

Stationary Fuel Combustion Sources

Subpart C, Greenhouse Gas Reporting Program

OVERVIEW

Subpart C of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.30 – 98.38) applies to any facility that contains one or more stationary fuel combustion sources and meets the Subpart C source category definition. Some subparts have thresholds that determine applicability for reporting, and some do not. To decide whether your facility must report under this subpart, please refer to 40 CFR 98.31 and the GHGRP [Applicability Tool](#).

This Information Sheet is intended to help facilities reporting under Subpart C understand how the source category is defined, what greenhouse gases (GHGs) must be reported, how GHG emissions must be calculated and shared with EPA, and where to find more information.



How is This Source Category Defined?

Stationary fuel combustion sources are devices that combust any solid, liquid, or gaseous fuel generally to:

- Produce electricity, steam, useful heat, or energy for industrial, commercial, or institutional use; or
- Reduce the volume of waste by removing combustible matter.

These devices include, but are not limited to, boilers, combustion turbines, engines, incinerators, and process heaters. The rule excludes flares (unless otherwise required by another subpart), portable equipment, emergency generators, emergency equipment, agricultural irrigation pumps, combustion of hazardous waste (except for co-fired fuels), and pilot lights.

Facilities that contain stationary fuel combustion units, but do not contain a source in any other source category covered by the rule, are not required to submit a report if their aggregate maximum rated heat input capacity from all stationary fuel combustion units is less than 30 million British thermal units per hour (mmBtu/hr).

Electricity generating units that are subject to EPA's Acid Rain Program (40 CFR Part 75) or that report carbon dioxide (CO₂) mass emissions year-round through Part 75 are covered under Subpart D (Electricity Generation) found at 40 CFR Part 98.40 – 98.48.



What GHGs Must Be Reported?

Facilities must report annual CO₂, methane (CH₄), and nitrous oxide (N₂O) emissions from each fuel combustion unit. For each unit, CO₂, CH₄, and N₂O emissions must be reported separately for each type of fuel combusted, including biomass fuels. Emissions are reported to Subpart C using one (or more) of six different configuration types, as follows:

- Configuration Type 1 – A single unit using Tiers 1, 2 or 3 to calculate emissions.
- Configuration Type 2 – A single unit using Tier 4 (i.e., continuous emissions monitoring system (CEMS)) to calculate emissions.

- Configuration Type 3 – A group of units using the aggregation of units reporting alternative with Tiers 1, 2 or 3.
- Configuration Type 4 – A group of units using the common pipe configuration reporting alternative with Tiers 1, 2 or 3.
- Configuration Type 5 – A group of units using Tier 4 (CEMS) to calculate emissions and reporting under the monitored common stack or duct configuration reporting alternative.
- Configuration Type 6 – Part 75 units using the alternative CO₂ mass emissions calculation methods.

Emissions of CO₂ are reported by fuel type for Configurations 1, 3, and 4. For Configurations 2, 5, and 6, only total emissions of CO₂ for the unit (i.e., not by fuel type) are reported. Emissions of CH₄ and N₂O are reported by fuel type for each of the six configurations.

In addition, facilities must also report any CO₂ emissions from sorbent use in air pollution control equipment if those emissions are not monitored by a CEMS. If multiple Greenhouse Gas Reporting Program (GHGRP) source categories are co-located at a facility, the facility may need to report greenhouse gas (GHG) emissions under a different subpart. Please refer to the relevant information sheet for a summary of the rule requirements for any other source categories located at the facility.



How Must GHG Emissions Be Calculated?

The following methodologies can be used to calculate CO₂, CH₄, and N₂O emissions:

Calculating or Measuring CO₂ Emissions from Combustion:

Facilities must calculate or measure CO₂ emissions using one of four methodological tiers (shown below), subject to certain restrictions based on unit size and fuel combusted (see flow chart on page 4). As an alternative to the four tier methodologies, units that report to EPA year-round heat input data under 40 CFR Part 75 can determine annual CO₂ emissions using Part 75 methods. Reporting of CO₂ emissions is required for all fuel types, including those not listed in Table C-1, with the exception of:

- CO₂ is not reported for non-Table C-1 fuels in units that are 250 mmBtu/hr or less.
- CO₂ is not reported for non-Table C-1 fuels in units that are greater than 250 mmBtu/hr when the non-Table C-1 fuel provides less than 10% of the annual heat input to the unit.

Calculating N₂O and CH₄ Emissions from Combustion:

For all fuels listed in Table C-1, reporters must use a Table C-2 emission factor (EF) to determine N₂O and CH₄ emissions. Unlike CO₂ emissions, all reported N₂O and CH₄ values are calculated. The EFs in Table C-2 are multiplied by fuel use, default or measured high heat value (HHV), or heat input depending on the reporting configuration selected by the reporter. Fuels not listed in Table C-1 are not required to report N₂O and CH₄ emissions.

