

MARYLAND REGISTER

**Proposed Action on Regulations**

<b>Transmittal Sheet</b>  <b>PROPOSED OR REPROPOSED</b>  <b>Actions on Regulations</b>	<b>Date Filed with AELR Committee</b>	<b>TO BE COMPLETED BY DSD</b>
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**2. COMAR Codification**

Title	Subtitle	Chapter	Regulation
26	11	02	10
26	11	09	01 and .08-1

**3. Name of Promulgating Authority**

Department of the Environment

**4. Name of Regulations Coordinator**      **Telephone Number**  
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**Title 26**  
**DEPARTMENT OF THE ENVIRONMENT**

**Subtitle 11 AIR QUALITY**

**26.11.02 Permits, Approvals and Registrations**

**Subtitle 11 AIR QUALITY**

**26.11.09 Control of Fuel-Burning Equipment, Stationary Internal Combustion Engines, and Certain Fuel-Burning Installations**

Authority: 26.11.02 Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 2-401, 2-403, and 2-404, Annotated Code of Maryland 26.11.09 Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 10-102, and 10-103, Annotated Code of Maryland

**Notice of Proposed Action**

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The Secretary of the Environment proposes to to (1) amend Regulation .10 under 26.11.02 Permits, Approvals and Registrations; and (2) amend Regulation .01 and adopt new Regulation .08-1 under 26.11.09 Control of Fuel-Burning Equipment, Stationary Internal Combustion Engines, and Certain Fuel-Burning Installations.

**Statement of Purpose**

The purpose of this action is to establish NO<sub>x</sub> emission requirements for stationary internal combustion engines (ICEs) that are used as emergency generators or load shaving units as defined in COMAR 26.11.09.01. The amendments will achieve reduction of NO<sub>x</sub> emissions during the ozone season, particularly on high ozone days, while allowing some degree of flexibility necessary to maintain electric system reliability.

**Background:**

ICEs have been installed in large buildings, health care facilities and numerous other facilities as emergency generators of electricity. Due to the increased cost of energy, many facilities have started to operate their generators during non-emergencies to reduce the peak load of electricity on high use days, such as days when the ambient temperature exceeds 90°F. This is referred to as "peak" or "load" shaving.

More recently, owners of the generators have been requested by power suppliers to either operate their ICEs or maintain their ICEs for potential use to maintain electric system reliability or to prevent a possible brown out or black out, through both voluntary and mandatory programs.

Most stationary ICEs are fired with diesel fuel and are uncontrolled. The combustion of diesel fuel releases significantly more NO<sub>x</sub> emissions per unit of power compared to the

combustion of natural gas or fuel oil or compared to the generation of electricity from well-controlled power plants.

Requirements of the Amendments:

The proposed action will:

1. Prohibit emergency generators from testing between 12:01 a.m. to 2:00 p.m. on high ozone days;
2. Require existing load shaving units to control NO<sub>x</sub> emissions, install new engines that meet federal New Source Performance Standards, or limit operation to a total of ten hours during any ozone season;
3. Require new load shaving units to meet New Source Performance Standards (NSPS) or to install controls to meet applicable NO<sub>x</sub> emission standards;
4. Allow groups of small generators, such as poultry farms, to request alternative compliance methods; and
5. Provide an alternative compliance option for load shaving units that involves the purchase of NO<sub>x</sub> allowances to be retired.

Emissions Reductions Expected:

An uncontrolled 800 Hp load shaving unit operating during an 8-hour period is capable of emitting 0.07 tons of emissions. Conversely, a similar engine that has installed a control device would only emit 0.007 tons of NO<sub>x</sub>. However, conventional NO<sub>x</sub> controls are relatively expensive for small sources. Therefore, it is expected that not more than a few existing load shaving units will consider controls.

If groups of small sources decide to purchase allowances to offset NO<sub>x</sub> emissions, an emission reduction of up to 2,000 pounds per day could be achieved.

### **Comparison to Federal Standards**

There is no corresponding federal standard to this proposed action.

