Regulatory Analysis Form

(Completed by Promulgating Agency)

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INDEPENDENT REGULATORY REVIEW COMMISSION

(1) Agency
Environmental Protection

(2) Agency Number:
Identification Number: 7-485

IRRC Number:
3052

(3) PA Code Cite: 25 *Pa. Code* Chapters 121 and 129

(4) Short Title: Additional RACT Requirements for Major Sources of NO_x and VOCs

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

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

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

The final-form rulemaking amends *25 Pa. Code* Chapter 129 (relating to standards for sources) by adding §§ 129.96—129.100 (relating to additional RACT requirements for major sources of NO_x and VOCs) to establish reasonably available control technology (RACT) requirements for the owner and operator of certain types of sources located at a major NO_x emitting facility or a major VOC emitting facility that was in existence on or before July 20, 2012 – the effective date of the United States Environmental Protection Agency's (EPA) designations and classifications for the 2008 ozone NAAQS. The final rulemaking establishes presumptive RACT requirements and RACT emission limitations for major stationary source categories including the following: combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns and other major sources not currently regulated under Chapter 129. In addition, the final rulemaking amends Chapter 121 (relating to general) to revise four existing definitions and add five definitions in § 121.1 (relating to definitions) to support the amendments to Chapter 129.

Emissions of NO_x and VOCs are precursors to the formation of ground-level ozone, a criteria air pollutant. High concentrations of ground-level ozone air pollution are a serious threat to public health and welfare. This final rulemaking is reasonably required to attain and maintain the health- and welfare-based 8-hour ozone National Ambient Air Quality Standards (NAAQS) in this Commonwealth and to satisfy related Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q) requirements. This final rulemaking will be submitted to the EPA Region III Administrator for approval as a revision to the State Implementation Plan (SIP).

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

The final rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Environmental Quality Board (Board) the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 5(a)(8) of the APCA (35 P.S. § 4005(a)(8)) also grants the Board the authority to adopt rules and regulations designed to implement the provisions of the CAA.

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

Yes. The final rulemaking is mandated by Federal law.

Section 110(a) of the CAA requires each state to adopt and submit to the EPA a plan which provides for the implementation, maintenance and enforcement of the NAAQS. The principal mechanism at the state level for complying with Section 110(a) is the SIP. A SIP includes the regulatory programs, actions and commitments a state will carry out to implement its responsibilities under the CAA. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that a SIP for an ozone nonattainment area must include "reasonably available control measures," including RACT requirements, for major sources of NO_x and VOC emissions located in the ozone nonattainment area. Emissions of NO_x and VOC are precursors to the formation of ground-level ozone. RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. See 44 FR 53762 (September 17, 1979). RACT may be established on a case-by-case basis, considering the technological and economic circumstances of the individual source. See 57 FR 55620 (November 26, 1992).

Section 110(a) of the CAA (42 U.S.C.A. § 7410(a)) provides that each state shall adopt and submit to the EPA a plan to implement measures to enforce the NAAQS or revision to the NAAQS promulgated under Section 109(b) of the CAA. Therefore the evaluation or reevaluation of what constitutes RACT for affected sources must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. State regulations to control emissions of NO_x and VOCs from major stationary sources will be reviewed by the EPA to determine if the provisions meet the RACT requirements of the CAA and its implementing regulations designed to attain and maintain the ozone NAAQS. Once approved by the EPA as a revision to the state's SIP, the measures in a SIP are legally enforceable under both Federal and state law.

Section 182(b)(2) of the CAA (42 U.S.C.A. § 7511a(b)(2)) provides that for moderate ozone nonattainment areas, a state must revise its SIP to include RACT for sources of VOC emissions covered by a control techniques guidelines (CTG) document issued by the EPA prior to the area's date of attainment; sources of VOC emissions covered by a CTG issued prior to November 15, 1990; and all other major stationary sources of VOC emissions located in the area.

The entire Commonwealth is treated as a "moderate" ozone nonattainment area because Pennsylvania is located in the Ozone Transport Region (OTR), established by operation of law under sections 184 and 176A of the CAA (42 U.S.C.A. §§ 7511c and § 7506a). Section 184(b)(1)(B) of the CAA (42 U.S.C.A. § 7511c(b)(1)(B)) requires that OTR states to submit a SIP revision to EPA for the implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG. Section 184(b)(2) (42 U.S.C.A. §

7511c(b)(2)) of the CAA establishes that a major stationary source located in a state included in the OTR is subject to the requirements that would be applicable to the major stationary source if it were located in an area classified as a "moderate" ozone nonattainment area.

Under sections 182(f)(1) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 100 tons per year of NO_x. Under sections 182(b)(2) and 184(b)(2) of the CAA, these RACT requirement are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 50 tons per year of VOCs. Additionally, because the five-county Philadelphia area was designated as severe ozone nonattainment for the 1979 1-hour ozone standard, sources of greater than 25 tons per year of either pollutant are required to implement RACT under section 182(d) of the CAA. The Commonwealth's first round of RACT regulations in §§ 129.91—129.95 (relating to stationary sources of NO_x and VOCs) were implemented to attain and maintain the 1979 1-hour ozone standard. These regulations were effective January 15, 1994 (24 Pa. B. 467).

Section 182(f) of the CAA (42 U.S.C.A. § 7511a(f)) provides that for areas designated as moderate ozone nonattainment areas or above, a state is required to adopt RACT requirements for all major stationary facilities that emit the ozone precursor NO_x, in addition to RACT requirements for VOC emissions. The Commonwealth is therefore required to implement RACT requirements statewide for major stationary sources of NO_x and VOCs as part of a Federally-approvable SIP for attaining and maintaining the 1997 and 2008 8-hour ozone NAAQS. These sources include combustion units, municipal solid waste landfills, municipal waste combustors, and other sources that are not regulated elsewhere in Chapter 129 through implementation of CTG recommendations for a source category.

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

This final rulemaking establishes presumptive RACT requirements and RACT emission limitations for the owners and operators of affected sources at facilities that are major NO_x emitting or major VOC emitting facilities not regulated elsewhere in Chapter 129. The requirement to adopt and implement RACT regulations is Federally mandated. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that a SIP for an ozone nonattainment area must include "reasonably available control measures," including RACT requirements, for major sources of NO_x and VOC emissions located in the ozone nonattainment area. NO_x and VOC emissions from sources including combustion units, boilers, process heaters, turbines, stationary internal combustion engines, municipal solid waste landfills, municipal waste combustors and Portland cement kilns contribute to the formation of ground-level ozone air pollution. Ground-level ozone is not emitted directly into the atmosphere, but is formed by photochemical reactions between NO_x and VOCs in the presence of sunlight.

The EPA regulates ground-level ozone as a criterion air pollutant because of its widespread adverse health and environmental effects. Exposure to high concentrations of ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure. Implementation of the final-form NO_x and VOC control measures for the affected major sources will benefit the health and welfare of the approximately 12.7 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of NO_x and VOCs, which are precursors to the formation of ground-level ozone air pollution. Ground-level ozone air pollution can also be transported downwind via regional air currents and meteorological events. Reductions of ground-level ozone in this Commonwealth will therefore also benefit the residents of

downwind states and environments. The measures in the final rulemaking are reasonably required to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to protect the livelihoods of numerous citizens and residents.

