

MARYLAND REGISTER

Proposed Action on Regulations

Comparison to Federal Standards Submission and Response

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In accordance with Executive Order 01.01.1996.03 and memo dated July 26, 1996, the attached document is submitted to the Department of Business and Economic Development for review.

The Proposed Action is not more restrictive or stringent than corresponding federal standards.

COMAR Codification: 26.11.38..01 - .05

Corresponding Federal Standard:

The federal Clean Air Act, 42 U.S.C. § 7401 et seq. requires EPA to establish health-based national air quality standards to protect people with an "adequate margin of safety." States are responsible for developing enforceable state implementation plans to meet the standards. The federal Clean Air Act requires the Maryland Department of the Environment to revise its regulations requiring the implementation of reasonably available control technology ("RACT") for certain sources, including coal-fired electric generating units, per 42 U.S.C.

§7502(c) and §7511a(a)—(b). The federal Clean Air Act requires the Maryland Department of the Environment to reach attainment as expeditiously as practicable, but no later than 6 years from the date of designation, per §7511.

Discussion/Justification:

The Clean Air Act requires the State to enact regulations to achieve reductions necessary to obtain the National Ambient Air Quality Standards (NAAQS). The attainment plan for the 75 ppb ozone NAAQS is due in June 2015. The requirement for continuous operation of control equipment and the more stringent averaging standard will contribute to the reductions needed in the attainment plan.

TO BE COMPLETED BY DBED

- Agree
- Disagree

Comments:

DBED does not have expertise in this area but believes MDE does thus DBED trusts their assertion that the regulations are not more restrictive or stringent than corresponding federal standards.

Name: Sandy Popp

Date: 4/15/2015

- Submit to Governor's Office

Governor's Office Response

Comments:

Transmittal Sheet	Date Filed with AELR Committee	TO BE COMPLETED BY DSD
PROPOSED OR		Date Filed with

**Title 26
DEPARTMENT OF THE
ENVIRONMENT**

Subtitle 11 AIR QUALITY

26.11.38 Control of NOx Emissions from Coal-Fired Electric Generating Units

REPROPOSED Actions on Regulations	04/17/2015	Division of State Documents
		Document Number
		Date of Publication in MD Register

Authority: Environmental Article, §§1-404, 2-103 and 2-301—2-303, Annotated Code of Maryland

Notice of Proposed Action

□

The Secretary of the Environment proposes to adopt new Regulations .01—.05 under new COMAR 26.11.38 Control of NOx Emissions from Coal-Fired Electric Generating Units.

Statement of Purpose

The purpose of this action is to establish new nitrogen oxides (NOx) emission standards and additional monitoring and reporting requirements for coal-fired electric generating units (EGUs) in Maryland. The new standards for coal-fired electric generating units in Maryland and resulting reductions in NOx emissions are needed to achieve attainment of, and maintain, the National Ambient Air Quality Standard (NAAQS) for ozone and will satisfy the requirements of § 182 of the federal Clean Air Act.

This action will be submitted to the U.S. Environmental Protection Agency (EPA) for approval as part of Maryland's State Implementation Plan (SIP).

Background

In 2012, portions of Maryland were designated as nonattainment for the 75 parts per billion (ppb) ozone NAAQS. Ozone is produced when volatile organic compounds (VOCs) and NOx react in the presence of heat and sunlight. The Department has found through a research partnership with the University of Maryland that NOx reductions are more effective at reducing ozone levels than VOC reductions. Under the federal Clean Air Act, sources in ozone nonattainment areas classified as moderate and above are subject to a NOx Reasonably Available Control Technology (RACT) requirement.

1. Desired date of publication in Maryland Register: 5/29/2015

2. COMAR Codification

Titl e	Subtit le	Chapt er	Regulati on
26	11	38	.01 - .05

3. Name of Promulgating Authority

Department of the Environment

4. Name of Regulations Coordinator

Carolyn A Jones

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Section 182 and Section 184 of the Clean Air Act

5. Name of Person to Call About this Document

Randy Mosier

Telephone No.

410-537-4488

Email Address

Randy.Mosier@maryland.gov

6. Check applicable items:

- New Regulations
- Amendments to Existing Regulations
 - Date when existing text was downloaded from COMAR online: .
- Repeal of Existing Regulations
- Recodification
- Incorporation by Reference of Documents Requiring DSD Approval
- Reproposal of Substantively Different Text:

: Md.
R
(vol.) (issue) (page nos) (date)

Under Maryland Register docket no.: --P.

