

New Section to Allow Provisions for Credits for Concurrent Emissions Reductions

New Definitions:

“*Combined heat and power*” means a generator that sequentially produces both electric power and thermal energy from a single source, where the thermal energy is wholly or partly used for either industrial processes or other heating or cooling purposes. In this regulation, CHP will be used to denote combined heat and power.

“*Design system efficiency*” means for CHP, the sum of the full load design thermal output and electric output divided by the heat input.

“*Power to heat ratio*” means for a CHP unit, the design electrical output divided by the design recovered thermal output in consistent units.

New Section:

8.0 Credit for Concurrent Emissions Reductions.

8.1 Flared Fuels. If a generator uses fuel that would otherwise be flared (*i.e.*, not used for generation or other energy related purpose), the emissions that were or would have been produced through the flaring can be deducted from the actual emissions of the generator, for the purposes of calculating compliance with the requirements of this regulation. If the actual emissions from flaring can be documented, they may be used as the basis for calculating the credit, subject to the approval of the Department. If the actual emissions from flaring cannot be documented, then the following default values shall be used:

Emissions	Waste, Landfill, Digester Gases
Nitrogen Oxides	0.1 lbs/MMBtu
Particulate Matter	N/A
Carbon Monoxide	0.7 lb/MMBtu
Carbon Dioxide	117 lb/MMBtu

8.2 Combined Heat and Power.

8.2.1 CHP installations shall meet the following requirements to be eligible for emissions credits related to thermal output:

8.2.1.1 At least 20% of the fuel’s total recovered energy shall be thermal and at least 13% shall be electric. This corresponds to an allowed power-to-heat ratio range of between 4.0 and 0.15.

8.2.1.2 The design system efficiency shall be at least 55%.

8.2.2 A CHP system that meets these requirements can receive a compliance credit against its actual emissions based on the emissions that would have been created by a conventional separate system used to generate the same thermal output. The credit will be subtracted from the actual generator emissions for purposes of calculating compliance with the limits in sections 3.2 or 3.3. The credit will be calculated according to the following assumptions and procedures:

8.2.2.1 The emission rates for the displaced thermal system (*e.g.*, boiler) will be:

8.2.2.1.1 For CHP installed in new facilities, the emissions limits applicable to new natural gas-fired boilers in Regulation No. 20, New Source Performance Standards, in lb/MMBtu.

8.2.2.1.2 For CHP facilities that replace existing thermal systems for which historic emission rates can be documented, the historic emission rates in lbs/MMBtu but not more than:

Emissions	Maximum Rate
Nitrogen Oxides	0.3 lbs/MMBtu
Particulate Matter	N/A
Carbon Monoxide	0.08 lbs/MMBtu
Carbon Dioxide	117 lbs/MMBtu

8.2.2.2 The emissions rate of the thermal system in lbs/MMBtu will be converted to an output-based rate by dividing by the thermal system efficiency. For new systems the efficiency of the avoided thermal system will be assumed to be 80% for boilers or the design efficiency of other process heat systems. If the design efficiency of the other process heat system cannot be documented, an efficiency of 80% will be assumed. For retrofit systems, the historic efficiency of the displaced thermal system can be used if that efficiency can be documented and if the displaced thermal system is either enforceably shut down and replaced by the CHP system, or if its operation is measurably and enforceably reduced by the operation of the CHP system.

8.2.2.3 The emissions per MMBtu of thermal energy output will be converted to emissions per MWh of thermal energy by multiplying by $3.413 \text{ MMBtu/MWh}_{\text{thermal}}$.

8.2.2.4 The emissions credits in $\text{lbs/MWh}_{\text{thermal}}$, as calculated in 8.2.2.3, will be converted to emissions in $\text{lbs/MWh}_{\text{emissions}}$ by dividing by the CHP system power-to-heat ratio.

8.2.2.5 The credit, as calculated in 8.2.2.4, will be subtracted from the actual emission rate of the CHP unit to produce the emission rate used for compliance purposes.

8.2.2.6 The mathematical calculations set out in subsections 8.2.2.1 through 8.2.2.4 above are expressed in the following formula:

$$\text{Credit lbs/MWh}_{\text{emissions}} = [(\text{boiler limit lbs/MMBtu})/(\text{boiler efficiency})] * [3.413/(\text{power to heat ratio})]$$

8.3 End-Use Efficiency and Non-Emitting Resources. When end-use energy efficiency and conservation measures or electricity generation that does not produce any of the emissions regulated herein are installed and operated contemporaneously at the facility where the generator is installed and operated, then the electricity savings credited to the efficiency and conservation measures or supplied by the non-emitting electricity source shall be added to the electricity supplied by the generator for the purposes of calculating compliance with the requirements of this regulation, subject to the approval of the Department and in accordance with guidelines established by the Department for determining such savings.