Exposure to high levels of ground-level ozone air pollution correlates to increased respiratory disease and higher mortality rates. Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced. Over a long time period, lung tissue may become permanently scarred, resulting in permanent loss of lung function and a lower quality of life. When ambient ozone levels are high, more people with asthma have attacks that require a doctor's attention or use of medication. Ozone also makes people more sensitive to allergens including pet dander, pollen and dust mites, all of which can trigger asthma attacks. The EPA has concluded that there is an association between high levels of ambient ozone and increased hospital admissions for respiratory ailments including asthma. While children, the elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to high levels of ambient ozone while engaged in activities that involve physical exertion. High levels of ozone also affect animals including pets, livestock, and wildlife, in ways similar to humans.

The EPA has estimated the monetized health benefits of attaining the NAAQS. For example, the EPA estimated that the monetized health benefits of attaining the 8-hour ozone standard of 0.075 ppm range from $8.3 billion to $18 billion on a National basis. See Regulatory Impact Analysis, Final National Ambient Air Quality Standard for Ozone, July 2011, http://epa.gov/glo/pdfs/201107_OMBdraft-OzoneRIA.pdf. Prorating that benefit to the Commonwealth, based on population, results in a public health benefit of $337 million to $732 million. The Department is not stating that these estimated monetized health benefits would all be the result of implementing the final-form rulemaking RACT measures, but the EPA estimates are indicative of the benefits to Commonwealth residents of attaining the NAAQS.

In addition to causing adverse human and animal health effects, the EPA has concluded that ozone affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reduced growth and survivability of tree seedlings; and increased plant susceptibility to disease, pests, and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems. Ozone damage to the foliage of trees and other plants can decrease the aesthetic value of ornamental species used in residential landscaping, as well as the natural beauty of parks and recreation areas. Through deposition, ground-level ozone also contributes to pollution in the Chesapeake Bay. These effects can have adverse impacts including loss of species diversity and changes to habitat quality and water and nutrient cycles. High levels of ground-level ozone can also cause damage to buildings and synthetic fibers, including nylon, and reduced visibility on roadways and in natural areas.

The economic value of some welfare losses due to ozone can be calculated, such as crop yield loss from both reduced seed production and visible injury to some leaf crops, including lettuce, spinach and tobacco, as well as visible injury to ornamental plants, including grass, flowers and shrubs. Other types of welfare loss may not be quantifiable, such as the reduced aesthetic value of trees growing in heavily visited parks.

Pennsylvania's 63,000 farm families are the stewards of more than 7.7 million acres of farmland. With $5.7 billion in cash receipts annually from production agriculture, Pennsylvania farmers and agribusinesses are the leading economic driver in our state. In addition to production agriculture, the industry also raises revenue and supplies jobs through support services such as food processing, marketing, transportation, and farm equipment. In total, production agriculture and agribusiness contributes nearly $57 billion to

Pennsylvania's economy. (Source: Pennsylvania Department of Agriculture.) These families, farms, and related businesses benefit directly from the reduction of ground-level ozone air pollution concentrations.

The Pennsylvania Department of Conservation and Natural Resources (DCNR) is the steward of the state-owned forests and parks. DCNR awards millions of dollars in construction contracts each year to build and maintain the facilities in its parks and forests. Timber sales on state forest lands contribute to the $5 billion a year timber industry. Hundreds of concessions throughout the park system help complete the park experience for both state and out-of-state visitors. (Source: Pennsylvania Department of Conservation and Natural Resources.)

Further, Pennsylvania leads the nation in growing volume of hardwood species, with 17 million acres in forest land. As the leading producer of hardwood lumber in the United States, Pennsylvania also leads in the export of hardwood lumber. Recent U.S. Forest Service data shows that the state's forest growth-to-harvest rate is better than 2 to 1. This vast renewable resource puts the hardwoods industry at the forefront of manufacturing in the commonwealth. Through 2006, the total annual direct economic impact generated by Pennsylvania's wood industry was $18.4 billion. The industry employed 128,000 people, with $4.7 billion in wages and salaries earned. Production was 1.1 billion board feet of lumber annually. (Strauss, Lord, Powell; PSU, June 2007). (Source: Pennsylvania Hardwoods Development Council Biennial Report, 2009-2010, http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf)

The Department projects that the cost to the owner and operator of an affected source that would require installation of add-on control technology to comply with the applicable presumptive RACT requirement or RACT emission limitation would be less than $2,800.00 maximum per ton of NO_x emission reductions, no matter which source type and add-on control technology is considered, and very likely much less than $2,800.00 per ton of NO_x emissions reduced. This cost is minimal compared to the monetized health benefits of attaining and maintaining the NAAQS and to the economic benefits generated by the Commonwealth's agricultural and hardwoods industries.

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

Section 110(a) of the CAA provides that each state shall adopt and submit to the EPA a plan to implement measures to enforce the NAAQS or revision to the NAAQS promulgated under section 109(b) of the CAA. Therefore the evaluation or re-evaluation of what constitutes RACT for affected sources must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard.

There are no "companion" Federal standards that are analogous to this rulemaking. However, states are required to develop their own standards and SIP revisions to implement RACT requirements mandated under the CAA. This final rulemaking is not more stringent than Federal requirements.

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

This final rulemaking is similar to RACT regulations already adopted by Wisconsin and New York and approved by the EPA as revisions to the respective state SIPs. The determinations of what add-on control

technologies are reasonably available to meet presumptive RACT requirements included in the final rulemaking are consistent with the determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements in New York. The RACT limits included in the final rulemaking are comparable to emission limits included in other states' RACT regulations, including New York and Wisconsin. The final rulemaking has no adverse effect on Pennsylvania's ability to compete with other states.

Due to variability in source type, combustion characteristics, unit size, fuel usage, operating conditions, and source age, there are differences between the final rulemaking and the New York RACT regulations in terms of emission limits, exceptions, size cutoffs, etc. For example, New York determined that combined cycle combustion turbines operated after July 1, 2014, should undergo case-by-case analysis due to limited numbers of this source type in New York. As New York noted in their Regulatory Impact Statement, "Because of the limited number of sources and the wide range of available control technologies, the [NY] Department was not able to identify a presumptive NO_x RACT emission limit for combined cycle combustion turbines." However, due to the large number of these sources operating in Pennsylvania, the Department was able to determine presumptive NO_x RACT emission limitations for different categories of combined cycle combustion turbines, including large combustion turbines that will likely be required to use SCR control to meet the applicable NO_x RACT emission limitation.

