Climate Change and Clean Technology Blog

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EPA Issues Final Rule Regulating Emissions From Diesel Powered Stationary Reciprocating Internal Combustion Engines, Affecting Many Industrial Facilities

By Olivier Theard

Introduction

On February 17, 2010, the EPA issued a final rule under the Clean Air Act intended to reduce emissions of toxic pollutants from existing diesel powered stationary reciprocating internal combustion engines (RICE), also known as compression ignition (CI) engines. The new rules are important because they will affect operations at many facilities throughout the country that need to generate electricity for certain applications. RICE engines are typically used in industrial facilities such as power plants, chemical and manufacturing plants to generate electricity for compressors and pumps. The engines can also serve in emergency situations to produce electricity to pump water for flood and fire control. In general, the rules will require installation of pollution control equipment, performance of emissions tests and the burning of ultra-low sulfur fuel. A link to a fact sheet concerning this rule is attached here. This article, in combination with the EPA fact sheet, summarizes the key aspects of the rule.

What Pollutants Are Affected?

The primary chemical affected will be carbon monoxide (CO). EPA has determined that CO is an appropriate surrogate for emissions of other related chemicals from stationary engines. EPA has determined that, by reducing CO emissions, emissions of benzene, ethylbenzene, formaldehyde, styrene, toluene, xylene, PAH, 1-3 butadiene, n-hexane, napthalene, and polycyclic organic matter will also be reduced. Also expected to be reduced are emissions of the following metallic pollutants: cadmium, chromium, lead, manganese, mercury, nickel and selenium. EPA expects that the rules will also lead to a decrease in emissions of particulate matter and SOx, as well as other chemicals.

What Are the Requirements?

The rule addresses emissions from existing stationary CI engines, dividing the requirements into limits for engines at "major sources" and those from "area sources."A "major source" is a stationary source that emits or has the potential to emit any single regulated pollutant at a rate of 10 tons or more per year, or any combination of regulated pollutants at a rate of 25 tons or more per year. All stationary sources that are not "major sources" are considered "area sources." The emissions limits are based on the HP capacity of the engines, as set forth in the charts below. Compliance with these limits requires pollution controls and, for certain engines, the burning of ultra-low sulfur fuel:

Numerical Emission Standards for Existing Stationary CI RICE Located at Major Sources

Subcategory	**Standard, except during periods of startup**
Non-emergency CI, 100≤HP≤300	230 ppmvd CO at 15% O2
Non-emergency CI, 300≤HP≤500	49 ppmvd CO at 15% O2, or 70% CO reduction
Non-emergency CI, >500 HP	23 ppmvd CO at 15% O2, or 70% CO reduction

Numerical Emission Standards for Existing Stationary CI RICE Located at Area Sources

Subcategory	**Standard, except during periods of startup**
Non-emergency CI, 300≤HP≤500	49 ppmvd CO at 15% O2, or 70% CO reduction
Non-emergency CI, >500	23 ppmvd CO at 15% O2, or 70% CO reduction

What About Start-Up?

Start up of equipment, which is defined as the time from initial start until the engine reaches steady state or normal operations, may lead to emissions in excess of the emissions standards. Thus, the rule generally requires start up time not to exceed 30 minutes.

Additional Requirements

In addition to satisfying emissions standards, operators will be required to regularly change the oil and filter on engines, and inspect the air cleaner, hoses and belts within certain specified periods. Facilities will also need to conduct emissions tests at certain intervals to demonstrate compliance.

Significance of the Rule

This rule has a broad impact on operators at most major facilities, especially those where engines are used to generate electricity. Facility operators should be aware of this rule and the potential impacts, including the possible need to replace equipment or add pollution controls to existing equipment in order to comply with the law.

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