ANNEX 9 Use of EPA Greenhouse Gas Reporting Program in Inventory

This Annex provides background information on the Greenhouse Gas Reporting Program (GHGRP) and its relationship to this *Inventory*. The U.S. Environmental Protection Agency (EPA) tracks U.S. greenhouse gas emissions through two complementary programs: the *Inventory* (estimates in this report), and the GHGRP. The *Inventory* provides a comprehensive accounting of all emissions from source categories that are identified in the *2006 IPCC Guidelines* and that are needed to understand the United States' total net greenhouse gas emissions in line with the Paris Agreement and UNFCCC reporting guidelines, while the GHGRP provides bottom-up detailed information that helps improve understanding of the sources and types of greenhouse gas emissions at individual facilities and suppliers. The GHGRP provides facility-level greenhouse gas data from major industrial sources across the United States; it does not provide full coverage of total annual U.S. greenhouse gas emissions (e.g., the GHGRP excludes emissions from the agricultural, land use, and forestry sectors).

On October 30, 2009, the EPA published a regulation requiring annual reporting of greenhouse gas data from large facilities[152] in the United States. The program implementing the regulation, codified at 40 CFR Part 98, is referred to as EPA's Greenhouse Gas Reporting Program (GHGRP). The GHGRP covers sources or suppliers in 41 industrial categories ("Subparts"[153]), including direct greenhouse gas emitters,[154] fossil fuel suppliers, industrial gas suppliers, and facilities that inject carbon dioxide (CO_2) underground for sequestration or other reasons.[155] In general, the threshold for reporting is 25,000 metric tons or more of CO_2 Eq. per year.[156]

Facilities in most source categories subject to the GHGRP began collecting data in 2010 while additional types of industrial operations began collecting data in 2011. Currently, more than 8,000 facilities and suppliers are required to report their data annually. Facilities calculate their emissions using methodologies that are specified at 40 CFR Part 98, and they report their data to EPA using the electronic Greenhouse Gas Reporting Tool (e-GGRT). Annual reports covering emissions from the prior calendar year are due by March 31st of each year. EPA verifies reported data through a multi-step process to identify potential errors and ensure that data submitted to EPA are accurate, complete, and consistent. All reports submitted to EPA are evaluated by electronic validation and verification checks, including industry-specific checks. If potential errors are identified, EPA will notify the reporter, who can resolve the issue either by providing an acceptable response describing why the flagged issue is not an error or by correcting the flagged issue and resubmitting their annual greenhouse gas report.[157]

The reported data are made available to the public each fall. EPA presents the data collected by its GHGRP in a number of ways, such as through a data publication tool known as the Facility Level Information on GHGs Tool (FLIGHT). FLIGHT allows data to be viewed in several formats including maps, tables, charts and graphs for individual facilities or groups of facilities.[158] More information on EPA's GHGRP can be found at https://www.epa.gov/ghgreporting.

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[152] Annual reporting is at the facility level, except for certain suppliers of fossil fuels and industrial greenhouse gases (i.e., reporting at the corporate level).

[153] See https://www.epa.gov/ghgreporting/resources-subpart-ghg-reporting.

[154] Data reporting by affected facilities includes the reporting of emissions from fuel combustion at that affected facility.

[155] See https://www.epa.gov/ghgreporting/resources-subpart-ghg-reporting and http://ghgdata.epa.gov/ghgp/main.do.

[156] For some industrial categories ("Subparts") under the GHGRP, facilities must report if their combined emissions from stationary fuel combustion and all applicable source categories are above a given threshold (e.g., 25,000 metric tons CO_2 Eq. or more per year or another industry-specific threshold). For other source categories, new facilities must report regardless of their quantity of annual emissions. These categories include, for example, cement production (Subpart H) and aluminum production (Subpart F). However, any facility regardless of threshold can cease reporting if its emissions fall below 25,000 metric tons CO_2 Eq. for five years or below 15,000 metric tons CO_2 Eq for three years, and it informs EPA of its intention to cease reporting and the reason(s) for any reduction in emissions. See 40 CFR 98.2(a), 98.2(i), and Tables A-3, A-4, and A-4 for more information.