A 30-day rolling average has been approved by the EPA to demonstrate compliance with the RACT limitations in SIP revisions submitted by certain states including New York and Wisconsin. New York's RACT regulation was approved by the EPA on July 12, 2013 (78 FR 41846). While the 24-hour average for New York is applicable during the ozone season, the 30-day rolling average is applicable outside the ozone season. Wisconsin's RACT regulation, which the EPA approved on October 19, 2010, includes emission averaging on a 30-day rolling basis for determining compliance (75 FR 64155). Wisconsin described such a period as short-term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit. Further, it is important to note that the same NO_x emission limit (0.12 lb/million Btu) established for coal-fired EGUs in Pennsylvania has been approved by the EPA as a SIP revision for the State of New York.

The final rulemaking improves Pennsylvania's ability to compete with other states by eliminating, in most cases, the time-consuming and costly case-by-case RACT review procedure that the owners and operators of affected facilities had to complete in the past to meet the RACT requirements implemented under §§ 129.91—129.95 for the 1-hour ozone standard. See 24 Pa. B. 467 (January 15, 1994).

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

No other regulations promulgated by this agency or other state agencies will be affected.

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

On November 7, 2014, the Air Quality Technical Advisory Committee (AQTAC) was briefed on the draft final-form regulation and public comments submitted to the Board on the proposed rulemaking.
The AQTAC voted 11-5-0 (yes; no; abstain) to concur with the Department's recommendation to forward the final rulemaking to the Board for consideration. The draft final-form regulation was discussed with the

Small Business Compliance Advisory Committee (SBCAC) on January 28, 2015. The SBCAC voted 6-2-0 to concur with the Department's recommendation to forward the final rulemaking to the Board. The draft final-form regulation was discussed with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight (PRO) Committee on February 20, 2015, and May 12, 2015. The Policy and Regulatory Oversight Committee recommended that the CAC concur with the Department's recommendation to move the final rulemaking forward to the Board. However, the CAC tabled their consideration of the draft final-form regulation at both its March 17 and May 20 meetings. Consideration of the draft final-form regulation by the full CAC is expected in September 2015.

The AQTAC, SBCAC, and CAC meetings are advertised and open to the public.

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

The final rulemaking affects the owner and operator of certain types of stationary air contamination sources located at any major NO_x emitting facility or any major VOC emitting facility that was in existence in this Commonwealth on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, §§ 129.54—129.69, §§ 129.71—129.73, § 129.75, § 129.77, §§ 129.101—129.107 or §§ 129.301—129.310. The final rulemaking requirements and limitations also apply when the installation of a new source or a modification at or a change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of either a major NO_x emitting facility or a major VOC emitting facility. The Board has established presumptive RACT requirements and emission limitations for nine source categories including the following: combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and a category for sources other than those listed that are not regulated elsewhere under Chapter 129.

Approximately 810 emission sources of NO_x, VOCs, or both, located at about 192 facilities (excluding facilities in Allegheny and Philadelphia Counties) fit these nine categories and will be subject to the final-form regulation. Of the 810 emission sources, the Department has identified 79 sources that may require add-on control to comply with the RACT requirements. See Table 1.

Table 1. Number of Sources Requiring Additional Control under §§ 129.96—129.100

	A	**B**
Source Type	**Number of Units Subject to RACT II* for NOx Emissions**	**Number of Units Requiring Additional Control for NOx Emissions under RACT II***
Boilers	257	34
Boilers (EGUs) with SCR	12	0
Engines	393	28
Turbines	148	17
Total	**810**	**79**

*RACT II refers to §§ 129.96—129.100

The sources included in these nine categories are located at various facility types including fossil fuel-burning and other electric generation plants; natural gas pipeline transport and distribution; petroleum refining; petroleum and coal products manufacturing; steam and air conditioning supply; fats and oils refining and blending; specialty canning; tobacco products manufacturing; carpet and rug milling; reconstituted wood product manufacturing; paper and paperboard products manufacturing; printing; medicinal and botanical products manufacturing; iron and steel milling, manufacturing and forging; ferroalloy manufacturing; nonferrous metal smelting and refining; semiconductor and related device manufacturing; aircraft manufacturing; chemicals manufacturing; Portland cement manufacturing; railroad rolling stock manufacturing; motorcycle manufacturing; wireless telecommunications carriers; colleges and universities; home health care services; hospitals; pharmaceuticals manufacturing; beer brewing; and biotechnology.

The Department reviewed its database of regulated facilities with RACT-related permit conditions to determine how many, and which, potentially meet the definition of small business now specified in Section 3 of the Regulatory Review Act, as "in accordance with the size standards described by the SBA's Small Business Size Regulations under 13 CFR Chapter 1 Part 121 (relating to Small Business Size Regulations) or its successor regulation." The Department cross-referenced facility North American Industry Classification System (NAICS) information from its database with the "Table of Small Business Size Standards Matched to North American Industry Classification System Codes effective January 7, 2013," obtained from the SBA website at http://www.sba.gov/sites/default/files/files/Size_Standards_Table(1).pdf. The SBA table gives different determination criteria for different NAICS codes. A small business may be defined, for example, by sales, number of employees, or electric generation capacity in the case of utilities.

The Department then accessed the SBA Dynamic Small Business Search database which contains information about small businesses that have registered with the SBA. This self-certifying database incorporates the small business criteria contained in 13 CFR Chapter 1 Part 121, including NAICS codes, when the owners/operators of the companies register. This registration benefits the owners and operators of small businesses because the database assists government contracting officers in determining whether a company is eligible as a small business. The Department also reviewed information available on individual company internet sites for information that could identify a company as a small business based on sales or number of employees. In addition, the Department contacted the Small Business Development Center and used its access to Environmental Management Assistance Programs (EMAP) information to identify small businesses potentially affected by the final-form rulemaking.

For electric generation facilities, the Department obtained yearly generation information from the Federal Energy Information Agency databases at http://www.eia.gov/electricity/data/eia860/. This information was correlated with the NAICS table definitions cited above to determine which electric generation facilities could be classified as small businesses. The Department determined that the owners and operators of approximately 20 affected major facilities meet the definition of "small business" now specified in Section 3 of the Regulatory Review Act. The Department expects that the negative impact on the owners and operators of these major facilities/small businesses will be minimal due to the flexibility provided in the final rulemaking to achieve compliance with the requirements.

Under final-form § 129.98 (relating to facility-wide or system-wide NO_x emissions averaging plan general requirements), the owner or operator of an affected major NO_x emitting facility/small business subject to § 129.96 that includes at least one air contamination source subject to a NO_x RACT emission limitation in § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) that cannot meet the applicable presumptive NO_x RACT emission limitation may elect to meet the applicable emission limitation in § 129.97 by averaging NO_x emissions on

either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

Under final-form § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule), the owner or operator of an air contamination source located at any major NO_x emitting facility or major VOC emitting facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation specified in § 129.97 may propose an alternative RACT requirement or RACT emission limitation.