7. Is there emergency text which is identical to this proposal:

Yes No

If yes, corresponding proposed text published in:

- same issue
- future issue
- previous issue; it appeared in

: Md
. R
(vol. (issue (pag e (date)) no's))

requires the Maryland Department of the Environment (the Department) to review and revise NOx RACT requirements in Maryland’s SIP as necessary to achieve compliance with new more stringent ambient air quality standards. EPA defines RACT as the lowest emissions limitation (e.g., on a part per million or pound per million Btu basis) that a particular source is capable of meeting by the application of control technology (e.g., installation and operation of low-NOx burners) that is reasonably available considering technological and economic feasibility. In reviewing existing NOx RACT requirements for adequacy, the Department considers technological advances, the stringency of the revised ozone standard and whether new sources subject to RACT requirements are present in the nonattainment area. Maryland's RACT SIP for the new 75 ppb ozone standard must examine existing controls on major sources of NOx to determine whether additional controls are economical and technically feasible.

The Department found, through its recent review of 2007 through 2013 emissions data from Maryland coal-fired EGUs equipped with SCRs, SNCRs and SACRs many of the coal-fired EGUs were not consistently operating their previously installed controls to optimize emission reductions—particularly during ozone season periods of high electricity demand when ozone levels are highest.

In 2015, the Department is required to submit an ozone attainment SIP that includes emission reduction strategies designed to achieve compliance with the 75 ppb ozone standard by 2017. Reductions in NOx emissions from coal-fired EGUs on high electricity demand days during the ozone season are necessary to achieve compliance with the 75 ppb standard.

This proposed regulation, when effective, will result in immediate reductions in ozone season NOx emissions from these sources, which are needed to achieve and maintain compliance with

Under Maryland Register
docket no.: --E.

8. Incorporation by Reference

__ Check if applicable:
Incorporation by Reference (IBR) approval form(s) attached and 18 copies of documents proposed for incorporation submitted to DSD. (Submit 18 paper copies of IBR document to DSD and one copy to AELR.)

9. Public Body - Open Meeting

__ OPTIONAL - If promulgating authority is a public body, check to include a sentence in the Notice of Proposed Action that proposed action was considered at an open meeting held pursuant to State Government Article, §10-506(c), Annotated Code of Maryland.

__ OPTIONAL - If promulgating authority is a public body, check to include a paragraph that final action will be considered at an open meeting.

10. Children's Environmental Health and Protection

X- Check if the system should send a copy of the proposal to the Children's Environmental Health and Protection Advisory Council.

11. Certificate of Authorized Officer

I certify that the attached document is in compliance with the Administrative Procedure Act. I also certify that the attached text has been approved for legality by Michael Strande, Assistant Attorney General, (telephone #410-537-3421) on April 14, 2015. A written copy of the approval is on file at this agency.

the 75 ppb ozone standard.

Sources Affected and Location

This action impacts coal-fired EGUs in Maryland, which account for more than 80% of the State's power plant NOx emissions. Affected EGUs include: Brandon Shores (Units 1 and 2); C.P. Crane (Units 1 and 2), H.A. Wagner (Units 2 and 3) plants; Chalk Point (Units 1 and 2), Morgantown (Units 1 and 2), Dickerson (Units 1, 2 and 3); and AES Warrior Run.

Requirements

This action is part of a broader strategy to further reduce NOx emissions from coal-fired EGUs in the State by requiring owners and operators of affected EGUs to comply with the following measures:

- No later than 45 days after the effective date of this regulation, submit a plan to the Department, for approval by the Department and EPA, that demonstrates how the EGU will operate installed pollution control technology and combustion controls to minimize emissions;
- Beginning May 1, 2015, and during the entire ozone season whenever the EGU is combusting coal, operate and optimize the use of all installed pollution and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering, maintenance practices, and air pollution control practices to minimize emissions (as defined in 40 C.F.R. § 60.11(d));
- Demonstrate compliance by meeting a system-wide NOx emission rate of 0.15 lbs/MMBtu as a 30-day rolling average during the ozone season. An EGU that is located at an electric generating facility that is the only facility in Maryland directly, or indirectly owned, operated or controlled by the owner, operator or controller of the facility is exempt from the obligation to meet this NOx emission rate;
- Continue to meet the ozone season and annual NOx reduction requirements set forth in COMAR 26.11.27;
- Meet a NOx emission rate of 0.10 lbs/MMBtu as

Name of Authorized Officer

Benjamin H.
Grumbles

Title

Secretary of the
Environment

Date

April 14, 2015

**Telephone
No.**

410-537-3084

a 24-hour block average on an annual basis if the EGU is a fluidized bed combustor; and
•Demonstrate compliance with the requirements and emission rates in the regulation in accordance with the prescribed procedures.