Calculating CO₂ Emissions from Sorbent Use:

When CO₂ emissions from sorbent use are not measured by CEMS, fluidized bed boilers and units equipped with a wet flue gas desulfurization system (WFGS), or sorbent injection will use the calculation procedure provided in the rule to estimate CO₂ emissions from sorbent.

Calculating Biogenic CO₂ Emissions from Biomass Fuel Combustion:

Facilities must estimate CO₂ emissions from the combustion of the biomass fuels listed in the rule. Emissions generally may be estimated using the Tier 1 Calculation Methodology described below. For units that combust fuels that have only a partial biogenic portion, such as municipal solid waste

(MSW), tires, or pre-mixed biomass fuels, the rule provides methods for calculating the biogenic portion of CO₂ emissions.

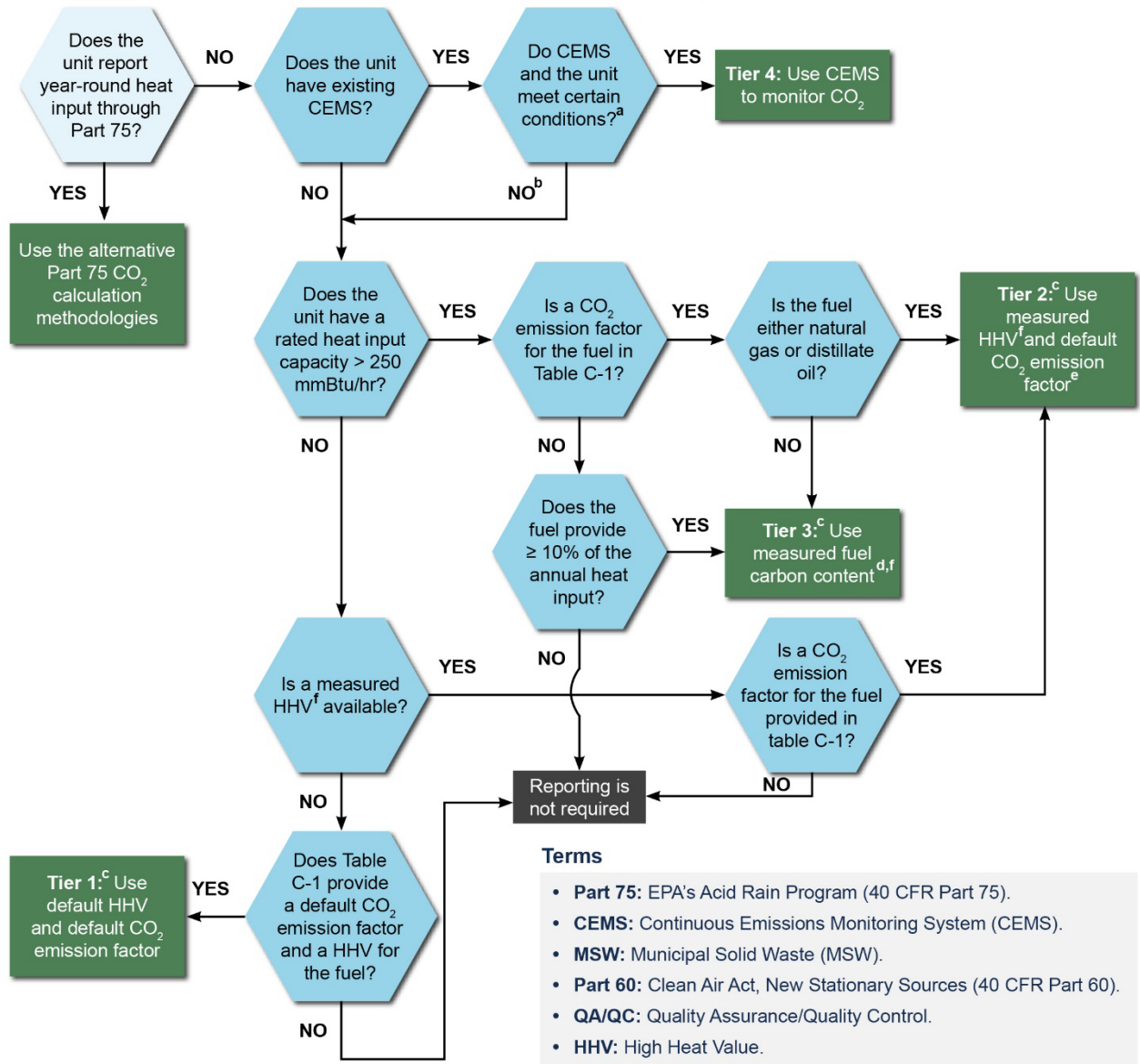
In general, Subpart C reporters determine emissions using one of the following five approaches:

- Tier 1 Calculation Methodology – CO₂, CH₄, and N₂O emissions are calculated with Table C-1/C-2 default EFs and default HHV multiplied by annual fuel use.
- Tier 2 Calculation Methodology – CO₂, CH₄, and N₂O emissions are calculated with Table C-1/C-2 default EFs and measured HHV multiplied by annual fuel use. Units that combust MSW or other solid fuels and generate steam must use steam production (in place of fuel use) and an EF.
- Tier 3 Calculation Methodology – CO₂ emissions are calculated with measured carbon (C) content, annual fuel use, and for gaseous fuels, molecular weight. CH₄ and N₂O emissions are calculated with Table C-2 default EFs and default or measured (optional) HHV.
- Tier 4 Calculation Methodology – CO₂ emissions are measured with CEMS. CH₄ and N₂O emissions are calculated with Table C-2 default EFs and annual heat input to the unit.
- Alternative Part 75 Calculation Methodology – CO₂ emissions are determined using the alternative CO₂ mass emissions calculation methods in Part 75. CH₄ and N₂O emissions are calculated with Table C-2 default EFs and annual heat input to the unit.

