energy Use Set-Aside. The Department acknowledges the importance of addressing well plugging and acid mine drainage, though those two items are outside of the scope of this rulemaking as those activities are not regulated entities under either the proposed or final-form regulation.

296. Comment: The commentator asks under the § 145.342(i) Waste coal incentive, will the Department actually purchase the credits totaling 9,300,000 for the waste coal industry? If so, what funds will be used for said purchase. The commentator encourages this incentive, and only ask the question for clarification.

Response: To clarify, the Department is not purchasing the 10.4 million CO₂ allowances for the waste coal set-aside. Instead, the Department is directly allocating CO₂ allowances from its air pollution reduction account to the waste coal set-aside account.

297. Comment: The commentator states that the proposed regulation should be revised to include restrictions that assure that allowances allocated from the waste coal set-aside can be used and retired only for carbon-dioxide emissions from waste-coal and biomass.

Response: The final-form regulation includes language restricting the allocation of allowances from the waste coal set-aside to only qualifying waste coal facilities which are defined as a facility combusting waste coal or, if in combination with any other fuel, waste coal comprises 75 percent 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.

298. Comment: The regulation should be revised to require reporting and allowance allocation adjustments to assure that the allowances are retired only from the combustion of waste coal. The proposed RGGI regulation proposes to do this by defining a waste coal facility as one whose feedstock is 75 percent waste coal. However, a facility meeting that definition could decide to operate fewer hours and simply sell allocated allowances. Likewise, it could burn, for example, 25 percent waste tires. Therefore, facilities receiving an allocation from this set aside should be required to report its feedstock and actual operations for the relevant reporting period and be charged the highest auction clearing price during the relevant period for any emissions that do not arise from waste coal or biomass.

Response: Section 145.342(i)(4)(ii) of this final-form rulemaking prohibits the sale or transfer of CO₂ allowances allocated to the compliance account of a waste coal-fired unit. Since that language is included in this final-form rulemaking, waste coal-fired units will be prevented from doing so in COATS.

299. Comment: While remediation of waste coal piles undoubtedly has environmental benefits, primarily associated with reduction of acidic drainage, the burning of waste coal for power generation would produce far more air pollutant emissions than would otherwise be emitted from a waste coal pile. To illustrate this point, the Department states that there are approximately 40 waste coal piles that are burning, which significantly impacts local air quality. However, the RAF fails to estimate emissions from either source so they could be compared. Likewise, the RAF fails to consider the amount of coal combusted in these fires to the far greater amount of waste coal combusted to generate electricity, and the corresponding CO₂ emissions from these waste coal pile fires is far less than the 9,300,000 tons/year of CO₂ generated by the waste coal fired EGUs in Pennsylvania. The EQB has failed to articulate “any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.” 71 P.S. § 745.5(a)(12). Furthermore, incentivizing waste-coal units with CO₂ allowances at no cost will provide them a competitive pricing advantage with respect to other fossil fuel sources. This will result in greater utilization of these units over coal or natural gas units, which would result in greater emissions of CO₂ and air pollutants than would otherwise be the case without RGGI. From an air quality perspective, subsidizing waste coal fired EGUs is actually subsidizing air pollution.

Response: The Department acknowledges the comment and the concern regarding the potential for a shift in generation and associated emissions. The Department has set the value of the waste coal set-aside based on historical emissions, specifically creating a ceiling for allowance allocation through the set-aside. Any unused allowances would not be made available to qualifying waste-coal facilities in subsequent years, but rather transferred to the Strategic Use Set-Aside account. Additionally, under § 145.306(b)(3) (relating to standard requirements), the Department is making an annual commitment to assess changes in emissions and air quality in this Commonwealth as it relates to implementation of this final-form rulemaking. To address these concerns, the Department is committing to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emissions data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department’s regulations. The Department will assess the emissions data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the Pennsylvania Bulletin on an annual basis.

300. Comment: The commentator recommends removing the Proposed Regulation’s allocation of free allowances to waste coal plants. Whether the potential benefits from the operation of waste coal plants cited in the Proposed Regulation accrue at all depends on multiple factors that strongly indicate that a blanket rule providing free allocation of RGGI allowances to these facilities is not justified. The commentator recommends the Proposed Regulation require these facilities purchase emission allowances at their fair market value without exemption or discount.

Response: The Department included a waste coal set-aside in this proposed rulemaking because waste coal-fired units provide an environmental benefit by reducing the amount of waste coal piles in Pennsylvania. Coal piles are a significant environmental issue in Pennsylvania, 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 Pennsylvania. 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 Department 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 Pennsylvania'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 CO₂ emissions from waste coal-fired units are included in Pennsylvania's CO₂ 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.

While Pennsylvania'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 the legacy waste coal piles may continue.

301. Comment: The commentator notes that the proposed regulation does not require any demonstration that using any particular source of waste coal provides a net benefit or is the most effective method of achieving the stated environmental goal. Without such a determination, there is no guarantee this part of the proposal is reasonable.

Response: The Department acknowledges this comment. As discussed in the Preamble and RAF, the waste coal set-aside is needed to ensure the continued reduction of the acres of waste coal piles remaining in this Commonwealth which cause air and water pollution, as well as safety concerns.

302. Comment: The commentator states that Pennsylvania's waste coal sector has received subsidies through tax credits and Alternative Energy Portfolio Standard credits, including increases to those subsidies after the proposed rule was approved by the Board. Therefore, the waste coal set aside should be suspended until the magnitude of existing subsidies is fully quantified and an analysis demonstrates that it is necessary to achieve environmental goals and consistent with state constitutional requirements.

Response: The Department acknowledges the comment and has taken into consideration in updated modeling and analysis the intervening changes to the AEPS since the regulation was originally proposed. The Department has maintained the waste coal set-aside in the final-form regulation.

303. Comment: The definition of what qualifies as waste coal should include only refuse that was abandoned prior to 1982, and should not include refuse that was part of a permitted disposal after that date or in the future. Any benefits of waste coal plant operation stem from their cleanup of abandoned coal piles, for which no existing entity has a financial obligation or legal liability, that are creating water pollution and other environmental issues for surrounding communities. If these problems are present at permitted refuse disposal sites, then that is a problem with the permit or its enforcement that needs to be addressed independently. Waste coal power plants should not be viewed as a substitute for current and future mining companies' environmental restoration responsibilities.

Response: The Department acknowledges the comment, though the definition of “waste coal” used in this final-form rulemaking, for consistency purposes, is as defined within the definition of “alternative energy sources” under section 2 of the Alternative Energy Portfolio Standards Act (73 P.S. § 1648.2). It is defined as 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.

304. Comment: Receipt of allowances under any waste coal set-aside should be contingent on the recipient having submitted to the Department a plan and making an enforceable commitment to reduce emissions—both carbon dioxide and other pollution—at the waste coal facility, including by implementing all reasonably available efficiency improvements and control technology for conventional air pollutants.

Response: The Department acknowledges this comment and notes that waste coal-fired units are already required by the Department to meet Best Available Technology (BAT) requirements for criteria pollutants. In addition to BAT requirements, the Department is also more thoroughly evaluating these and other facilities in determining updated Reasonably Available Control Technology (RACT) requirements to further limit NO_x emissions.

305. Comment: Since 2018, four waste coal plants have retired. These plants should be removed from the calculation of legacy emissions as they will not exist in 2022.

Response: The Department agrees, and only those waste coal facilities that are assumed to be operating in 2022 are included in the calculation of the waste coal set-aside.

Strategic Use Set-Aside

306. Comment: The commentators support the inclusion of the Strategic Use set-aside in the proposed rulemaking.

Response: The Department appreciates the comment.

307. Comment: The commentator states that the Strategic Use set-aside should still receive allowances if the Waste Coal set aside ceases to exist.

Response: The Department agrees, and the regulation contains the necessary flexibility to allow for allowance allocation to the strategic use set-aside independent of the waste coal set-aside if necessary.

308. Comment: Although this proposed section certainly carves out projects that "foster promotion of energy efficiency measures" related to energy consumption, behind-the-meter load response projects also address the demand component of electric generation production (and by correlation, emissions of CO₂ and other GHGs). The regulation should also acknowledge the opportunities presented by behind-the-meter load response technologies by adding the language "promote demand reduction" as an additional segment of "eligible projects".

Response: The Department acknowledges the comment, also recognizes the value of the behind-the-meter demand reduction projects, and does not believe a modification to the regulation is necessary as these projects would qualify under the strategic use set-aside as currently designed.

309. Comment: The commentator states the proposed rulemaking should include a voluntary renewable energy set aside.

Response: The Department elected to keep the strategic use set-aside as proposed, with some clarifications to explain that renewable and other non-emitting energy technologies would qualify for allocation of allowances under the strategic use set-aside. Rather than restrict the types of projects that would qualify for allowances, the Department has elected to keep the broader, more inclusive nature of the strategic use set-aside.

310. Comment: The commentator stated that a renewable energy set-aside will foster continued voluntary demand in Pennsylvania for in-state and RGGI-located generation, accelerating decarbonization and allowing this generation to be eligible for Green-e[®] Energy certification. Green-e[®] Energy certifies tens of millions of megawatt hours (MWh) of renewable energy each year and, as the only certification for the voluntary renewable energy market in the United States, is the de facto standard for private purchasing of renewable energy in North America. Where states or provinces have introduced cap-and-trade regulation without a renewable energy set-aside, Green-e[®] has required that Green-e[®] certified renewable energy from these jurisdictions be matched with purchased allowances equal to the generation's emissions reduction benefit on the grid. Where private purchasing of allowances is not possible, as is the case in RGGI states, there are no avenues to reclaim the avoided emissions benefit. In the few RGGI states that have not included a voluntary set-aside, residents are not able to purchase Green-e[®] certified renewable energy from generation located in the state or neighboring RGGI states, severely limiting options for impactful renewable energy procurement.

Response: The Department appreciates the comment, and since the strategic use set-aside is inclusive of renewable and other non-emitting energy technologies – it functions as other states' renewable energy set-asides and satisfies the criteria required for Green-e[®] certified renewable energy. The Department looks forward to fostering continued voluntary demand in Pennsylvania for in-state generation, accelerating decarbonization and enabling this generation to be eligible for Green-e[®] certification.

311. Comment: The commentator recommends that the Department clarify that the Strategic Use set aside can be used similarly to a Voluntary Renewable Energy set aside.

Response: The Department agrees and has clarified the language to explain that renewable and other non-emitting energy technologies would qualify for allocation of allowances under the strategic use set-aside.

312. Comment: The commentator encourages the Department to include § 145.342(j) Strategic use set-aside allocations to support manure to mine lands projects, reforestation of mine lands, energy audits within EJAs, support of unconventional hydro, support 10 Million Trees initiative, and provide funding to state agencies for the acquisition, preservation, protection and enhancement of forested resources.

Response: The Department acknowledges this comment and notes that projects that reduce greenhouse gases through energy efficiency measures, renewable or non-carbon emitting energy technologies, or innovative greenhouse gas emissions abatement technologies with significant greenhouse gas reduction potential would qualify for distribution of CO₂ allowances from the strategic use set-aside.

313. Comment: The criteria for the strategic use set-aside is too vague. The Department and the Board already should have identified the types of energy efficiency and renewable energy projects that will provide the most benefit per dollar, as well as the communities in Pennsylvania that are in the most need of investment in energy efficiency and renewable energy resources. The regulation should describe such projects and communities so that the proceeds of auctions of carbon dioxide allowances are targeted there.

Response: The Department appreciates the comment and notes that the investment of auction proceeds is separate and apart from the strategic use set-aside as outlined in the final-form regulation. The Department will allocate undistributed CO₂ allowances to the strategic use set-aside account for each allocation year from the waste coal set-aside account. The Department may then elect to distribute CO₂ allowances, not funding, from the strategic set-aside account to eligible projects. These project sponsors could then in turn monetize those allowances, but most likely will retire the allowances on behalf of a qualifying project to maximize the CO₂ or related greenhouse gas emissions reductions benefits.

Additionally, to address the investment of auction proceeds. Any proceeds generated from this proposed rulemaking would be invested into programs that would further reduce air pollution and create positive economic impacts in this Commonwealth. The use of auction proceeds as a result of this final-form rulemaking are not included in the regulation itself. The Department is developing a draft plan for public comment outlining reinvestment options separate from this proposed rulemaking.

314. Comment: The commentator recommends the strategic use set-aside not be contingent on unused allowances from the waste coal set-aside. The strategic use set-aside is intended to incentivize additional projects that reduce pollution and should be maintained regardless of how many emissions are produced by the waste coal industry.

Response: The Department acknowledges the comment and believes the regulation contains the necessary flexibility to allow for allowance allocation to the strategic use set-aside independent of the waste coal set-aside if necessary.

CO₂ Allowance Offset Projects

315. Comment: The commentator appreciates the flexibility offered to EGUs to participate in offset projects. As carbon abatement technologies and methods evolve, the commentator asks that the Department accept and review proposals on an annual basis for additional methods that demonstrate in a quantifiable way that the allowances represent CO₂ emission reductions or carbon sequestration that is real, additional, verifiable, enforceable and permanent.

Response: The Department acknowledges the comment. While the Department has maintained the current three categories included as offsets, there will be opportunities, most likely during the upcoming RGGI program review during which the offset provisions and project types can be discussed. Given the reciprocal nature of the CO₂ allowances, any new offset program would require discussion, agreement regarding protocols, and measurement and verification among the participating states.

316. Comment: The commentator states that regenerative agricultural practices should be included as eligible offset projects in this proposed rulemaking.

Response: As described under § 145.395 (relating to CO₂ emissions offset project standards), there are three eligible offset categories included in the final-form regulation which are 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 CO₂ 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 final-form rulemaking. These requirements ensure that awarded CO₂ offset allowances represent CO₂e emission reductions or carbon sequestration that are real, additional, verifiable, enforceable and permanent. While these are the current three categories included as offsets, there will be opportunities, most likely during the upcoming RGGI program review during which the offset provisions and project types can be discussed. Given the reciprocal nature of the CO₂ allowances, any new offset program would require discussion, agreement regarding protocols, and measurement and verification among the participating states.

317. Comment: The commentator states that the Department should re-examine the exclusion of well plugging as a potential allowance offset opportunity for a generator with a compliance obligation under the proposed rulemaking.

Response: As indicated in the response above, the final-form regulation includes those three existing offset programs as outlined in the RGGI model rule. The Department agrees with the importance of well plugging in this Commonwealth and wants to ensure ample opportunities for

well plugging. However, the Department has chosen to prioritize well plugging through the investment portion of the RGGI program rather than through the regulatory side. Additionally, as the RGGI Program Review is on the horizon, this will provide an opportunity for further discussion about the existing offsets and potential for additional offset categories.

318. Comment: The commentator states that the reasons for removal of the methane emissions offset remain unknown with no discussion in the Preamble to the proposed rule or other public documents. The commentator states that it appears that the removal is related to the price of CO₂ cited at the meeting of the Oil and Gas Technical Advisory Board on May 20, 2020 when the Department stated that given the current price for CO₂ (i.e., \$5.65 per ton of CO₂) when compared to the costs to plug abandoned wells, the benefit was considered to be outweighed by the costs to set up a monitoring and evaluation program to track the offset of methane from abandoned wells. The commentator believes that it is possible to meet the standards for being real, additional, verifiable, enforceable, and permanent and that the allowance price has been higher than projected, and will continue to be, so including well plugging as an offset category will be more viable.

Response: There was no mention of the methane emissions offset in the regulatory documents as it was merely a concept that was never fully developed, and as such not included in the proposed regulation. As stated in the previous response, the Department agrees with the importance of well plugging in this Commonwealth and wants to ensure ample opportunities for well plugging. However, the Department has chosen to prioritize well plugging through the investment portion of the RGGI program rather than through the regulatory side. Additionally, as the RGGI Program Review is on the horizon, this will provide an opportunity for further discussion about the existing offsets and potential for additional offset categories. Given the reciprocal nature of the CO₂ allowances, any new offset program would require discussion, agreement regarding protocols, and measurement and verification among the participating states.

319. Comment: The commentator states that well plugging presents at least the degree of collateral benefits as do waste coal plants and probably more. Importantly, well plugging presents direct carbon emissions reduction/prevention benefits which is the essential purpose of the RGGI program. Abandoned wells are a legacy issue related to this Commonwealth's long history of oil and gas production. Abandoned wells cause pollution, as well as safety concerns. It is a vital here with respect to well plugging as it is for waste coal plants to not leave additional environmental issues, like climate change, for future generations. Well plugging also provides improved water quality as abandoned wells leak oil, natural gas, other pollutants that can impact ground and surface water. Abandoned wells also present a safety risk as abandoned wells pose a risk of explosion and negative health effects for both commercial and residential properties. Further, the presence of abandoned wells reduces property values, negatively impacts land and economic development, as well as recreational and conservation opportunities. Moreover, Pennsylvania well plugging can produce good paying Pennsylvania jobs. While critics of Pennsylvania's entry into RGGI cite loss of jobs at the outset from the program, an offset program will create jobs. While the commentator understands that it has been said that well plugging may be a funding target down the road, this issue will only continue to grow with time and should not be the basis to eliminate a worthy offset program at the outset of the RGGI program.

Response: The liaison between the waste coal plants and well plugging is not an exact parallel as waste coal facilities have a compliance obligation under this regulation, and are not eligible offset projects. The Department agrees that abandoned wells are a legacy issue for this Commonwealth, and as mentioned the Department seeks to target plugging with auction proceeds. Reinvestment of the auction proceeds will be of enormous benefit to this commonwealth, in regard to not only the environment, but the economy as well.

320. Comment: The commentator states that with the 2017 RGGI Model Rule, there are only a few types of projects that are eligible for offsets, even if other activities can reduce the same level of emissions. This rigid eligibility structure does not present a fuel and technology neutral approach and Pennsylvania could use its eventual position in the RGGI stakeholder process to expand the options. For example, given the low amount of natural gas and oil production in other RGGI states, it is not surprising to see that upstream sustainability projects that reduce emissions are not included.

Response: As mentioned, the RGGI Program Review is on the horizon, and this will provide an opportunity for further discussion about the existing offsets and the potential for additional offset categories.

321. Comment: The commentator says it is confusing that a draft regulation pursuant to CO₂ discusses methane projects as offsets. Why are offset credits for landfill gas and agricultural methane provided in this draft? Is methane associated with these offsets going to be converted to CO₂ credits? If so is one methane credit equal to one CO₂ credit (X) or 25X? Referenced in § 145.395.

Response: One CO₂ offset allowance is equivalent to one CO₂ allowance. The calculations for converting other GHG emissions to CO₂ equivalent (CO₂e) emissions is detailed under § 145.395 (relating to CO₂ emissions offset project standards) of this final-form rulemaking.

322. Comment: The commentator asks under the *Offset provisions*, how are values assigned to projects? Who validates and assigns said values? How long must projects remain functional after generating a credit? Do new riparian or reforestation projects generate reoccurring or one-time credits?

Response: The answer depends on the type of offset project and is detailed under each offset project's description under § 145.395 (relating to CO₂ emissions offset project standards) in this final-form rulemaking.