### **Estimate of Economic Impact**

#### **I. Summary of Economic Impact.**

The regulated owners of generators may choose to install control devices to lower NO<sub>x</sub> emissions, purchase a new, cleaner engine, limit operations or purchase seasonal NO<sub>x</sub> allowances for retirement to offset their emissions. The cost of a selective catalytic reduction (“SCR”) system for smaller diesel generators ranges from \$45,000 to \$180,000, with cost-effectiveness values ranging from \$8,000 to \$38,000 per ton of NO<sub>x</sub> reduction. For larger systems, the capital costs could range from \$250,000 to \$300,000. The purchase of a new, cleaner engine meeting EPA’s NSPS standard would cost in the range of \$65,000 to \$150,000. Seasonal NO<sub>x</sub> allowances cost \$650/Ton.

The administrative cost to the Department of approximately \$10,500 is based on

projected utilization of resources in 2008. Additionally, an annual estimate of \$23,000 represents roughly 1/2 of a full time equivalent salary from 2009.

II. Types of Economic Impact.	Revenue (R+/R-)	Magnitude
	Expenditure (E+/E-)	
A. On issuing agency:		
Initial administrative cost & annual cost	(E+)	\$10,500 initial admin. cost & \$23,000 annually
B. On other State agencies:	(E+)	Minimal
C. On local governments:	(E+)	Minimal

	Benefit (+) Cost (-)	Magnitude
D. On regulated industries or trade groups:		
(1) Existing Generators	(-)	\$45,000 - \$300,000
(2) New Generators	(-)	\$65,000 to \$150,000
(3) Purchase of Allowances	(-)	\$650 per ton of seasonal NOx allowances purchased
E. On other industries or trade groups:	(-)	Minimal
F. Direct and indirect effects on public:	(+)	Unable to Estimate

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

A. This estimate of an initial administrative cost of approximately \$10,500 is based on projected utilization of resources in 2008. The estimate of \$23,000 represents roughly 1/2 of a full time equivalent salary from 2009. This workload would be addressed through the reallocation of resources.

B. Agencies will have to keep records on the number of hours of operation.

C. Records will have to kept on the hours of operation.

D(1). (1). Existing generators either have to meet the emission standard or replace the generator with a new engine that meets federal New Source Performance Standards. Owners or operators of existing engines may also choose to limit operation of the load shaving unit to no more than 10 hours during the period May 1 to September 30 of any year. The most effective method to reduce NOx emissions from large stationary diesel engines such as those used in stationary diesel generators is SCR technology. SCR technology has been successfully applied to large diesel engines over a long period of

time with more than 80-90 percent reduction efficiency. For less costly NOx control strategies, injection timing adjustment and lean NOx catalyst technology can be considered, which generally provide more modest reductions of 10% to 30%. Engines that are close to meeting the standard could benefit from these technologies. The cost of an SCR system for smaller diesel generators ranges from \$45,000 to \$180,000, with cost-effectiveness values ranging from \$8,000 to \$38,000 per ton of NOx reduction. For larger systems the capital costs could range from \$250,000 to \$300,000.

D(2). New generators are required to either meet NSPS standards if their capacity is 1,000 horsepower or less or be equipped with a NOx control system to meet a NOx emissions standard of not more than 1.4 grams per brake horsepower. The purchase of a new, cleaner engine meeting EPA's NSPS standard would cost in the range of \$65,000 to \$150,000.

D(3). This option can be used as an alternative to reducing emissions. Seasonal NOx allowances cost \$650/Ton.

E. The economic impact of the proposed amendments upon other industries is minimal as few units will be installing controls.

F. This action will help improve Maryland's air quality and will result in fewer negative health effects on the general public from air pollution.

### **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 an impact on individuals with disabilities as follows: This action will have a positive impact on individuals with disabilities involving respiratory problems by reducing air pollutants that contribute to disease.

### **Opportunity for Public Comment**

The Department of the Environment will hold a public hearing on the proposed action on November 25, 2008 at 10 a.m. at the Department of the Environment, 1800 Washington Boulevard, 1st Floor Aqua Conference Room, Baltimore, Maryland 21230-1720. Interested persons are invited to attend and express their views. Comments may be sent to Deborah Rabin, Regulations Coordinator, Air and Radiation Management Administration, Department of the Environment, 1800 Washington Boulevard, Suite 730, Baltimore, Maryland 21230-1720, or emailed to [drabin@mde.state.md.us](mailto:drabin@mde.state.md.us). Comments must be received not later than November 25, 2008, or be submitted at the hearing. For more information, call Deborah Rabin at (410) 537-3240.