[157] See GHGRP Verification Fact Sheet https://www.epa.gov/sites/production/files/2015-07/documents/ghgrp_verification_factsheet.pdf.

[158] See http://ghgdata.epa.gov.

The GHGRP dataset is an important resource for the *Inventory*. EPA uses GHGRP data in a number of categories to improve the national estimates, consistent with IPCC guidance, as summarized in Table A-252 below. Methodologies used in the GHGRP are consistent with methods in *2006 IPCC Guidelines*, in particular "higher tier" methods which include collecting facility or plant-specific measurements. The GHGRP provides not only annual emissions information for reporting facilities and suppliers, but also other annual information, such as activity data and emission factors that can be used to improve and refine national emission estimates and trends over time. GHGRP data also allow EPA to disaggregate national inventory estimates in new ways that can highlight differences across regions and sub-categories of emissions, along with enhancing application of QA/QC procedures and assessment of uncertainties. Consistent with considerations outlined in the *2019 Refinement to the 2006 IPCC Guidelines* and the related *Technical Bulletin 1 on Use of Facility-Specific Data in National Greenhouse Gas Inventories* from the IPCC Task Force on National Greenhouse Gas Inventories (IPCC 2011),[159] EPA has paid particular attention both to ensuring completeness in national coverage of emission estimates over time and to ensuring time-series consistency by recalculating emissions for 1990 to 2010/2011 when incorporating GHGRP data into source category estimates.[160] These issues are discussed further in the chapters where source category emissions estimates use GHGRP data. Source category definitions are also considered in order to ensure completeness when using GHGRP data. For certain source categories in the Industrial Processes and Product Use chapter, EPA has relied on data values that have been calculated by aggregating GHGRP data that are considered confidential business information (CBI) at the facility level. EPA, with industry engagement, has put forth criteria to confirm that a given data aggregation shields underlying CBI from public disclosure. EPA is only publishing data values that meet these aggregation criteria.[161] Specific uses of aggregated facility-level data that are CBI are described in the respective methodological sections in Chapter 4 of the *Inventory*. Beyond the current uses, EPA continues to analyze the GHGRP data on an annual basis to identify other source categories where it could be further integrated in future editions of this report (see the Planned Improvement sections of those specific source categories for details).

[159] IPCC Task Force on National Greenhouse Gas Inventories (TFI) (2011). Technical Bulletin 1: Use of Facility-Specific Data National Greenhouse Gas Inventories. Available at https://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf.

[160] See http://www.ipcc-nggip.iges.or.jp/public/tb/TFI_Technical_Bulletin_1.pdf.

[161] U.S. EPA Greenhouse Gas Reporting Program. Confidential Business Information GHG Reporting. See http://www.epa.gov/ghgreporting/confidential-business-information-ghg-reporting.

Table A-252: Summary of EPA GHGRP Data Use in U.S. Inventory

Inventory Category	GHGRP Industry Subpart	Initial Calendar Year of Reporting under GHGRP	Reporting Threshold[162]	Type of GHGRP Data Use				National Inventory Document (NID) Section with Details on Data Use
				Emissions or Quantity Supplied	Emission Factor (EF)	Activity Data (AD)	QA/QC[163]	
Energy Sector								
Fossil Fuel Combustion: Industrial Sector	C – General Stationary Fuel Combustion Sources	2010	Y	•				Section 3.1 and Box 3-4
Coal Mining: Underground Mines	FF – Underground Coal Mines	2011	Y	•			•	3.4
Petroleum Systems	W – Petroleum and Natural Gas Systems; Y – Petroleum Refineries	2010, 2011	Y, N[a]	•	•	•	•	3.6
Natural Gas Systems	W – Petroleum and Natural Gas Systems	2011	Y		•	•	•	3.7
Waste Incineration	C – General Stationary Fuel Combustion Sources	2010	Y			•		3.3
Industrial Processes and Product Use Sector								
Cement Production	H – Cement Production	2010	N			•	•	4.1
Lime Production	S – Lime Production	2010	N	•				4.2
Glass Production	N – Glass Production	2010	Y			•		4.3
Ammonia Production	G – Ammonia Manufacturing	2010	N	•		•		4.5

