


Draft Proposed RACT III Rulemaking

Air Quality Technical Advisory Committee
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Harrisburg, PA

Tom Wolf, Governor

Patrick McDonnell, Secretary

Background

- On October 26, 2015, the United States Environmental Protection Agency (EPA) revised the primary and secondary National Ambient Air Quality Standard (NAAQS) for ozone.
- Re-evaluation of Reasonably Available Control Technology (RACT) is a requirement to be fulfilled each time an ozone NAAQS is promulgated for nonattainment areas.
- Because the entire Commonwealth is in the Ozone Transport Region and is treated as a moderate nonattainment area, RACT is applicable to major sources of nitrogen oxides (NOx) and/or volatile organic compounds (VOC) statewide.

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RACT III Implementation

- Nonattainment designations for the 2015 ozone NAAQS were promulgated by EPA on June 4, 2018, became effective on August 3, 2018.

- EPA published the Nonattainment Area State Implementation Plan Requirements for the 2015 Ozone NAAQS on December 6, 2018.

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Proposed RACT III Rule

- On October 17, 2019, the Air Quality Technical Advisory Committee (AQTAC) was presented an overview of concepts for a draft proposed rule, known as RACT III, as part of the State Implementation Plan (SIP) revision to satisfy the federal requirements.

- This presentation provides an update following the October 2019 presentation.

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RACT III Applicability

- The RACT III rule would be applicable to major sources of NOx or VOC that commenced construction on or before August 3, 2018.

- The rule proposes that fugitive sources of VOCs at oil and gas facilities would be aggregated with an associated stationary source to determine the boundaries of the source with regard to the 1.0 ton and 2.7 ton applicability thresholds. This would address the fugitive VOC emissions from natural gas compression and transmission facilities.

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Case-By-Case RACT Requirements

- DEP is proposing that case-by-case determinations made for RACT II would satisfy the case-by-case requirements of RACT III, except in circumstances where presumptive requirements of RACT III are more stringent.

- This proposal would greatly reduce the number of case-by-case proposals and alleviate administrative burden on the regulated community, DEP, and EPA.

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Presumptive RACT Requirements

- For combustion units rated between 20 and 50 MMBtu/hr heat input, compliance with the boiler MACT tune-up procedures included in RACT III would ensure compliance with RACT I and RACT II boiler tune-up presumptive RACT requirements.
- DEP proposes a presumptive NOx RACT requirement of 0.10 lb/MMBtu for propane and liquid petroleum gas-fired combustion units rated at 50 MMBtu/hr or greater (new).
- Averaging periods for combustion units with CEMS would be daily during the ozone season (new) and 30-day rolling year-round.

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Presumptive RACT Requirements

DEP proposes the following as presumptive NOx RACT:

- 85 ppmvd @ 15% oxygen for simple cycle turbines rated between 1,000 and 3,000 brake horsepower (bhp) firing natural gas (down from 150).
- 42 ppmvd @ 15% oxygen for simple cycle turbines rated between 3,000 and 6,000 bhp firing natural gas (down from 150).
- 9 ppmvd @ 15% oxygen for simple cycle turbines rated at 60,000 bhp or greater firing natural gas (down from 42).
- Combined cycle turbines would remain the same as in RACT II (4 ppmvd including start up and shutdown).

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Presumptive RACT Requirements

- Summary of proposed changes for natural gas-fired turbines:

Type and Size	Presumptive NOx (ppmvd @ 15% oxygen)	
	RACT II	RACT III
SC ≥ 1000 bhp - <3000 bhp	150	85
SC ≥ 3000 bhp - <6,000 bhp	150	42
SC ≥ 6000 bhp - <60,000 bhp	42	42
SC ≥ 60,000 bhp	42	9
CC ≥ 1000 bhp - <180 MW	42	42
CC ≥ 180 MW	4	4

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Presumptive RACT Requirements

DEP proposes the following as presumptive NOx RACT:

- 0.6 g/bhp-hr for lean-burn engines rated at 2,500 bhp or greater firing natural gas (down from 3.0).
- 1.6 g/bhp-hr for lean-burn engines rated at 500 bhp or greater firing liquid or dual fuel (down from 8.0).
- 0.4 g/bhp-hr for rich-burn engines rated between 100 and 500 bhp firing natural gas (previously good operating practices).
- 0.4 g/bhp-hr for rich-burn engines rated at 500 bhp or greater firing natural gas (down from 2.0).