323. Comment: The commentator asks under § 145.393 what is the definition of “partially” in the commonwealth? The commentator believes 51 percent of the project should be within Pennsylvania.

Response: Under § 145.393(a)(2)(ii) of this final-form rulemaking, offset projects are required to be located in this Commonwealth or at least be partly located in this Commonwealth as long as the rest of the project is located in a state participating in RGGI. This is to prevent CO₂ offset

allowances from being provided to projects located outside of the RGGI states. The Department also requires that the majority of the CO₂e emissions reductions or carbon sequestration due to the offset project occurs in this Commonwealth.

324. Comment: The commentator asks if state agencies can implement projects and sell CO₂ credits (i.e. Bureau of Abandoned Mine Reclamation (BAMR) completes a 50-acre reforestation project and 30-acre refuse pile fire)? The commentator is in favor of state agencies being able to augment their project and general budgets with CO₂ credit proceeds.

Response: State agencies are permitted to sponsor an offset project provided they satisfy the requirements under § 145.394 (relating to application process).

325. Comment: The commentator asks if the Department would define “permanent” under § 145.391.

Response: The term “permanent” is used in this final-form rulemaking as it is commonly defined in the dictionary. The intent is to ensure that the CO₂ reduced by an offset project is not later allowed to be emitted.

326. Comment: The commentator recommends revising the offset allowance eligibility to require the offset project be located solely within Pennsylvania and within 3 miles of the subject plant. If offset allowances are adopted as a permitted compliance mechanism, the use of offsets should be conditioned on ensuring that the emission benefit accrues within the communities that otherwise would have benefited if emission reductions were achieved at the subject facility itself.

Response: The Department acknowledges the comment, though citing the regional nature of the RGGI program, and the reciprocity of CO₂ allowances, the Department maintains these eligibility criteria in the final-form rulemaking.

Compliance Requirements

327. Comment: The commentator would like to propose two edits to the sections on notice and recordkeeping. First, the commentator would recommend that the notice section be consistent with the requirements of the Newspaper Advertising Act for public notice so that the public is adequately informed of the auction. The commentator suggested the following language to put this notice in line with similar law: At least thirty (30) days prior to any scheduled auction the board shall give notice thereof, not less than once in two (2) newspapers of general circulation in the county, if so many are published therein, and once in the legal journal, if any, designated by the court for the publication of legal notices. Such notice shall set forth (1) the time and date of such auction, (2) the place of such auction, (3) the terms and procedure of the auction, and (4) a description of what is being auctioned. The commentator also recommends that the section on recordkeeping reference the Right to Know Law in order to ensure public access and accountability: § 145.375. Recordkeeping and reporting This section proposes to establish recordkeeping and reporting requirements including monitoring plans, certification applications and quarterly reports. The board shall be a commonwealth agency and records, including but not

limited to monitoring plans, certification applications and quarterly reports, shall be subject to the act of February 14, 2008 (P.L. 6, No. 3), known as the Right-to-Know Law.

Response: The Department acknowledges the comment and believes the current procedures as outlined ensure that the public is adequately aware and informed of the availability of the auction.

328. Comment: The Department should employ mechanisms such as drafting and publishing a factsheet for each air quality permit issued related to emission/RGGI credit limitations.

Response: The Department acknowledges this comment. Air quality permits are made publicly available on the Department's website.

329. Comment: The commentator states that it is their understanding of the penalty scheme in proposed § 145.355(d) that, if a CO₂ Budget Source's emissions exceed the equivalent number of allowances in the account when deductions are made for compliance purposes, the Department will deduct allowances equal to three times the number of the CO₂ Budget Source's excess emissions. If the compliance account does not contain enough allowances to cover these additional deductions, the CO₂ Budget Source must transfer adequate allowances to that account immediately. Additionally, and for the same violation, a CO₂ Budget Source will be subject to a permit violation. If a CO₂ Budget Source has excess emissions in a control period or an interim control period, each day of that control period constitutes a day of violation unless the owner or operator demonstrates that a lesser number of days should be considered. Furthermore, each ton of excess emissions will be considered a separate violation. It is unclear from the proposed regulation how the Department proposes to calculate this penalty. If the Department intends to rely on existing law, namely the APCA penalty provision, the penalty could be as high as \$25,000.00 per day per ton, which is excessive for an administrative violation. 35 Pa. Stat. § 4009.1. This penalty scheme anticipates three separate penalties arising out of a single administrative violation: (1) a treble penalty in the form of allowance deductions, (2) a per day 13 violation, and (3) a per ton violation. Such a penalty for an administrative violation "strikes at one's conscience as being unreasonable."

Response: The Department acknowledges this comment and will assess any penalties in accordance with this final-form rulemaking and the APCA, including ensuring that the final penalty is appropriate for the violation.

330. Comment: The commentator states that the Department's cost of compliance on a per-ton basis is understated. The commentator states that since a proportion of the projected avoided emissions in Pennsylvania are mitigated by emissions increases in other states, the compliance obligation is understated by an equally proportional amount.

Response: This final-form rulemaking requires affected facilities to purchase CO₂ allowances equal to their CO₂ emissions. The CO₂ allowance price is not dictated by emissions changes in other PJM states.

331. Comment: The commentator asks how noncompliance with CO₂ budgets for generators is handled under this rulemaking, and if a generator has multiple occurrences of noncompliance, will credits be forfeited and future permission to participate revoked.

Response: The penalty for a CO₂ budget source that is noncompliant due to excess emissions is detailed under § 145.355(d) (relating to compliance) of this final-form rulemaking. This includes deducting CO₂ allowances equal to three times the number of the CO₂ budget source's excess emissions.

332. Comment: The commentator states under § 145.304 they object to allowing generators three years to fully offset their emissions. What happens if a generator goes bankrupt with only 50 percent of their CO₂ budget paid?

Response: CO₂ budget units are not provided three years to offset their emissions. They are instead required to obtain one CO₂ allowance for each ton of CO₂ they emit. During the first 2 years of a 3-year control period, the unit must hold 50 percent of its required CO₂ allowances in its compliance account by the CO₂ allowance transfer deadline. During the last year of a 3-year control period, the unit must hold 100 percent of its required CO₂ allowances in its compliance account by the CO₂ allowance transfer deadline. The interim control period requirement to hold 50 percent of the unit's CO₂ allowances was added by the RGGI states during a recent update to the Model Rule to account for the possibility of an EGU filing bankruptcy in the middle of a control period.

333. Comment: The commentator states that under § 145.356 they oppose the ability to perpetually bank CO₂ credits. Conceivably large-scale projects could be completed early in the first performance period of RGGI. Due to the magnitude of scale these credits may be cheaper to obtain than in 2029. Therefore, banking credits allows for manipulation of credit values over time. The commentator believes credit should be spent within two performance periods.

Response: The Department acknowledges this comment and disagrees that CO₂ allowances should expire after a period of time. The ability to purchase allowances and use them for compliance at a later date increases compliance flexibility and decreases costs embedded with this final-form rulemaking.

334. Comment: RGGI does not have control options other than fuel switching, reduced operations or retirement. Consequently, RGGI maximizes the costs to the certain generators. The only potential for trading would be the speculative purchase of RGGI allowances.

Response: The Department disagrees with this categorization of the RGGI program. Regulated EGUs may reduce CO₂ emissions, purchase CO₂ allowances, or develop offset projects to comply with the requirements of this final-form rulemaking.

335. Comment: The commentator requests that the Board provide additional clarification regarding the type of information, data, and records that must be maintained to demonstrate compliance with a supply restriction under an AQ Permit. Under Section 145.305(c)(3), owners and operators of exempt EGUs are required to retain "records demonstrating that conditions of

the permit under subsection (a) were met," and 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." In the event the Department determines that an owner or operator "fails to meet their burden of proving that the unit is complying with the restriction," the exemption under Section 145.305(a) is lost. See *id.* § 145.305(c)(5)(ii). The proposed rulemaking, however, fails to expressly state the types of information or records that an owner or operator would need to retain in order to demonstrate compliance.

Response: The Department acknowledges this comment. As with any permit condition, the owner or operator will need to be able to sufficiently show that the condition allowing the unit to qualify for the exemption has been satisfied.

336. Comment: The commentator requests that the Board revise the proposed rulemaking to make clear that owners and operators of previously exempted EGUs are only required to obtain and hold CO₂ allowances for the affected EGU as measured by the percentage of output that exceeds the applicable percentage.

Response: The Department acknowledges this comment and disagrees with the suggested revision. If the limited exemption is exceeded, the EGU must fully comply with this final-form rulemaking.

337. Comment: The commentator states that as the applicable document retention period under Section 145.305(c) is ten years, the proposed rulemaking leaves open the question of whether the Department would seek to retroactively enforce a compliance obligation on owners and operators of exempt EGUs. Given the potentially high costs associated with losing an exemption, clarification on these points is again crucial for both providing regulatory certainty to the regulated community and for reducing potentially conflicting interpretations in the event the proposed rulemaking is finalized.

Response: The Department acknowledges this comment. As stated in the Annex for this final-form rulemaking, the Department may, in writing, extend the 10-year period for keeping records, at any time prior to the end of the period.

338. Comment: The commentator states that the RGGI program compliance should begin for a facility commencing with the first three (3) year control period (3 years) following commercial operation of the facility is fully operational and the Title V permit is application filed. This would allow facilities to begin RGGI program compliance after the initial startup and shakedown period aligned with normal operations. It also allows the facility and ones like it to be accounted for accurately during a full control period.

Response: The Department acknowledges this comment. The compliance dates included on proposed are retained in this final-form rulemaking.

339. Comment: The commentator requests that the Department provide unencumbered carbon allowance allocations for the first year of a facility's startup period analogous to U.S. EPA's Acid Rain Program.

Response: The Department acknowledges this comment and disagrees with the suggestion. The Department does not deem that provision necessary to maintain the low-cost nature of this final-form rulemaking. Furthermore, the Department does not deem the startup period of a facility as requiring special consideration in design of this final-form rulemaking.

Comment: Further, the Department should also expressly state in terms of compliance obligations that should a non-EGU CHP or cogeneration facility that is supporting manufacturing exceed the sales threshold, the unit shall only be required to retire emissions offset credits equivalent to the emissions associated with the sales or output above the threshold, not all emissions for one given year. There may be certain circumstances, such as an extreme weather event or a pandemic, in which circumstances beyond management's control may dictate that a manufacturing facility be required to shut down a line or sell additional power to the grid.

Response: The Department acknowledges this comment and disagrees with the suggested revision as it recommends that the Department allow exempted facilities to not have to comply with a permit condition. If the limited exemption is exceeded, the EGU must fully comply with this final-form rulemaking.

340. Comment: The commentator states that the Department does not align the RGGI rulemaking with the federal non-EGU definition, and the Department should recognize the annual net-electric sales limit of ten percent, as proposed, presents substantial compliance risk for CHP units. It is our understanding that should a CHP unit in any given year sell more than ten percent of net-electricity production, the unit will be liable for all CO₂ emissions produced in that given year, not just the emissions associated with the production in excess of ten percent. The final rulemaking should clarify that only the increases associated with sales above ten percent should trigger compliance obligations.

Response: The Department acknowledges this comment and disagrees with the suggested revision. If the limited exemption is exceeded, the EGU must fully comply with this final-form rulemaking. However, in addition to the limited exemption, the Department includes two tiers for retiring CO₂ allowances on behalf of a CHP unit under the CHP set-aside.

Multistate CO₂ Allowance Auctions

341. Comment: The commentator states that Pennsylvania should auction the remaining allowances. A key element of the RGGI program is the investment of auction proceeds. Thus, the commentator supports the Department's proposal to auction the vast majority of allowances, with the proceeds to be invested in ways that further reduce emissions.

Response: The Department acknowledges this comment. The vast majority of CO₂ allowances will be auctioned, and the auction proceeds will be used in a manner consistent with the APCA and to fulfill the purpose of this final-form rulemaking.

342. Comment: The commentator supports the auction of allowances included in the proposed rulemaking.

Response: The Department thanks the commentator for their support of this rulemaking.

343. Comment: The Board should consider several modifications to strengthen the proposed regulation. The proposed regulation should provide for an initial Pennsylvania-only auction with a reserve price to assure that allowance prices do not crash and base future yearly budgets based on the number of allowances that clear that auction.

Response: The Department acknowledges this comment. This Commonwealth will participate in multistate auctions conducted by RGGI, Inc. in accordance with §§ 145.401—145.409 of this final-form rulemaking.

344. Comment: The law and regulations governing use of the Clean Air Fund support the types of uses of auction proceeds that will generate jobs and promote environmental justice while further reducing GHG emissions. The Department contemplates use of the Fund in this manner.

Response: As stated in this final-form rulemaking, the multistate auction proceeds will be deposited in the Department's Clean Air Fund and used to further eliminate air pollution as authorized under the APCA. The Department's authority under the APCA includes using the auction proceeds to reduce GHG emissions in furtherance of the purpose of this final-form rulemaking. The investment of the auction proceeds will be discussed in a separate Investment Plan, which will be available for public comment later in the summer of 2021.

345. Comment: The commentator states that Pennsylvania should not allow transfers of RGGI proceeds into the general fund. Such transfers are discouraged by the RGGI model legislation and would inspire a negative public reaction, as they did in New York, Connecticut, and New Jersey. Moreover, transfers to the general fund would be inconsistent with RGGI's primary purpose and goal -- fighting climate change.

Response: The Department does not have the authority to deposit the multistate auction proceeds in the Commonwealth's General Fund. As stated in this final-form rulemaking, the multistate auction proceeds will be deposited in the Department's Clean Air Fund and used to further eliminate air pollution as authorized under the APCA.

346. Comment: The commentator asks the Department to confirm that auction proceeds will augment and not supplant existing Clean Air Act funds.

Response: The commentator is correct. This final-form rulemaking will not replace existing funds in the Department's Clean Air Fund. The auction proceeds will be deposited in a subaccount within the Department's Clean Air Fund and used to further reduce air pollution in this Commonwealth, particularly GHG emissions.

347. Comment: The commentator submits that any investment programs resulting from this proposed rulemaking should remain exclusively under the jurisdiction and enforcement of the Department, and not the PUC.

Response: Auction proceeds as a result of RGGI participation would be deposited in the Clean Air Fund, which is managed by the Department.

348. Comment: The commentator states that similar to the Chesapeake Bay modeling, the commentator contends that without significant changes to tracking and communication with other agencies, the Department will not be able to properly track GHG reductions made outside of the RGGI funded projects and credit program. A lack of quantitative data integration across state grantmaking systems results in difficulty quantifying environmental benefits of PennVest, DCNR C2P2, Growing Greener, BAMR, and other programming. Funding needs applied to generating a system that can accurately and quantifiably track (from all funding sources) not only 1) number of trees planted, 2) acres planted, 3) linear feet planted, but also 4) dollars invested, 5) dollars leveraged, but also 6) emissions sequestered.

Response: The Department acknowledges this comment. The Department currently maintains a GHG emission inventory which is updated every year. The Department's GHG Inventory relies on the EPA's State Inventory Tool (SIT). The SIT is a model designed to help states develop GHG emissions inventories, consisting of 11 estimation modules applying a top-down approach to calculate GHG emissions, and one module to synthesize estimates across all modules. The Department also incorporates additional state-specific data. All of the modules examine direct GHG emissions, with the exception of the electricity consumption module which estimates indirect GHG emissions from electricity consumption. The methods used and the sectors covered are the same as those in the U.S. GHG Inventory. Tracking emissions reductions from various programs beyond this final-form rulemaking are outside the scope of this final-form rulemaking.

349. Comment: The commentator states investment plan envisioned by the Department is an integral component to the proposed rulemaking. However, the Department has not yet published it for comment and has announced it intends to do so outside of this comment docket. The proposed rulemaking should not move forward until the investment plan is prepared and subject to simultaneous comment.

Response: The Department acknowledges this comment. The investment of the auction proceeds will be discussed in a separate Investment Plan, which will be available for public comment later this summer. The Department has committed to finalizing the investment plan prior to the implementation of this final-form rulemaking.

350. Comment: The commentator states the proposed rulemaking should be revised to include essential protections for Pennsylvania energy consumers, including procedures to formally withdraw Pennsylvania from RGGI in response to damaging energy price fluctuations, the loss of energy exports, or revisions to the RGGI Model Rule inconsistent with Pennsylvania's public policy objectives.

Response: There are some existing regulatory protections for RGGI participating state energy consumers which are included in the model rule. For example, there is a Cost Containment Reserve (CCR) whereby if allowance prices exceed the established range, then the CCR would be triggered thereby releasing additional allowances into the market in order to suppress allowance prices, a consumer protection mechanism. Additionally, in § 145.401 (relating to

auction of CO₂ allowances), the Board includes a provision for the Department to participate in multistate CO₂ 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. Additionally, the multistate auction process must be consistent with the process described in this final-form rulemaking and include monitoring of each CO₂ 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 final-form rulemaking, the Board provides for flexibility in case the benefits of the multistate auctions diminish in the future.

Modeling & Data Analysis

351. Comment: The commentator states that the modeling was not conducted in time to account for changes to the economy and the power sector as a result of the COVID-19 pandemic, and therefore the Department should revisit the modeling results.

Response: The Department conducted a second round of modeling to ensure that the modeling was as up to date as possible, and, among other things, the modeling accounted for changes as a result of COVID-19. In February of 2021, the Department updated the power sector modeling assumptions and inputs previously included in the 2020 round of modeling. These assumptions and inputs include the following: 2021 PJM electricity demand forecast, 2021 AEO Natural Gas Prices, updated capacity additions and retirements, updated technology costs and revisions to state law and policies which encompasses the new in-state generation requirement for Tier II resources under the Alternative Energy Portfolio Standards Act (73 P.S. §§ 1648.1—1648.8), as amended by 66 Pa.C.S. § 2814.

Most notably, the difference in the modeling assumptions between 2020 and 2021 was the demand forecast for electricity. As a direct impact of the COVID-19 pandemic, the projections for what the future demand for electricity would be were below the 2020 projections, which had been made prior to the onset of the pandemic. In summary, though the original 2020 modeling did not account for impacts of the COVID-19 pandemic, the updated 2021 modeling conducted through updated assumptions includes those impacts.

352. Comment: The commentator states that the modeling did not have a wide enough scope.

Response: The Department disagrees because the scope of the modeling, which included power sector, economic and health benefits calculations, was adequate to assist in analyzing this final-form rulemaking.

353. Comment: The commentator states that there have been allegations of conflict on the part of the consultants in developing modeling. The commentator states that ICF International regularly engaged in lobbying practices as a signatory on advocacy letters in support of RGGI before the both the CAC and the Board. Additionally, ICF International appeared on a letter that was sent to the General Assembly opposing House Bill 2025, a bill that would have further solidified the legislative approval of regulations similar to RGGI.

Response: The Department disagrees with this characterization. In July of 2020, businesses supporting the passage of this final-form rulemaking sent a letter to members of the Board. The letter of support was representative of the widespread business support for this final-form rulemaking and included a broad coalition of businesses across Pennsylvania. The letter did include the use of ICF's logo, however ICF has repeatedly clarified that it had no knowledge of and did not give permission for its name to be used in a letter supporting the final-form rulemaking. ICF added that had they been asked to participate, they would have declined as ICF is a non-partisan, non-political company.