Copies of the proposed action and supporting documents are available for review at the following locations: The Air and Radiation Management Administration; regional offices of the Department in Cumberland and Salisbury; all local air quality control offices; and

local health departments in those counties not having separate air quality control offices.

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 2009

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.

There is no small business in Maryland that has been identified to incur substantial economic impact as a result of the proposed action. The affected sources can meet the standards at minimum cost.

G. Small Business Worksheet:

**Title 26 Department Of The Environment**

**Subtitle 11 AIR QUALITY**

**Chapter 02 Permits, Approvals, and Registration**

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 2-401, 2-403, and 2-404, Annotated Code of Maryland

**.10 Sources Exempt from Permits to Construct and Approvals.**

A person may construct or modify or cause to be constructed or modified any of the following sources without first obtaining, and having in current effect, a permit to construct:

A. — D. (text unchanged)

E. Stationary internal combustion engines with an output less than 500 brake horsepower (373 kilowatts) and which are not used to generate electricity for sale [or for peak] or load shaving as that term is defined in COMAR

26.11.09.01B;

F. — X. (text unchanged)

**Title 26 DEPARTMENT OF THE ENVIRONMENT**

**Subtitle 11 AIR QUALITY**

**Chapter 09 Control of Fuel-Burning Equipment, Stationary Internal  
Combustion Engines, and Certain Fuel-Burning Installations**

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, 2-301—2-303, 10-102,  
and 10-103, Annotated Code of Maryland

**.01 Definitions.**

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

B. Terms Defined.

(1) — (2) text unchanged

(2-1) Emergency.

(a) "Emergency" means a condition where the primary  
energy or power source is disrupted or discontinued due to conditions beyond  
the control of the owner or operator of a facility including:

(i) A failure of the electrical grid;

(ii) On-site disaster or equipment failure; or

(iii) Public service emergencies such as flood, fire, natural disaster, or severe weather conditions.

(b) "Emergency" includes a PJM Declared Emergency.

(2-2) "Emergency Generator" means:

(a) An engine used only during an emergency or for testing and engine maintenance purposes; and

(b) An engine that operates during an emergency according to the procedures in the PJM Emergency Operations Manual for a PJM Declared Emergency.

(2-3) "Engine" means a stationary internal combustion engine.

[(2-1)] (2-4) — (4) (text unchanged)

(4-1) Load Shaving Unit.

(a) "Load Shaving Unit" means an engine that operates for other than an emergency to generate electricity for use on-site or for sale.

(b) "Load Shaving Unit" does not include an engine:

(i) Whose primary function is to generate electricity for use by the public; or

(ii) That serves as the primary source of power for agricultural equipment or industrial equipment including the period when equipment or a facility is being maintained and the engine is used in place of the primary power source.

[(4-1)] (4-2) — [(4-2)] (4-3) (text unchanged)

(4-4) PJM Declared Emergency" means a condition that exists where the PJM Interconnection, LLC notifies electric distributors that an emergency exists or may occur and it is necessary to implement the procedures in the PJM Manual 13 Emergency Operations, as revised.

(5) — (10) (text unchanged)

ALL NEW MATTER

.08-1 Additional NOx Requirements.

A. General Requirements and Exemptions for Emergency Generators and Load Shaving Units.

(1) The owner or operator of an emergency generator may not operate the generator except for emergencies and testing and maintenance purposes.

(2) The owner or operator of an emergency generator and load shaving unit may be subject to the federal standards for Stationary Internal Combustion Engines under 40CFR Parts 60 and 63.

(3) The owner or operator of an emergency generator or load shaving unit may not operate the engine for testing and engine maintenance purposes between 12:01

a.m. to 2:00 p.m. on any day on which the Department forecasts that the air quality will be a code orange, code red, or code purple.

