

The Regulations of Connecticut State Agencies are amended by adding section 22a-174-3d, as follows:

(NEW)

Section 22a-174-3d. Permit-by-Rule for Combined Heat-and-Power Systems.

(a) **Definitions.** For the purposes of this section, the following definitions apply:

- (1) “Actual system efficiency” means, for a CHP system, the sum of the actual thermal output and actual electrical output divided by the actual heat input;
- (2) “Annual capacity factor” means the ratio between the actual heat input to a CHP system from an individual fuel or combination of fuels during a period of 12 consecutive calendar months to the potential heat input to the CHP system from all fuels had the unit been operated at 8,760 hours/year at the maximum rated design capacity;
- (3) “Combined heat-and-power system” or “CHP system” means a generation unit that simultaneously produces both electric power and thermal energy from a single source and that has a design system efficiency equal to or greater than 55%;
- (4) “Design system efficiency” means, for a CHP system, the sum of the full load design thermal output and electric output divided by the heat input;
- (5) “Hazardous air pollutant” means, notwithstanding the definition in section 22a-174-1 of the Regulations of Connecticut State Agencies, any air pollutant listed in Section 112(b) of the Act, excluding hydrogen sulfide and caprolactum;
- (6) “Nameplate capacity” means “nameplate capacity” as defined in 40 CFR 60.24(h)(8);
- (7) “Nearby” means, for a building, situated at a distance from the source less than or equal to five times the lesser of the building height or building width;
- (8) “Tune-up” means to perform maintenance and adjust equipment to a proper or required operating condition; and
- (9) “12-month rolling aggregate” means the sum of the total fuel use, actual emissions, coating use, solvent use or actual operating time calculated for each month by adding the current month’s fuel use, actual emissions, coating use, solvent use or actual operating time to those of the previous eleven months.

(b) **Applicability.**

(1) An owner or operator may construct and operate a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

- (A) The CHP system has potential emissions of fifteen (15) tons or more per year of any individual air pollutant;

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- (B) The CHP system is not a new major stationary source or major modification of an existing source;
 - (C) The CHP system is not a newly constructed or reconstructed major source of hazardous air pollutants subject to the requirements of section 22a-174-3a(m) of the Regulations of Connecticut State Agencies; and
 - (D) The owner or operator complies with all applicable provisions of this section.
- (2) An owner or operator may modify a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:
- (A) The modification of the CHP system increases or decreases potential emissions of any individual air pollutant;
 - (B) At the time of modification, the CHP system is not authorized to operate pursuant to an individual permit issued pursuant to section 22a-174-3a or former section 22a-174-3 of the Regulations of Connecticut State Agencies;
 - (C) The modification is not a major modification to an existing major stationary source; and
 - (D) The owner or operator complies with all applicable provisions of this section.
- (3) An owner or operator may only operate a CHP system pursuant to this section if construction of the CHP commences on or after October 1, 2011.
- (c) Emissions limits and other requirements.**
- (1) The maximum generator nameplate capacity and the actual gross electrical output for any CHP system shall be, at all times, less than 10 MW.
 - (2) The aggregate of the maximum generator nameplate capacity for the CHP system and the maximum generator nameplate capacity or actual gross electrical output, whichever is greater, for every other electricity generating unit located at the same facility shall, at all times, be less than 10 MW.
 - (3) Except during periods of startup, shutdown, malfunction, and, as allowed by the commissioner during performance testing, the actual system efficiency of any CHP system operated pursuant to this section shall be no less than 55%.
 - (4) The owner or operator of a CHP system shall use only the following fuels in the specified generation unit:
 - (A) Natural gas shall be the primary fuel combusted by a combustion turbine and the only fuel combusted by an internal combustion engine, and