Further, the Keystone Energy Efficiency Alliance, who authored the letter, sent a revised letter to this Board that did not have ICF's logo and further clarified that the remaining signatories had authorized the use of the logo in support of this final-form rulemaking.

The Department has full confidence in ICF's modeling capabilities and the results that they produced. ICF is an unbiased modeling consultant who has been used by State and National governments, organizations, and companies to conduct power sector modeling. In addition, the Department had significant oversight over the modeling process. The Department met with ICF on a weekly basis and all of the data and assumptions came from the Department and reputable sources such as EPA's Clean Air Market Division and the U.S. Energy Information Administration.

Further, the Department has been transparent in terms of the modeling and the inputs and assumptions that went into the modeling, both for the original 2020 modeling and the updated 2021 modeling runs as well. The underlying data and assumptions are sound. All modeling results, assumptions and raw data have been made available to the public through the Department's website in several areas and have been presented and discussed with thousands of stakeholders through the course of this rulemaking. The Department has also held individual meetings with stakeholders and the modeling contractor when requested to make sure that all questions and inquiries regarding the modeling were thoroughly answered. The modeling information posted to the Department's website consists of comprehensive spreadsheets containing all the assumptions and raw data upon which the Department's analyses and conclusions were based.

The Department also compiled a Pennsylvania RGGI Modeling Report which provides a detailed explanation of modeling processes, assumptions, inputs, and outputs to provide a broad understanding of the results. This summary report, all the modeling results and recordings of the public webinars providing further explanation of key results are available on the Department's RGGI webpage located at www.dep.pa.gov/RGGI.

354. Comment: The commentator states that, as EPA noted in a 2016 technical support document, the social cost of carbon (in 2007 dollars) ranges from \$12 per ton in 2020 to \$212 per ton in 2050. The Department's modeling projects RGGI credit prices, should PA join, will fluctuate between \$5 and \$7 per ton. It is apparent that if the Department's modeling is accurate RGGI credit prices will not be greater than even the lowest social cost of a ton of carbon. Given that much of the Department's rationale in justifying this regulation is to avoid impacts from greenhouse gas emissions, it is not apparent how establishing a tax that is less than the assumed economic damages is rational. Further, the commentator is not aware that the Department or the administration has, as a matter of policy established through a process that involved public comment, a preferred value for the social cost of carbon to inform air quality rulemaking.

Response: The Department acknowledges that there is a social cost of carbon pollution. The Department referenced a social cost of carbon in its Climate Action Plan, published in 2018, that details many recommendations to reduce GHG emissions across all sectors. See Pennsylvania Climate Action Plan [http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1454161&DocName=2018%](http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1454161&DocName=2018%20Climate%20Action%20Plan)

[20PA%20CLIMATE%20ACTION%20PLAN.PDF%20%20%20%3cspan%20style%3D%22color%3b%22%3e%28NEW%29%3c/span%3e.](#)

In that document, the Department used a social cost of carbon of \$95. That social cost of carbon is the 2050 social cost of carbon assuming a 2.5 percent discount rate. That social cost of carbon was used only as a comparison in evaluation of GHG emission reduction strategies and not to inform an air quality rulemaking.

The Department does not equate an allowance price to the social cost of carbon. Further, this final-form rulemaking does not factor the social cost of carbon into the allowance price. If CO₂ allowances are purchased through the multistate auctions, the owner or operator of a CO₂ budget unit will pay the auction allowance price for each ton of CO₂ the unit emits. Reserved CO₂ 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 CO₂ the unit emits and the allowance price. The owner or operator may also purchase CO₂ allowances on the secondary market where they could potentially purchase CO₂ allowances at a price lower than the RGGI allowance price. CO₂ allowances also have no expiration date and can be acquired and banked to defray future compliance costs.

Lastly, the Department opposes the assertion that this final-form rulemaking is a tax. The auction proceeds amount to fees authorized under section 6.3(a) of the APCA and not an illegal tax. Section 6.3(a) of the APCA provides the Department with the authority to establish fees to support the air pollution control program. The Department is limited by its existing statutory authority under Section 9.2(a) of the APCA (35 P.S. § 4009.2) to only use fees for “the elimination of air pollution.” Since the auction proceeds generated as a result of this final-form rulemaking would be used to reduce GHG emissions, further eliminating air pollution, the fees would be used to support the “air pollution control program” in accordance with section 6.3(a) of the APCA. There is also existing case law that supports the auction proceeds are a fee, including *National Biscuit Company v. Philadelphia*, 98 A.2d 182 (Pa. 1953) and *White v. Com. Medical Professional Liability*, 571 A.2d 9 (Pa. Cmwlth. 1990).

Under RGGI, regulated EGUs are required to purchase one CO₂ allowance per ton of CO₂ they emit through multistate auctions or on the secondary market. The proceeds of the multistate auctions and the secondary market are then provided back to the participating states. The purchase of CO₂ allowances generating auction proceeds is a fee because these purchases are one component of the “regulatory measures intended to cover the cost of administering a regulatory scheme authorized under the police power of the government.” See *City of Philadelphia v. Southeastern Pennsylvania Transp. Auth.*, 303 A.2d 247, 251 (1973). As mentioned previously, RGGI provides a “two-prong” approach to reducing CO₂ emissions from fossil fuel-fired EGUs. The second prong involves the proper investment of the auction proceeds to further reduce CO₂ emissions, as well as other harmful GHG emissions. This investment therefore fulfills the purpose and administration of this final-form rulemaking. This final-form rulemaking does not create a tax which is a “revenue-producing measure authorized under the taxing power of the government.” *Id.* The intent of RGGI is not to generate revenue for general government or public purposes, but to achieve a common goal of reducing CO₂ emissions from EGUs.

Moreover, none of the eleven participating states consider their CO₂ budget trading program regulations, or the RGGI program overall, as establishing a tax. Also, no court has determined that RGGI amounts to a tax. Recently in *California Chamber of Commerce v. State Air Res. Bd.*, 10 Cal. App. 5th 604, 650, 216 Cal. Rptr. 3d 694, 728 (2017), the California court determined that the California Air Resource Board's cap and invest program did not create a tax.

355. Comment: The commentator states it is important to understand that: (i) CO₂ emissions from the electric generators, other industrial stationary sources and mobile sources comprise about 85 percent of the current total state-wide CO₂ emissions, and the percentage contributions are similar to one another for these 3 source categories. (ii) It is inappropriate and unreasonable for the Department to assign the entire burden of emissions reductions desired by 2030 on the electric generators. This industry has no direct control over CO₂ emissions from other industrial sources and mobile sources. (iii) Emissions inventory data submitted annually to U.S. EPA clearly shows that CO₂ emission reductions from the Pennsylvania electric generators alone and combined with CO₂ emissions from other industrial stationary sources have already exceeded the 26 percent reduction goal specified in Executive Order 2019- 01. 49 Pa.B. 438 (Feb. 2, 2019). CO₂ emission reductions from the electric generators are expected to decrease throughout this decade without a RGGI Rule in effect because the coal-fired units that are expected to retire by 2030 will be replaced by new natural gas-fired units (which results in a 2:1 reduction in CO₂ emissions and some co-reduction of criteria pollutants such as NO_x, SO₂ and PM_{2.5}).

Response: The Department disagrees with the characterization that the Department is assigning the entire burden of emissions reductions by 2030 on the electricity sector. The Department recognizes that this final-form rulemaking alone will not achieve Governor Wolf's GHG emissions reduction goals and emphasizes that this final-form rulemaking is part of a suite of emissions reduction efforts currently underway or planned in this Commonwealth. Moreover, this Commonwealth has the fifth largest CO₂ emissions from the electricity sector of all states, proving the need for additional reductions from this sector. Further, the Department's most recent statewide GHG Inventory shows that this Commonwealth has reduced gross GHG emissions approximately 18% since 2005, short approximately 8% from the reductions needed by 2025. Methods for achieving emissions reductions across all sectors of the economy are outlined in the Department's Climate Action Plan, release in 2018, that details many recommendations to reduce GHG emissions across all sectors. See Pennsylvania Climate Action Plan

<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>

356. Comment: The commentator states that the Department indicated that average Pennsylvania temperatures are expected to increase 5.4°F by 2050 yet is silent on what the expected temperature increase (or decrease) will be as a direct result from RGGI participation.

Response: Climate change is a global phenomenon, and carbon emissions and their environmental impacts cross state and national boundaries. It is not possible to quantify the temperature increase avoided by a single subnational government's participation in a cap and

trade mechanism to limit emissions. Participation in RGGI allows this Commonwealth to contribute to an international effort to draw down carbon emissions using a market-driven approach that supports businesses and communities in the transition to a lower-carbon economy. The Department recognizes that Pennsylvania's participation in RGGI is only part of what will need to be a global effort to mitigate climate change and avoid the worst of its impacts.

357. Comment: The commentator asks though RGGI states have shown economic gains and valuation of credits over time, what assurances does Pennsylvania have that similar monetary gains are sustainable with our participation? Additionally, how are credits safeguarded from devaluation or market collapse such as Delaware and New Jersey's Renewable Energy Certificates (RECs) or PennVest's nutrient credits? Does the reserve credit account truly stabilize credit pricing?

Response: Several analyses have been completed regarding the more than a decade of state participation in RGGI. While real-world studies, such as that completed by the Analysis Group, have shown that RGGI has a proven track record of environmental benefits and economic gains, the Department's power sector and economic modeling have shown the same results. The Department's 2020 modeling efforts showed that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. Additionally, this final-form rulemaking protects the public health, safety and welfare and the environment from harmful CO₂ pollution from fossil fuel-fired EGUs. For instance, the Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. These modeling results further bolster the real-world results that have been experienced by the RGGI states.

Additionally, there are market mechanisms, such as the Cost Containment Reserve (CCR) and the Emissions Containment Reserve (ECR) which when a certain price floor or ceiling is triggered, allowances are either withheld or released to keep the allowance price within a certain, predictable price band. This as mentioned safeguards the devaluation of allowances and also protects from higher than projected emissions reductions costs.

358. Comment: Given that RGGI states may adjust the program's goals and model rule this year, the commentator encourages EQB to incorporate an off-ramp or safety valve in the state's final rule to hedge against unexpected or undesired outcomes, such as duplication of obligations from federal or regional energy policies, the state losing its status as a net exporter, or significant cost increases. The commentator also notes some RGGI states have taken action to worsen the operating climate in Pennsylvania through various regulatory proceedings.

Response: On February 2, 2021, the RGGI states issued a press release outlining the tentative approach and timing to the upcoming Third Program Review. In this release they outlined that the RGGI participating states intended to publish a preliminary Program Review schedule in late summer 2021. Their proposed plan is to hold listening sessions late this year, and early next year to solicit stakeholder feedback and then to embark upon policy deliberations and technical analyses in 2022. Pennsylvania stakeholders will have an opportunity to participate in these conversations, and the process will not impact the regulatory timeline for this final-form

rulemaking. The Department also notes that this Commonwealth is not signing a binding agreement to participate in RGGI and states may withdraw from participation at any time. It is unclear what the commentator means by “various regulatory proceedings” by some RGGI states. If the commentator means to reference the 184(c) petitions, the Department notes that those are being addressed separately from this final-form rulemaking.

Economic Modeling

359. Comment: The commentator states that the Department’s modeling effort did not include impacts to the economy.

Response: The Department disagrees. The Department estimates that this final-form rulemaking will generate program proceeds from the sale of CO₂ allowances in multistate auctions. 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 to support the program so that 31 percent are invested in energy efficiency, 32 percent in renewable energy and 31 percent in GHG abatement with 6 percent remaining to cover any costs related to management of the CO₂ Budget Trading Program, 5 percent for the Department and 1 percent for RGGI, Inc.

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

The Department’s economic modeling shows that this Commonwealth’s participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product.

Additionally, an independent study by Penn State’s Center for Environmental Law and Policy confirms the economic benefits accruing as a result of this Commonwealth’s participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. See Penn State Center for Energy Law and Policy, Prospects for Pennsylvania in the Regional Greenhouse Gas Initiative Working Paper, December 2020, https://celp.psu.edu/files/2021/01/CELP_RGGI.pdf. In particular, the Penn State study indicates that between 2022 and 2030 this Commonwealth’s participation in RGGI will yield \$2.6 billion in net economic benefits to this Commonwealth.

360. Comment: The commentator states that the Department’s modeling does not account for lost tax revenues from reduced coal mining and natural gas production.

Response: The Department used the REMI’s PI+ model, a structural economic forecasting and policy analysis model that integrates several analytic techniques including input-output, computable general equilibrium, econometric, and economic geography methodologies. REMI is a dynamic model, with forecasts and simulations to include behavioral responses to wage, price, and other economic factors. It can be used for estimating national, regional, and state-level impacts of policy changes. The dynamic modeling framework supports the option to forecast how changes in the economy, and adjustments to those changes, will occur on an annual basis. REMI functions by forecasting two states of the world. The first is the state of the regional economy under some standard assumptions of employment and population changes. This first forecast is referred to as the control forecast. The second forecast, in which the model user incorporates the desired policy changes, is referred to as the alternative forecast or the simulation. The difference between the two forecasts would be the estimated effect of the policy.

The REMI model projects the total economic effects of policy initiatives, as defined by changes in key policy variables such as change in output or prices (e.g., electricity or natural gas production and prices), investments (e.g., in energy efficiency or new capacity), and changes in production costs, among other variables.

The REMI models separate industry categories according to the North American Industry Classification System (NAICS). NAICS is the standard classification system for business establishments used by Federal agencies. When selecting a REMI model, the end user identifies the level of granularity required for the analysis. A 23-sector model would contain the industries separated at the 2-digit NAICS, while a 70-sector model would contain industries mapping to 3-digit NAICS (providing more granularity). Key outputs include gross state product (GSP), disposable personal income, and employment impacts. The Department’s analysis uses a one region (PA), 70-sector model of REMI PI+ version 2.3.5 to estimate the macroeconomic impacts. These macroeconomic impacts would include changes to certain sector productivity as a result of this final-form rulemaking, as well as the direct and indirect impacts from changes to productivity, such as decreased tax revenues.

361. Comment: The commentator states that the modeling included assumptions on use of program proceeds, including funds being used for investment in renewable energy. The commentator states that there should be further considerations when evaluating renewable energy sources such as reliability, material sourcing, and material disposal.

Response: The Department’s modeling assumption for use of proceeds do not necessarily reflect the Department’s intended use of the program proceeds, but reflect typical investments made by other RGGI states throughout the duration of the program. Considerations of other issues, outside of CO₂ emissions, around specific energy sources are outside the scope of this final-form rulemaking.

362. Comment: The commentator asks what population number(s) was/were used in modeling.

Response: The REMI model uses a combination of population estimates from the federal Bureau of Economic Analysis and the U.S. Census Bureau. The REMI model also uses a proprietary method to project future populations based on these historical data and other available projections. The population levels for each modeling scenario is publicly available at the Department’s website. See “Economic Modeling” <https://www.dep.pa.gov/Citizens/climate/Pages/RGGI.aspx>.

363. Comment: The commentator asks if under Electric consumer impact, for consistency and ease of understanding what does “31%” translate to in dollars? Is “69%” equal to “\$219M” or is “\$219M” the total of “31%” and “69%”? Provide clarification to the total amount.

Response: The amount of program proceeds that were modeled to be invested into each category changes each year based on the investments of previous years. The model assumes 31 percent of the available program proceeds each year are invested in energy efficiency, 32 percent in renewable energy and 31 percent in GHG abatement with 6 percent remaining to cover any programmatic costs related to management of the CO₂ Budget Trading Program, 5 percent for the Department and 1 percent for RGGI, Inc. More information on how the investments were modeled is detailed in the Department’s modeling report located at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/RGGI/PA_RGGI_Modeling_Report.pdf.

364. Comment: The commentator is interested in the Department’s analysis and data supporting the notion that there will be positive impacts from RGGI – both economic and social – in low-income and underserved communities as a result of CO₂ reductions. Elaboration on whether this part of the issue has been studied and modeled and any corresponding results would help the public discourse on this important area, and the commentator requests the Department address this point in its response to comments.

Response: The Department’s economic modeling shows that this Commonwealth’s participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product. Additionally, Penn State’s study confirms the economic benefits accruing as a result of this Commonwealth’s participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. Penn State indicates that between 2022 and 2030 this Commonwealth’s participation in RGGI will yield \$2.6 billion in net economic benefit to this Commonwealth. These have also been the results reported by the RGGI participating states and summarized in the RGGI review conducted by the Analysis Group.

In an independent and nonpartisan evaluation of the first three control periods in RGGI, the Analysis Group, one of the largest global economic consulting firms, found that the participating states experienced economic benefits in all three control periods, while reducing CO₂ 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. In sum, 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.

The Department recognizes the potential for economic impact on certain populations within this Commonwealth, particularly low-income ratepayers or communities who have been disproportionately impacted by air pollution. The Department will ensure that measures taken through this final-form 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 CO₂ 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.

365. Comment: The commentator recommends the inclusion of predetermined reliability violation scenarios within the rulemaking that would require Pennsylvania to withdraw from participation in RGGI.

Response: The Department acknowledges the comment and disagrees with the recommendation, as the Annex A already includes conditions for this Commonwealth to participate in the multistate auctions. The Department does not anticipate any electrical grid reliability issues as a result of this final-form rulemaking.

Power Sector Modeling

366. Comment: The commentator states that the Department does not apply the same criteria in its projections of expected new natural gas generation and new renewable energy generation in its modeling.

Response: The Department used fixed criteria for projections of added capacity which were constant across all types of generation. For this analysis, the Department specified the sources for these assumptions, based on publicly available information and sources adopted for previous RGGI analyses. This information includes public announcements and other public sources, such as ISO project planning queues, etc. In this case, the Department further refined the list of planned facilities, to include only those that were considered "firm capacity additions" in this Commonwealth, based on whether projects met two out of three criteria including, fully funded, fully permitted, or had a power purchase agreement in place for the majority of the generation. These criteria were the same criteria against which all future projects were evaluated, despite their generation source.

367. Comment: The Department's power price modeling does not account for the significant build-out in new transmission and integration that will be required for the magnitude of new renewable generation that is assumed in ICF's modeling. The cost of new transmission will be passed on to the electric ratepayers, therefore the Department understated the impact on retail rates of Pennsylvania joining RGGI.

Response: The Department disagrees. The IPM is a dynamic linear programming model that generates optimal decisions under the assumption of perfect foresight. It determines the least-cost method of meeting energy and peak demand requirements over a specified period. In its solution, the model considers several key operating or regulatory constraints that are placed on

the power, emissions, and fuel markets. The constraints include, but are not limited to, emission limits, transmission capabilities, renewable generation requirements, and fuel market constraints.

The IPM represents the least-cost arrangement of electricity supply (capacity and generation) within each model region to meet assumed future load (electricity demand) while constrained by a transmission network of bulk transfer limitations on interregional power flows. All utility-owned existing electric generating units, including renewable resources, as well as independent power producers and cogeneration facilities selling electricity to the grid, are modeled.