(4) Except for §A(3) of this regulation, the requirements in this regulation do not apply to any engine that operates as a redundant system for power without direct or indirect compensation that is:

(a) located at a nuclear power plant;

(b) located at a health care facility;

(c) located at a facility where operation of the engine is necessary to support critical national activities relating to security, aerospace research, or communications; or

(d) fueled by natural gas or propane.

B. Requirements for Existing Load Shaving Units Constructed on or Before January 1, 2009.

(1) The owner or operator of an existing load shaving unit constructed on or before January 1, 2009 shall:

(a) Install a NO<sub>x</sub> control system to meet an emissions standard of 1.4 grams per brake horsepower or less;

(b) Replace the engine with a new engine that meets federal New Source Performance Standards; or

(c) Limit operation of the load shaving unit to not more than a total of 10 hours during the period May 1 to September 30 of any year.

(2) The 10 hour limit in §B(1)(c) of this regulation is exclusive of the time that the unit operates in response to a PJM Declared Emergency as defined in Regulation .01B(4-4) of this chapter and the time for testing and maintenance.

(3) Upon request and on a case-by-case basis the Department may, for the purpose of engine registration and compliance, treat a group of small engines, under the same or different ownership and performing the same function, as a single entity and establish alternative requirements for the engines.

(4) For engines to be equipped with NOx controls or replaced with a new engine that meets federal standards, compliance shall be achieved by July 1, 2010 or a later date approved by the Department.

C. Requirements for New Load Shaving Units Constructed After January 1, 2009.

(1) Except as provided in §C(2) of this regulation, a load shaving unit constructed after January 1, 2009 shall be equipped with a NOx control system that reduces NOx emissions to meet a NOx emissions rate of not more than 1.4 grams per brake horsepower.

(2) An engine with a capacity of 1,000 horsepower or less constructed after January 1, 2009 that meets applicable federal New Source Performance Standards is exempt from the requirements in §C(1) of this regulation.

D. Record Keeping.

(1) The owner or operator of a load shaving unit with a rated capacity equal to or greater than 200 horsepower shall maintain an operating log that includes the date the unit operated and the total operating time for each day that the unit operated.

(2) The operating log shall be made available to the Department upon request.

E. Alternative Method of Achieving Compliance.

(1) For the period May 1 to September 30 of each year, the owner or operator of an existing load shaving unit constructed on or before January 1, 2009 may achieve compliance by securing NOx allowances as follows:

(a) Secure ozone season allowances for the total ozone season NOx emissions that are discharged after the 10 hour limit.

(b) In accordance with §E(1)(c) of this regulation, to determine the number of allowances to be secured, the total tons, or fraction thereof, of NOx emissions discharged during the ozone season in excess of the 10 hour limit shall be multiplied by three to determine the total number of allowances to be secured.

(c) When compliance is achieved through the use of allowances, an owner or operator shall secure not less than one allowance. Allowance calculations that result in a fraction of an allowance shall be rounded to the next whole allowance. For example, if the owner or operator of an existing load shaving unit discharges an additional seven hundred pounds of NOx emissions, the total of 2,100 pounds (after multiplying the emissions by three) would require two allowances to be secured.

(2) For the period May 1 to September 30 of each year, the owner or operator of a new load shaving unit constructed after January 1, 2009 may achieve compliance by securing NOx allowances as follows:

(a) Secure ozone season allowances for the total ozone season NOx emissions in excess of an emissions rate of 1.4 grams NOx per brake horsepower.

(b) To determine the number of allowances to be secured, the total tons, or fraction thereof, of NO<sub>x</sub> emissions discharged during the ozone season in excess of 1.4 grams NO<sub>x</sub> per brake horsepower shall be multiplied by five to determine the total number of allowances to be secured.

(3) The owner or operator who complies with §E(1) or(2) of this regulation shall secure the allowances by December 31 of each year and submit the allowances to the Department for retirement by February 1 of the following year.

(4) The ozone season NO<sub>x</sub> allowances shall be secured from a source located in the State, if available.

F. Determining a Violation. A load shaving unit required to meet the NO<sub>x</sub> emissions standards or the operational limitations in this regulation may be subject to a penalty for each day the unit operates in violation of the requirements.

<http://www.dsd.state.md.us/elf/documents/26-11-02-10> and 26-11-09

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