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Environmental News

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Green House Gas Emissions

EPA's Mandatory Reporting Rule

On April 10, 2009 EPA released its proposed new rule on mandatory monitoring of green house gas (GHG) emissions. The new reporting requirements would apply to suppliers of fossil fuel and industrial chemicals, manufacturers of motor vehicles and engines, electric generation facilities, and other large direct emitters of greenhouse gases with emissions of 25,000 metric tons or more per year. According to EPA, this threshold is roughly equivalent to the annual GHG emissions from about 4,500 passenger vehicles or 2200 homes.

The proposed rule is not expected to apply to small businesses, or municipal operations such as schools, hospitals, or wastewater treatment plants. It generally should not apply to commercial buildings such as office buildings and retail operations, as they should be well under the reporting threshold. Only the very largest of the direct "downstream" emitters will be captured under this rule.

The rule does not apply to motor vehicles, including bus or trucking companies with large fleets of vehicles. Instead, the "upstream" suppliers of the fuels and the manufacturers of engines will be required to report on those projected emissions. Out of the millions of homes and businesses throughout America, EPA estimates that only 13,000 entities would be required to report. Through its use of the downstream reporting requirement for only the largest of emitters, and upstream reporting for all other emissions, EPA estimates it will capture data on almost 90 percent of total US GHG emissions.

All electric generation facilities that are subject to the Acid Rain Program reporting requirements will be included under this new rule, without regard to the volume of emissions of GHGs. In addition, all landfills that generate 25,000 tons or more of GHGs, even if methane is captured and destroyed, will also be subject to the reporting rule.

The gases covered by the proposed rule are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and other fluorinated gases. Monitoring would begin in

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calendar year 2010, with the first annual report due by March 31, 2011. The rule is intended to collect meaningful and accurate data on GHG emissions to support the development of future climate policies and regulations, like a national cap and trade program, as proposed in the recently released Waxman-Markey bill, the [American Clean Energy and Security Act](#).

According to EPA, the particular gases selected for monitoring were chosen because they are the most abundantly emitted GHGs resulting from human activity (anthropogenic), with CO₂ being by far the largest volume of GHG and the most significant driver of climate change. All the other GHGs to be monitored under the rule in the aggregate have about 40% of the anthropogenic heating effects of CO₂.

WHO IS COVERED?

Sector-Specific Source Categories

EPA has designated a group of energy intensive sectors (“source categories”) such as cement, iron and steel production and petroleum refining to come within the rule. EPA has determined that virtually all of these listed sources emit more than the 25,000-ton threshold. An EPA designated sector specific source must report all of its GHG emissions under the rule regardless of its GHG emission levels. For a list of the covered sectors, go to the Proposed Rule, Subpart A, General Provisions, Section 98.2 (see link at end of this article).

Suppliers and Manufacturers

A second group of designated sources subject to the rule is composed of the “upstream” suppliers of fossil fuels (such as coal, petroleum products, and natural gas) and the manufacturers of motor vehicles or certain types of engines. Suppliers must report the emission potential from their fossil fuels, while manufacturers must report the emission rates from their motor vehicles and other engines. In essence, the “upstream” suppliers and manufacturers must report the estimated GHG emissions that will be generated by their “downstream” product users – most of whom are excluded from the rule. There will, however, be some inevitable “double counting” from this method of reporting.

Large Direct Emitters

EPA’s reporting rule applies generally to all “downstream” direct emitters who emit more than 25,000 metric tons of CO₂e a year. These facilities must self-determine if they are subject to the rule by calculating their emissions potential.

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The methods for calculating emissions are also set forth in the rule, and discussed generally below.

Electric Generating Facilities

All electric generating facilities emitting more than 25,000 metric tons of GHG are subject to the general rule. In addition, *all* electric generating facilities subject to the Acid Rain Program (ARP) *without regard to emission levels*, are also subject to the rule. Since the ARP already requires those in the program to report their CO₂ emissions, EPA has determined that it is not a significant burden to expand their reporting requirements to cover other GHG. These facilities must continue to report CO₂ (and NO_x and SO₂) emissions quarterly, as required by the ARP. But they will *also* have to provide an annual GHG emissions report as required under the new rule, and add methane and nitrous oxide emissions to their existing reporting requirements.

Landfills and Manure Management Systems

Landfills that generate methane in amounts equivalent to 25,000 metric tons of CO₂ annually are subject to the reporting requirements, as are manure management systems that emit methane and nitrous oxide in amounts equivalent to 25,000 metric tons of CO₂ annually. For municipal landfills, the threshold is based on actual *generation*, rather than emissions, because many landfills have installed methane gas collection systems. This will require all landfills of similar size and emissions potential to report their generation data, even if they actually recover the methane and destroy it through flaring or energy production.

Calculating Emissions

For the large direct emitters that fall under the general rule, there are two methods of calculating emissions. One method is for those facilities that meet or exceed the 25,000 ton CO₂e emissions level by aggregating *all combined emissions* from stationary fuel combustion units, miscellaneous uses of carbonate, and all other source categories located at their facility as specified in the rule, such as ethanol, hydrogen, lead or magnesium production, or industrial landfills or wastewater treatment plants. A list of these sources is in the Proposed Rule, Subpart A, General Provisions, Section 98.2 (see link at end of this article).

This group of emitters must assess *all* sources within its facility to determine whether it exceeds the threshold for reporting. EPA's rationale for the total emissions approach for this group is to reach facilities that are comprised of multiple process units or are collocated source categories that individually may not be large emitters, but collectively emit over the threshold level.

