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EPA's Greenhouse Gas Reporting Program

The U.S. Environmental Protection Agency's (EPA's) Greenhouse Gas Reporting Program (GHGRP) requires certain facilities to report their emissions of greenhouse gases (GHGs). In addition, the GHGRP requires suppliers of specific products, such as natural gas and petroleum, to report the GHG emissions that would ultimately result from the use of their products. Since 2011, the GHGRP has collected annual emissions data from nearly 8,000 large industrial facilities and other sources in the United States. According to EPA, 85%-90% of annual man-made U.S. GHG emissions have been reported under the program.

GHGRP Authorities and Purpose

The Consolidated Appropriations Act, 2008 (P.L. 110-161) provided \$3.5 million for EPA to develop and publish a rule that would "require mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy of the United States." In the accompanying joint explanatory statement, Congress directed EPA to "use its existing authority under the Clean Air Act" to promulgate this rule, and stated that EPA "shall have discretion to use existing reporting requirements for electric generating units under Section 821 of the Clean Air Act." In its initial 2009 GHGRP rulemaking, EPA also cited Clean Air Act (CAA) Sections 114 and 208 as providing "broad authority to require the information mandated" by the reporting rule.

The GHGRP requires reporting from facilities in nearly all categories of direct emissions sources and from suppliers of certain fuels and industrial GHGs in the United States, but does not impose emissions limits. The broad scope of emissions data collected from these sources allows the agency to assess trends in emissions over time and within industry sectors for use in agency policy and programs. For example, EPA uses the data in evaluating and implementing GHG mitigation policies, including CAA New Source Performance Standards and CAA voluntary GHG reduction programs, among others. EPA states that the GHGRP is one part of the overall U.S. effort to address climate change, alongside other federal and state GHG emissions-related programs. In addition, EPA uses the facility-level GHGRP data to help prepare the agency's annual Inventory of U.S. Greenhouse Gas Emissions and Sinks, which is submitted to the United Nations in accordance with the Framework Convention on Climate Change.

Greenhouse Gas Reporting Regulations

In response to Congress's directive, EPA released a final rule, "Mandatory Reporting of Greenhouse Gases," which went into effect on December 29, 2009. The regulations established in the rule require designated GHG source facilities and specific product suppliers to report annual GHG emissions and follow monitoring, verification, and recordkeeping requirements.

EPA subsequently revised the 2009 rule to add technical requirements and new categories of sources covered by the regulations. For example, in 2010, EPA established two new GHGRP source categories for facilities that inject carbon dioxide (CO₂) into underground formations. In total, EPA has established 46 GHG source categories across a wide range of economic sectors.

Subpart A of the Mandatory Reporting Rule (codified in 40 C.F.R. Part 98) establishes general GHGRP reporting requirements that apply to all covered facilities. In Subparts B-UU, EPA has established separate requirements for most GHG source categories based on the specific characteristics of those sources. Each of these subparts contains a methodology to be used to calculate total annual GHG emissions for that source category, as well as tailored requirements for monitoring, quality assurance, accounting for missing data, recordkeeping, and reporting. For a few source categories, such as motor vehicle manufacturers and motor vehicle engine manufacturers, the 2009 rule added new requirements to existing emissions reporting and monitoring regulations.

Facilities Required to Report

GHGRP regulations generally apply to: (1) direct GHG emissions sources that emit at least 25,000 metric tons of CO₂-equivalent (CO₂e, the amount of CO₂ emissions with the same global warming potential as the number of metric tons of another GHG) per year; (2) fuel and industrial gas suppliers; and (3) facilities with underground CO₂ injection wells. Direct emission sources include stationary fuel combustion facilities and industrial and chemical production facilities. Some facilities are covered regardless of whether they emit 25,000 metric tons of CO₂e or more per year, such as electricity generation facilities; facilities engaged in aluminum production, ammonia manufacturing, and cement production; and some municipal solid waste landfills.