Expected Emissions Reductions

The Department projects that implementation of Regulation .03 requirements will result in an estimated daily NOx emission reduction of 25 percent and 9 tons from average levels of 36 tons/day during the period from 2011 through 2013 as long as the two current systems remain intact. Additional emission reductions should be realized on peak days as the NOx emission rate restrictions will achieve better performance from units that traditionally are operated only upon high electricity demand days. A more accurate estimate of daily reductions can be made after compliance plans from the affected sources are approved by the Department.

Comparison to Federal Standards

There is a corresponding federal standard to this proposed action, but the proposed action is not more restrictive or stringent.

Estimate of Economic Impact

I. Summary of Economic Impact.

All of Maryland’s coal-fired EGUs are currently equipped with either the most efficient or second most efficient available NOx control technology, SCR and SNCR or SACR, respectively. Compliance with the 2015 requirements will require all coal-fired units to operate and optimize existing pollution and combustion controls to minimize NOx emissions during the ozone season. There are no new control technologies required for this action. Optimization of existing controls will require control and maintenance practices, including adjustments to the amount of urea being utilized by certain units. The cost of optimizing operation of the existing control technologies (SCR and SNCR and SACR) annually for each affected unit individually is

estimated to be in the range of \$430,000 to \$4.3 million for each affected unit.

There will be no expected impact on the Department, other State agencies, or local governments as a result of this action.

II. Types of Economic Impact.	Revenue (R+/R-)	Magnitude
	Expenditure (E+/E-)	
A. On issuing agency:	(E+)	Minimal
B. On other State agencies:	NONE	Minimal
C. On local governments:	NONE	Minimal
	Benefit (+) Cost (-)	Magnitude

D. On regulated industries or trade groups:		
Compliance Costs	(-)	\$430,000 - \$4.3 million
E. On other industries or trade groups:	NONE	
F. Direct and indirect effects on public:		
Health Benefits	(+)	\$5 - \$37 million

III. Assumptions. (Identified by Impact Letter and Number from Section II.)

A. The Department maintains both a compliance and permitting program for major sources as required by the Clean Air Act. These programs will implement these regulations.

B. There are no anticipated tasks or compliance activities required of other state agencies due to these regulations.

C. There are no anticipated tasks or compliance activities required of local government due to these regulations.

D. There are no new control technologies required for this action. Companies must optimize their existing control equipment to meet the 2015 requirements. The annual operating and maintenance cost for a single unit can range from \$430,000 to \$4.3 million. Optimization of the operation of the existing controls may push annual operating and maintenance costs toward the high end of the estimates or even add some additional costs but the exact additional cost if any cannot be determined at this time.

E. There are no anticipated impacts on other industries or trade groups.

F. Health benefits are influenced by many factors and monetizing benefits is difficult.

Implementation of these regulations will result in a reduction of incidents in which Marylanders experience adverse health effects, including hospitalizations, illnesses, restricted activity days and other effects caused by air pollution and exposure to ground level ozone. Ozone season economic benefits from reduced incidents range from \$5 to \$37 million (in 2010 dollars).

Economic Impact on Small Businesses

The proposed action has minimal or no economic impact on small businesses.

Impact on Individuals with Disabilities

The proposed action has no impact on individuals with disabilities.

Opportunity for Public Comment

Comments may be sent to , , , , or call , or email to , or fax to . Comments will be accepted through . A public hearing will be held, The Department of the Environment will hold a public hearing on the proposed action on June 29, 2015 at 10a.m. at the Department of the Environment, 1800 Washington Boulevard, 1st Floor Conference

Rooms, Baltimore, Maryland 21230-1720. Interested persons are invited to attend and express their views. Comments may be sent to Mr. Randy Mosier, Chief of the Regulation Division, Air and Radiation Management Administration, Department of the Environment, 1800 Washington Boulevard, Suite 730, Baltimore, Maryland 21230-1720, or email to randy.mosier@maryland.gov. Comments must be received no later than June 29, 2015, or be submitted at the hearing. For more information, call Randy Mosier at (410) 537-4488.

Copies of the proposed action and supporting documents are available for review at the following locations:

- The Department of the Environment's website at:

<http://www.mde.state.md.us/programs/regulations/air/Pages/reqcomments.aspx>

- The Air and Radiation Management Administration; and
- Regional offices of the Department in Cumberland and Salisbury.

Anyone needing special accommodations at the public hearing should contact the Department's Fair Practices Office at (410) 537-3964.

TTY users may contact the Department through the Maryland Relay Service at 1-800-735-2258.