This flexibility afforded to the owners and operators of affected facilities, including small businesses, in the final rulemaking ensures minimal negative effect on their operations. The owners and operators of the affected facilities are familiar with the existing requirements for emissions control, emissions reporting, and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

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

The Department estimates that the owners and operators of approximately 810 emission sources of NO_x, VOCs, or both, located at about 192 major facilities (excluding facilities in Allegheny and Philadelphia Counties) will be subject to the final rulemaking. Of the 810 emission sources, the Department has identified 79 sources that may require add-on control to comply with the final-form RACT requirements. See Table 1 in the response to Question 15.

The final-form rulemaking affects the owner and operator of certain types of stationary air contamination sources located at any major NO_x emitting facility or any major VOC emitting facility that was in existence in this Commonwealth on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, §§ 129.54—129.69, §§ 129.71—129.73, § 129.75, § 129.77, §§ 129.101—129.107 or §§ 129.301—129.310. The final rulemaking requirements and limitations also apply when the installation of a new source, a modification at or a change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of either a major NO_x emitting facility or a major VOC emitting facility.

The sources are located at various facility types including fossil fuel-burning and other electric generation; natural gas pipeline transport and distribution; petroleum refining; petroleum and coal products manufacturing; steam and air conditioning supply; fats and oils refining and blending; specialty canning; tobacco products manufacturing; carpet and rug milling; reconstituted wood product manufacturing; paper and paperboard products manufacturing; printing; medicinal and botanical products manufacturing; iron and steel milling, manufacturing and forging; ferroalloy manufacturing; nonferrous metal smelting and refining; semiconductor and related device manufacturing; aircraft manufacturing; chemicals manufacturing; Portland cement manufacturing; railroad rolling stock manufacturing; motorcycle manufacturing; wireless telecommunications carriers; colleges and universities; home health care services; hospitals; pharmaceuticals manufacturing; beer brewing; and biotechnology.

As described in the response to question (15), the Department has determined that the owners and operators of approximately 20 affected major facilities meet the definition of "small business" specified in Section 3 of the Regulatory Review Act. The major facilities in this group include petroleum and coal products manufacturers; electric power generators; paper mills; pharmaceuticals manufacturers; and colleges and

universities. The Department expects that the negative impact on the owners and operators of these major facilities/small businesses will be minimal due to the flexibility provided in the final rulemaking to achieve compliance with the requirements. The provisions in the final-form regulation will not supersede more stringent NO_x requirements and NO_x emission limitations.

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

Social impact and benefits on public health and welfare; projected amount of emission reductions achieved

The EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS at 69 FR 23858, 23931 (April 30, 2004). On May 21, 2012, the EPA published final designations and classifications for the 2008 8-hour ozone NAAQS. The designations were effective July 20, 2012 (77 FR 30088; May 21, 2012). The following nonattainment areas were classified as "marginal" ozone nonattainment areas: Allentown-Bethlehem-Easton (Carbon, Lehigh and Northampton), Lancaster (Lancaster County), Philadelphia-Wilmington-Atlantic City (the Pennsylvania areas include Bucks, Chester, Delaware, Montgomery and Philadelphia counties), Pittsburgh-Beaver Valley (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties) and the Reading area (Berks County); the remainder of the Commonwealth was designated "Unclassifiable/Attainment" (77 FR 30143, 30144). The Commonwealth must ensure that these areas attain the 2008 ozone standard by July 20, 2015, and that they continue to maintain the standard thereafter. The DEP will seek an extension of the July 2015 8-hour ozone NAAQS attainment date for the five-county Philadelphia Area (Bucks, Chester, Delaware, Montgomery and Philadelphia counties) due to several violating monitors in Maryland and New Jersey. An extension of the attainment date for 2008 ozone standard will also be requested for the seven-county Pittsburgh-Beaver Valley Area (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties).

The total projected maximum *potential* NO_x emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year. The amount of NO_x and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. The amount of *actual* NO_x emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations. Implementing the final-form control measures for reducing the emissions of NO_x and VOCs will assist the Commonwealth in its efforts to attain and maintain the health- and welfare-based 8-hour ozone NAAQS statewide.

The final rulemaking is reasonably necessary to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to comply with Clean Air Act requirements. The final-form regulation will be submitted to the EPA as a revision to the SIP following final-form publication in the *Pennsylvania Bulletin.*

Financial and economic impacts and benefits

Impacts of the final rulemaking on industry vary due to the diverse types of affected source categories as listed in item (15). The Department's circumstances from 1995 to 2006 of making numerous submittals to the Administrator of the EPA for Federal approval of revisions to the SIP required for the approximately

600 case-by-case RACT determinations made under §§ 129.91—129.95 for attaining and maintaining the 1979 1-hour ozone standard will be averted with the implementation of the final-form presumptive RACT requirements and emission limitations; optimization of existing control measures on certain affected sources may be necessary, however, to meet the final-form presumptive RACT requirements and emission limitations. This final rulemaking establishes applicability requirements for the implementation of specified RACT control measures for the nine identified source types for attaining and maintaining the 1997 and 2008 8-hour ozone standards. The final rulemaking incorporates operational flexibility including the option to request approval to use facility-wide and system-wide NO_x emissions averaging. Additional flexibility in the final-form regulation allows an owner or operator to propose a source-specific RACT NO_x requirement or emission limitation or RACT VOC requirement or emission limitation as alternative methods of compliance.

Benefits of the final rulemaking to the affected owners and operators include implementation of consistent presumptive RACT requirements and RACT emission limitations across the Commonwealth. This will minimize the need for owners and operators to develop a case-by-case RACT permit application with its associated costs, fees and time constraints. Annual fees for applications for operating permits and plan approvals currently range from $750 for Title V operating permit fees to $5,300 for a plan approval application submitted for the installation of air cleaning devices. See §§ 127.704 and 127.702(b), respectively. These costs are not applicable to the owners and operators of sources that comply with the presumptive RACT requirements and RACT emission limitations.

Implementation of consistent presumptive RACT requirements and RACT emission limitations will also minimize the downtime for the operation and allow owners and operators to maintain and grow their operations, maintain jobs and staffing levels, and maintain or increase their revenues.

Benefits to the Department include the minimization of the number of requests for case-by-case permit reviews and SIP revisions and the associated demands on staff resources.

Benefits to the Commonwealth include the avoidance of mandatory sanctions under section 179 of the CAA including "2:1 emission offsets" for the construction of new or modified sources of NO_x or VOC emissions and the loss of Federal highway funds. See 40 CFR 52.31. The Commonwealth receives approximately $1.6 billion in Federal transportation funding annually.

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

Each time the EPA revises the ozone NAAQS, the owners and operators of existing facilities subject to RACT are required to reevaluate what constitutes RACT for their source to achieve the lowest emission limit for NO_x or VOCs that the source is capable of meeting considering technological and economic feasibility. The presumptive RACT requirements and RACT emission limitations implemented in the final rulemaking significantly reduce or eliminate the need to request case-by-case analysis and the associated costs for most of the owners and operators of affected facilities. Implementing the final-form control measures for reducing the emissions of NO_x and VOCs will assist the Commonwealth in its efforts to attain and maintain the 1997 and 2008 8-hour ozone NAAQS statewide.

