

Chapter 148: EMISSIONS FROM SMALLER-SCALE ELECTRIC GENERATING RESOURCES

SUMMARY: This regulation limits emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), and carbon monoxide (CO) from smaller-scale electric generating units.

1. **Applicability.** This regulation applies to all non-mobile generators having a capacity equal to or greater than 50 kilowatts installed on or after January 1, 2005.
2. **Definitions.**
 - A. **Combined heat and power.** “Combined heat and power” or “CHP” means a generator that sequentially produces both electric power and thermal energy from a single source.
 - B. **Emergency.** “Emergency” means for the purpose of this Chapter only, an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, natural disaster. Emergency shall also mean when the imminent threat of a power outage is likely due to failure of the electrical supply or capacity deficiencies result in a deviation of voltage from the electrical supplier to the premises of three percent (3%) above or five percent (5%) below standard voltage.
 - C. **Emergency Generators.** “Emergency generators” means generators used only during emergencies or for maintenance purposes, provided that the maximum annual operating hours, including maintenance, shall not exceed 500 hours per calendar year. Emergency generators shall not be operated in conjunction with any voluntary demand-reduction program or any other interruptible supply arrangement with a utility, other market participant, or system operator. Any engine that is certified under EPA non-road standards is automatically certified under this rule to operate as an emergency generator.
 - D. **Generator.** “Generator” or “electric generating unit” means any equipment that converts primary fuel (including fossil fuels and renewable fuels) into electricity or electricity and thermal energy.
 - E. **Installed.** “Installed” means that time forward from which a generator has been physically placed on a site and is capable of producing electricity.
 - F. **ISO.** “ISO” means the International Organization for Standardization
 - G. **Non-Emergency Generator.** “Non-emergency generator” means any generator that is not defined herein as an emergency generator.
 - H. **Supplier.** “Supplier” means a person or firm that manufactures, assembles, or otherwise supplies generators subject to the requirements of this Chapter.

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3. Exemptions.

- A. A generator with an engine subject to 40 CFR 89, 90, 91 or 92.
- B. A generator subject to new source review requirements pursuant to Title I, Part C or Part D of the CAA and the Maine State Implementation Plan.

4. Low Sulfur Fuel Requirements.

- A. Effective immediately, no person shall cause, allow or permit the operation of any diesel-powered generator subject to this Chapter firing fuel with a sulfur content greater than 500 parts per million.
- B. Beginning on June 1, 2010, no person shall cause, allow or permit the operation of any diesel-powered generator subject to this Chapter firing fuel with a sulfur content greater than 15 parts per million.

5. Emission Standards. A generator’s emissions of nitrogen oxides (NOx), particulate matter (PM) and carbon monoxide (CO) under full load design conditions or at the load conditions specified by the applicable testing methods shall not exceed the following standards. Standards are expressed in pounds per megawatt-hour (lbs/MWh) of electricity output.

- A. Emergency generators. A generator may run up to a maximum of 500 hours per year for maintenance, testing and emergencies. Within that limit of 500 hours per year, a generator may run up to a maximum of 50 hours per year for maintenance and testing. Emergency generators must meet the emission standards set by the EPA for non-road engines (40 CFR Part 89 Control of Emissions of Air Pollution from Nonroad Diesel Engines as published in the Federal Register, Vol. 69, No. 124, pages 38957-39273 on June 29, 2004 or 40 CFR Part 90 Control of Emissions from Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based) as published in the Federal Register, Vol. 67, No. 217, pages 68241-68447 on November 8, 2002) at the time of installation. Any engine that is certified pursuant to 40 CFR Parts 89 or 90 shall be automatically certified to operate as an emergency generator.
- B. Emission standards for non-emergency generators are as follows:

Emission Standards for Non-Emergency Generators

	Nitrogen Oxides	Particulate Matter	Carbon Monoxide
Installed on or after January 1, 2005	4.0 lbs/MWh	0.7 lbs/MWh	10.0 lbs/MWh
Installed on or after January 1, 2009	1.5 lbs/MWh	0.07 lbs/MWh	2.0 lbs/MWh
Installed on or after January 1, 2013	reserved	reserved	reserved

