

# Hydrogen Production



## Final Rule: Mandatory Reporting of Greenhouse Gases

*Under the Greenhouse Gas Reporting Program, owners or operators of facilities that contain hydrogen production processes (as defined below) and that emit 25,000 metric tons or more of GHGs per year (expressed as carbon dioxide equivalents) from hydrogen production processes, stationary combustion, miscellaneous use of carbonates, and other source categories (see information sheet on General Provisions) must report emissions from all source categories located at the facility for which emission calculation methods are defined in the rule. Owners or operators are required to collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.*

### How Is This Source Category Defined?

The hydrogen production source category consists of process units that produce hydrogen by reforming, gasification, oxidation, reaction, or other transformation of feedstock, and that sell the hydrogen as a product. Hydrogen production units that are located within other facilities are included in this source category if they are not owned by or under the direct control of the other facility's owner and operator.

### What GHGs Must Be Reported?

Hydrogen production facilities must report the following GHG emissions:

- Carbon dioxide (CO<sub>2</sub>) emissions from each hydrogen production process unit.
- CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from each stationary combustion unit other than hydrogen production process units. Calculate and report these emissions under 40 CFR 98, subpart C by following the requirements of subpart C.
- CO<sub>2</sub> collected and transferred off site by following the requirements of 40 CFR part 98, subpart PP (Suppliers of Carbon Dioxide).

In addition, each facility must report GHG emissions for other source categories for which calculation methods are provided in the rule. Please refer to the relevant information sheet for a summary of the rule requirements for calculating and reporting emissions from other source categories at the facility.

### How Must GHG Emissions Be Calculated?

Report CO<sub>2</sub> emissions from hydrogen production using one of the following two methods:

- Install and operate a continuous emission monitoring system (CEMS) to measure annual CO<sub>2</sub> emissions according to the Tier 4 calculation methodology specified in 40 CFR part 98, subpart C.
- If not using CEMS to measure CO<sub>2</sub> emissions, then calculate CO<sub>2</sub> emissions by measuring the following for each fuel and feedstock:
  - Feedstocks and fuel consumed each month.
  - Average carbon content of the fuel and feedstock for each month.
  - Molecular weight of the fuel and feedstock for each month.

However, if CO<sub>2</sub> emissions from hydrogen production are vented through the same stack as a combustion unit or process equipment that uses a CEMS to follow Tier 4 methodology to report CO<sub>2</sub> emissions, then the CEMS must be used to measure and report combined CO<sub>2</sub> emissions from that stack instead of the calculation procedure described in approach 2 above.

A checklist for data that must be monitored is available at:

[www.epa.gov/climatechange/emissions/downloads/checklists/hydrogenproduction.pdf](http://www.epa.gov/climatechange/emissions/downloads/checklists/hydrogenproduction.pdf).

## What Information Must Be Reported?

In addition to the information required by the General Provisions at 40 CFR 98.3(c), each hydrogen production facility must report the following information:

- Quantity of CO<sub>2</sub> collected and transferred off site in either gas, liquid, or solid forms (kg), following the requirements of subpart PP of this part and reported at the facility level.
- Annual quantity of carbon other than CO<sub>2</sub> collected and transferred off site in either gas, liquid, or solid forms (kg carbon), reported at the facility level.

If a CEMS is used to measure CO<sub>2</sub> emissions, also report under this subpart the relevant information required under 40 CFR part 98, subpart C and the following information listed below:

- Unit identification number and annual CO<sub>2</sub> emissions (metric tons) for each process unit.
- Annual quantity of hydrogen produced (metric tons) for each process unit and all units combined.
- Annual quantity of ammonia produced (metric tons), if applicable, for each process unit and for all units combined.

If a CEMS is not used to measure CO<sub>2</sub> emissions, also report the following information for each hydrogen production process unit:

- Unit identification number and annual CO<sub>2</sub> emissions (metric tons).
- Monthly consumption of each fuel and feedstock used for hydrogen production and its type (standard square feet of gaseous fuels and feedstocks; gallons of liquid fuels and feedstocks; kilograms of solid fuels and feedstocks).
- Annual quantity of hydrogen produced (metric tons).
- Annual quantity of ammonia produced, if applicable (metric tons).
- Monthly analyses of carbon content for each fuel and feedstock used in hydrogen production.
- Monthly analyses of the molecular weight of each gaseous fuel and feedstock (kg/kg-mole) used.

## For More Information

This document is provided solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person. The series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the final rule.

Visit EPA's Web site ([www.epa.gov/climatechange/emissions/ghgrulemaking.html](http://www.epa.gov/climatechange/emissions/ghgrulemaking.html)) for more information, including the final preamble and rule, additional information sheets on specific industries, the schedule for training sessions, and other documents and tools. For questions that cannot be answered through the Web site, please contact us at: [ghgmrr@epa.gov](mailto:ghgmrr@epa.gov).