368. Comment: The commentator states that given the proposed rulemaking would not become effective until 2022, it is unclear why the Department includes emissions reductions between 2019-2021 in its results.

Response: The Department compared two modeling cases, the Reference Case and the Policy Case, to project the impacts of RGGI participation on the power sector. This includes impacts on electric transmission and generation and related electric sector emissions, among other outputs. When this modeling was first completed in 2020 for the proposed rulemaking, the most recent year of available data was 2019. Therefore, the 2019 data was included as the base year in the 2020 round of modeling. While the time period for the IPM analysis was 2019 through 2030, the modeling specifically provided projections for 2020, 2022, 2025, 2028, and 2030. When the modeling was updated in early 2021 for this final-form rulemaking, the most recent year of available data was 2020. Therefore, the 2020 data was included as the base year in the 2021 round of modeling and as such the time period for the updated IPM analysis was 2020 through 2030.

The time period for the IPM analysis includes years prior to the implementation of this final-form rulemaking for two reasons. First, as stated, prior years are included in the modeling time horizon as they serve as the base years- reflecting actual statistics for those years as they have already occurred. Second, the Policy Case assumes this final-form rulemaking will be in effect in 2022, so the modeling needs to account for certain assumptions, for example legal or policy requirements that are projected to change, in years before 2022. This accounts for any differences between the Reference Case and the Policy Case in years prior to 2022. Lastly, these assumptions are not only a factor in the Department's modeling, but can also be seen by the functioning of the actual energy market. For example, on March 13, 2020, Energy Harbor, the owner of the Beaver Valley nuclear power plant, responsible for 1,845 MW of carbon free generation, withdrew its closure announcement, specifically citing this Commonwealth's intended participation in RGGI as a key determinant in continuing operations.

369. Comment: The commentator states that it is unclear why the Department did not include a year-by-year breakdown of emissions in the results.

Response: While the modeling evaluated the time horizon from 2019-2030 in the 2020 modeling and 2020-2030 in the 2021 modeling, the reporting years that were generated by the model were 2020, 2022, 2025, 2028, and 2030. These models analyze and synthesize a considerable amount of data and the model outputs are limited to these years in order to minimize the time for the models to run, while providing adequate information for analysis. Using this method, it is

possible to understand the key trends and patterns of the results, without having to expend additional time and resources to receive results for every single year. While individual year data may not be available for each criterion, summary statistics are available for the entire time horizon to facilitate comparisons between states, years and modeling runs.

370. Comment: The commentator states that the forecasted amount of electrical generation in the Commonwealth for the years 2022 through 2028 is significantly greater than any annual historic generation realized in the past 20 years, whereas the forecasted amount of electrical generation in the Commonwealth for the same years for the Policy Case is consistent with recent historic generation. Consequently, the commentator believes that the electrical generation and resultant CO₂ emissions in those years have biased the impact of implementing RGGI in the Commonwealth. The commentator states that they have requested the Department to explain this issue multiple times.

Response: The Department’s modeling inputs, assumptions, and projected changes to capacity have been made publicly available and explained at multiple advisory committee meetings, online webinars and individual conversations when requested. The electric generation inputs for both the Policy Case and the Reference Case were identical, therefore any changes to generation levels in the modeling years between the modeling cases were a result of the model’s choices based on the least-cost options and other factors, not inputs from the Department.

Further, the Department conducted updated modeling using revised assumptions, including 2021 electric demand projections and updated projected capacity additions, which led to electric generation levels in the Reference Case being similar to recent years. Additionally, by 2030, the difference in electric generation levels between the Policy Case and Reference Case in the updated modeling results is approximately 5 percent.

371. Comment: The commentator states that the Department does not explain why it assumes all allowances will be purchased, as the amount of emissions from Pennsylvania’s applicable facilities is projected to be less than the allowances in the proposed rulemaking’s effective budget.

Response: The Department expects the number of allowances in the “Effective Budget”, as detailed in Table 7 of the Regulatory Analysis Form, to be purchased through the auction process. The estimated amount of CO₂ allowances that will be entered into the RGGI market as a result of this final-form rulemaking can be purchased by affected facilities in any RGGI state. Therefore, the amount of emissions from affected facilities in this Commonwealth may not always align with the amount of CO₂ allowances purchased. It is the nature of the regional cap and a feature of the RGGI program that has helped it achieve success in cost-effectively reducing emissions.

372. Comment: The commentator states that for Henry Hub prices, ICF used an average of the EIA Annual Energy Outlook (AEO) Reference Case and High Gas Resource Case (a case with low natural gas prices). The resulting Henry Hub price outlook rose in nominal dollars from \$3.07/MMBTU in 2020 to \$3.85/MMBTU in 2030. For the five years for which ICF provided data – 2020, 2022, 2025, 2028, and 2030 – Henry Hub prices averaged \$3.28/MMBTU. Prices

for the interceding years were not provided. ICF did not provide an explanation for why it used an average of the AEO's Reference Case and High Gas Resource Case rather than the Reference Case, nor was a sensitivity analysis performed.

Response: The Department's modeling includes natural gas prices that are the average of the Annual Energy Outlook (AEO) Reference Case and the High Gas Resources Case which are published annually by the EIA. The AEO Reference Case is used as a starting point, and then averaged with the High Gas Resources Case because of this Commonwealth's location within the shale region. This hybrid method is used because neither the AEO Reference Case nor the AEO High Gas Resources Case are singularly representative of gas prices in this Commonwealth. Averaged together, the two cases provide as accurate a forecast as possible for natural gas prices in this Commonwealth. However, the Department notes that these are forecasted prices and there is a possibility that future prices could vary. Lastly, the Department conducted a natural gas sensitivity case to estimate avoided emissions between 2021-2030, the results of which were detailed at the May 17th Air Quality Technical Advisory Committee meeting and are available at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2021/5-17-21/FINAL_AQTAC_PA_CO2_Budget_Trading_Program.pdf.

373. Comment: The commentator states that the Department's modeling relied on the Henry Hub price for its natural gas pricing inputs, which is typically a significantly higher estimate for Pennsylvania's natural gas prices.

Response: The Department's modeling includes natural gas prices that are the average of the Annual Energy Outlook (AEO) Reference Case and the High Gas Resources Case which are published annually by the EIA. The AEO Reference Case is used as a starting point, and then averaged with the High Gas Resources Case because of this Commonwealth's location within the shale region. This hybrid method is used because neither the AEO Reference Case nor the AEO High Gas Resources Case are singularly representative of gas prices in this Commonwealth. Averaged together, the two cases provide as accurate a forecast as possible for natural gas prices in this Commonwealth. However, the Department notes that these are forecasted prices and there is a possibility that future prices could vary. Lastly, the Department conducted a natural gas sensitivity case to estimate avoided emissions between 2021-2030, the results of which were detailed at the May 17th Air Quality Technical Advisory Committee meeting and are available at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2021/5-17-21/FINAL_AQTAC_PA_CO2_Budget_Trading_Program.pdf.

374. Comment: The commentator states that given the sensitivity of power markets and RGGI compliance costs to natural gas prices, the ICF power sector modeling should have contained a natural gas price sensitivity analysis.

Response: The Department conducted a natural gas sensitivity case to estimate avoided emissions between 2021-2030, the results of which were detailed at the May 17th Air Quality

Technical Advisory Committee meeting and available at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Advisory%20Committees/Air%20Quality%20Technical%20Advisory%20Committee/2021/5-17-21/FINAL_AQTAC_PA_CO2_Budget_Trading_Program.pdf.

375. Comment: The commentator believes that one possible reason the Department used the AEO gas pricing assumption is that low natural gas prices reduces the cost of compliance with RGGI. The commentator states that low natural gas prices produce more coal-to-gas switching and reduce the demand for RGGI allowances. If natural gas prices are higher, coal-to-gas switching is reversed and the demand for RGGI allowances increases because of coal's higher carbon intensity. This results in higher allowance prices, which flow through to higher wholesale power prices and higher retail electricity rates.

Response: The Department disagrees. The reason for the natural gas price assumption is detailed in responses above.

376. Comment: The commentator suggests that the modelling did not make any analysis of the land use implications of mineral extraction for providing materials for construction of alternative power sources. The comment states that no land use study was considered for land occupation and power line construction of alternative generation facilities.

Response: The mineral extraction and land use requirements related to particular sources of electric power or electric transmission was outside the scope of the modeling related to this final-form rulemaking.

377. Comment: The commentator states that there did not seem to be an analysis on potential dependence on foreign sources of materials, specifically around manufacturing of renewable energy, including issues related to how specific materials were extracted such as wages and treatment of workers.

Response: The focus of the final-form rulemaking is the reduction of CO₂ emissions from fossil fuel-fired EGUs, and as such anything else is outside of the scope of the rulemaking.

378. Comment: The commentator states that there was not an analysis of security risk incurred by dependence on foreign sources for materials unavailable in the U.S.

Response: Those issues are outside the scope of this final-form rulemaking and therefore were not included in the analysis.

379. Comment: The commentator asks what calculations were used in modeling to account for environmental refugees moving to Pennsylvania to avoid climate impacts from their current states of residence.

Response: The Department's modeling did not calculate environmental refugees moving to this Commonwealth as that is outside the scope of this final-form rulemaking.

380. Comment: The commentator states that the Department’s modeling did not include how PJM Interconnection’s capacity market pricing rule known as the Minimum Offer Price Rule (or, “MOPR”) would affect the deployment of renewables in PJM and, more specifically, the impact of joining RGGI on Pennsylvania.

Response: The Department conducted its 2020 modeling prior to any resolution between the Federal Energy Regulatory Commission (FERC) and PJM Interconnection on how the MOPR would be implemented. In February 2021 the FERC took action that clarified MOPR implementation and allowing PJM Interconnection to move forward with its capacity auction. See FERC Docket Order EL16-49-006

https://elibrary.ferc.gov/eLibrary/filelist?document_id=14929833&optimized=false.

At the time the Department was conducting 2021 modeling, it was unclear what the impact the MOPR would have on the energy market so it could not adequately be modeled. Further, there are multiple petitions challenging FERC’s PJM MOPR order that are proceeding through the U.S. Court of Appeals, further hindering the ability of the Department to accurately incorporate the MOPR into the modeling.

381. Comment: The commentator states that the Department’s modeling still fails to recognize the significant potential for price volatility due to lack of on-site storage capacity and the higher risk to potential cyber and physical disruptions to pipeline delivery.

Response: The Department’s modeling incorporates resource adequacy, providing enough electricity to meet demand, and the associated costs of that electrical power. The risk of cyber or physical disruptions are outside the scope of this final-form rulemaking.

382. Comment: The commentator states that the Department’s modeling results appear to assume 7.9 million allowances set aside for waste coal generation instead of 9.3 million.

Response: The Department acknowledges that this was an error, not in the model but merely in the assumptions portion of the modeling-related spreadsheet which has since been corrected.

383. Comment: The commentator notes that New York intends to amend applicability of its RGGI regulations to include electric generating units that have a nameplate capacity of 15 megawatts. The commentator states that the Department’s modeling should contemplate the implications of New York’s RGGI rule modifications.

Response: The Department considered the impacts of this applicability change for New York and determined that at the time of the modeling, that change would have minimal impact on the modeling results as the large majority of New York EGUs were already participating in the program.

384. Comment: The commentator states that the Department’s modeling did not include the most updated inputs for Pennsylvania’s energy efficiency policies, specifically the Act 129 program Phase IV updates.

Response: The Department’s 2020 modeling inputs were entered into the model prior to the details of the Act 129 program Phase IV being finalized. The 2021 modeling was inclusive of the energy efficiency goals of Act 129’s Phase IV.

385. Comment: The commentator states that as technology increases, there is a correlative rate of electric increase, and asks what factor was used to correlate this increase.

Response: The projected electricity load and peak demand used in the model are based on the PJM 2021 Demand Forecast.

386. Comment: The commentator states that the Department’s modeled investments achieved eight million short tons of avoided CO₂ emissions during the modeling period, and that the primary consideration for program investments should be the amount of CO₂ reduced per dollar invested.

Response: The Department acknowledges this comment. The proceeds generated from this final-form rulemaking would be invested into programs that would reduce air pollution and create positive economic impacts in this Commonwealth. The use of program proceeds as a result of this final-form rulemaking are not included in the regulation itself. The Department is developing a draft plan for public comment outlining reinvestment options separate from this final-form rulemaking.

387. Comment: The commentator states that a proper analysis should include a pricing analysis for specific scenarios based upon PJM’s best data.

Response: The modeling included the best data publicly available, which is detailed in the Department’s modeling report at https://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/RGGI/PA_RGGI_Modeling_Report.pdf.

388. Comment: The commentator states that there is a notable difference in emissions in 2022 between the Policy Case and the Reference Case and that the Department does not provide adequate explanation of the discrepancy. The commentator noted that the idea of the projected implementation of the proposed rulemaking is not an appropriate explanation of differences between Reference Case and Policy Case emissions for modeling years prior to 2023.

Response: The Department disagrees that the difference between the two cases is a discrepancy, rather it is the impact of this Commonwealth’s participation in RGGI as a result of the proposed rulemaking. The Department compared two modeling cases, the Reference Case and the Policy Case, to help project the impacts of RGGI participation on electric transmission and generation and electric sector emissions, among others in this Commonwealth. The difference or the delta between the two cases is the impact of implementation of this rulemaking. As mentioned 2022 is a notable year as this would be the first year of implementation of this rulemaking in the Commonwealth, and when the requirement to acquire an allowance for each ton of CO₂ emitted begins. As depicted by the modeling scenarios, the impact, especially in 2022 is significant.

As noted, the Reference Case and Policy Case include comparison years prior to the implementation year of 2022. When the 2020 modeling was completed, the most recent year of available data was 2019. Therefore, 2019 became the base year and was included as the first year of data in the 2020 modeling. When the modeling was updated in early 2021 for this final-form rulemaking, the most recent year of available data was 2020. Therefore, the 2020 became the base year for the update modeling and was included as the first year of data.

The time period for the IPM analysis includes years prior to the implementation of this final-form rulemaking for two reasons. First, as stated, the only actual available data for each round of modeling was either 2019 or 2020. Second, the Policy Case assumes this final-form rulemaking will be in effect in 2022, so the modeling needs to account for certain assumptions, for example legal or policy requirements that are projected to change, in the intervening years, between now and 2022. This accounts for any differences between the Reference Case and the Policy Case in years prior to 2022. Lastly, these assumptions are not only a factor in the Department's modeling, but can also be seen by the functioning of the actual energy market.

For example, on March 13, 2020, Energy Harbor, the owner of the Beaver Valley nuclear power plant, responsible for 1,845 MW of carbon free generation, withdrew its closure announcement, specifically citing this Commonwealth's intended participation in RGGI as a key determinant in continuing operations. This represents a significant amount of carbon free generation that would not be represented as generation in the reference case in 2020 (as they had submitted a deactivation notice) but does exist in the policy case in 2020 as the RGGI announcement was a contributing factor to that generation remaining online.

389. Comment: ICF's modeling did not project the price of RGGI allowances to reach above \$7.00 until 2025, yet it did so this past December, rendering their modeling assumptions invalid.

Response: The Department disagrees. The Department acknowledges that the RGGI auction clearing prices in late 2020 and early 2021 had a higher price compared to the projected CO₂ allowance prices in the Department's 2020 modeling. The difference between projected CO₂ allowance prices and actual CO₂ allowance prices can be due to a number of factors, including the end of the RGGI three-year control period, the change of the Federal administration, the fact that Virginia began participating in RGGI at the start of 2021, among others. The IPM model generates a CO₂ allowance price based on actual market fundamentals, including the projected supply and demand of CO₂ allowances during the modeling period. However, the model does not take into account behavioral considerations such as auction bidder behavior and expectations. Bidder expectations can influence the CO₂ allowance price, and therefore lead to a difference from the projected CO₂ allowance price based on market mechanics alone. The Department does not rely on the power sector modeling as an exact prediction of future prices, but as an indicator of shifts or changes in trends as a result of this final-form rulemaking. Therefore, the Department does not consider recent short-term increases in allowance prices as an invalidation of the modeling.

390. Comment: The commentator states that the Department's modeling projects the ECR is triggered in 2022, however the ECR trigger price is much lower than recent auction clearing

prices. The commentator states that this causes the Department to underestimate the amount of allowances available in the market and thereby distort the overall modeling projections.

Response: The Department disagrees. See the response to the previous question.

391. Comment: The commentator states that ICF shows no electric battery storage installations in Pennsylvania. The commentator states that battery storage is needed to balance the grid when there is high penetration of intermittent renewables.

Response: The Department acknowledges the comment and notes that battery storage was not included in the modeling as the modeling focused on electric generating units within this Commonwealth, and was exclusive of battery storage considerations.

392. Comment: The commentator states that when the Department assembled its analysis, New Jersey and Virginia had not yet formally joined RGGI. Thus, the financial, operational and emissions implications from those two states' participation in light of their participation in RGGI and presence in PJM service territories were not included alongside an analysis of the impact upon Pennsylvania. This data is necessary to understand the effects of PA participation in RGGI upon electric generating units in all PJM states, including PA, and to allow the determination of the actual CO₂ and other pollutant emissions that will occur both with and without Pennsylvania's participation in RGGI. Detailed, state specific operations impacts for all of the electric generating units in all of the PJM states, assuming New Jersey and Virginia join RGGI, and with and without Pennsylvania's participation in RGGI. This must include the generation already coming on-line through 2022 and 2023, and expected to be online prior to 2030.

Response: The Department disagrees. In the Reference Case for the modeling, RGGI was modeled as an 11-state program including the 9 states participating in RGGI at the end of 2019 — Massachusetts, Connecticut, Maine, New Hampshire, Rhode Island, Vermont, New York, Delaware, and Maryland. Additionally, New Jersey and Virginia were included in the modeling as projected to begin participation on January 1, 2020, and January 1, 2021, respectively. In particular, the starting CO₂ allowance budget for New Jersey was input at 18 million short tons, and the starting CO₂ allowance budget for Virginia was input at 27.16 million short tons. The IPM Policy Case uses similar assumptions as the Reference Case with the key difference that it assumes that this Commonwealth will begin participation in RGGI on January 1, 2022. The Department communicated with New Jersey and Virginia staff in the development of the modeling inputs to ensure the assumptions aligned with each states' program design.

393. Comment: The commentator states that the modeling results should have included a list of electric generating units that are likely unable to compete in the PJM market due to their unit specific RGGI allowance price adder.

Response: The Department acknowledges this comment. The modeling results included a list of Pennsylvania affected sources in all modeling results.

394. Comment: The comment states that the modeling results should have included projected electricity pricing for each year.

Response: The Department’s modeling results included electricity pricing for the reporting years which are 2020, 2022, 2025, 2028, and 2030. These models analyze and synthesize a considerable amount of information and the model outputs are limited to these years in order to minimize the time for the models to run, while providing adequate information for analysis. Using this method, it is possible to understand the key trends and patterns of the results, without having to expend additional time and resources to receive results for every single year. While individual year data may not be available for each criterion – summary statistics are available for the entire time horizon to facilitate comparisons between states, years and modeling runs.