In the Department's current RACT program implemented in 1994 under §§ 129.91—129.95 for the 1-hour ozone standard, the case-by-case analysis process began in 1995 and was not completed until 2006 due to the need for EPA approval of SIP submittals for the case-by-case RACT determinations. Many facility owners and operators had to hire consultants or additional staff to complete their case-by-case RACT analyses and proposals and handle the permitting requirements.

Given that implementation of RACT requirements is Federally required, the Department estimates that the final-form presumptive RACT requirements and RACT emission limitations will achieve greater emission reductions at a lower cost to the affected owners and operators and to the Commonwealth than implementing RACT solely through case-by-case determinations. Further, these emission reductions will occur in a more timely manner than implementation of another round of case-by-case RACT determinations for every affected major source of NO_x or VOCs as occurred under §§ 129.91—129.95 from 1995–2006. For example, the emissions averaging provisions under § 129.98 will provide ozone precursor emission reductions at the lowest cost while preserving existing reductions or realizing additional reductions.

By establishing consistent presumptive RACT requirements and RACT emission limitations Commonwealth-wide for the owners and operators of affected major NO_x emitting or VOC emitting facilities, or both, and by providing flexibility in compliance through NO_x emissions averaging and case-specific NO_x and VOC emission limitation options, the owners and operators of affected facilities will be able to achieve compliance in the most cost-effective manner. The final rulemaking minimizes the need for most case-by-case determinations through the establishment of presumptive RACT requirements and emission limitations. The owners and operators of affected NO_x-emitting facilities that cannot meet the presumptive RACT requirements and emission limitations have the option to elect to achieve compliance by meeting the presumptive limits through a NO_x emissions averaging protocol before having to resort to a time-consuming and costly case-by-case analysis.

The Department estimates that the projected maximum total cost of controls for the owners and operators of the 79 affected sources identified as potentially needing add-on control would be $81,505,401 as shown in Table 3 in the response to Question 19. Benefits from the implementation of the final-form NO_x and VOC control measures for the affected major sources will include protection of the health and welfare of the approximately 12.7 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of NO_x and VOCs, which are precursors to the formation of ground-level ozone air pollution. Ground-level ozone air pollution can also be transported downwind via regional air currents and meteorological events. Reductions of ground-level ozone in this Commonwealth will therefore also benefit the residents of downwind states and environments. The measures in the final rulemaking are reasonably required to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to protect the livelihoods of numerous citizens and residents.

Compliance with the final-form NO_x and VOC emission reduction measures will assist the Commonwealth in its efforts to attain and maintain the health- and welfare-based 8-hour ozone NAAQS statewide. The total projected maximum *potential* NO_x emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year. The amount of NO_x and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. The amount of *actual* NO_x emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations.

Adverse effects are not anticipated from the adoption and implementation of the RACT final-form regulation. Additionally, a mandatory sanctions clock would be triggered under section 179 of the CAA (42 U.S.C.A. § 7509), following the issuance of a "failure to submit" finding" by the EPA if the RACT SIP revision for the 2008 8-hour ozone standard is not submitted to the EPA for approval. If the SIP deficiency

is not corrected within 18 months after the EPA finding, the EPA Administrator would first impose 2-to-1 emission offset sanctions for new or modified major stationary sources statewide in accordance with section 179 of the CAA and its implementing regulations in 40 CFR 52.31 (relating to selection of sequence of mandatory sanctions for findings made pursuant to section 179 of the Clean Air Act). If the deficiency has not been corrected within 6 months after the 2-to-1 emission offset sanctions are imposed, the EPA would apply the Federal highway funding sanctions. Pennsylvania receives approximately $1.6 billion in Federal transportation funding annually, which would be at risk if the Commonwealth does not implement RACT requirements statewide for the 2008 8-ozone NAAQS. The EPA is also authorized to withhold discretionary funding including grants issued under section 103 (relating to research, investigation, training, and other activities) and section 105 (relating to research programs; grants; contracts; pilot and demonstration plants; byproducts research).

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

Background analysis

The Department conducted a generic RACT analysis of existing sources for which a RACT determination was previously made under §§ 129.91—129 for the 1-hour ozone standard to evaluate whether the RACT determination under §§ 129.91—129.95 would represent RACT-level control for the 8-hour ozone standards or if new or additional add-on control technology would represent RACT-level control for the 8-hour ozone NAAQS. That generic analysis identified existing affected source categories by size and fuel type; identified available feasible NO_x or VOC control options for each type of existing source; estimated emission reduction potential for each control technology; identified costs for technologies, using appropriate updates; evaluated cost-effectiveness per the guidance provided in the EPA Air Pollution Control Cost Manual, EPA/452/B-02-001, 6th edition, January 2002, for both uncontrolled and controlled sources (combinations of technologies); and projected what type of control technology might be applied to each affected source.

For the combustion units and process heaters, combustion turbines and stationary internal combustion engines source types, the Department reviewed its permit databases and cataloged existing sources subject to case-by-case NO_x and VOC emission limitations under the first round of RACT (RACT 1) implemented under §§ 129.91—129.95 from 1995–2006. The information collected included the RACT 1 emission limitation and required emission control technology for each source. The RACT 1 potential to emit rates were used as a baseline to determine technical and economic feasibility for emission controls for the second round of RACT (RACT 2) being implemented in this final rulemaking. The amount of NO_x and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control.

Based on this analysis the Department determined that certain add-on control technologies represent RACT for the 8-hour ozone NAAQS for nine existing source categories that currently do not have presumptive RACT requirements or emission limitations codified in Chapter 129. These nine source categories include combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and certain other sources that are not regulated elsewhere under Chapter 129.

Compliance costs

For the owner and operator of an affected source that will need to install add-on control technology to comply with the applicable presumptive RACT requirement or RACT emission limitation, the compliance costs will include the total capital investment of the add-on control equipment, the annual operating costs of the add-on control equipment, and the effectiveness of the control equipment in reducing emissions from the source. The cost-effectiveness of the add-on control equipment is calculated by dividing the annual operating costs of the add-on control equipment by the amount of emission reductions achieved annually from operation of the add-on control equipment.

It is not possible to provide a precise estimate of the costs that will be incurred by the owner or operator of a specific source due to not knowing what type of add-on control equipment the owner or operator may choose and to the variability in capital investment costs and annual operating costs for the chosen add-on control equipment. Capital costs include the purchase and installation costs for the chosen add-on control technology and the costs of monitoring equipment that may be required for the add-on control equipment, along with delivery costs, start-up costs, initial testing and taxes. Annual operating costs include the costs of electricity or fuel to operate the add-on control equipment and the monitoring equipment, if needed, maintenance and repair costs, overhead costs, capital recovery, and property taxes. Precisely estimating the cost-effectiveness of each available add-on control technology for each affected source is not possible since the actual amount of emissions reduced will not be known until the add-on control equipment is installed and operated.