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- (B) Distillate fuel oil may be combusted as an auxiliary fuel by a combustion turbine, as follows:
- (i) Distillate fuel oil combusted shall contain less than 0.0015% sulfur, by weight, and
 - (ii) The annual capacity factor for all distillate fuel oil combusted in a combustion turbine shall not exceed 10% on a heat input basis.
- (5) The height of any stack associated with the CHP system shall be no less than 10 meters and shall be at least as high as the lesser of:
- (A) The maximum nearby building width; or
 - (B) The nearby building height multiplied by a factor of 1.3.
- (6) If a combustion turbine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits of Table 3d-1, except during periods of startup, shutdown or malfunction.
- (7) If an internal combustion engine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits of Table 3d-2, except during periods of startup, shutdown or malfunction.
- (8) The averaging times of Tables 3d-1 and 3d-2 apply only to pollutants monitored by CEM.
- (9) The emission limits for NO_x, CO and ammonia of Table 3d-1 are corrected to 15% oxygen.

Table 3d-1. CHP combustion turbine emissions limits.

Pollutant	Limit while Firing Natural Gas	Limit while Firing Distillate Fuel	Averaging Time
NO _x	2.5 ppmvd	9.6 ppmvd	24-hour rolling
CO	10 ppmvd	10 ppmvd	1-hour block
PM-10/2.5	2 lbs/hr	3 lbs/hr	1-hour block
Ammonia	5.0 ppmvd	5.0 ppmvd	24-hour rolling

Table 3d-2. CHP internal combustion engine emissions limits.

Pollutant	Emission limit lbs/MMBtu	Averaging Time
NO _x	0.08	24-hour rolling
CO	0.17	1-hour block
PM-10/2.5	0.02	1-hour block

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(10) An owner or operator shall operate a CHP system in compliance with the applicable emissions limits of Table 3d-1 or Table 3d-2 of this section beginning, for a CHP system for which construction commences prior to the effective date of this section, no later than 180 days after the effective date of this section, or, for a CHP system for which construction commences on or after the effective date of this section, no later than the earlier of 60 days after achieving the maximum production rate or 180 days after initial startup.

(11) An owner or operator shall determine compliance with the applicable emissions limits of Table 3d-1 or Table 3d-2 of this section through performance testing or continuous monitoring as specified in subsections (e) and (f) of this section.

(12) Annual emissions limitations. An owner or operator of a CHP system:

- (A) With a combustion turbine shall not allow the emissions of NO_x, CO, PM₁₀, PM_{2.5} or ammonia to exceed 15 tons per pollutant in any 12-month rolling aggregate;
- (B) With an internal combustion engine shall not allow the emissions of NO_x, CO, PM₁₀ or PM_{2.5} to exceed 15 tons per pollutant in any 12-month rolling aggregate; and
- (C) Shall not allow the aggregate emissions of hazardous air pollutants to exceed 3 tons in any 12-month rolling aggregate.

(d) Operating practices.

(1) The owner or operator of a CHP system shall perform a tune-up of the combustion unit at least once per calendar year and in accordance with the manufacturer's written specifications.

(2) The owner or operator of a CHP system shall operate air pollution control equipment at all times that the system is in operation and maintain such control equipment according to the manufacturer's written recommendations.

(3) In the event of a malfunction of air pollution control equipment that cannot be corrected within one hour of the discovery of the malfunction, the owner or operator shall immediately shutdown the CHP system.

(4) To minimize emissions during periods of startup and shutdown, the owner operator shall:

- (A) If ammonia injection is used, commence ammonia injection as soon as the minimum catalyst temperature is reached;
- (B) Not bypass the oxidation catalyst;
- (C) Limit the duration of startup to 60 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations; and

- (D) Limit the duration of shutdown to 30 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations.

(e) Performance testing.

(1) The owner or operator of a CHP system shall conduct an initial performance test to determine compliance with the applicable emissions limits of this section. For a CHP system for which construction commences prior to the effective date of this section, the owner or operator shall conduct an initial performance test no later than 180 days after the effective date of this section. For a CHP system for which construction commences on or after the effective date of this section, the owner or operator shall conduct an initial performance test no later than the earlier of 60 days after achieving the maximum production rate or 180 days after initial startup. A performance test conducted in accordance with the applicable provisions of 40 CFR Part 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the initial performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection.