395. Comment: The commentator states that the modeling results should have included state-by-state carbon dioxide emissions for each scenario.

Response: The Department’s modeling results include CO₂ emissions from all expected participating RGGI states, including Pennsylvania, along with the entire PJM region, RGGI participating states within the PJM region, and the other major regional grids in the eastern U.S. In order to cost-effectively obtain the modeling results, typical practice is to select participating RGGI states that will get individual emissions results, along with major regions, in contrast to getting results for every single state participating in the electricity market. Using this method, it is possible to understand the key trends and patterns of the results, without having to expend additional time and resources to receive results for every single state.

396. Comment: The commentator states that the modeling results should have included impacts, by state, on electric generation in the PJM states that won’t be participating in RGGI, as well as, the generation already coming online for 2022- 23, and expected to be on-line prior to 2030 in PJM.

Response: The Department’s modeling results include results from all expected participating RGGI states, including Pennsylvania, along with the entire PJM region, RGGI participating states within the PJM region, and the other major regional grids in the eastern U.S. In order to cost-effectively obtain the modeling results, typical practice is to select participating RGGI states that will get individual emissions results, along with major regions, in contrast to getting results for every single state participating in the electricity market, as that is outside the scope of this rulemaking. Using this method, it is possible to understand the key trends and patterns of the results, without having to expend additional time and resources to receive results for every single state.

The Department used fixed criteria for projections of added capacity which were constant across all types of generation. For this analysis, the Department specified the sources for these assumptions, based on publicly available information and sources adopted for previous RGGI analyses. This information includes public announcements and other public sources, such as ISO project planning queues, etc. In this case, the Department further refined the list of planned facilities, to include only those that were considered “firm capacity additions” in this Commonwealth, based on whether projects met two out of three criteria including, fully funded, fully permitted, or had a power purchase agreement in place for the majority of the generation.

397. Comment: The commentator states that the ability to successfully build the 9,300 MW of wind and solar capacity that ICF assumes in its Policy + Investment Case is overstated given that other RGGI member states have added far less than that over the past decade. New York, which has been a member of RGGI since its inception and invests much of its auction proceeds in renewable energy, has added less than 1,200 MW of utility-scale wind and solar capacity since 2010. Massachusetts – the next highest state – has added just 915 MW of utility-scale wind and solar capacity during the same period.

Response: The Department disagrees. The amount of renewable generation in the modeling results is a function of the amount of planned capacity, economic capacity additions, and the value of the investments. The size of the allowance budget in this final-form rulemaking is larger than the other RGGI participating states. Therefore, there are more program proceeds that were modeled to be invested into renewable energy compared to other RGGI participating states. Additionally, declining technology costs for renewable energy, among other factors, contribute to more future investments relative to past years since the RGGI program began.

398. Comment: The commentator states that since other nations or states are emitting GHG, or are projected to do so between now and 2030, the proposed rulemaking’s contribution to mitigation of climate change will be decreased, if not eliminated.

Response: The Department disagrees. The emissions reductions achieved by this rulemaking will help mitigate this Commonwealth’s contribution to climate change regardless of the actions of other states or nations. It will be incumbent upon other states and nations to curb their own emissions to combat climate change as this rulemaking will do in this Commonwealth.

399. Comment: The commentator states that the climate benefits of the expected emissions reductions are minimal and therefore this proposed rulemaking is not adequately justified.

Response: The Department disagrees. The Department projects that 97—227 million short tons of CO₂ that would have been emitted in this Commonwealth 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 CO₂ emission reductions achieved by the participating states are even more significant. Reductions in CO₂ emissions will help decrease the adverse impacts of climate change on human health, the environment and the economy. Specifically, CO₂ 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 workdays due to illness. The CO₂ emission reductions accomplished through implementation of this final-form 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.

400. Comment: The Department presented “RGGI + Investment” modeling results to the Air Quality Technical Advisory Committee on May 7, 2020, which projected actual emissions from Pennsylvania covered sources to be just 57 million short tons in the first year of the program.

That reflects a gap of 21 million tons between the initial base budget and projected actual emissions, a gap that will largely persist throughout this decade despite the annually declining CO₂ budget. This will limit the effectiveness of the program at driving additional emission reductions, the ultimate objective of a cap-and-invest program, approaching 2030.

Response: The Department acknowledges the comment though disagrees that the difference between the allowance budget and actual emissions will limit the effectiveness of the cap-and-invest program. Since RGGI is a regional program, the allowances are fungible meaning that they have value and can be bought and sold for compliance in other participating states. This trading aspect is the cornerstone of the program, and the difference in the allowance budget and actual emissions are being purchased by other entities in participating states to cover their compliance obligations.

401. Comment: The commentator states that several states that operate in the PJM grid, including New Jersey, Maryland and Illinois have publicly stated they are exploring exiting the PJM markets or enacting other policies related to electricity markets to accommodate these states' expansive RPS mandates and energy subsidies. What these states ultimately do, and what effect these actions will have on the electricity markets and interstate transactions remains to be seen – but should the states bordering Pennsylvania who have historically relied on importing power from Pennsylvania decide they no longer wish to participate in the PJM markets (and accept delivery of Pennsylvania power), Pennsylvania ought to decide if it no longer needs to participate in a cap-and-trade program with these same states.

Response: The Department acknowledges the comment and will evaluate any future changes that may impact this final-form rulemaking

Electricity Rates

402. Comment: The commentator states that this regulation will lead to increased electricity costs across Pennsylvania due to the allowance price impacts and potential closure of coal-fired or natural gas-fired power plants.

Response: Based on the Department's 2021 modeling, it can be expected that at least 25 percent 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 51,000 gigawatt hours (GWh), representing 25 percent of this Commonwealth's 2022 electricity generation of 201,221 GWh. See 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. As a result, without factoring in the strategic investment of auction proceeds, the remaining 75 percent of the costs or \$149 million would be borne by this Commonwealth. This percentage is also dependent on the CO₂ emissions intensity of the exported generation.

According to the EIA, the major components of the United States' average price of electricity in 2020 were 56 percent generation, 31 percent distribution and 13 percent transmission costs. See Pennsylvania Public Utility Commission, 2018 Collections Data for the Major Electric and Gas Companies- Chapter 14 Biennial Report, January 15, 2020,

www.puc.pa.gov/General/publications_reports/pdf/Chapter14-Biennial_2018RCD.pdf. This final-form 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 2021 modeling estimates that in 2022, wholesale energy prices will be 2.4 percent higher with RGGI participation. That amounts to a roughly 1.2 percent increase 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. See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report.

https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf.

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 final-form rulemaking is implemented and this Commonwealth begins participating in RGGI in 2022, residential electric consumer bills will increase by an estimated 1.2 percent in the short-term. This amounts to an additional \$1.17 to \$1.65 per month depending on the home heating source. However, the Department's 2020 modeling shows that this minor increase is temporary. As shown in the 2020 modeling, as a result of the fee investments 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 than if this final-form proposed rulemaking were not implemented.

403. Comment: The commentator is concerned that RGGI and the proposed rulemaking will likely produce unintended consequences for Pennsylvania's industrial and manufacturing community in the form of significant and deleterious costs that could permanently harm these businesses.

Response: The Department disagrees. According to the PA PUC, a large commercial customer, akin to some industrial and manufacturing customer usage, using 200,000 kWh per month has monthly bills ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

404. Comment: The commentator states that there are potential electricity rate impacts to low-income consumers.

Response: The Department recognizes the potential for electricity rate impacts on all ratepayers, particularly low-income ratepayers. The Department will ensure that measures taken through this final-form 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 CO₂ 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. The Department's modeling showed that if investments are made in energy efficiency measures, electricity rates will be lower beyond 2030 with this final-form rulemaking in effect.

405. Comment: The commentator states that the Department's own modeling indicates that consumers in the Commonwealth will experience an increase in the rates that they pay for electricity, with the increase totaling more than \$2.6 billion by 2030.

Response: The Department disagrees. Based on the Department's 2021 modeling, it can be expected that at least 25 percent 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 51,000 gigawatt hours (GWh), representing 25 percent of this Commonwealth's 2022 electricity generation of 201,221 GWh. See 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. As a result, without factoring in the strategic investment of auction proceeds, the remaining 75 percent of the costs or \$149 million would be borne by this Commonwealth. This percentage is also dependent on the CO₂ emissions intensity of the exported generation.

According to the EIA, the major components of the United States' average price of electricity in 2020 were 56 percent generation, 31 percent distribution and 13 percent transmission costs. See Pennsylvania Public Utility Commission, 2018 Collections Data for the Major Electric and Gas Companies- Chapter 14 Biennial Report, January 15, 2020, www.puc.pa.gov/General/publications_reports/pdf/Chapter14-Biennial_2018RCD.pdf. This final-form 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 2021 modeling estimates that in 2022, wholesale energy prices will be 2.4 percent higher with RGGI participation. That amounts to a roughly 1.2 percent increase 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. See Pennsylvania Public Utility Commission, 2020 Rate Comparison Report. https://www.puc.pa.gov/General/publications_reports/pdf/Rate_Comparison_Rpt2020.pdf. 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 final-form rulemaking is implemented and this Commonwealth begins participating in RGGI in 2022, residential electric consumer bills will increase by an estimated 1.2 percent in the short-term. This amounts to an additional \$1.17 to \$1.65 per month depending on the home heating source. However, the Department's 2020 modeling shows that this minor increase is temporary. As shown in the 2020 modeling, as a result of the fee investments 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 than if this final-form proposed rulemaking were not implemented.

Based on information contained within the Pennsylvania Public Utility Commission's 2020 Rate Comparison Report, a small commercial customer's usage is the closest aligned with a small business as defined by the U.S. Small Business Administration, though it is not an exact match. The PUC report indicates that average 2019 electricity consumption for this customer class is 1,000 kWh/month with total monthly bills ranging from \$106.29 to \$143.49 depending on the Electric Distribution Company service territory and the corresponding electricity rate. Using the same assumptions regarding the composition of an electric bill as used above, a small commercial customer using 1,000 kWh/month could expect to see a potential increase of \$1.28 to \$1.72 per month in 2022.

According to the PA PUC, a large commercial customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

406. Comment: The commentator states Pennsylvania's average retail prices in 2010 were demonstrably lower than those of RGGI states, supporting the case that Pennsylvania's approach to energy and environmental policy has yielded lower costs to business and consumers than the approach taken by states in RGGI.

Response: The Department acknowledges this comment. The Department's modeling shows that this Commonwealth's participation in RGGI will result in lower future electricity prices than they would be without RGGI participation, even the program proceeds are invested in energy efficiency, GHG abatement, and clean energy.

407. Comment: The commentator states that industrial and manufacturing businesses in Pennsylvania have already contributed hundreds of millions of dollars to the Commonwealth's existing efforts to reduce greenhouse gas emissions by large electric generation facilities through the various electric utilities' compliance with the stringent energy efficiency and conservation requirements of Act 129 (codified at 66 Pa.C.S. § 2806.1).

Response: The Department acknowledges this comment. This final-form rulemaking is needed to ensure further reduction of CO₂ emissions from the electricity generation sector in this Commonwealth.

408. Comment: The commentator is concerned that RGGI and the proposed rulemaking may foist upon Pennsylvania's industrial and manufacturing community additional costs, adding to the financial burden of operating within the Commonwealth, while providing no direct economic benefits in return to ease the impact.

Response: The Department disagrees with this assessment. Based on the Department's 2021 modeling, it can be expected that at least 25 percent 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 51,000 gigawatt hours (GWh), representing 25 percent of this Commonwealth's 2022 electricity generation of 201,221 GWh. See 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.

According to the PA PUC, an industrial or manufacturing customer using 200,000 kWh per month has a monthly bill ranging from \$11,788.08 to \$21,043.18. These customers could expect to see a 2022 potential price increase of \$141 to \$253 per month, again depending on their electric service territory and associated rates.

The Department's economic modeling shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and an addition of \$1.9 billion to the Gross State Product. Additionally, Penn State's study confirms the economic benefits accruing as a result of this Commonwealth's participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. Penn State indicates that between 2022 and 2030, this Commonwealth's participation in RGGI will yield \$2.6 billion in net economic benefit to this Commonwealth. These have also been the results reported by the participating states and summarized in the RGGI review conducted by the Analysis Group.

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 CO₂ 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. In sum, 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.

409. Comment: The commentator states that adding on additional costs will drive manufacturers out of Pennsylvania and make it exceedingly difficult to bring new firms in; essentially making RGGI a hard-cap on economic growth in the manufacturing sector.

Response: The Department disagrees with this assertion based on the explanation in response to #408 as provided above. Furthermore, that any potential economic disruption caused by this final-form rulemaking will be negligible because of growth of other segments of the economy.

The Department's economic modeling shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and an addition of \$1.9 billion to the Gross State Product. Additionally, Penn State's study confirms the economic benefits accruing as a result of this Commonwealth's participation in RGGI and suggests positive economic impacts beyond even those calculated by the Department. Penn State indicates that between 2022 and 2030, this Commonwealth's participation in RGGI will yield \$2.6 billion in net economic benefit to this Commonwealth. These have also been the results reported by the participating states and summarized in the RGGI review conducted by the Analysis Group.

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410. Comment: The United States Energy Information Administration (EIA) recently released its 2019 State Electricity Profiles, detailing the average retail price of electricity, capacity, generation, and retail sales. The commentator states that participating RGGI states rank higher than Pennsylvania in electricity costs. Between 2009 and 2019, the average retail price of electricity has increased in RGGI states, but in Pennsylvania the increase in cost has been much less. The commentator states that this most recent EIA data clearly illustrates that joining RGGI results in an increase in the price of electricity.

Response: The Department disagrees that this final-form rulemaking will lead to long-term electricity price increases. Additionally, price comparisons between this Commonwealth and the other RGGI participating states is not a good indicator of what Pennsylvania prices will be in the future. The RGGI states have different regulatory structures and policies that also have price impacts – it is not merely RGGI that dictates electric prices in states.

As shown in the Department’s 2020 modeling, as a result of the fee investments 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 than if this final-form proposed rulemaking were not implemented.

411. Comment: The commentator states that the Department’s modeling projects that residential electricity prices will be minimally impacted by the proposed rulemaking due to ratepayers using less electricity as a result of the proposed rulemaking.

Response: The Department agrees that modeling projects minimal impacts to residential electricity prices, though not as a result of decreased demand. The Department’s modeling relies on PJM’s demand projections, which have projected a decrease in electricity demand over time for multiple years in a row. However, the impact to ratepayers is not solely a function of how much electricity is being consumed.

As is described in detail in previous responses, 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 final-form rulemaking is implemented and this Commonwealth begins participating in RGGI in 2022, residential electric consumer bills will increase by an estimated 1.2 percent in the short-term. This amounts to an additional \$1.17 to \$1.65 per month depending on the home heating source. These price impacts do not include the added benefits and potential price suppressing impacts of investments of the auction proceeds in the energy section.

412. Comment: The commentator recommends the inclusion of predetermined leakage scenarios, which would require Pennsylvania to withdraw from participation in RGGI if it is demonstrated and forecasted that emissions across the PJM territory would be reduced without Pennsylvania's participation.

Response: The Department acknowledges the comment and as stated the focus of this final-form regulation is reduction of CO₂ emissions within this Commonwealth and inclusion of such language would not be appropriate.

Emissions Leakage

413. Comment: The commentator recommends an updated, comprehensive regulatory impact analysis be completed and presented to the EQB including a modeling analysis from PJM on the regional impacts of this rulemaking to ensure leakage and locational marginal pricing are considered in the analysis.

Response: The Department has completed an updated regulatory analysis for this final-form rulemaking. The Department has also conducted updated IPM, Integrated Planning Model, power sector modeling, which provides long-term projections of plant dispatch, capacity expansion and retirement, market prices, and emissions projections for the power sector across the country. This specific analysis focused on this Commonwealth, the PJM states, and the current states participating in RGGI. The results of the modeling include electricity transmission both into and out of this Commonwealth and the larger PJM and Eastern Interconnection. These values allow the Department to evaluate the changes in generation, and the flows of electricity between states and across the region.

Further, PJM created the CPSTF. This group, in which the Department has been an active participant, has examined the impacts of both the recent entry of Virginia into RGGI and also the potential impacts of this Commonwealth's participation in RGGI. PJM's independent power sector modeling came to the same conclusions as the Department's modeling, that though there was some potential for leakage, this did not undermine the significant emissions reduction potential within this Commonwealth, nor did it undermine emissions benefits across the PJM region. Even with the potential for leakage, PJM determined that in addition to significant benefits within this Commonwealth there was a net benefit across the PJM region as well. When this is extrapolated further to the Eastern Interconnection, there continues to be a net benefit, the value of which decreases as the lens through which the reductions are viewed becomes wider.

In addition to the modeling conducted by the Department and PJM, the report by the Penn State Center for Energy Law and Policy also addresses leakage. Their associated modeling confirms the potential for leakage, and bolsters results from PJM and the Department in confirming that

despite leakage, CO₂ emissions in the multi-state PJM region decline following this Commonwealth participating in RGGI. And these leakage estimates and models are based on current and predicted market conditions based on existing laws and policies, exclusive of any further regional or national action on carbon pricing which would minimize or entirely eliminate the potential for leakage.

414. Comment: The commentator states that there are electric generating units expected to come online in the near-term in non-RGGI PJM states that will lead to further electricity leakage, all of which was not factored into the modeling.

Response: The Department disagrees. The modeling process begins with the development of assumptions for a number of inputs that drive the projections from IPM, including electricity load and peak demand, fuel prices, cost and performance for generating capacity types, and policy assumptions, such as the representation of the RGGI cap and trade program and state renewable portfolio standards (RPS). Typical assumptions also include firm build and retirement assumptions, which are units specified in IPM to either build or retire. For this analysis, ICF and the Department specified the sources for these assumptions, based on publicly available information and sources adopted for previous RGGI analyses. This information includes public announcements and other public sources, such as ISO project planning queues. In this case, the Department further refined the list of planned facilities, to include only those that were considered “firm capacity additions” in this Commonwealth, based on whether projects met two out of three criteria including, fully funded, fully permitted, or had a power purchase agreement in place for the majority of the generation. ICF incorporates expected generation facility additions or closures in other states based on publicly available information.

Following specification of the assumptions, ICF inputs the assumptions into IPM and uses the model to generate projections. The results provided include changes in generation capacity and generation mix; energy, capacity, and firm (energy plus capacity) power prices; renewable energy credit (REC) prices for relevant RPS programs; CO₂, SO₂, and NO_x emissions; fuel consumption; and zonal transmission flows.

The modeling accounts for all new generation within this Commonwealth and the surrounding states. The specific list of projects that were included as firm capacity additions for this Commonwealth is included in the publicly available modeling results on the “Assumptions Overview- Firm Capacity Changes in PA” tab on the Department website.

415. Comment: The commentator states that emissions reductions as a result of this proposed rulemaking will be negated by emissions increases in other states in the PJM region, or the broader Eastern Interconnection that are not RGGI participating states and do not have to factor allowance costs into their costs. This could include EGUs that have a higher carbon intensity than EGUs in Pennsylvania.

Response: While efforts to model impacts of this final-form 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 28 million tons of CO₂ across PJM for the period between 2021 and 2030.