The Department adjusted the RACT 1 cost benchmarks of $1,500.00 and $3,000.00 per ton of NO_x or VOC emissions removed, respectively, by multiplying by the consumer price index (CPI) differential between 1990 and 2014 of 1.84 to arrive at benchmarks of $2,800.00 and $5,500.00 per ton of NO_x or VOC emissions removed, respectively, for RACT 2. The NO_x benchmark of $2,800.00 exceeds Wisconsin's NO_x cost benchmark of $2,500.00 and the Wisconsin SIP revision was approved by the EPA at 75 FR 64155 (October 19, 2010). No other state has adopted a RACT VOC emission limitation for these sources, with an accompanying cost benchmark. Using these cost benchmarks as a guide, the Department evaluated technically feasible emission controls for cost-effectiveness and economic feasibility. From this evaluation, the RACT 2 NO_x and VOC emission limitations included in the final-form regulation were determined.

A source was assumed to require additional add-on control if the applicable NO_x RACT 2 emission limitation was less than 50% of the NO_x RACT 1 emission limitation currently applied to the source. Using these benchmarks, the Department projects that the cost of complying with the applicable final-form presumptive RACT requirement or RACT emission limitation by installing add-on control technology or by complying through an averaging protocol will be less than $2,800.00 maximum per ton of NO_x emission reductions, no matter which source type and add-on control technology is considered. The estimated cost for the worst case scenario to meet the applicable presumptive RACT requirement or RACT emission limitation will be roughly $2,800.00 per ton of NO_x emission reduction required.

The Department anticipates that the owners and operators of most of the affected source units will be able to meet the presumptive RACT requirement or emission limitation without the purchase, installation and operation of add-on air pollution control technology, so there is likely to be little to no cost incurred by most of the affected owners and operators. Additionally, most affected owners and operators will likely not need to hire consultants or additional staff to perform a case-by-case analysis to determine what control measures are needed at the affected facility to comply with the final-form RACT regulation requirements and emission limitations.

Alternative compliance options

Compliance costs will vary for each source or facility depending on which compliance option is chosen by the owner and operator of the affected source or facility. The final rulemaking includes a provision for the owner and operator of an affected facility that cannot meet the applicable presumptive NO_x RACT emission limitation to elect to meet the applicable presumptive NO_x RACT emission limitation by averaging NO_x emissions on either a facility-wide or system-wide basis using a 30-day rolling average. The owner and operator of an affected source that cannot meet the applicable presumptive RACT requirement or RACT emission limitation may also elect to propose a source-specific NO_x RACT emission limitation or VOC RACT emission limitation, or both, on a case-by-case basis. Under these alternative compliance provisions, the owner or operator must demonstrate to the Department's satisfaction that it is economically or technically infeasible to meet the applicable presumptive requirement or emission limitation. The flexibility provided by these alternative compliance provisions may minimize compliance costs to the owner or operator of an affected facility.

Average cost-effectiveness

As shown in Table 2 below, Department has estimated that the average cost-effectiveness for implementing add-on controls, where applicable, ranges from $105.00 per ton of NO_x emissions reduced for operation of a non-selective catalytic regenerative oxidizer (NSCR) installed on a rich burn engine to $2,446.00 per ton of NO_x emissions reduced for use of low emission combustion technology in a lean burn engine.

Table 2. Average Cost per Ton of NO_x Emissions Reduced

Source	Fuel or Type	Control	Average Cost per ton NO_x Controlled
Boiler	Natural Gas	LNB	$ 2,427.00
Boiler	No. 2 Oil	LNB	$ 2,427.00
Boiler	No. 4 & 6 Oil	LNB	$ 1,452.50
Boiler	Refinery Fuel Gas	LNB	$ 2,335.00
Boiler	Coal without SCR	LNB	$ 649.00
Boiler	Other Solid Fuel	LNB	$ 649.00
Engine	Rich Burn	NSCR	$ 105.00
Engine	Lean Burn	LEC	$ 2,446.00
Turbine	Natural Gas	DLNC	$ 2,437.50
Turbine	Diesel	DLNC	$ 1,523.00

The Department provides two examples to demonstrate the range of compliance costs that may be incurred by the owner or operator of an affected source.

Example 1: The source is a natural gas-fired rich-burn engine rated at 1100 brake horsepower (bhp). The engine's current RACT limitation implemented under §§ 129.91—129.95 is 26.32 g/bhp-hr with potential to emit NO_x emissions of 279.3 tpy. A feasible add-on control for this source is NSCR with estimated capital and installation costs of $45,520 and estimated annual operating costs of $14,744. The engine's RACT limitation under the final-form regulation would be 2 g/bhp-hr and it would emit 21.2 tpy of NO_x. The projected emission reductions would be 258.1 tpy. The estimated cost-effectiveness of installing

and operating the NSCR add-on control for this source would be $57.13 per ton of NO_x emissions reduced [$14,744 operating costs per year / 258.1 tpy NO_x emissions reduced = $57.13 per ton of NO_x emissions reduced]. The estimated cost-effectiveness for this example, $57.13, is below the average cost-effectiveness for this type of add-on control for this type of source – $105.00.

Example 2: The source is a 100 MMBtu/hr heat input natural gas-fired boiler. The boiler's uncontrolled NO_x emissions after implementation of RACT under §§ 129.91—129.95 are 0.3 lb NO_x/MMbtu or 131 tpy. A feasible add-on control for this source is a low-NO_x burner with estimated equipment cost of $100,000 and estimated installation cost of $70,000. The estimated annual operating costs are $127,854. The boiler's RACT limitation under the final-form regulation would be 0.10 lb NO_x/MMbtu with anticipated annual NO_x emissions of 65.3 tpy. The projected NO_x emission reductions would be 65.7 tpy. The estimated cost-effectiveness of installing and operating the low- NO_x burner technology for this source would be $1,946 per ton of NO_x emissions reduced [$127,854 operating costs per year / 65.7 tpy NO_x emissions reduced = $1,946 per ton of NO_x emissions reduced]. The estimated cost-effectiveness for this example, $1,946, is below the average cost-effectiveness for this type of add-on control for this type of source – $2,427.

Projected maximum total cost of control

The Department reevaluated the number of total units for each source type requiring control and the associated control costs as a result of revisions to emission limitations from proposed to final rulemaking. The numbers of total units by source type are shown in Table 3. The number of turbines requiring control has dropped from 64 under the proposed rulemaking to 17 primarily due to the final-form regulation setting forth a presumptive RACT emission limitation of 150 ppmvd NO_x @ 15% oxygen for simple cycle or regenerative cycle turbines equal to or greater than 1,000 bhp and less than 6,000 bhp. These turbines did not have a presumptive RACT emission limitation established in the proposed rulemaking and would therefore have been subject to case-by-case determinations under § 129.99(b).