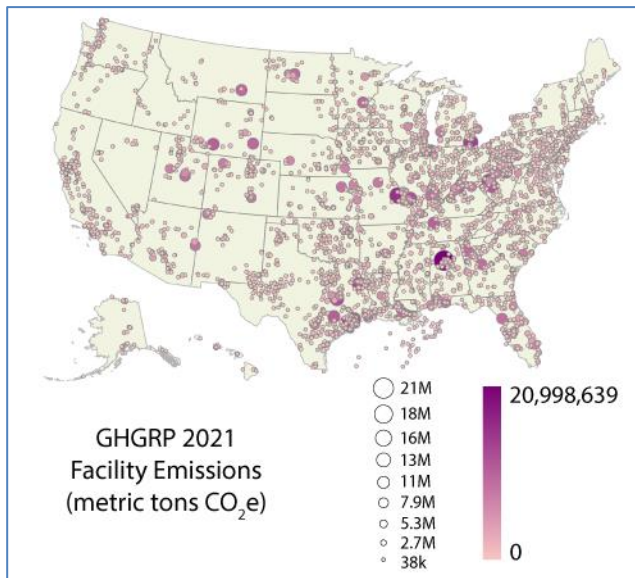
Suppliers covered by the regulations include suppliers of coal and natural gas, suppliers of petroleum products, and suppliers of CO₂ and other industrial GHGs. CO₂ injection facilities include facilities with wells used to inject CO₂ for enhanced oil recovery and for permanent storage through geologic sequestration. Some facilities have multiple GHG sources and source categories and must report emissions for all of these sources.

Emissions Required to be Reported

The GHGRP regulations require facilities to report two types of GHG emissions: (1) combustion emissions resulting from burning fossil fuels or biomass (such as wood or landfill gas); and (2) emissions from industrial processes, such as those that occur as a result of

transformation of raw materials during the production of iron and steel, cement, or petrochemicals. Emissions due to leaks or irregular releases (also known as “fugitive emissions”) are also considered process emissions. Most facilities are required to report total annual facility-level emissions for each source category. Certain suppliers and manufacturers (e.g., motor vehicles and vehicle engine manufacturers) report emissions at a corporate level. See **Figure 1** for GHGRP reporting facility locations and emission amounts.

Figure 1. Location and Total Reported Direct Emissions from GHGRP Facilities (2021)



Source: CRS, adapted from EPA FLIGHT database, accessed March 16, 2023.

Covered facilities must report data on the following GHGs:

- CO₂;
- Methane (CH₄);
- Nitrous oxide (N₂O); and
- Hydrofluorocarbons (HFCs), sulfur hexafluoride (SF₆), perfluorinated compounds (PFCs), and other fluorinated gases.

For 2021 (the most recent data available) 7,608 direct emitters reported emitting 2.7 billion metric tons of CO₂e. Also in 2021, 966 suppliers, 87 CO₂ injection facilities, and 9 facilities injecting CO₂ solely for geologic sequestration reported data to EPA.

Requirements for Calculating Emissions

EPA has established different methodologies for measuring combustion emissions, process emissions, and suppliers of fuels and GHGs. Facility owners and operators are required to use the calculation methodologies in the relevant subpart to determine annual emissions for each source category.

Monitoring and Verification Requirements

The GHGRP regulations include general monitoring requirements for owners and operators and actions EPA

may take to verify the reported emissions. Annual reports to EPA must include a GHG Monitoring Plan containing: (1) the job titles for those responsible for emissions data collection; (2) an explanation of emissions data collection processes; and (3) descriptions of the procedures and methods used for quality assurance, maintenance, and repair of continuous monitoring systems. The regulations provide that EPA may review certification statements and GHG reports, conduct facility audits, and review other “credible evidence” to verify the accuracy and completeness of emissions reporting. EPA also verifies emissions data through automated checks of reports for errors before and after they are submitted.

GHGRP regulations also require that Subpart RR facilities (injecting CO₂ for underground geologic sequestration) have an EPA-approved monitoring, reporting, and verification (MRV) plan.

Reporting and Recordkeeping Requirements

Owners or operators of covered facilities must submit annual reports to EPA on emissions from the prior calendar year. Owners or operators must keep the records for at least three years, including annual GHG reports, the Monitoring Plan, the data used to calculate GHG emissions, the calculations and methods used, test results, and maintenance records for continuous monitoring systems.

Issues for Congress

Congress may consider several policy issues related to GHGRP statutory authority and regulatory oversight. Congress may consider how the application and scope of GHGRP regulations align with EPA’s stated goal of enhanced understanding of GHG emissions in the United States now and in the future. For example, policymakers could consider expanding the scope of sources required to report and/or adjust the emissions reporting threshold for particular sources.

Congress may consider whether EPA resources are adequate and being used efficiently to carry out the GHGRP under the CAA. Some analysts expect that the number of facilities required to report will expand in the future, particularly for CO₂ underground injection facilities. Policymakers may consider the implications of potentially increased data collection and verification responsibilities on EPA capacity and resources.

Congress may also consider how GHGRP data might inform future legislative efforts. EPA has now collected 10 years of data on direct GHG emissions, fuel and GHG suppliers, and industry-specific emissions trends. Policymakers may consider how this information, as well as future GHGRP data, could be used in potential future legislation relating to GHG mitigation or climate change policy.

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