(2) Following the initial performance test, the owner or operator of the CHP system shall conduct subsequent performance testing at least once every 60 months. Performance tests subsequent to the initial performance test shall be conducted to determine compliance with the limits of this section for each pollutant that the owner or operator does not monitor using continuous emissions monitoring. A performance test conducted in accordance with the applicable provisions of 40 CFR Part 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the subsequent performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection.

(3) Unless otherwise specified in this subdivision, all performance testing shall be conducted in accordance with the Department's Source Emissions Monitoring Test Guidelines, section 22a-174-5 of the Regulations of Connecticut State Agencies and the following:

- (A) Ammonia testing shall be conducted in accordance with EPA Conditional Test Method (CTM) 027 or an equivalent method approved by the Commissioner;
- (B) PM-10/2.5 testing shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 201A or an equivalent method approved by the Commissioner; and
- (C) Any test conducted under this section shall be completed within 24 hours of initiation unless completion in such time would endanger public health or safety.

(f) Monitoring.

(1) An owner or operator of a CHP system shall demonstrate compliance for each pollutant to which an emission limit applies in Table 3d-1 or 3d-2 using continuous emission monitoring or continuous parameter monitoring. If continuous emissions monitoring is used to determine compliance with the emissions limitations of this section, the owner or operator of a CHP system shall meet the requirements of section 22a-174-4 of the Regulations of Connecticut State Agencies. If continuous parameter monitoring is used, the owner or operator shall monitor

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appropriate parameters to verify the proper operation of the emission controls. The range for such parameters shall be determined during the initial performance test required pursuant to subsection (e)(1).

(2) The owner or operator of a CHP system shall monitor the gross hourly electrical output and gross hourly thermal output from the CHP system.

(3) An owner or operator shall prepare a written monitoring plan to address monitoring of emissions, CHP operating parameters and air pollution control equipment operating parameters. The plan shall be prepared no later than 30 days following the completion of the initial performance test required by this section. The monitoring plan shall include the following information, as may be applicable to the CHP system and chosen method of determining compliance with the requirements of this section:

- (A) A description of how all pollutants and parameters will be monitored to demonstrate compliance with the emissions limits in Tables 3d-1 and 3d-2, as applicable, of this section;
- (B) A description of the means by which emissions during startup, shutdown and malfunction will be determined;
- (C) An identification of the parameters to be monitored. For CHP systems that use selective catalytic or non-catalytic reduction to meet the NO_x limits of this section, monitored parameters shall include the hourly ammonia injection rate. For CHP systems that use low-NO_x burner technology, monitored parameters shall include the operating characteristics specified by the burner manufacture to indicate the unit is operating in low-NO_x mode;
- (D) A specification of the range or designated condition of the parameters, or a description of the process by which such range or designated condition will be established;
- (E) An explanation of the process used to ensure that the data obtained is representative of the emissions or parameters being monitored using such considerations as detector location or the installation specification;
- (F) A description of the quality assurance and control practices to ensure the continuing validity of the data; and
- (G) A description of the frequency of monitoring and the data collection procedures that the owner or operator will use.

(4) A monitoring plan established to satisfy requirements of 40 CFR 60, 61 or 63 applicable to the CHP system may be used to satisfy the monitoring plan requirements of this section provided that the plan is supplemented to address all the requirements of this section.

(5) The owner or operator shall maintain the monitoring plan at the facility where the CHP system is located and make the plan available to the commissioner upon request. The owner or operator shall update the monitoring plan on an annual basis.

(g) Record keeping.

(1) The owner or operator of a CHP system shall maintain records of the information specified in this subsection. All records made to determine compliance with the requirements of this section shall be:

- (A) Made available to the commissioner to inspect and copy upon request; and
- (B) Maintained for five (5) years from the date such record is created.