It is important to note that the modeling results assume the only policy change impacting the power sector in the region between 2021 and 2030 is this Commonwealth's participation in RGGI. The Department finds that extremely unlikely given the ongoing efforts by PJM, the FERC, and the Federal government. 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. See 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. The FERC hosted a carbon pricing technical conference in the Fall of 2020, resulting in a policy statement requesting public comment on issues such as how to address shifting generation amongst states as a result of carbon pricing. Lastly, the Federal administration is seeking to reduce carbon emissions from the electric power sector, specifically aiming to produce 80 percent of the nation's electricity from zero-carbon sources. The Department anticipates actions at the regional and Federal level will mitigate potential leakage impacts that may result from this final-form rulemaking.

416. Comment: The commentator states that because electricity generation in these non-RGGI PJM states has significantly higher carbon intensity, leakage out of Pennsylvania could actually contribute to increased emissions intensity. DEP's modeling forecast that PA's RGGI participation will shift generation to non-RGGI PJM states will undermine the state's emissions goals. Should that be the case, Pennsylvania will not only have lost significant generation, investment and economic activity, it will have done so for a negligible improvement in regional air quality and emissions.

Response: The purpose of this final-form rulemaking is to reduce CO₂ emissions in this Commonwealth. While efforts to model impacts of this final-form 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.

While there is a potential for leakage as outlined in the Department's modeling for this final-form rulemaking, this potential leakage does not undermine the value of the significant benefits that will accrue to this Commonwealth and its residents as a result of this final-form rulemaking. The potential for CO₂ reductions in this Commonwealth by 2030 ranges from 97 million to 227 million tons. These emissions reductions will occur in this Commonwealth despite any generation changes that may occur in other states. The meaningful reductions of air pollution stemming from this final-form rulemaking have also been confirmed by independent power sector modeling conducted by PJM and the Penn State Center for Energy Law and Policy.

417. Comment: The commentator states that leakage concerns should not prevent participation in RGGI.

Response: The Department acknowledges this comment.

418. Comment: The commentator states that concerns about emissions leakage should not prevent the Department from implementing the proposed rulemaking in 2022.

Response: The Department acknowledges this comment.

419. Comment: The commentator states that if RGGI were implemented in Pennsylvania, CO₂ emissions from power plants in the Commonwealth would, in significant part, transform into emissions from power plants in neighboring, non-RGGI states like West Virginia and Ohio. The result is that Pennsylvania's participation in the program would not even be materially effective in reducing CO₂ emissions in the region.

Response: The Department disagrees that this final-form rulemaking would not reduce CO₂ emissions in the PJM region. While efforts to model impacts of this final-form 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 28 million tons of CO₂ across PJM for the period between 2021 and 2030.

It is important to note that the modeling results assume the only policy change impacting the power sector in the region between 2021 and 2030 is this Commonwealth's participation in RGGI. The Department finds that extremely unlikely given the ongoing efforts by PJM, the FERC, and the Federal government. 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 FERC hosted a carbon pricing technical conference in the Fall of 2020, resulting in a policy statement requesting public comment on issues such as how to address shifting generation amongst states as a result of carbon pricing. Lastly, the Federal administration is seeking to reduce carbon emissions from the electric power sector, specifically aiming to produce 80 percent of the nation's electricity from zero-carbon sources. The Department anticipates actions at the regional and Federal level will mitigate potential leakage impacts that may result from this final-form rulemaking.

420. Comment: The commentator recommends that Pennsylvania undertake a process to identify an effective leakage mitigation mechanism such as placing emissions associated with imported electricity under the emissions budget, to ensure the state can achieve even greater regional reductions and ensure greater net retention of reductions made by Pennsylvania's program.

Response: The Department acknowledges this comment. The Department will continue to support regional leakage mitigation efforts.

421. Comment: The commentator strongly supports the Department’s continued partnership with the PUC to engage with PJM to “promote the integration of this program in a manner that preserves orderly and competitive economic dispatch within PJM and minimizes emissions leakage” and its continued participation in the PJM Carbon Pricing Senior Task Force.

Response: The Department acknowledges this comment and will continue to partner with the PUC and participate in the PJM Carbon Pricing Senior Task Force.

422. Comment: The commentator recommends that the Department and the PUC request any information from PJM that may be necessary or helpful to assess and minimize emissions leakage.

Response: The Department acknowledges this comment. The Department will continue to assess ways to reduce leakage.

423. Comment: The commentator states that the Department should work with PJM, other PJM states, and RGGI, Inc. to accurately measure whatever emissions leakage may occur after Pennsylvania starts to participate in RGGI.

Response: The Department acknowledges and agrees with this comment.

424. Comment: The commentator states that the Department should study how to avoid significant leakage in order to ensure that joining RGGI does not result in regional increases in CO₂ and other pollutants resulting from the increased operation of fossil fuel generation from other states and that this analysis should be completed and factored into the proposed rule.

Response: The Department will continue to support regional leakage mitigation efforts. 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.

425. Comment: The commentator states that in studies that PJM, the market operator, has performed, it is not until the RGGI footprint expands to include Pennsylvania that the overall impact of RGGI within PJM is to reduce total PJM emissions. Under the current RGGI footprint within PJM, which includes Maryland, Delaware, and New Jersey, the unfortunate overall result of RGGI’s carbon pricing program is an increase in emissions when looking at the whole PJM market. PJM’s study results show that the addition of Virginia to RGGI dampens this effect so that, RGGI has a negligible impact on total PJM emissions. However, the study results of further expanding the RGGI footprint to include Pennsylvania show that RGGI reduces both total PJM emissions as well as PJM emissions intensity, which accounts for the possibility of changes in PJM exports to neighboring regions due to carbon pricing. While leakage still remains an issue even with this expanded footprint, The commentator thinks it is notable that Pennsylvania’s

participation in RGGI helps improve the functioning of the larger RGGI program within PJM, both by expanding the size of the RGGI subregion within PJM and diversifying the types of resources covered by RGGI.

Response: The Department agrees that this Commonwealth's participation in RGGI will reduce emissions across the PJM region.

426. Comment: The commentator references the concept of either a one-way or two-way border adjustment within PJM to separate the PJM states into those with and without carbon pricing. The commentator states that these mechanisms may not adequately address state or stakeholder concerns about leakage. The one-way border adjustment could be a well-founded means for RGGI states to address a fact pattern where the RGGI states consume more electricity than they produce (and thus more than is covered by their RGGI participation). However, with Pennsylvania's entry into RGGI, that fact pattern no longer holds true. PJM has constructed the one-way border adjustment such that the emissions leakage problem is implicitly defined as needing to cover a state's consumption of electricity rather than just its production. Under that rubric, Pennsylvania joining RGGI solves the emissions leakage problem because the RGGI subregion would no longer be a net importer of electricity. The commentator believes that there would still be real consequences of carbon pricing only covering part of PJM, and there would still be some generation shifting and thus emissions leakage from the RGGI states to the rest of PJM.

Response: The Department acknowledges this comment and will continue to discuss leakage mitigation with the PJM Carbon Pricing Senior Task Force members and interested stakeholders.

427. Comment: The commentator states that PJM found that CO₂ emissions decline in the sub-region with carbon prices were largely offset by CO₂ emission increases in the rest of the market. PJM's analysis supports the notion that leakage significantly diminishes any CO₂ emission reduction benefit of Pennsylvania joining RGGI. To further supplement this PJM analysis, an October 2020 study released by Energy and Environmental Economics, Inc. (E3) found that the current combination of state renewable portfolio standards and partial carbon pricing within PJM has "significant costs but limited effectiveness in reducing carbon emissions." E3's analysis suggested that a continuation of these policies would "add \$3 billion per year to electricity bills in the region by 2030, while reducing CO₂ emissions by only 40 million metric tons" relative to a scenario in which these policies are not in place.

Response: The Department acknowledges this comment and will continue to engage PJM on potential leakage solutions and participate in PJM's Carbon Pricing Senior Task Force. The purpose of this final-form rulemaking is to reduce CO₂ emissions in this Commonwealth.

428. Comment: The commentator states that modeling performed for NRDC found that despite a certain amount of leakage to other PJM states, Pennsylvania's participation in RGGI would reduce cumulative emissions across the PJM region by more than 145 million tons between 2019 and 2030, even in the absence of complementary policies. Modeling by the Environmental Defense Fund using a tool developed by MJ Bradley & Associates reached a similar conclusion, also finding significantly less leakage than the Department projected.

Response: The Department agrees that this Commonwealth’s participation in RGGI will reduce emissions in this Commonwealth and across the PJM region.

429. Comment: The commentator references the Penn State Center for Energy Law and Policy study that modeled Pennsylvania’s participation in RGGI with a proprietary tool called “RGGI+PJM Policy Analysis Model,” projected that 86 percent of the CO₂ reductions from Pennsylvania’s joining RGGI would be offset by emissions increases in PJM and/or other RGGI states – a significantly higher amount of leakage than the Department found.

The commentator has reviewed Penn State’s methodology and believe that it suffers from several serious flaws, including reliance on outdated assumptions concerning renewables prices, failure to account for recent state policy developments in PJM and RGGI states, and disregard of the availability of battery storage and offshore wind technologies. The overall effect of these flaws is an overreliance of the model on gas-fired generation in the PJM region, leading to higher leakage projections than are warranted.

The commentator adds that even the Penn State analysis projects that Pennsylvania’s participation in RGGI will reduce carbon dioxide emissions across the PJM region, despite the higher leakage estimates, and deliver significant net benefits.

Response: The Department acknowledges this comment. The Department conducted its own modeling effort that has lower emissions leakage estimate than the referenced Penn State study. The Department does not solely rely on the Penn State study, but references its results as another indication of projected overall benefits for this Commonwealth as a result of RGGI participation from a widely respected research institution.

430. Comment: The Department has not engaged PJM, the only source with the specific EGU pricing and operations information and transmission constraints information necessary to conduct an adequate assessment of Pennsylvania’s, as well as New Jersey’s and Virginia’s, participation, in a PA RGGI participation analysis.

Response: The Department disagrees with this assessment. The Department has had numerous conversations with PJM staff and has continued to participate in PJM’s Carbon Pricing Senior Task Force. The Department has full confidence in ICF’s modeling capabilities and the results that they produced. ICF’s model has been used by a number of different governments, organizations, and companies to conduct power sector modeling, including RGGI Inc. and other RGGI states.

431. Comment: The commentator states that without Federal Action Pennsylvania needs to take further action to prevent leakage. Pennsylvania should take further action to prevent its generators from suffering from leakage that would reduce demand for their generation capacity while also decreasing the GHG emissions reductions resulting from Pennsylvania participating in RGGI.

Response: The Department acknowledges the comment, and continues to work with PJM, and other stakeholders to identify opportunities to address leakage.

432. Comment: The commentator believes a decision to join RGGI without leakage mitigation within this propose rulemaking, especially given the Department’s comments to the CPSTF, is grossly premature and inconsistent with the governor’s Order.

Response: The Department acknowledges this comment and disagrees. This Commonwealth’s participation in RGGI will result in reduced emissions across PJM.

433. Comment: Leakage is best addressed by the regional transmission operator with market design evolutions and is not within the states authority to address unilaterally.

Response: The Department acknowledges the comment and disagrees. This Commonwealth’s participation in RGGI will result in reduced emissions across PJM.

434. Comment: The Department’s modeling indicates there will be leakage from Pennsylvania to states including West Virginia and Ohio that also supply power to the PJM Interconnection. Section 17 of the RAF does not, however, assess the amount of power generation, the capital expenditures, or the number of jobs that might migrate to other PJM states. This section states the Department will conduct additional modeling with PJM’s Carbon Pricing Senior Task Force to better understand and control leakage. Further analysis of the economic and environmental consequences of leakage would be very helpful in understanding the implication of the regulations on the economy and for mitigating potential effects.

Response: The Department agrees and continues to analyze the potential for and options to address leakage.

Health Benefits

435. Comment: The commentator states that while science will continue to develop, several studies have already demonstrated that air pollution may increase and worsen COVID-19 cases. For instance, researchers with Harvard University’s T.H. Chan School of Public Health found that in counties across the United States, very small increases in exposure to fine particulate matter (PM_{2.5}) air pollution were associated with an 11 percent increase in COVID-19 mortality rates, even after controlling for county-specific levels of household income, education, age distribution, race and population density. The study adds to a growing body of research that finds even slightly higher levels of air pollution worsen COVID-19 health outcomes. Georgia State University researchers studied United States 2020 data and found that lower PM_{2.5} air pollution levels were associated with fewer confirmed COVID-19 cases and lower mortality rates from COVID-19. In England, researchers showed that PM_{2.5} was a major contributor to COVID-19 cases. Worldwide, about 15 percent of the people who have died from COVID-19 were people exposed to higher levels of PM_{2.5} pollution long term. This Commonwealth is not yet in full compliance with the most recent Federal PM_{2.5} standards. These studies demonstrate that, rather than providing a reason for further delay, the ongoing COVID-19 pandemic further supports the urgent need for the emission-reduction benefits to be gained through participating in RGGI.

Response: The Department acknowledges and agrees with this comment. NO_x and SO₂ 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.

436. Comment: The commentator states that the Department predicts the final-form rulemaking will result in significant health benefits. Those benefits are attributable to ancillary reductions in SO₂ and NO_x emissions but there is not a discussion of whether there will be health benefits directly attributable to reducing CO₂.

Response: The immediate health benefits of this final-form rulemaking are attributable to the reductions in SO₂ and NO_x emissions as a result of the CO₂ emissions limit contained within this final-form rulemaking. However, there are a plethora of health studies that support the contention that reducing CO₂ emissions is necessary to support a stable climate. Climate change, together with other natural and human-made health stressors, influences human health and disease in numerous ways. Some existing health threats will intensify, and new health threats will emerge. Not everyone is equally at risk. Important considerations include age, economic resources, and location. In the U.S., public health can be affected by disruptions of physical, biological, and ecological systems, including disturbances originating here and elsewhere. The health effects of these disruptions include increased respiratory and cardiovascular disease, injuries and premature deaths related to extreme weather events, changes in the prevalence and geographical distribution of food- and water-borne illnesses and other infectious diseases, and threats to mental health. CO₂ is an air pollutant and its reduction is necessary to improve public health in the long term.

437. Comment: The commentator states that reductions in certain criteria pollutants (i.e., SO₂ and NO_x) are espoused by the Department as co-benefits of RGGI participation and comprise virtually all the quantitative health benefits. However, the Department has not provided a basis for the need for these reductions or why RGGI is the proper pathway for doing so.

Response: The Department disagrees with this characterization. As shown by the Department's modeling, the reduction of co-pollutants, in addition to the direct CO₂ emission reductions, results in significant public health and environmental benefits. Additionally, for decades the EPA has included co-pollutant reductions when calculating the benefits of a regulation. The Department also follows this approach as reducing air pollution is always beneficial, no matter the type of pollutant.

438. Comment: The commentator states that the health benefit projections are overstated because they reflect emissions reductions occurring prior to implementation of this proposed rulemaking.

Response: The Department considers emissions reductions occurring prior to 2022 as a result of the expected implementation of this final-form rulemaking as valid. Therefore, health benefit projects that include such emissions reductions are not overstated.

The Department calculated that if 188 million tons of CO₂ are avoided through 2030 then this Commonwealth's residents would see cumulative health benefits amounting to \$2.79—\$6.3 billion. An analysis conducted by Penn State's Center for Environmental Law and Policy projected even higher health benefits, on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth's RGGI participation, specifically noting the conservative nature of the Department's calculations. These health benefits accrue within this Commonwealth as a result of implementation of this final-form rulemaking, and if anything, the Department's health benefits are understated.

439. Comment: The commentator states that the reduction of CO₂ emissions alone does not provide quantifiable public health benefits and that this Commonwealth is currently meeting attainment for criteria pollutants and has methods beyond this proposed rulemaking to achieve federal ambient air quality standards.

Response: This final-form rulemaking will lead to decreased CO₂ emissions across this Commonwealth, which is the intent of the Department. The health benefits of this final-form rulemaking are attributable to the reductions in SO₂ and NO_x emissions as a result of the CO₂ emissions limit contained within this final-form rulemaking.

440. Comment: The Department has used a methodology to calculate the health benefits that EPA has identified as being merely a "screening tool" with considerable limitations. A screening level assessment is a very conservative assessment used to determine if a more rigorous assessment is appropriate and necessary to determine actual effect and impacts. A screening level assessment does not result in accurate total monetized health benefits nor provide accurate monetized benefits for any particular region.

Response: The Department's methodology to calculate the health benefits of projected emissions reductions is a useful indicator of the health benefits resulting from the implementation of this final-form rulemaking. And as indicated above, related analyses indicate the Department's calculations of health benefits were understated, as health benefits were determined by Penn State to be on the order of \$1 billion to \$4 billion per year over the initial decade of this Commonwealth's participation in RGGI.

441. Comment: A presentation made by the Department to the Small Business Compliance Advisory Committee on July 22, 2020, showed the great improvements that have been achieved in ambient air quality in Pennsylvania. Further, the 2017 – 2019 ambient monitoring data, aka 2019 design value, collected by the Department demonstrated that the ambient air quality standards, which are developed to protect all members of the population, were being met at the

vast majority of monitoring sites. Consequently, further emissions reductions by the Pennsylvania electric generating units (EGUs) that would be retired due to RGGI participation would not likely provide the monetized benefits calculated by the Department.

Response: The Department disagrees. The benefits calculated by the Department are independent of ambient air quality improvements from 2017-2019.

442. Comment: The commentator states that the Department suggests that from 2009 through 2014 states participating in RGGI gained significant health benefits in the first six years of the program's implementation; however, research by other sources such as the Congressional Research Service (CRS) found that RGGI itself did not drive any emissions reductions because the limits set by RGGI were above the actual emissions for those years. Instead, the health benefits are likely a result of fuel switching from coal and oil to natural gas as noted by Abt Associates in a 2017 analysis where they determined a small number of legacy coal plants accounted for the majority of RGGI's health benefits. The same CRS report found that the RGGI program raised funding for programs that support clean energy development activities, but the program's contribution to directly reducing greenhouse gas emissions was arguably negligible. These findings do not necessarily result in a conclusion that RGGI should not be pursued – at this point, the data presented by the Department are inconclusive.

Response: The Department disagrees with the suggestion that if actual emissions are lower than the allowance budget, than this final-form rulemaking would not drive emissions reductions. The Department's modeling demonstrated that is not the case.

The Department acknowledges that 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 percent of CO₂ 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>.

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 PM_{2.5} 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>.

Further, when looking specifically at this final-form rulemaking, the Department’s modeling projects avoided CO₂ emissions by sources in this Commonwealth of 97-227 million tons between 2021-2030. 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. Based on an assumption that 188 million tons of CO₂ emissions are avoided through 2030, the Department estimated that between 283 and 641 premature deaths will be avoided in this Commonwealth due to emission reductions resulting directly from this final-form 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 SO₂ and NO_x emissions range between \$2.79 billion to \$6.3 billion by 2030, averaging between \$232 million to \$525 million per year.

The Department considers the combination of all of this information conclusive.