[162] Y=25,000 $MTCO_2$ Eq., or industry-specific threshold other than 25,000 $MTCO_2$ Eq.; N = all facilities in industry category must report regardless of annual emissions. Information on industry-specific threshold and implications of the reporting threshold or lack of threshold in estimating national greenhouse gas emissions is discussed in the respective source category methodology sections. However, any facility regardless of threshold can cease reporting if its emissions fall below 25,000 metric tons CO_2 Eq. for five years or below 15,000 metric tons CO_2 Eq for three years, and it informs EPA of its intention to cease reporting and the reason(s) for any reduction in emissions. See 40 CFR 98.2(a), 98.2(i), and Tables A-3, A-4, and A-4 for more information.

[163] Consistent with IPCC good practices, QA/QC using GHGRP may not be appropriate if this is the primary data source for estimating emissions. Depending on use, other data sets may be more appropriate for QA/QC of *Inventory* estimates.

Inventory Category	GHGRP Industry Subpart	Initial Calendar Year of Reporting under GHGRP	Reporting Threshold[162]	Type of GHGRP Data Use				National Inventory Document (NID) Section with Details on Data Use
				Emissions or Quantity Supplied	Emission Factor (EF)	Activity Data (AD)	QA/QC[163]	
Urea Consumption from Non-Agricultural Use	G – Ammonia Manufacturing	2010	N			•		4.6
Nitric Acid Production	V – Nitric Acid Production	2010	N	•	•	•		4.7
Adipic Acid Production	E – Adipic Acid Production	2010	N	•				4.8
Petrochemical Production	X – Petrochemical Production	2010	N	•	•	•		4.13
HCFC-22 Production	O – HCFC-22 Production and HFC-23 Destruction	2010	Y	•				4.14
Production of Fluorochemicals Other Than HCFC-22	L-Fluorinated Gas Production; OO – Suppliers of Industrial Gases	2011	Y	•	•	•	•	4.15
Carbon Dioxide Consumption	PP – Suppliers of Carbon Dioxide	2010	Y	•				4.16
Iron and Steel Production and Metallurgical Coke Production	Q – Iron and Steel Production	2010	Y	•				4.18
Aluminum Production	F – Aluminum Production	2010	N	•				4.20
Magnesium Production and Processing	T – Magnesium Production	2011	Y	•				4.21
Lead Production	R – Lead Production	2010	Y				•	4.22
Electronics Industry	I – Electronics Manufacturing	2011	Y	•	•		•	4.24

Inventory Category	GHGRP Industry Subpart	Initial Calendar Year of Reporting under GHGRP	Reporting Threshold[162]	Type of GHGRP Data Use				National Inventory Document (NID) Section with Details on Data Use
				Emissions or Quantity Supplied	Emission Factor (EF)	Activity Data (AD)	QA/QC[163]	
Substitution of ODS	OO – Suppliers of Industrial Gases; QQ – Imports and Exports of Equipment Pre–charged with Fluorinated GHGs or Containing Fluorinated GHGs in Closed–cell Foams	2010, 2011	N (producers) Y (all others)				•	4.25
Electrical Equipment	DD – Use of Electric Transmission and Distribution Equipment; SS – Manufacture of Electric Transmission and Distribution Equipment	2011	Y	•	•	•		4.26
Waste Sector								
MSW Landfills	HH – Municipal Solid Waste Landfills	2010	Y	•	•		•	7.1
Industrial Landfills	TT – Industrial Waste Landfills	2011	Y				•	7.1
Industrial Wastewater	II – Industrial Wastewater Treatment	2011	Y				•	7.2