(2) The owner or operator of a CHP system shall record:

- (A) The fuel type and quantity used, in gallons or cubic feet for each month and each 12-month rolling aggregate;
- (B) The hours of operation for all fuels fired for each month and each 12-month rolling aggregate;
- (C) The gross hourly electrical output and gross hourly thermal output from the CHP system;
- (D) Results of all continuous monitoring conducted pursuant to this section;
- (E) The test reports and supporting calculations documenting the results of the initial and all subsequent performance tests conducted to determine compliance with the emission limits specified in this section;
- (F) The monthly and 12-month rolling aggregate emissions of PM-10, PM-2.5, NO_x, CO and ammonia, as applicable, in units of tons and including emissions during startup, shutdown and malfunctions. Such records shall include a sample calculation for each pollutant. The owner or operator shall record each month's emissions data within 30 days of the end of the month for which the data is recorded;
- (G) If distillate fuel is used, the sulfur content for each fuel shipment received;
- (H) The air pollution control equipment design specifications including:
 - (i) Type(s) of control equipment,
 - (ii) Make and model number,
 - (iii) Pollutants controlled, and

- (iv) Catalyst type;
- (I) Inspections and tune-ups of the CHP system or air pollution control equipment including:
 - (i) The date performed,
 - (ii) The name of person performing tune-up and/or inspection,
 - (iii) The procedures followed, and
 - (iv) The results and any corrective actions taken;
- (J) The occurrence and duration of any startup, shutdown, or malfunction in the operation of the CHP system and any malfunction of the air pollution control equipment including:
 - (i) The type of event (startup, shutdown or malfunction),
 - (ii) The equipment affected,
 - (iii) The date of event,
 - (iv) The duration of event in minutes,
 - (v) The fuel used during event, and
 - (vi) The total NO_x and CO emissions emitted (lbs) during the event using either uncontrolled emission rates or manufacturer supplied data; and
- (K) The actual CHP system efficiency on a monthly and 12-month rolling basis. Such records shall include a sample calculation. The owner or operator shall record each month's actual system efficiency data within 30 days of the end of the month for which the data is recorded.

(h) Reporting.

- (1) Any person intending to operate a CHP system pursuant to this subsection shall submit a notification to the commissioner no later than 30 days after the beginning of actual construction or no later than 30 days after the effective date of this section, whichever is later.
- (2) Not more than 60 days after the completion of a performance test conducted pursuant to this section, the owner or operator shall submit a complete performance test report detailing the operating parameters and emissions results of that performance test.
- (3) The owner or operator of any CHP system operating pursuant to this subsection shall, upon request by the commissioner, submit information regarding air pollutant emissions from the CHP system and any other stationary sources located on the premises.

(4) The owner or operator of a CHP system operating pursuant to this subsection shall submit a notification to the commissioner within 15 days of any violation of a requirement in this section.

(5) The owner or operator shall notify the commissioner within (30) days after removing a CHP system for which a notification of operation was submitted pursuant to this subdivision or rendering non-operational a CHP system for which a notification of operation was submitted pursuant to this subdivision.

(6) By March 1 of each year, an owner or operator shall submit an annual report of actual emissions, operating hours and malfunctions of air pollution control equipment or monitoring equipment over the preceding 12-month period.

(7) Any report required to be submitted to the commissioner by this section shall include a certification signed in accordance with section 22a-174-2a(a)(4) of the Regulations of Connecticut State Agencies.

(8) The CHP system owner or operator shall submit all reports and notifications required by this subsection on forms furnished or prescribed by the commissioner.

(9) Any document required to be submitted to the commissioner pursuant to this section shall, unless otherwise specified in writing by the commissioner, be directed to: Supervisor; Compliance Assurance and Coordination Unit; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

(i) Application for an individual permit.

(1) Nothing in this section shall preclude the commissioner from requiring an owner or operator to obtain an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies.

(2) Nothing in this section shall preclude an owner or operator from applying for an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies, if applicable.