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The second method of calculation applies to any facility that does not have a listed source located at its facility, but through its fuel combustion capacity alone it meets or exceeds the 25,000 tons CO₂e emissions level. To make it easier for such a facility to determine whether it falls over the threshold for reporting, EPA provides a two-part test:

- (1) The facility must have an aggregate maximum heat input capacity of all stationary combustion units of 30 million Btu/hr or greater, AND
- (2) The facility must emit over 25,000 tons of CO₂ annually.

If a facility does not have a total of 30 mm Btu/hr capacity, it is exempt from the reporting rule - period. The difference for facilities in this group is that they have no targeted source located at the facility, and therefore are offered a “safe harbor” to assess only the combined stationary fuel combustion capacity of all fuel combustion units. According to EPA’s analysis, a facility that has a maximum rated heat input capacity of less than 30mm Btu/hr, even if operating 24 hours a day, 7 days a week and burning any type of fossil fuel, will not emit more than 25,000 tons of CO₂ in a year. EPA estimates that about 30,000 facilities will have to access their capacity, while only about 13,000 in total will end up over the threshold and have to report.

Reporting Methodologies

In Subparts C through PP of the Rule, EPA provides detailed emissions reporting methodologies that vary depending upon the source category of the facility. For example, Subpart C of the rule applies to “general stationary fuel combustion sources.” These are defined as “devices that combust solid, liquid, or gaseous fuel, generally for the purposes of producing electricity, generating steam, or providing useful heat or energy for industrial, commercial, or institutional use, or reducing the volume of waste by removing combustible matter.” These include boilers, combustion turbines, engines, incinerators, and process heaters. It does *not* include portable equipment or generating units designated in an air permit as emergency generators.

For these facilities, the method of measuring the CO₂ emissions is set forth in a series of tiered equations that vary depending upon the size of the combustion unit (greater or less than 250 mmBtu/hr) and the type of fuel used (solid fossil fuel, gaseous or liquid fossil, wood or other biomass). For example, in the

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simplest (Tier 1) equation, with a combustion unit of less than 250 mmBtu/hr, burning a liquid or gaseous fossil fuel, the emissions rate calculation is based upon the mass or volume of fuel combusted annually (from company records), multiplied by a default high heat value of the fuel as set forth in the rule, and a fuel specific default CO₂ emission factor, also provided in the rule. There are more complex equations if the combustion unit is larger, or if solid fuels or municipal waste fuels, or mixtures of fuels, are burned.

Subpart D sets for the methodology for electricity generating facilities to calculate their emissions, Subpart E covers acid production facilities, Subpart F deals with aluminum production, and so on to Subpart PP (Suppliers of Carbon Dioxide).

According to EPA, to ensure that emissions calculations on a facility-wide basis are not “too burdensome,” a facility need only report on the source categories for which there are methods provided in the rule. Methods are proposed only for source categories that typically contribute a “relatively significant amount” to a facility’s total GHG emissions. For smaller facilities, EPA has proposed a simplified method “where feasible,” such as the mass balance Tier 1 approach for stationary combustion equipment discussed above.

Once In, Always In

Data collection begins on January 1, 2010. The first annual report is due by March 31, 2011 for the 2010 emissions. Vehicle and engine manufacturers begin reporting for model year 2011. Monitoring and annual reporting would continue thereafter on an ongoing basis for the foreseeable future. Once subject to the Rule’s reporting requirements, a facility must continue reporting even if it falls under the threshold reporting requirements in later years. “Once in, always in.” However, EPA is considering adopting a rule similar to California’s where, if a reporter is below the reporting threshold for 3 straight years, it can become exempt from reporting requirements. EPA is seeking comments on this aspect of the rule, among others.

The report must include total annual GHG emissions in metric tons of CO₂e for all source categories and supply categories as proscribed in the Rule. EPA estimates that the aggregate reporting will cover about 85 to 90 percent of U.S. emissions of GHG.

The reports will be submitted electronically, in a format specified by EPA in its final Rule. The reporter must self-certify that the information is truthful, accurate and complete. EPA will review and verify its completeness and

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accuracy. All records and data used to generate the emissions reports must be retained for 5 years, along with other information¹.

The threshold for reporting includes all CO₂ emission listed sources located at a facility. “Facility” is defined to include any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right-of-way and under common ownership or common control, that emits or may emit any green house gas.” Except for landfills, the proposed thresholds are based on actual, rather than potential, emissions. For example, if a facility only operates one shift per day, it does not have to estimate emissions as if it were operating 24/7.

Comment Period Ends June 9th

The proposed rule was published on April 10, 2009 in the *Federal Register*. Links to the rule are:

- [Preamble \(PDF\)](#) (161 pp, 4.1MB)
- [Proposed Rule \(PDF\)](#) (126 pp, 1.6MB)
- [Supporting Documents in the Docket](#)

The proposed rule will be open for public comment until June 9, 2009. More information on the proposed rule can also be found at:

<http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>

¹ The following information must be retained for 5 years: a list of all units, operations, processes and activities for which GHG emissions are calculated; the data used to calculate the GHG emissions, categorized by fuel or material type; documentation of the process used to collect the data for the emissions calculations; the emissions calculations and methods used; all emissions factors used in the calculations; any facility operating or process information used; names and documentation of the key facility personnel involved in the calculations and reporting; the annual GHG emissions reports; a log book documenting any procedural changes to the emissions accounting method or instrumentation; missing data computations; a written QAPP; and any other data required by the particular type of emissions monitoring, such as analytical data results of fuel heat content.

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