Economic Impact Statement Part C

A. Fiscal Year in which regulations will become effective: FY 2016

B. Does the budget for the fiscal year in which regulations become effective contain funds to implement the regulations?

Yes

C. If 'yes', state whether general, special (exact name), or federal funds will be used:

A combination of Maryland Clean Air Funds (Special) and Air Pollution Control Program Grant Funds (Federal) will be used.

D. If 'no', identify the source(s) of funds necessary for implementation of these regulations:

E. If these regulations have no economic impact under Part A, indicate reason briefly:

F. If these regulations have minimal or no economic impact on small businesses under Part B, indicate the reason and attach small business worksheet.

Commercial and consumer electricity rates are influenced by many factors. The costs associated with the implementation of this action may be one factor that influences these rates, but the magnitude of the influence is very small since no additional control equipment is needed.

G. Small Business Worksheet:

Attached Document:

Draft 4-10-2015

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 38 Control of NO_x Emissions from Coal-Fired Electric Generating Units

Authority: Environmental Article, §§1-404, 2-103 and 2-301—2-303, Annotated Code of Maryland

ALL NEW MATTER

.01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Affected electric generating unit" means any one of the following coal-fired electric generating units:

- (a) Brandon Shores Units 1 and 2;
- (b) C.P. Crane Units 1 and 2;
- (c) Chalk Point Units 1 and 2;
- (d) Dickerson Units 1, 2, and 3;
- (e) H.A. Wagner Units 2 and 3;
- (f) Morgantown Units 1 and 2; and
- (g) Warrior Run.

(2) "Operating day" means a 24-hour period beginning midnight of one day and ending the following midnight, or an alternative 24-hour period approved by the Department, during which time an installation is operating, consuming fuel, or causing emissions.

(3) "Ozone season" means the period beginning May 1 of any given year and ending September 30 of the same year.

(4) System.

(a) "System" means all affected electric generating units within the State of Maryland subject to this chapter that are owned, operated, or controlled by the same person and are located:

(i) In the same ozone nonattainment area as specified in 40 CFR Part 81; or

(ii) Outside any designated ozone nonattainment area as specified in 40 CFR 81.

(b) A system must include at least two affected electric generating units.

(5) "System operating day" means any day in which an electric generating unit in a system operates.

(6) "30-day system-wide rolling average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the system during the current system operating day and the previous twenty-nine system operating days;

(b) Summing the total heat input to the system in MMBtu during the current system operating day and the previous twenty-nine system operating days; and

(c) Dividing the total number of pounds of pollutant emitted during the thirty system operating days by the total heat input during the thirty system operating days.

(7) "24-hour block average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the unit during 24 hours between midnight of one day and ending the following midnight;

(b) Summing the total heat input to the unit in MMBtu during 24 hours between midnight of one day and ending the following midnight; and

(c) Dividing the total number of pounds of pollutant emitted during 24 hours between midnight of one day and ending the following midnight by the total heat input during 24 hours between midnight of one day and ending the following midnight.

.02 Applicability.

The provisions of this chapter apply to an affected electric generating unit as that term is defined in §.01B of this chapter.

.03 2015 NO_x Emission Control Requirements.

A. Daily NO_x Reduction Requirements During the Ozone Season.

(1) Not later than 45 days after the effective date of this regulation, the owner or operator of an affected electric generating unit shall submit a plan to the Department and EPA for approval that demonstrates how each affected electric generating unit ("the unit") will operate installed pollution control technology and combustion controls to meet the requirements of §A(2) of this regulation. The plan shall summarize the data that will be collected to demonstrate compliance with §A(2) of this regulation. The plan shall cover all modes of operation, including but not limited to normal operations, start-up, shut-down and low load operations.

(2) Beginning on May 1, 2015, for each operating day during the ozone season, the owner or operator of an affected electric generating unit shall minimize NO_x emissions by operating and optimizing the use of all installed pollution control technology and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal.

B. Ozone Season NO_x Reduction Requirements.

(1) Except as provided in §B(3) of this regulation, the owner or operator of an affected electric generating unit shall not exceed a NO_x 30-day system-wide rolling average emission rate of 0.15 lbs/MMBtu during the ozone season.

(2) The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the ozone season NO_x reduction requirements in COMAR 26.11.27.

(3) Ownership of Single Electric Generating Facility.

(a) An affected electric generating unit is not subject to B(1) if the unit is located at an electric generating facility that is the only facility in Maryland directly or indirectly owned, operated or controlled by the owner, operator or controller of the facility.

(b) For the purposes of §B(3) of this regulation, the owner includes parent companies, affiliates and subsidiaries of the owner.