443. Comment: The EQB makes no attempt to quantify expected public health benefits that will accrue to Pennsylvanians specifically from the Proposed Rulemaking, despite the fact that it is citizens of the Commonwealth who will bear the brunt of whatever costs Pennsylvania’s participation in RGGI entails. The public health benefits that will accrue to Pennsylvanians from reductions in emissions of all air pollutants that accompany Pennsylvania’s participation in the RGGI are certain to be real, substantial, local, and immediate. The EQB should quantify such benefits, perhaps based on the experiences of other states that are already participating in the RGGI and use that quantification to better demonstrate that the benefits from the Proposed Rulemaking will exceed its costs.

Response: The Department quantified the expected public health benefits of this final-form rulemaking. When looking specifically at this final-form rulemaking, the Department’s modeling projects avoided CO₂ emissions by sources in this Commonwealth of 97-227 million tons between 2021-2030. 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. Based on an assumption that 188 million tons of CO₂ emissions are avoided through 2030, the Department estimated that between 283 and 641 premature deaths will be avoided in this Commonwealth due to emission reductions resulting directly from this final-form 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 SO₂ and NO_x emissions range between \$2.79 billion to \$6.3 billion by 2030, averaging between \$232 million to \$525 million per year.

444. Comment: It is improper to consider the estimated health benefits as “co-benefits” as Pennsylvania monitors widespread attainment of the NAAQS, which are established to protect public health, including a sufficiently conservative safety factor. With the Commonwealth already monitoring attainment of these health-based standards, it is questionable whether further reduction of concentrations of these pollutants below these standards would provide any further benefit. Additionally, the Regulatory Review Act requires agencies to consider whether a proposed rulemaking results in a “duplication of statutes or existing regulation.” 71 P.S. § 745.5b(b)(3)(i). Here, the APCA already provides statutory authority for the Department to regulate particulate matter, NO_x and SO₂. An attempt to duplicate existing regulation cannot form the basis for a purported “co-benefit.” Furthermore, by claiming such benefits, it appears that the proposed rulemaking is also directed at regulating these pollutants to levels more stringent than the NAAQS. Such regulation is not permissible under the APCA, which prohibits more stringent regulation of pollutants for which NAAQS’ have been established except in certain instances, none of which appear to apply to this rulemaking.

Response: The Department disagrees with this comment. As shown by the Department’s modeling, the reduction of co-pollutants, in addition to the direct CO₂ emission reductions, results in significant public health and environmental benefits. Additionally, for decades the EPA has included co-pollutant reductions when calculating the benefits of a regulation. The Department also follows this approach as reducing air pollution is always beneficial, no matter the type of pollutant. Since the Department does not currently have a regulation that controls CO₂ emissions from fossil fuel-fired EGUs, this final-form rulemaking is not a duplication of an existing regulation. Further, the Department is not directly regulating NO_x, SO₂, or particulate matter emissions in this final-form rulemaking. Any reductions are a result of reducing CO₂ emissions.

445. Comment: The commentator states that the Department does not account for how shifts in emissions across states as a result of this proposed rulemaking will also lead to changes in co-pollutant emissions, specifically states that are upwind, and the associated health impacts of those emissions shifts.

Response: The Department acknowledges this as outside the scope of the Department’s modeling. The changes in co-pollutant emissions from states that are downwind are also not included in the scope of the modeling.

446. Comment: The Department has submitted SIPs for each current SO₂ non-attainment area that outline how the respective areas will come into attainment and all four have been approved by EPA. None of the four SIPs rely on RGGI participation, meaning RGGI is not needed for the entire Commonwealth to meet the SO₂ NAAQS.

Response: This final-form rulemaking does not directly regulate SO₂ emissions. However, the Department notes that while it has submitted attainment demonstrations for each current SO₂ non-attainment area, the U.S. EPA has yet to approve the submitted attainment demonstration for Indiana county. In addition, any additional SO₂ emissions from this rulemaking would provide additional margin of safety for the exposed population. Furthermore, any reduction of SO₂ emissions from this rulemaking would also result in the reduction of secondary formation of fine particulate matter emissions and the associated impact on the exposed population.

447. Comment: The purported NO_x emission reductions achieved as a co-benefit of joining RGGI would be duplicative to those already required by the FIP, revised SIP, and revised CSAPR and will occur anyway.

Response: The Department disagrees with this comment. The Department is not directly regulating NO_x emissions in this final-form rulemaking. Any reductions are a result of reducing CO₂ emissions. Since the Department does not currently have a regulation that controls CO₂ emissions from fossil fuel-fired EGUs, this final-form rulemaking is not a duplication of an existing regulation.

Special Considerations

448. Comment: The commentator urges the Department to publish an annual report on power plant emission levels on a statewide basis. The commentator states that these reports should be broken down into no less than six regions; Northeast, Northcentral, Northwest, Southwest, Southcentral, and Southwest. By breaking the reporting down into regions, it would help the Department and other stakeholders understand the cumulative and localized impacts of RGGI once implemented.

Response: The Department agrees that an annual report on emissions from EGUs is important. The Department is committing to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emissions data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emissions data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the Pennsylvania Bulletin on an annual basis.

449. Comment: The commentator states that the Board should revise the proposed rulemaking to include essential protections for all Pennsylvania energy consumers. The proposed rulemaking fails to adequately consider or plan for several contingencies that are key to analyzing the feasibility and sustainability of enrolling the Commonwealth in RGGI. While the proposed rulemaking includes a cost containment reserve mechanism to help mitigate spikes in the price of CO₂ allowances, the proposed rulemaking fails to address or provide safeguards against potentially devastating increases in Pennsylvania energy prices, emissions leakage, or job losses.

Response: The Department acknowledges the comment though disagrees with the need for safeguards as neither the Department's own modeling nor the 10-plus year history of RGGI have resulted in the outcomes as described by the commentator.

Environmental Justice Communities

450. Comment: The commentator recommends that the regulation include a triennial assessment and remediation plan. The assessment should examine the economic and environmental impact of RGGI on low income communities, communities of color, and frontline communities, and should include a plan for remediation of identified impacts. The assessment should be subject to a robust and inclusive public input and comment process to ensure that solutions are grounded in local solutions.

Response: The Department appreciates the comment and has committed to an annual review of the impacts of this final-form regulation. The Department has committed to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions

data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emissions data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emission data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the *Pennsylvania Bulletin* on an annual basis.

451. Comment: The commentator states that air pollution permits issued by the Department should include more input from the communities surrounding electric generating units, such as considerations of nearby schools, hospitals, or community spaces and the permit process should take into account other factors such as existing air quality in that area and cumulative impact of all regulated air pollution sources.

Response: The Department appreciates this comment and has committed to an annual review of the impacts of this final-form rulemaking. The Department has committed to providing an Annual Air Quality Impact Assessment.

452. Comment: The commentator stated that in order to mitigate the impact on disadvantaged communities, the Department must exercise its authority outlined in the Pennsylvania Air Pollution Control Act and conduct a thorough investigation before imposing any emission limitation per permittee. The Department can do this by implementing case studies in low-income and minority communities to estimate the plan's side effects on co-pollutants such as particulate matter. Since the operation of RGGI may not be entirely predictable in Pennsylvania, the Department must investigate a range of scenarios. If this analysis suggests that the system is likely to create, exacerbate, or maintain a significant level of pollution hot spots, the Department should employ countermeasures such as imposing controls on those sources to purchase allowances. Once RGGI is operational, monitoring pollution concentrations remains essential to ensuring hot spots are not developing and that disadvantaged communities are sharing equitably in the benefits of emissions reductions.

Response: The Department appreciates this comment. The Department has committed to an annual review of the impacts of this final-form rulemaking. The Department has committed to providing an Annual Air Quality Impact Assessment. In addition, the Department has committed to Equity Principles which have been incorporated in this final-form rulemaking. The Equity Principles consist of inclusively gathering and meaningfully considering input from environmental justice community members, mitigating any adverse impacts on human health in environmental justice communities, and distributing environmental and economic benefits of auction proceeds in communities that have been disproportionately impacted by air pollution.

453. Comment: The commentator states that this proposed rulemaking would benefit historically disadvantaged communities through improved air quality or air pollution reduction investments.

Response: The Department agrees.

454. Comment: The commentator states that historically, air pollution in Pennsylvania has disproportionately impacted environmental justice communities and that should be considered in the development and implementation of this proposed rulemaking.

Response: The Department agrees. The Department developed Equity Principles which have been incorporated in this final-form rulemaking. The Equity Principles consist of inclusively gathering and meaningfully considering input from environmental justice community members, mitigating any adverse impacts on human health in environmental justice communities, and distributing environmental and economic benefits of auction proceeds in communities that have been disproportionately impacted by air pollution. The Board also added language to this final-form rulemaking indicating that the Department will assess air emissions data each year to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. Additionally, the Department is committed to allocating a portion of the auction proceeds to further eliminate air pollution in environmental justice communities.

455. Comment: The commentator recommends the Department conduct periodic assessments that include determinations of whether the pollution burden in environmental justice communities increased or declined over the assessment period and examine economic and environmental impacts of RGGI implementation on environmental justice communities. The commentator recommends that these efforts include opportunities for public input and employ adaptive management strategies that allow the Department to efficiently translate feedback on program implementation into program improvements.

Response: The Department appreciates this comment. The Department has committed to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emission data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emissions data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the *Pennsylvania Bulletin* on an annual basis.

456. Comment: The commentator recommends the EQB include provisions in the Proposed Regulation for mechanisms to understand the impact of RGGI implementation on the distribution of pollution burdens and benefits across the Commonwealth. Specifically, this should include data collection mechanisms that quantify emissions from all power plants and publication of periodic assessments of emissions levels at the individual power plants level. As part of this, the commentators recommend review of the potential for power plants located in close proximity to environmental justice communities that are also in nonattainment areas to (a) increase capacity

factors; and (b) clear PJM market clearing price thresholds for dispatch will provide important insights into potential for these plants to operate more frequently in response to RGGI.

Response: The Department acknowledges this comment and has included an Annual Air Quality Impacts Assessment in this final-form rulemaking.

457. Comment: The commentator states that the Department should ensure that EGUs in environmental justice areas do not emit more CO₂, relative to historical emissions and other EGUs, as a result of this proposed rulemaking by enhancing air quality monitoring and assessments. The commentators also stated that if certain EGUs were to increase emissions, there should be regulatory mechanisms in place to limit emissions.

Response: The Department agrees and has committed to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emission data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emission data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the *Pennsylvania Bulletin* on an annual basis. If there is a need to adjust this final-form rulemaking, the Department can revise the rulemaking and bring a revised rulemaking back to the Board.

458. Comment: The commentator states that to address concerns that RGGI could disproportionately burden disadvantaged communities in Pennsylvania where natural gas plants are located, the Department should monitor emissions shifts among regulated plants, develop adaptive management strategies to address any emissions increases in environmental justice communities, and dedicate RGGI auction proceeds to increasing environmental monitoring and enforcement and investing in clean energy in those communities.

Response: The Department agrees and has committed to annually monitoring emissions in all communities across the Commonwealth. Additionally, communities that have historically been overburdened by pollution are priority communities for the investment of auction proceeds and further air quality improvements.

459. Comment: The commentator states that the Department should take steps to ensure that implementation of the Proposed Rule does not result in the leakage of generation and emissions from covered sources to smaller uncovered generators, particularly when these units are located in environmental justice areas.

Response: The Department appreciates this comment. The Department will use the Annual Air Quality Impact Assessment, along with other data, to assess this concern on an annual basis. Further, the Department projects based on announced closures and future firm capacity builds

that in 2022, there will be 66 CO₂ budget sources with 158 CO₂ budget units with a compliance obligation under this final-form rulemaking. The Department conducted an analysis of power sector emissions and the facilities that meet the applicability criteria in this final-form rulemaking and determined that around 99 percent of this Commonwealth's power sector CO₂ emissions would be covered under this final-form rulemaking.

460. Comment: The commentator believes that RGGI can substantially advance environmental justice, but that RGGI by itself is not enough.

Response: The Department acknowledges this comment. The Department's Office of Environmental Justice is ensuring that the Pennsylvanians most at risk from pollution and other environmental impacts have a voice in the decision-making process, beyond this final-form rulemaking. See <https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/pages/default.aspx>.

461. Comment: The commentator states that the proposed RGGI regulation is a well-designed program to help achieve the critically important goal of substantially reducing GHG emissions to address climate disruption, which has disproportionately high adverse impacts upon disadvantaged populations worldwide. To the extent that RGGI succeeds in discouraging continued operation of fossil fuel fired power plants, it will reduce emissions of other harmful pollutants as well. In fact, the RGGI program will reduce emissions from fossil fuel-fired power plants and cause the closure of many fossil-fired power plants, which can be located in low-income areas, so that emissions of those pollutants are likely to be reduced.

Response: The Department agrees that this final-form rulemaking will reduce emissions of CO₂, as well as other co-pollutants across this Commonwealth.

462. Comment: The commentator cites a 2016 PSE Healthy Energy study that examined the demographics of communities within 3 miles of Pennsylvania power plants subject to the EPA's proposed Clean Power Plan. The commentator states that the study found that half of the plants were located within three miles of a region designated as an Environmental Justice Area by the Department. The PSE Healthy Energy Study also assessed the frequency of power plant inspections and violations in Pennsylvania using data available from 2011-2015 for multiple statutes, including the Clean Air Act, Clean Water Act, Safe Drinking Water Act and Resource Conservation and Recovery Act and found that coal plants were inspected 193 times and were cited for 58 violations while natural gas plants (both combined cycle and steam) were inspected 76 times and were cited for 48 violations. The commentator states that a closer examination of the very high rate of violations at natural gas plants reveals concerning results for Pennsylvanians residing in environmental justice communities. The commentator cites results that show that while natural gas plants located within three miles of environmental justice communities were inspected at twice the rate of gas plants outside the three mile radius, gas plants within the three mile radius were cited for violations more than four times as often as gas plants outside that radius.

The Commentators conducted a preliminary analysis to better understand the current relationship between power plant locations, community demographics, attainment of NAAQS, and other

factors. That analysis identified 13 gas-fired power plants with capacity of 25 MW or larger located within a designated nonattainment area and within 3 kilometers of an environmental justice area, along with 11 gas and oil plants less than 25 MW located within a designated nonattainment area and within 3 kilometers of an environmental justice area.

The commentator states that although most of Pennsylvania's gas-fired generation is not within 3 kilometers of an environmental justice community, the PSE Healthy Energy Study findings, coupled with the Commentators' preliminary analyses, compel ongoing scrutiny by the Department to determine whether emissions increase at any plants that are within such communities, and the pro-active development of strategies to address potential increases, now.

Response: The Department acknowledges this comment and has included an annual Air Quality Impact Assessment in this final-form rulemaking.

463. Comment: The commentator recommends the Department conduct a close review of air pollution standards adopted under the Clean Air Act and APCA and take steps to reduce the potential for power plants located in environmental justice communities to avoid or even increase co-pollutant emissions as a result of RGGI CO₂ emission trading provisions. The commentator notes that while APCA limits the Department's ability to adopt criteria pollutant standards more stringent than the minimum standard established pursuant to the Clean Air Act, this limitation does not apply "if the Board determines that it is reasonably necessary for a control measure or other requirement to exceed minimum Clean Air Act requirements in order for the Commonwealth to achieve or maintain ambient air quality standards." This exception appears to provide the Board and the Department flexibility to adopt ambient air quality standards more stringent than the minimum standards established pursuant to the Clean Air Act for "nonattainment" and "maintenance" areas.

The Clean Air Act provides that upon the designation of a "nonattainment area" for a national ambient air quality standard, states must develop implementation plans ("Nonattainment Plans") to reach "attainment" within 5 years of the designation date. Among other requirements, Nonattainment Plans must provide for the implementation of "all reasonably available control measures as expeditiously as practicable" and provide for the attainment of national primary ambient air quality standards.

The commentator recommends the Department review national ambient air quality standards in nonattainment areas and determine what additional "available control measure" can be implemented "as expeditiously as practicable" to provide for the attainment of national primary ambient air quality standards. The Department should explore the options to revise and update Nonattainment Plans to incorporate those "available control measures" (including further rulemakings and other measures to meet more stringent ambient air quality standards than the minimum standard under the Clean Air Act) and such "other requirements" that will accelerate timelines for achieving attainment and mitigate against the potential for increased utilization of certain power plants in communities that already bear a disproportionate pollution burden. Revisions to Nonattainment Plans should identify zero emission resources as a "reasonably available control measure" and the Department should move as expeditiously as practicable to deploy these resources in nonattainment areas.

Response: The Department acknowledges this comment. To address environmental justice concerns, the Department is committing to providing an Annual Air Quality Impact Assessment. The report will include at a minimum the baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year this Commonwealth becomes a participating state and the annual emissions measurements provided from each unit. The Department will not only be assessing the CO₂ emission data provided under the requirements of this final-form rulemaking but will be assessing the entirety of the data submitted from each CO₂ budget unit as required under the Department's regulations. The Department will assess the emission data to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this final-form rulemaking. The Department will also publish notice of the availability of the report and the determination in the *Pennsylvania Bulletin* on an annual basis. The rest of this comment is outside the scope of this final-form rulemaking.

464. Comment: The recommendations conveyed to the Department by the Environmental Justice Advisory Board (EJAB) should serve as a cornerstone of engagement regarding program goals and outcomes.

Response: The Department agrees and in response to comments received by and in consultation with EJAB and other stakeholders developed a set of equity principles. These equity principles advance the Department's commitment to equity in both the development of this rulemaking and the associated investment plan. Engagement with and recommendations from the EJAB have been invaluable to the engagement strategy, outreach efforts and overall approach taken by the Department in the development and finalization of this rulemaking.

Traditional Energy Communities

465. Comment: The commentator states that this regulation will cause economic harm to communities with fossil fuel-fired EGUs due to job loss, decreased tax assessments, and overall decreased economic activity.

Response: The Department recognizes that shifts in employment across the energy sector are already well-underway in this Commonwealth. 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. Even without the influence of this rulemaking, employment in coal-fired electricity generation in this Commonwealth shrank by 3.3 percent between 2017 and 2019, reflecting a 24.3 percent decrease in coal production across the United States.

The Department's modeling projects significant declines in electric generation from coal-fired EGUs even without this final-form rulemaking in effect. For electric generation from natural gas-fired EGUs, the Department's modeling shows that RGGI participation is expected to have relatively minor effects.

The Department understands the concerns that have been expressed regarding impacts on employees in this Commonwealth's energy sector. This final-form rulemaking provides an opportunity to assist residents of this Commonwealth impacted by changes in the energy sector. Without this final-form 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. The Department has partnered with the Delta Institute to evaluate the potential impacts of a changing energy sector on this Commonwealth's energy workers, and the surrounding communities. This will assist the Department in identifying community-driven ways to assist this Commonwealth's transition to a cleaner energy economy.

466. Comment: The commentator states that as a result of this proposed rulemaking, there will be electricity generation companies and workers that shift their operations to nearby states that are not participating states in RGGI, resulting in negative economic impact to Pennsylvania.