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- C.** Generators that use combined heat and power (CHP) may take credit for the heat recovered from the exhaust of the combustion unit to meet the emission standards in Subsection 5B of this Chapter. Credit shall be at the rate of one MWh for each 3.4 million BTUs of heat recovered. To take credit for CHP, the owner or operator of units not sold and certified as an integrated package by the manufacturer:
- 1). Must provide as part of the application documentation of the heat recovered, electric output, efficiency of the generator alone, efficiency of the generator including CHP, and the use for the non-electric output; and
 - 2) The heat recovered must equal at least 20 percent of the total energy output of the CHP unit and at least 13 percent of the total energy output must be electric. The design efficiency must be at least 55 percent.
- D.** Alternative emission limitation. Generators subject to this Section may apply for an alternative emission limitation on a case-by-case basis upon approval from the Department and EPA.
- E.** The particulate matter standards of this Section shall apply only to a generator with a reciprocating engine using liquid fuel.

6. Generator Certification.

- A.** Any generator subject to Subsection 5B, 5C, or 5D of this Chapter shall be certified by one of the following certifications:
- (1) Certification by the California Air Resources Board pursuant to Title 17, sections 94200 through 94214 of the California Code of Regulations as amended on September 4, 2002 and incorporated by reference herein;
 - (2) Certification from the generator supplier that satisfies the requirements of Subsection 6B and 6C; or
 - (3) Certification by the owner or operator that the generator satisfies the requirements of Subsection 6B and 6C.
- B.** A certification under this Section shall apply to a specific make and model of generator and shall include the certifying entity's statement that such make and model of generator has the ability to operate in compliance with the emission standards of Subsection 5B of this Chapter for the lesser of the first 15,000 hours of operation or three years, when such generator is installed, operated and maintained according to the manufacturer's instructions.
- C.** A generator's compliance with the emission standards of Subsection 5B, 5C, or 5D of this Chapter when installed and operated for the lesser of the first 15,000 hours or three years of operation shall be verified by emission tests performed as follows:

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- (1) Unless specified otherwise in this Chapter, using EPA reference Methods, California Air Resources Board methods EPA has approved, or equivalent test methods approved by the Department and EPA;
 - (2) At ISO full load design conditions unless alternative load conditions are specified by the applicable testing methods;
 - (3) For a generator with a reciprocating engine using liquid-fuel, particulate matter emissions shall be tested using ISO Method 8178 D2; and
 - (4) If the owner or operator of a certified generator modifies such generator from the original design in a manner that will increase emissions, within 180 days of the modification, the owner or operator shall either:
 - (a) Perform a test of the generator's emissions to demonstrate compliance with the emission standards of Subsection 5B this Chapter using a test method approved by the Department and EPA, or
 - (b) For a generator certified by the supplier, obtain from the supplier an amendment of the existing certification or a new certification of compliance for the modified generator.
- D.** Documentation sufficient to demonstrate certification shall include:
- (1) A valid supplier's certificate stating that the subject make and model of generator is capable of compliance as provided in Subsection 6B of this Chapter;
 - (2) A valid and effective Executive Order issued by the California Air Resources Board certifying compliance as required by Subsection 6B of this Chapter; or
 - (3) Written documentation of the owner or operator sufficient to demonstrate compliance with the requirements of this Chapter that may include, but is not limited to:
 - (a) Emissions test data of the subject generator from testing that occurred within the previous twelve months that demonstrates compliance with the applicable emission standards of this Chapter;
 - (b) Emissions test data or other data obtained during the first 15,000 hours of operation or first three years of operation sufficient to demonstrate operation in compliance with the requirements of this Chapter; or
 - (c) Other documentation as approved by the Department and EPA.
- E.** The owner or operator of a generator that is operating in compliance with the emission standards of this Chapter pursuant to a certification shall maintain such a generator as prescribed by the manufacturer.