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Presumptive RACT Requirements

DEP proposes the following as presumptive VOC RACT:

- 0.5 g/bhp-hr for lean-burn engines rated at 500 bhp or greater (down from 1.0).
- 0.5 g/bhp-hr for rich-burn engines rated between 100 and 500 bhp (previously good operating practices).
- 0.5 g/bhp-hr for rich-burn engines rated at 500 bhp or greater (down from 1.0).

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Presumptive RACT Requirements

- Summary of proposed changes for engines:

Type	Fuel	Size	NOx (g/bhp-hr)		VOC (g/bhp-hr)	
			RACT II	RACT III	RACT II	RACT III
Lean	Natural Gas	≥ 500 bhp - < 2500 bhp	3.0	3.0	1.0	0.5
Lean	Natural Gas	≥ 2500 bhp	3.0	0.6	1.0	0.5
Lean	Liquid or Dual	≥ 500 bhp	8.0	1.6	1.0	0.5
Rich	Natural Gas	≥ 100 bhp - < 500 bhp	Good OP	0.4	Good OP	0.5
Rich	Natural Gas	≥ 500 bhp	2.0	0.4	1.0	0.5

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Presumptive RACT Requirements

- For multiple fuels, a fuel representing less than 2% of the annual fuel consumption may be excluded from the multiple fuels calculation (up from 1%).
- Requirements of two Lehigh Cement consent decrees of 3.0 lb NOx per ton of clinker for Evansville and 2.30 lb NOx per ton of clinker for Nazareth would be included (new).
- The proposed rule includes new presumptive NOx requirements for glass melting furnaces that are the same as the requirements contained in 25 Pa. Code §§ 129.301 – 129.310 (new).

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Presumptive RACT Requirements

The rule proposes the following new presumptive NOx requirements:

- For lime kilns, 4.6 lb NOx per ton of lime produced. Specific requirements would be included for the Graymont Pleasant Gap facility that match current permit limits.
- For electric arc furnaces, to be determined. These requirements are still being evaluated.
- For other direct-fired heaters, furnaces, or ovens rated at 20 MMBtu/hr or greater, 0.10 lb/MMBtu.

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EGU Presumptive RACT Requirements

DEP proposes the following as presumptive NOx RACT for coal-fired combustion units with selective catalytic reduction (SCR) systems.

- 0.10 lb/MMBtu when SCR inlet temperature is 600°F or greater on a 30-day rolling average (previously 0.12).
- 0.12 lb/MMBtu when SCR inlet temperature is 600°F or greater on a daily average during the ozone season (new).
- 0.35 (tangential-fired) or 0.40 (wall-fired) lb/MMBtu, as applicable, when SCR inlet temperature is below 600°F on a 30-day rolling average and on a daily average during the ozone season (previously only 30-day average).

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EGU Presumptive RACT Requirements

Combustion units with SCR or selective non-catalytic reduction (SNCR) would be required, for each operating day, to minimize NO_x emissions by operating and optimizing the use of all installed air pollution control technology and combustion controls consistent with:

- the technological limitations
- manufacturer specifications
- good engineering and maintenance practices, and
- good air pollution control practices for minimizing emissions at all times (new).

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EGU Presumptive RACT Requirements

Requirements for the Brunner Island units that are largely consistent with the company's consent decree with Sierra Club would be included (new).

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Averaging Requirements

- The rule proposes to specify that facility-wide and system-wide averaging plans are to be submitted to EPA as site-specific SIP revisions, similar to case-by-case determinations. This would be consistent with the requirement EPA implemented for averaging plans for RACT II.
- The rule proposes for averaging proposals to be due no more than six months after the final rulemaking is published.

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Notification Requirements

- DEP proposes to include notification requirements for all facilities that are subject to RACT III. Owners and/or operators would need to explain how they plan to comply with the requirements, even if all sources are subject to presumptive RACT. These notifications would be required no more than six months after a final rulemaking is published (new).
- This notification requirement would allow DEP to identify the facilities that are subject to RACT III.

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Compliance Requirements

- The rule would require compliance no more than one year after the final rulemaking is published.
  - EPA requires implementation of RACT to be no later than January 1 of the fifth year after the effective date of the designations. In this case, that would be January 1, 2023.
  - The one year compliance time period should meet the January 1, 2023 deadline.
- For combustion turbines, compliance with presumptive requirements may be demonstrated on a mass-equivalent basis (new).

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Compliance Requirements

- For combustion units with SCR, temperature at the inlet to the SCR must be recorded on an hourly basis and reported to DEP (new hourly requirement).
- Compliance with stack testing requirements may be shown with testing conducted within two years prior to the date the final rulemaking is published (previously one year).

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