Response: The Department recognizes the uncertainty faced by coal operations and their employees in this Commonwealth and emphasizes its intention to prioritize traditional energy workers and communities in a just transition to a lower-carbon future. 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 percent of this Commonwealth's generation portfolio and is expected to decline to roughly 1 percent of this Commonwealth's generation portfolio in 2030. This shift away from coal-fired generation occurs irrespective of this Commonwealth's participation in RGGI. The Department has partnered with the Delta Institute to evaluate the potential impacts of a changing energy sector on this Commonwealth's energy workers, and the surrounding communities. This will assist the Department in identifying community-driven ways to assist this Commonwealth's transition to a cleaner energy economy.

The Department's economic modeling projected the economic impact across this Commonwealth as a result of this final-form rulemaking. The Department's modeling shows that this Commonwealth's participation in RGGI will lead to a net increase of more than 30,000 jobs and add \$1.9 billion to the Gross State Product by 2030.

467. Comment: The commentator states that the Department fails to sufficiently address the financial, economic and social impact the proposed rule will have on business and labor communities. 71 P.S. § 745.5(a)(10). The commentator states that if the proposed rule is promulgated, it will have an immediate and devastating economic impact on coal-fired EGUs in Pennsylvania and the families and communities surrounding these plants. In particular, there are four coal-fired EGUs in southwestern Pennsylvania: Cheswick; Conemaugh, Homer City and Keystone. Together these facilities employ over 600 people, plus several times that amount of contractors; spend almost \$1.1 billion per year in operations; and have a total economic impact in the Commonwealth of \$2.87 billion. Significantly, there are numerous designated environmental justice areas in the vicinity of these plants that will bear the brunt of these impacts. Moreover,

since these plants are significant employers in otherwise depressed areas, there are few employment alternatives offering similar wages and benefits for impacted employees, forcing many of them to relocate to find work.

Response: The Department recognizes the uncertainty faced by coal operations and their employees in this Commonwealth and emphasizes its intention to prioritize traditional energy workers and communities in a just transition to a lower-carbon future. 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 percent of this Commonwealth's generation portfolio and is expected to decline to roughly 1 percent of this Commonwealth's generation portfolio in 2030. This shift away from coal-fired generation occurs irrespective of this Commonwealth's participation in RGGI.

468. Comment: The commentator states that if this commonwealth were to implement this final-form rulemaking, four EGUs (Cheswick, Conemaugh, Homer City and Keystone) would cease operation, and the production of nine million tons of Pennsylvania-mined coal would be put at risk.

Response: The Department's modeling projects most coal-fired electric generation will cease by 2025, even without this final-form rulemaking. The Department recognizes the uncertainty faced by coal operations and their employees in this Commonwealth and emphasizes its intention to prioritize traditional energy workers and communities in a just transition to a lower-carbon future. 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 percent of this Commonwealth's generation portfolio and is expected to decline to roughly 1 percent of this Commonwealth's generation portfolio in 2030. This shift away from coal-fired generation occurs irrespective of this Commonwealth's participation in RGGI.

469. Comment: The commentator states that as the financial market shifts as part of a greater focus on Environmental, Social and Governance, coal-fueled generators are finding it increasingly difficult to obtain access to the capital necessary to maintain operations.

Response: The Department recognizes that coal generation may become less financially viable over time due to the influx of more affordable energy options, particularly natural gas production in Pennsylvania, but this shift away from coal predates this rulemaking and will occur irrespective of RGGI participation. The Department recognizes the uncertainty faced by coal

operations in this Commonwealth and emphasizes its intention to prioritize traditional energy workers and communities in a just transition to a lower-carbon future.

470. Comment: The commentator states that its Maryland coal plants, which have been operating under RGGI since its inception, only recently announced the intent to stop burning coal. The commentator adds that the existence of RGGI in Maryland did not impact that decision. The major reason for that decision is that the plants recently became more of a capacity resource, running only when market conditions dictated due to continuously low energy prices, primarily driven by the abundance of low-cost natural gas and declining energy demand. The commentator states that for similar reasons, Pennsylvania coal plants will be similarly challenged and face an uncertain future.

Response: The Department recognizes the uncertainty faced by coal operations in this Commonwealth and emphasizes its intention to prioritize traditional energy workers and communities in a just transition to a lower-carbon future.

471. Comment: The commentator contests the idea that RGGI is not needed because emission reductions in RGGI states have occurred primarily due to coal plants shutting down (fuel switching to combined cycle natural gas-fired generation) and that this would have happened even without RGGI. The commentator states that this argument fails to recognize the changing dynamics of power generation in this region and that a large number of factors go into the long-term strategy of power companies facing substantial capital investments in old generating plants. The commentator states that over the last decade, as cheap natural gas has led to a proliferation of combined-cycle natural gas-fired plants, and, less efficient, more costly coal-fired plants began to shut down, and that these retirements occurred in both states with and without RGGI.

Response: The Department acknowledges this comment. This Commonwealth's participation in RGGI is necessary to ensure CO₂ emissions are reduced from the electricity generation sector.

472. Comment: The commentator states that there could be positive economic impacts for Pennsylvania's nuclear electric generating industry as a result of this final-form rulemaking, which could lead to economic growth in areas with nuclear power plants.

Response: The Department agrees that this final-form rulemaking could contribute to mitigating economic distress of nuclear electric generating units in this Commonwealth, although that is not the purpose of this final-form rulemaking.

Further, nuclear employment has declined by 5.7 percent since 2017, shedding 256 jobs. A number of the job losses in nuclear generation are likely attributable to the closure of the Three Mile Island nuclear generation facility in September 2019. However, nuclear facilities are bolstered through this final-form rulemaking because the facilities are zero-carbon emitters. This means that the facilities will not need to factor in the price of emitting CO₂ when bidding into the electricity market. In fact, in early 2020, Energy Harbor, the owner of the Beaver Valley Nuclear Plant, specifically cited this final-form rulemaking as a primary reason for withdrawing the deactivation notice previously issued for the facility. Since the Beaver Valley Nuclear Plant will continue operating, the jobs related to the facility will be retained.

473. Comment: The commentator states that this proposed rulemaking will not economically benefit nuclear power plants to the point of completely mitigating financial challenges the industry is facing.

Response: The Department acknowledges this comment.

474. Comment: Data from the EIA shows that states that participate in RGGI decrease in-state generation. According to the EIA, states that participated in RGGI between 2008, the last non RGGI year, and 2019 decreased their cumulative generation by over 46 million MWh annually. During that same time RGGI states imported 447,167,524 MWh of their electricity sales - or over 447 GWh of imported generation over a ten-year period. By contrast, according to the EIA's Detailed State Data, Pennsylvania produced 2,435,486 GW of power during that same time, yet had only 1,608,340 GW of electricity sales, meaning over 827 thousand GWs of electricity was exported from Pennsylvania and imported to other states.

Response: The Department acknowledges this comment. The Department's modeling projects only a 5 percent average difference in total Pennsylvania electric generation as a result of this final-form rulemaking.

475. Comment: The commentator states that there is no reason to reduce Pennsylvania generation when doing so will not affect climate change whatsoever.

Response: The final-form regulation does not aim to reduce generation, rather price CO₂ emissions into the cost of electricity generation.

476. Comment: The commentator states this regulation will negatively impact power reliability.

Response: The Department disagrees with that assessment. 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. There have not been negative impacts to reliability during this period.

Further, the Department's modeling resulted in this Commonwealth's generation mix consisting of a maximum of 15 percent renewable generation by 2030. There is no evidence that renewable energy integration at that generation level would negatively impact reliability. In fact, one PJM study estimated that there would not be any significant issues operating with up to 30 percent of energy coming from wind and solar across the entire PJM grid. See General Electric International, Inc., PJM Renewable Integration Study, 2014, <https://www.pjm.com/-/media/committees-groups/subcommittees/irs/postings/pris-executive-summary.ashx>

477. Comment: Baseload sources, such as coal, still play an important role in grid resilience. The North American Electric Reliability Corporation (NERC) has cautioned through recent assessments that the retirements of baseload generation, coupled with the rapid addition of variable sources and influx of natural gas generation, could impact system reliability.

Response: The Department acknowledges this comment. Coal-fired power plants in this Commonwealth have declined in total generation since 2005, and the Department's modeling projects that will continue to occur even without this final-form rulemaking.

478. Comment: The commentator recommends a working group consisting of representatives from PJM, NERC and Reliability First Corp. that will provide feedback to ensure Pennsylvania's evolving generation and ultimate retirement of baseload capacity are reviewed and considered in the annual evaluation of Pennsylvania's participation in RGGI.

Response: The Department acknowledges this comment and will give this recommendation additional consideration; however, widespread grid reliability is neither within the purview of the Department nor within the scope of this final-form rulemaking.

479. Comment: The commentator states that Pennsylvania is a leading electricity exporter and that should be factored into the rulemaking so that status is maintained.

Response: The Department's modeling projects that this Commonwealth will continue to be a leading electricity exporter if this final-form rulemaking is implemented.

480. Comment: Because of Pennsylvania's unique position as the second largest producer of natural gas in the country and primary exporter of electricity to the largest electric grid in the country, it is critical that the state perform a comprehensive and regional review of the benefits and unintended impacts of joining the Regional Greenhouse Gas Initiative.

Response: The Department conducted power sector and economic modeling that evaluated the impacts on the energy sector if this final-form rulemaking is implemented.

481. Comment: RGGI has not and will not result in significant renewable electricity development.

Response: This final-form rulemaking is intended to reduce CO₂ emissions in this Commonwealth.

482. Comment: The commentator states that the Department should include an assessment of how the proposed program works in tandem with the existing Alternative Energy Portfolio Standards.

Response: The Department's modeling included any relevant electricity sector policies, including the Alternative Energy Portfolio Standard. The AEPS is a stand-alone law that is complementary to the goals of this final-form regulation.

483. Comment: The commentator asks if Pennsylvania’s benefit in RGGI will be maximized without an increase to the state’s alternative energy portfolio and if enough CO₂ credits be generated to fulfill the needs of all generators without the commonwealth purchasing credits.

Response: This final-form rulemaking, including implementation and projected benefits, are fully independent of changes or management of the Alternative Energy Portfolio Standard.

484. Comment: The commentator states that many neighboring states have by legislation or executive action established significant renewable portfolio standards, and their public utility commissions have authorized or contracted significant amounts of offshore wind, which is in terms of levelized cost of energy the most expensive resource. It is apparent that these states are eager for Pennsylvania to join RGGI so as to facilitate more buyers for the RGGI credits to support the development of these states’ wind and solar resources. To the extent Pennsylvania wishes to pursue reducing greenhouse gas emissions, it must not do so in a way that disadvantages our state’s energy sector to advance that of our neighbors.

Response: The Department disagrees with this assessment. The Department’s modeling projects that in most years, the emissions from affected facilities in this Commonwealth will be less than the allowance budget in this final-form rulemaking. This would indicate that affected facilities in this Commonwealth would not be purchasing credits from allowance budgets in other participating states.

485. Comment: The commentator states that under RGGI, the state’s electricity generation will decline, which hampers its competitiveness relative to generators in neighboring states that do not participate in RGGI. Reduced competitiveness means that Pennsylvania’s generators will dispatch less frequently, and the state will rely on imported power more often. Increased reliance on imported power will expose Pennsylvanians to higher power prices.

Response: The Department’s modeling projects that this Commonwealth will continue to be a leading electricity exporter if this final-form rulemaking is implemented and will not be reliant on imported power.

486. Comment: The commentator states that PJM’s two-way border adjustment purports to address not just emissions leakage but also cost leakage, whereby states that have not joined RGGI nevertheless face a marketplace where some resources have higher costs because of other states’ choice to join RGGI. However, by allowing resources within RGGI states to avoid RGGI compliance costs when those resources are purportedly serving customers outside of the RGGI subregion, the two-way border adjustment applied to a RGGI footprint including Pennsylvania has the effect of undoing the emission reductions that RGGI brought about in the first place, thereby weakening the already diluted impacts of subregional carbon pricing.

Response: The Department acknowledges this comment and agrees with the commentator that the impacts of the two-way border adjustment may run counter to the intent of this final-form rulemaking. The Department will continue to evaluate this and other leakage mitigation options.

487. Comment: The commentator states that they recently introduced an alternative proposal for how PJM states could come to a mutually beneficial agreement to mitigate both emissions leakage and cost leakage. The commentator urges Pennsylvania and other PJM states to consider this approach. The commentator believes this approach is responsive to comments that suggest Pennsylvania work with PJM stakeholder on enacting carbon pricing across the entire PJM footprint. The commentator’s proposal would mimic a regional approach by applying the RGGI carbon pricing mechanism across the entire ISO/RTO footprint and using payments, including payments between RGGI states and non-RGGI states, to make the non-RGGI states indifferent. The commentator lists several possible sources of funds to facilitate these payments to non-RGGI states. The commentator assumes that PJM states will collectively decide on a set of payments that are mutually agreeable, and once there is an agreed upon method to allocate funds among the states, each individual state’s designated regulatory or legislative entity would decide what to do with the funds.

Response: The Department appreciates the comment. The Department did not make adjustments to this final-form rulemaking to account for any potential increases in electric generation or emissions in other states. The Department will continue to support regional leakage mitigation efforts. The Department has been an active participant in PJM’s Carbon Pricing Senior Task Force which is conducting the additional modeling in an effort to better understand and control leakage across the entire PJM region.

488. Comment: The commentator states that if the Department amends this proposal to impact the affected facilities in order to account for leakage, such an amendment would require additional notice and comment, pursuant to the Commonwealth Documents Law, which prohibits final rulemakings that “enlarge the original purpose of the proposal as published.”

Response: The Department did not make adjustments to this final-form rulemaking to account for any potential increases in electric generation or emissions in other states.

489. Comment: The Department has failed to provide information from PJM that details state-specific impacts to EGU’s with and without Pennsylvania’s RGGI participation. A PJM analysis at a minimum should project state-by-state electric generation CO₂ emissions for each scenario, thereby allowing the assessment of overall regional emissions reductions and PJM leakage impacts.

Response: This final-form rulemaking is intended to reduce CO₂ emissions across this Commonwealth. The Department’s modeling provided a full analysis on the impacts to this Commonwealth if this final-form rulemaking were to be implemented.

490. Comment: The commentator states that there has not been any consultation with the Independent Market Monitor (IMM), which is responsible for promoting a competitive and nondiscriminatory electric power market in PJM. IMM’s latest State of the Market Report recommends “...that PJM provide a full analysis of the impact of carbon pricing on PJM generating units and carbon pricing revenues to the PJM states in order to permit the states to consider a potential agreement on the development of a multistate framework for carbon pricing

and the distribution of carbon revenues.” This requested analysis has not yet been completed by PJM.

Response: The Department acknowledges this comment. That is outside the scope of this final-form rulemaking.

491. Comment: Within the PJM footprint only three states - Delaware, Maryland, and New Jersey - participate in RGGI, with Virginia slated to join January 2021. Further demonstrating RGGI leakage, all four of these states import electricity from Pennsylvania and other non-RGGI PJM states. In West Virginia, a non-RGGI PJM state where the primary fuel source for generating electricity is coal, coal-fired generation makes up 91 percent of the state’s electricity production and nearly half of the electricity produced is exported to other states. This demonstrates why shuttering Pennsylvania’s four remaining coal fired EGUs and making Pennsylvania’s natural gas units uncompetitive against those in neighboring non-RGGI states will not reduce CO₂ emissions, it will simply displace those emissions to our neighboring PJM states.

Response: The Department acknowledges the comment though disagrees with the assessment. The final-form rulemaking as per the Department’s updated modeling is not shuttering coal facilities, rather market forces are leading to accelerated facility closures. Furthermore, extensive modeling by this Department, PJM and Penn State confirm emissions reductions benefits for this Commonwealth and across PJM.

492. Comment: With regards to a specific analysis of leakage by PJM, the commentator recommends the Department review the presentation to the Air Quality Technical Advisory Committee from October 15, 2020. The presentation references the results of a PJM study presented at the meeting of the Carbon Pricing Senior Task Force in January 2020 exploring the potential effects that different carbon-pricing scenarios could have on the region it serves. PJM performed a carbon price modeling study, independent of the Department or ICF, that clearly illustrates that leakage would occur if certain states within its footprint implemented a carbon pricing regime.

Response: The Department is aware of the modeling conducted by PJM that evaluated carbon-pricing scenarios. The Department will continue to support regional leakage mitigation efforts. The Department has been an active participant in PJM's Carbon Pricing Senior Task Force which is conducting the additional modeling in an effort to better understand and control leakage across the entire PJM region.

493. Comment: The most effective actions that Pennsylvania could take to mitigate leakage are actions that must be taken by the General Assembly, namely to strengthen Act 129 of 2008—the state’s energy efficiency and conservation standard—and to significantly raise the renewable energy goals in the Alternative Energy Portfolio Standards Act of 2004.

Response: The Department acknowledges this comment and will continue to work with the PA PUC as appropriate.

494. Comment: The commentator states that the Department and the Public Utility Commission should continue to engage in the PJM Interconnection's Carbon Pricing Senior Task Force with the goal of securing an effective carbon border adjustment.

Response: The Department acknowledges this comment and the Department has stated previously that it remains committed to conversations and collaboration with CPSTF and other interested stakeholder on the matter of leakage.

495. Comment: Emissions leakage is likely if the CO₂ Budget Trading Program is promulgated without complementary policies, such as including stronger statutory energy efficiency and renewable energy goals and a carbon border adjustment implemented by PJM or by the Commonwealth.; however, even if a relatively high amount of the leakage occurs, the Program will result in lower emissions across the PJM region and significant net benefits in Pennsylvania.

Response: The Department agrees that this final-form rulemaking will lead to decreased CO₂ emissions in this Commonwealth and the PJM region. The Department will continue to support regional leakage mitigation efforts. 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.

496. Comment: Pennsylvania will need to take further actions to prevent leakage that will reduce the efficacy and potentially displace generation to jurisdictions outside of Pennsylvania that do not put a price on emitting GHG pollution. The PJM Interconnection LLC has explored mechanisms to prevent leakage and will be receptive. FERC has been more receptive to uniform carbon-based measures than to technology-based initiatives such as Pennsylvania's AEPS.

Response: The Department appreciates the comment and supports ongoing efforts to price carbon from the electricity sector at the regional or national level by PJM, the FERC, and the Federal government. 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 FERC hosted a carbon pricing technical conference in the Fall of 2020, resulting in a policy statement requesting public comment on issues such as how to address shifting generation amongst states as a result of carbon pricing. Lastly, the Federal administration is seeking to reduce carbon emissions from the electric power sector, specifically aiming to produce 80 percent of the nation's electricity from zero-carbon sources. The Department appreciates those efforts while also understanding that this final-form rulemaking will reduce anthropogenic emissions of CO₂, a GHG and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment in this Commonwealth.

Outside the Scope of the Rulemaking

The Department received a number of comments related to issues including the Chesapeake Bay, methane emissions from oil and gas sources, the Delaware River Basin Commission, among many others. These issues are unrelated to this final-form rulemaking. The Department has reviewed and considered these comments. However, since they are outside the scope of this final-form rulemaking, these comments are not included in this Comment and Response Document.