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- F. The owner or operator of any generator that is certified to operate in compliance with the emissions standards of this Chapter shall display the following statement on the nameplate of the unit or in a conspicuous location attached to the unit with the following text:

“This generator is certified as meeting the emission standards of Chapter 148 of the Maine Department of Environmental Protection regulations when maintained and operated in accordance with the manufacturer’s instructions.”

- G. The owner or operator of a generator that is operating in compliance with the emission standards of this Chapter pursuant to a certification shall comply with all other applicable requirements of this Chapter including, but not limited to, fuel requirements, record keeping and reporting.

7. Registration Requirements.

- A. Prior to operation, the owner or operator of a generator subject to this Chapter shall submit to the Department a registration form, as provided by the Department, which provides at a minimum the following:

- (1) The legal name, address and telephone number of the registrant. If the registrant is a corporation or legal partnership transacting business in Maine, provide the exact name as registered with the Maine Secretary of State;
- (2) Legal name, address and telephone number of the owner of the premises on which the subject activity is to take place;
- (3) Location and address of the premises where the registered activity will be conducted;
- (4) The intended dates of construction and installation;
- (5) Make and model of the generator;
- (6) Fuel type(s) which will be used;
- (7) Maximum rated fuel-firing rate of the generator;
- (8) Maximum design gross power output of the subject generator; and
- (9) Certification test results.

NOTE: Registration of a generator subject to this Chapter does not satisfy the requirements for amending a facility air emission license under Chapter 115 or Chapter 140 of the Department’s regulations.

8. Record Keeping and Reporting.

A. Record Keeping and Reporting. At the premises where the generator is installed, or at such other place as the Department approves in writing, the owner shall maintain the records as described in this Subsection. Emergency generators shall be exempt from Subsections 8A(1) and 8A(2):

- (1) Monthly and annual amounts of fuel(s) consumed. For the purposes of this subparagraph, annual fuel consumption shall be calculated each calendar month by adding (for each fuel) the current calendar month's fuel consumption to those of the previous eleven months;
- (2) Monthly and annual operating hours. For the purpose of this subparagraph, annual operating hours shall be calculated each calendar month by adding the current calendar month's operating hours to those of the previous eleven months;
- (3) With respect to each shipment of liquid fuel (other than liquified petroleum gas), to be used with each engine authorized hereunder, a shipping receipt and certification from the fuel supplier of the type of fuel delivered, the percentage of sulfur in such fuel (by weight), and the method used by the fuel supplier to determine the sulfur content of such fuel; and
- (4) Date, duration and type of emergency during which an emergency generator is operated. Owner shall record the date and type of emergency, the hours of operation of the emergency generator, and the amount and type of fuel consumed by the generator. Owner must certify that non-maintenance run hours occurred only during emergencies. Maintenance hours must be separately accounted for. Owner shall record operations when they occur.

B. Availability of records. Unless the Department provides otherwise in writing, the owner shall maintain each record required by this Section for a minimum of five years after the date such record is made. An owner shall promptly provide any such record, or copy thereof, to the Department upon request.

AUTHORITY: 38 M.R.S.A., Section 585, 585-A

EFFECTIVE DATE:

BASIS STATEMENT

Chapter 148 establishes emission limits on new stationary generators of 50kW capacity and larger. Diesel generators, the most common type of distributed generation emit relatively high levels of nitrogen oxides, carbon monoxide, particulate matter and sulfur. Nitrogen oxides are a family of compounds that contributes to both air and water pollution. One of the principal precursors of tropospheric ozone, or smog, nitrogen oxides are also responsible for other

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environmental impacts such as acid rain, fine particulate pollution, eutrophication and regional haze. Carbon monoxide and particulate matter are criteria pollutants of environmental and health effects, and sulfur emissions are the principal cause of regional haze in the eastern United States.

This rule establishes minimum control requirements for emergency and non-emergency generators, and also establishes phased-in fuel sulfur limits.

In addition to the Basis Statement above, the Department has filed with the Secretary of State response to representative comments received during the comment period.