Table 3. Total Cost of Control for Units Requiring Additional Control under §§ 129.96—129.100

	A	B	C
Source Type	**Number of Units Subject to RACT II* for NOx Emissions**	**Number of Units Requiring Additional Control for NOx Emissions under RACT II***	**Total Cost of Control for Units Requiring Additional Control for NOx Emissions under RACT II***
Boilers, except EGUs with SCR	257	34	$ 39,206,476
EGUs (Boilers) with SCR	12	0	N/A
Engines	393	28	$ 25,941,478
Turbines	148	17	$ 16,357,447
Total	**810**	**79**	**$ 81,505,401**

*RACT II refers to §§ 129.96—129.100

Table 3 calculates the anticipated total cost of control based on the number of units requiring additional

control to achieve the level of emissions required under final-form §§ 129.96—129.100. For the purposes of Table 3, no additional control is needed for EGUs (boilers) with SCR since these units already have the control installed. Therefore there is no cost of control to be calculated for these sources as a result of the implementation of the final rulemaking.

The Department estimates that the projected maximum total cost of control for the owners and operators of the 79 affected sources identified as potentially needing add-on control would be $81,505,401 as shown in Table 3. The actual costs are likely to be much less since many of the potentially affected source owners and operators are not expected to need to install additional add-on controls to comply with the final-form RACT requirements and emission limitations. Further, the owners and operators of affected sources that already achieve the level of emissions required under the final-form RACT regulation would have no costs to comply.

Amount of emission reductions achieved

The amount of NO_x and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. The total projected maximum *potential* NO_x emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year.

The amount of *actual* NO_x emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations.

Legal, accounting and consulting procedures

No new legal, accounting or consulting procedures are anticipated.

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

The Department identified 11 local government-owned permitted Title V facilities that are subject to the final rulemaking. All of the landfills identified already comply with the applicable Federal New Source Performance Standard. The remaining affected sources are boilers rated at less than 50 MMBtu/hr, engines rated at less than 500 bhp, or engines with an operating-hours cap of 500 or fewer hours per year. The Department does not anticipate additional compliance costs or savings for these sources.

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

The Department identified 24 state-owned permitted Title V facilities that are subject to the final rulemaking. Of these 24 facilities, the Department expects that the owners of two natural gas-fired boilers would need to install add-on control to comply with the final-form regulation. The NO_x emissions from each boiler would be 62 tpy less after control. At an estimated cost per ton controlled of $2,427.00, the Department projects that the estimated control cost for each boiler would be $150,348, for a total of $300,696.

The Department would realize administrative savings compared to the previous case-by-case RACT determinations and permitting implemented under §§ 129.91—129.95 with regard to paid salaries and benefits due to the lower amount of review time required under the final-form presumptive RACT program. The state could save more than $3,500.00 for every 100 hours of review time that has been averted under the final rulemaking. The flexibility provided in the final-form regulation is designed to minimize the number of case-by-case applications that would have to be processed without the final-form presumptive requirements.

The Department will incorporate the RACT requirements as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c) (relating to operating permit revisions to incorporate applicable standards). If 3 years or more remain in the permit term, the requirements will be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final rulemaking, as required under § 127.463(b). Most importantly, § 127.463(e) specifies that "[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations." Consequently, upon promulgation as final-form rulemaking, the requirements will apply to affected owners and operators irrespective of a modification to the Operating Permit.

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

The final rulemaking gives owners and operators of the groups identified in items (19)-(21) above the opportunity to limit additional legal, accounting, or consulting procedures. The final-form amendments do not add or change the existing reporting, recordkeeping, or other paperwork requirements for the owners and operators of facilities subject to the final-form regulation. The presumptive emission limitations established by the final rulemaking will not require the submission of applications for amendments to existing operating permits. These final-form requirements will be incorporated as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c). If 3 years or more remain in the permit term, the requirements will be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final rulemaking, as required under § 127.463(b). Most importantly, § 127.463(e) specifies that "[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations." Consequently, upon promulgation as final-form rulemaking, the requirements will apply to affected owners and operators irrespective of a modification to the Operating Permit.

The owners and operators of the affected facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

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

	Current FY Year 14/15	FY+1 Year 15/16	FY+2 Year 16/17	FY+3 Year 17/18	FY+4 Year 18/19	FY+5 Year 19/20
SAVINGS:	**$**	**$**	**$**	**$**	**$**	**$**
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00	0.00	0.00
COSTS:	**$**	**$**	**$**	**$**	**$**	**$**
Regulated Community	0.00	0.00	40,602,352	81,204,705	81,204,705	81,204,705
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	150,348	300,696	300,696	300,696
Total Costs	0.00	0.00	40,752,700	81,505,401	81,505,401	81,505,401
REVENUE LOSSES:	**$**	**$**	**$**	**$**	**$**	**$**
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Revenue Losses	0.00	0.00	0.00	0.00	0.00	0.00

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

Program	FY-3 2012-13	FY-2 2013-14	FY-1 2014-15	Current FY 2015-16
Environmental Program Management (161-10382)	$24,965,000	$25,733,000	$28,517,000	$29,967,000
Clean Air Fund Major Emission Facilities (215-20077)	$18,464,000	$18,413,000	$16,870,000	$22,039,000
Clean Air Fund Mobile and Area Facilities (233-20084)	$10,198,000	$8,036,000	$9,811,000	$10,250,000

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

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

The Department reviewed its database of regulated facilities with RACT-related permit conditions to determine how many, and which, potentially meet the definition of small business now specified in Section 3 of the Regulatory Review Act, as "in accordance with the size standards described by the SBA's Small Business Size Regulations under 13 CFR Chapter 1 Part 121 (relating to Small Business Size Regulations) or its successor regulation." The Department cross-referenced facility North American Industry Classification System (NAICS) information from its database with the "Table of Small Business Size Standards Matched to North American Industry Classification System Codes effective January 7, 2013," obtained from the SBA website at http://www.sba.gov/sites/default/files/files/Size_Standards_Table(1).pdf. The SBA table gives different determination criteria for different NAICS codes. A small business may be defined by sales, number of employees, or generation capacity in the case of utilities.

The Department then accessed the SBA Dynamic Small Business Search database which contains information about small businesses that have registered with the SBA. This self-certifying database incorporates the small business criteria contained in 13 CFR Chapter 1 Part 121, such as NAICS codes when the owners or operators of the companies register. This registration benefits small businesses because the database assists government contracting officers in determining whether a company is eligible as a small business. The Department reviewed information available on individual companies' internet sites for information that could identify a company as a small business based on sales or number of employees. Finally, the Department contacted the Small Business Development Center and used its access to EMAP programs.

For power generation facilities, the Department obtained yearly generation information from the Federal Energy Information Agency databases at http://www.eia.gov/electricity/data/eia860/. This information was correlated with the NAICS table definitions cited above to determine which generation facilities could be classified as small businesses.

From these sources, the Department determined that approximately twenty facilities meet the definition of "small business" specified in Section 3 of the Regulatory Review Act. These facilities include petroleum and coal products manufacturers, electric power generators, paper mills, pharmaceutical preparation manufacturer, and colleges and universities. The Department expects that the impact on these small businesses will be minimal. In those cases where a small business is not able to comply with the specified presumptive RACT requirements, owners and operators may submit a request to meet emission limitations by facility-wide or system-wide averaging protocol, or may submit a request for an alternative source-specific emission limitation. The flexibility afforded small businesses in the regulation ensures minimal negative effect on their operations.