Required measurements are determined as follows:

- Annual fuel use can be determined either by use of company records (e.g., billing data, steam generation, unit operating hours) or by direct measurement using flow meters, depending on the size of the unit and the type of fuel burned.
- Depending on the tier calculation method used and the fuel burned, reporters may be required to measure HHV, molecular weight, and/or C content of fuel. The frequency of fuel sampling and analysis varies depending on the type of fuel combusted and may be daily, weekly, monthly, quarterly, semi-annually, or by lot.

Figure 1. General Stationary Fuel Combustion Emissions Calculation Methodologies
40 CFR 98.30 — 98.38, Subpart C



Footnotes

a CEMS conditional requirements:

- Unit capacity: > 250 mmBtu/hr solid fuel or > 600 tons/day MSW.
- Unit combusts solid fossil fuel or MSW as the primary fuel.
- Unit has operated > 1,000 hours/year in any year since 2005.
- Unit has either a Part 60, Part 75, or state-certified gas monitor of any kind or a flow rate monitor (or both).
- The existing CEMS are required by regulation or permit and are also required to undergo periodic QA/QC testing.

OR

- Unit capacity: ≤ 250 mmBtu/hr solid fuel or ≤ 600 tons/day MSW.
- Unit combusts solid fossil fuel or MSW as the primary fuel.
- Unit has operated > 1,000 hours/year in any year since 2005.
- Unit has both a CO₂ monitor and a flow rate monitor.
- The existing CEMS are required by regulation or permit and are also required to undergo periodic QA/QC testing.

b MSW units that do not use CEMS may use Tier 2, using measured annual steam generation in lieu of sampling the fuel HHV, or Tier 1 if steam is not produced by the unit.

c Reporters have the option of using any higher Tier methodology.

d Tier 1 can be used if the fuel provides less than 10% of the annual heat input to the unit.

e For natural gas combustion, Tier 1 can be used if fuel consumption is obtained from billing records in units of therms or mmBtu.

f Either measured by owner/ operator or provided by fuel supplier at the required facility.



What Information Must Be Reported?

In addition to the information required by the General Provisions in Subpart A, found at 40 CFR 98.3(c), the following must be reported:

- Information used to verify reported emissions, including the type of combustion unit, the maximum rated heat input capacity (either for the individual unit or the highest in a group of units), the cumulative maximum rated heat input capacity (either the total for all units measured by a CEMS on a common stack or the total for all units in a common pipe or aggregation group, excluding units less than 10 mmBtu/hr), type of fuel combusted, the tier methodology used, and other information (as applicable for each calculation method used).



What Records Must Be Maintained?

Reporters are required to retain records that pertain to their annual GHGRP report for at least three years after the date the report is submitted. Please see the [Subpart A Information Sheet](#) and 40 CFR 98.3(g) for general recordkeeping requirements. Specific recordkeeping requirements for Subpart C are listed at 40 CFR 98.37.



When and How Must Reports Be Submitted?

Reporters must submit their annual GHGRP reports for the previous calendar year to the EPA by March 31st of each year, unless the 31st is a Saturday, Sunday, or federal holiday, in which case reports are due on the next business day. Annual reports must be submitted electronically using the [electronic Greenhouse Gas Reporting Tool \(e-GGRT\)](#), the GHGRP's online reporting system.

Additional information on setting up user accounts, registering a facility, and submitting annual reports is available on the [GHGRP Help webpage](#).



When Can a Facility Stop Reporting?

A facility may discontinue reporting under several scenarios, which are summarized in Subpart A (found at 40 CFR 98.2(i)) and the [Subpart A Information Sheet](#).



For More Information

For additional information on Subpart C, please visit the [Subpart C webpage](#). For additional information on the GHGRP, please visit the [GHGRP website](#), which includes additional information sheets, [data](#) previously reported to the GHGRP, [training materials](#), and links to Frequently Asked Questions ([FAQs](#)). For questions that cannot be answered through the GHGRP website, please contact us at: GHGreporting@epa.gov.

This Information Sheet is provided solely for informational purposes. It does not replace the need to read and comply with the regulatory text contained in the rule. Rather, it is intended to help reporting facilities and suppliers understand key provisions of the GHGRP. It does not provide legal advice; have a legally binding effect; or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits with regard to any person or entity.