C. Annual NO_x Reduction Requirements. The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the annual NO_x reduction requirements in COMAR 26.11.27.

D. NO_x Emission Requirements for Affected Electric Generating Units Equipped with Fluidized Bed Combustors.

(1) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor is not subject to the requirements of §§A, B(1), B(2) and C of this regulation.

(2) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor shall not exceed a NOx 24-hour block average emission rate of 0.10 lbs/MMBtu.

.04 Compliance Demonstration Requirements.

A. Procedures for demonstrating compliance with §.03(A) of this chapter.

(1) An affected electric generating unit shall demonstrate, to the Department’s satisfaction, compliance with §.03(A)(2) of this chapter, using the information collected and maintained in accordance with §.03(A)(1) of this chapter and any additional documentation available to and maintained by the affected electric generating unit.

(2) An affected electric generating unit shall not be required to submit a unit-specific report consistent with §A(3) of this regulation when the unit emits at levels that are at or below the following rates:

Affected Unit	24-Hour Block Average NOx Emissions in lbs/MMBtu
Brandon Shores	
Unit 1	0.08
Unit 2	
< 650 MWg	0.07
≥ 650 MWg	0.15
C.P. Crane	
Unit 1	0.30
Unit 2	0.28
Chalk Point	
Unit 1 only	0.07
Unit 2 only	0.33
Units 1 and 2 combined	0.20
Dickerson	
Unit 1 only	0.24
Unit 2 only	0.24
Unit 3 only	0.24
Two or more Units combined	0.24
H.A. Wagner	
Unit 2	0.34
Unit 3	0.07
Morgantown	
Unit 1	0.07
Unit 2	0.07

(3) The owner or operator of an affected electric generating unit subject to §.03(A)(2) of this chapter shall submit a unit-specific report for each day the unit exceeds its NOx emission rate of §A(2) of this regulation, which shall include the following information for the entire operating day:

- (a) Hours of operation for the unit;
- (b) Hourly averages of operating temperature of installed pollution control technology;
- (c) Hourly averages of heat input (MMBtu/hr);
- (d) Hourly averages of output (MWh);
- (e) Hourly averages of Ammonia or urea flow rates;
- (f) Hourly averages of NOx emissions data (lbs/MMBtu and tons);
- (g) Malfunction data;
- (h) The technical and operational reason the rate was exceeded, such as:
 - (i) operator error;

(ii) technical events beyond the control of the owner or operator (e.g. acts of God, malfunctions); or
(iii) dispatch requirements that mandate unplanned operation (e.g. start-ups and shut-downs, idling and operation at low voltage or low load);

(i) A written narrative describing any actions taken to reduce emission rates; and

(j) Other information that the Department determines is necessary to evaluate the data or to ensure that compliance is achieved.

(4) An exceedance of the emissions rate of §A(2) of this regulation as a result of factors including but not limited to start-up and shut-down, days when the unit was directed by the electric grid operator to operate at low load or to operate pursuant to any emergency generation operations required by the electric grid operator, including necessary testing for such emergency operations, or to have otherwise occurred during operations which are deemed consistent with the unit's technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions, shall not be considered a violation of §.03A(2) of this chapter provided that the provisions of the approved plan as required in §.03A(1) of this chapter are met.

B. Procedures for demonstrating compliance with NO_x emission rates of this chapter.

(1) Compliance with the NO_x emission rate limitations in §§.03B(1), .03D(2), and .04A(2) of this chapter shall be demonstrated with a continuous emission monitoring system that is installed, operated, and certified in accordance with 40 CFR Part 75.

(2) For §.03B(1) of this chapter, in order to calculate the 30-day system-wide rolling average emission rates, if twenty-nine system operating days are not available from the current ozone season, system operating days from the previous ozone season shall be used.

.05 Reporting Requirements.

A. Reporting Schedule.

(1) Beginning 30 days after the first month of the ozone season following the effective date of this chapter, each affected electric generating unit subject to the requirements of this chapter shall submit a monthly report to the Department detailing the status of compliance with this chapter during the ozone season.

(2) Each subsequent monthly report shall be submitted to the Department not later than 30 days following the end of the calendar month during the ozone season.

B. Monthly Reports During Ozone Season. Monthly reports during the ozone season shall include:

(1) Daily pass or fail of the NO_x emission rates of §.04A(2) of this chapter.

(2) The reporting information as required under §.04A(3) of this chapter.

(3) The 30-day system-wide rolling average emission rate for each affected electric generating unit to demonstrate compliance with §.03B(1) of this chapter.

END NEW MATTER