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

No new reporting, recordkeeping, and other administrative procedures are required in the final-form regulation for small businesses. The final-form amendments do not add or change the existing reporting, recordkeeping, or other paperwork requirements for the owners and operators of facilities subject to the

final-form regulation. The owners and operators of subject facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

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

By establishing consistent standards for all facilities that are major NO_x emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-specific options, the owners and operators of these facilities will be able to achieve compliance in the most cost-effective manner. The effects on the regulated community should be very limited and are minimized through these alternative provisions.

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

The requirement to adopt and implement RACT requirements is Federally mandated. All businesses, whether or not meeting the designation of small business, that are major NO_x emitting or major VOC emitting facilities, or both, will be required to control emissions to meet the presumptive levels established in the final rulemaking. The final rulemaking incorporates flexibility to achieve mandated standards. By establishing consistent standards for all facilities that are major NO_x emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-specific options, the owners and operators of affected facilities will be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federally mandated RACT requirements in the most cost-effective manner.

Many owners or operators of major NO_x emitting or major VOC emitting facilities, or both, will not require additional control measures to comply with the final-form RACT requirements. The effects on any small business should be very limited and are minimized through these alternative provisions including emissions averaging to demonstrate compliance with the RACT requirements.

No new legal, accounting or consulting procedures would be required.

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

RACT is Federally mandated and applies to the owners and operators of major air contamination sources of NO_x or VOCs, or both. All businesses, whether or not they are considered a small business, that are major NO_x emitting or major VOC emitting facilities, or both, will be required to control emissions, if necessary, to meet the presumptive levels established in the final-form regulation. The final rulemaking provides flexibility for demonstrating compliance through emissions averaging and case-by-case RACT determination options. Facilities will be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether minorities or small businesses, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

Minorities, the elderly, small businesses, and farmers who are not owners or operators of a major NO_x emitting or major VOC emitting facility, or both, would not be affected by the final rulemaking.

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

The final rulemaking is considered the least burdensome acceptable method of ensuring compliance with the Federal RACT mandate. Many owners or operators of major NO_x emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. The final-form regulation incorporates flexibility to achieve mandated standards. The final-form regulation establishes consistent standards Commonwealth-wide for all facilities that are major NO_x emitting or VOC emitting facilities, or both. No new legal accounting or consulting procedures would be required.

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

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

RACT is Federally mandated under the CAA. Owners and operators of major NO_x emitting or major VOC emitting facilities, or both, that are also small businesses would have several options available to comply with the final-form RACT requirements. The final rulemaking incorporates flexibility to achieve mandated standards. By establishing consistent standards for all facilities that are major NO_x emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-by-case RACT determinations, the owners and operators of affected facilities that are also small businesses would be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

Many owners or operators of major NO_x emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. Others will be able to meet the requirements using the flexible options provided in the final rulemaking. The negative effects on any small business should be very limited and will be minimized through these alternative provisions.

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

The final-form rulemaking includes provisions for all owners or operators of major NO_x emitting or major VOC emitting facilities, or both, to submit requests for alternative compliance schedules.

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

The owners and operators of subject facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

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

Many owners or operators of major NO_x emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. Others will be able to meet the requirements using the flexible options provided in the final rulemaking.

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

RACT is Federally mandated under the CAA. All businesses, whether or not meeting the designation of small business, that are major NO_x emitting or major VOC emitting facilities will be required to control emissions to meet the presumptive levels established in the final-form regulation. The owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for an Operating Permit Modification or Plan Approval, if otherwise required, for a case-by-case determination under § 129.99(a). The owner or operator of a major NO_x emitting facility subject to § 129.96 that includes at least one source subject to a NO_x RACT emission limitation in § 129.97 that cannot meet the applicable NO_x RACT emission limitation may elect to meet the applicable NO_x RACT emission limitation in § 129.97 by averaging NO_x emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

The final rulemaking is considered the most flexible and least burdensome acceptable method of ensuring compliance with the Federal RACT mandate. The final rulemaking incorporates flexibility to achieve mandated standards and establishes consistent standards for all facilities that are major NO_x emitting or major VOC emitting facilities, or both.

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

RACT is Federally mandated under the CAA.

Acceptability standards for empirical, replicable, and testable data

The Department reviews its own ambient air quality ozone monitoring data for purposes of reporting to the EPA to establish attainment and maintenance of the NAAQS for all areas of this Commonwealth as discussed in the response to Question 9. The Commonwealth's Ambient Air Monitoring Network is operated in accordance with all network design, siting, monitoring and quality assurance requirements set forth in 40 CFR Part 58 (relating to ambient air quality surveillance). All ozone concentration data measured during the ozone monitoring season, which runs from April to October, are subject to comparison with the ozone NAAQS set forth in 40 CFR Part 50 (relating to National primary and secondary ambient air quality standards). Specific guidance on the requirements for quality assurance and quality control of the ozone monitoring network can be found in the EPA's Quality Assurance Handbook for Air Pollution

Measurement Systems, Volume II, Ambient Air Quality Monitoring Program, EPA-454/B-13-003, May 2013. The QA Handbook is available on the EPA web site at http://www.epa.gov/ttnamti1/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf.

The following list provides complete citations for data sources referenced in this Regulatory Analysis Form:
Pennsylvania Department of Agriculture: The cited information is posted on their 'About PDA' page at this link:
http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Page.aspx?name=About-PDA&navid=30&parentnavid=0&pageid=9&

Pennsylvania Department of Conservation and Natural Resources: The cited information is posted on their 'Do Business' page, 'Bids and Business Opportunities,' at this link:
http://www.dcnr.state.pa.us/dobusiness/index.htm

Pennsylvania Hardwoods Development Council, Biennial Report, 2009-2010.
http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf.

Pennsylvania Hardwoods Development Council, Photo, *Pennsylvania Hardwood Leading the Nation.*
http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/8631_panel11_Leading_the_Nation_100ppi.jpg.

Regulatory Impact Analysis, Final National Ambient Air Quality Standard for Ozone, July 2011, U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC, 27711, http://epa.gov/glo/pdfs/201107_OMBdraft-OzoneRIA.pdf.

State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas—Supplement (on Control Techniques Guidelines), 44 FR 53761 (September 17, 1979).

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

A. The date by which the agency received public comments: June 30, 2014

B. The date or dates on which public meetings or hearings were held: May 27, 28, 29, 2014

C. The expected date of promulgation of the proposed regulation as a final-form regulation: 1st Quarter 2016

D. The expected effective date of the final-form regulation: Date of publication

E. The date by which compliance with the final-form regulation will be required:

January 1, 2017, for sources that do not install add-on control.
Within 3 years after the written approval of the petition by the Department or the appropriate approved local air pollution control agency for sources that install add-on control.

F. The date by which required permits, licenses or other approvals must be obtained: NA

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

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.