

Hydrogen Production

Subpart P, Greenhouse Gas Reporting Program

OVERVIEW

Subpart P of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.160 – 98.168) applies to any facility that produces hydrogen (H₂) gas and meets the Subpart P 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 98.161 and the GHGRP [Applicability Tool](#).

This Information Sheet is intended to help facilities reporting under Subpart P 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?

The hydrogen (H₂) production source category consists of process units that produce H₂ gas as a product by reforming, gasification, oxidation, reaction, or other transformation of feedstock. This includes process units that produce H₂ and stationary combustion units directly associated with H₂ production (e.g., reforming furnace and H₂ production process unit heater).

This source category excludes any process unit for which emissions are reported under another subpart, and any process unit that only separates out diatomic H₂ from a gaseous mixture and is not associated with a unit that produces H₂ created by transformation of one or more feedstocks.



What GHGs Must Be Reported?

H₂ production facilities must report the following emissions:

- Carbon dioxide (CO₂) process emissions from each H₂ production process unit, including fuel combustion emissions accounted for in the calculation methodologies in 40 CFR Part 98.163.
- CO₂, methane (CH₄), and nitrous oxide (N₂O) emissions from each stationary combustion unit other than H₂ production process units. Calculate and report these emissions under Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR Part 98.30 – 98.38.
- CO₂ collected and transferred off site by following the requirements of Subpart PP (Suppliers of CO₂) found at 40 CFR Part 98.420 – 98.428.

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?

Report CO₂ emissions from H₂ production using one of the following two methods:

Approach 1: Continuous Emissions Monitoring Systems (CEMS)

- Install and operate a CEMS to measure combined process and combustion CO₂ emissions according to the Tier 4 Calculation Methodology specified in Subpart C.

Approach 2: Fuel and Feedstock Material Balance

- Calculate annual CO₂ emissions by measuring the following:
 - Monthly consumption of each (i.e., gaseous, liquid, and solid) fuel and feedstock.
 - Monthly average carbon (C) content of each fuel and feedstock.
 - Molecular weight of each fuel and feedstock.

However, if GHG emissions from a H₂ production process unit using a CEMS that complies with the Tier 4 Calculation Methodology in Subpart C of this Part (General Stationary Fuel Combustion Sources) does not include combustion emissions from the H₂ production unit (i.e., the H₂ production unit has separate stacks for process and combustion emissions), then the calculation methodology in Approach 2 above shall be used considering only fuel inputs to calculate and report CO₂ emissions from fuel combustion related to the H₂ production unit.

A checklist for data that must be monitored is available here: [Subpart P Monitoring Checklist](#).



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 under the circumstances indicated for each H₂ production process unit:

- Quarterly quantity of CO₂ collected and transferred off site in either gas, liquid, or solid forms (kilograms (kg)), following the requirements of Subpart PP and reported at the facility level.
- Annual quantity of C other than CO₂ collected and transferred off site in either gas, liquid, or solid forms (kg C), reported at the facility level.

If a CEMS is used to measure CO₂ emissions, also report under this subpart the relevant information required under Subpart C (General Stationary Fuel Combustion Sources), found at 40 CFR Part 98.30 – 98.38, and the following:

- Unit identification number.
- Estimated decimal fraction of the annual CO₂ emissions (metric tons) for each H₂ production unit.
- Annual quantity of H₂ produced (metric tons) for each process unit.
- Annual quantity of ammonia (NH₃) intentionally produced (metric tons), if applicable, for each process unit.
- Annual quantity of methanol (CH₃OH) intentionally produced (metric tons), if applicable, for each process unit.

If a CEMS is not used to measure CO₂ emissions, also report the following information for each H₂ production process unit:

- Unit identification number.

- Annual CO₂ emissions (metric tons) and the name and annual quantity (metric tons) of each C containing fuel and feedstock.
- Type of H₂ production unit (e.g., steam methane reformer (SMR) only, water electrolysis, brine electrolysis).
- Type of H₂ purification method.
- Annual quantity of H₂ produced by reforming, gasification, oxidation, reaction, or other transformation of feedstocks (metric tons).
- Annual quantity of H₂ that is purified only (metric tons). This quantity may be assumed to be equal to the annual quantity of H₂ in the feedstocks to the H₂ production unit.
- Annual quantity of NH₃ intentionally produced, if applicable (metric tons).
- Quantity of CO₂ collected and transferred off site in either gas, liquid, or solid forms, following the requirements of Subpart PP.
- Annual quantity of C other than CO₂ or CH₃OH collected and transferred off-site or transferred to a separate process unit for which GHG emissions are being reported under other provisions of this part (metric tons).
- Annual quantity of CH₃OH intentionally produced (metric tons), if applicable, for each process unit.
- Annual net quantity of steam consumed by the unit, (metric tons). Include steam purchased or produced outside of the H₂ production unit. If the H₂ production unit is a net producer of steam, enter the annual net quantity of steam consumed by the unit as a negative value.
- An indication if the best available monitoring method (BAMM) was used, in accordance with 40 CFR 98.164(c), to determine fuel flow for each stationary combustion unit directly associated with H₂ production.
 - If BAMM was used, the beginning and the anticipated or actual end date of BAMM usage.



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 P are listed at 40 CFR 98.167.



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, unless the 31st falls on 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 P, please visit the [Subpart P 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.