



Petroleum and Natural Gas Systems in the Greenhouse Gas Reporting Program Overview

U.S. Environmental Protection Agency
Office of Atmospheric Programs, Climate Change Division

Overview of GHG Reporting Program



- Launched in response to FY 2008 Consolidated Appropriations Act
- Annual reporting of GHGs by 41 source categories
 - 33 types of direct emitters
 - 6 types of suppliers of fuel and industrial GHGs
 - Facilities that inject CO₂ underground for geologic sequestration, enhanced oil recovery, or any other purpose
 - Many source categories have applicability thresholds (i.e. 25,000 metric tons CO₂e / year)
- Most source categories began collecting data in 2010, with first annual reports submitted to EPA in September 2011
 - An additional 12 source categories began collecting data in 2011, with first annual reports submitted to EPA in September 2012
 - We now have 5 years of data for 29 source categories and 4 years of data for 12 source categories
- Facilities use uniform methods prescribed by the EPA to calculate GHG emissions, such as direct measurement, engineering calculations, or emission factors derived from direct measurement
 - In some cases, facilities have a choice of calculation methods for an emission source

Source Categories Covered by GHG Reporting Program



Power	Refining & Petrochem	Other Chemicals	Combustion	Waste	Metals	Minerals	Pulp & Paper	High GWP Gases
<ul style="list-style-type: none"> - Electricity Generation - Electrical Equipment Mfg. - Electrical Equipment Use 	<ul style="list-style-type: none"> - Petroleum Refineries - Petrochem. Production 	<ul style="list-style-type: none"> - Adipic Acid - Ammonia - Hydrogen Production - Nitric Acid - Phosphoric Acid - Titanium Dioxide 	<ul style="list-style-type: none"> - Stationary Combustion 	<ul style="list-style-type: none"> - Industrial Waste Landfills - Industrial Wastewater Treatment - MSW Landfills 	<ul style="list-style-type: none"> - Aluminum - Ferroalloy - Iron & Steel - Lead - Magnesium - Silicon Carbide - Zinc 	<ul style="list-style-type: none"> - Cement - Glass - Lime - Misc. Carbonate Use - Soda Ash 	<ul style="list-style-type: none"> - Pulp & Paper 	<ul style="list-style-type: none"> - Electronics Mfg. - Fluorinated GHG Production - HCFC-22 Prod./HFC-23 Destruction - Pre-Charged Equipment Import/Export - Industrial Gas Suppliers
Petroleum & Natural Gas Systems			Fuel Suppliers			Carbon Capture & Sequestration		Mining
<ul style="list-style-type: none"> - Onshore Production - Offshore Production - Natural Gas Processing - Natural Gas Transmission/Compression - Natural Gas Distribution - Underground Natural Gas Storage - Liquefied Natural Gas Storage - Liquefied Natural Gas Import/Export 			<ul style="list-style-type: none"> - Coal-Based Liquid Fuels Suppliers - Natural Gas and Natural Gas Liquids Suppliers - Petroleum Product Suppliers 			<ul style="list-style-type: none"> - Geologic Sequestration of CO₂ - Injection of CO₂ - CO₂ Suppliers 		<ul style="list-style-type: none"> - Underground Coal Mines
								<p>Direct Emitters Suppliers CO₂ Injection</p>

Data Publication - FLIGHT



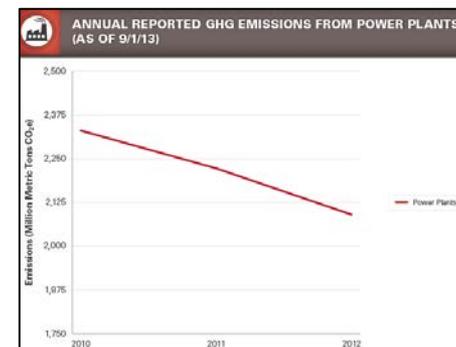
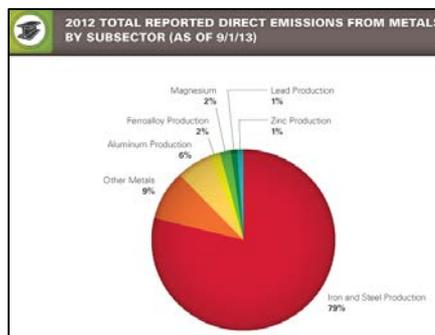
- EPA makes GHGRP data publicly through several websites
- FLIGHT (<http://ghgdata.epa.gov>)
 - Allows stakeholders and the public to access the key data elements quickly and easily



- Envirofacts (<http://www.epa.gov/enviro/facts/ghg/customized.html>)
 - Contains all publicly available data collected by the GHGRP



- Data Highlights (<http://www2.epa.gov/ghgreporting/ghgdata/reported/index.html>)
 - Contains a summary of data in each sector

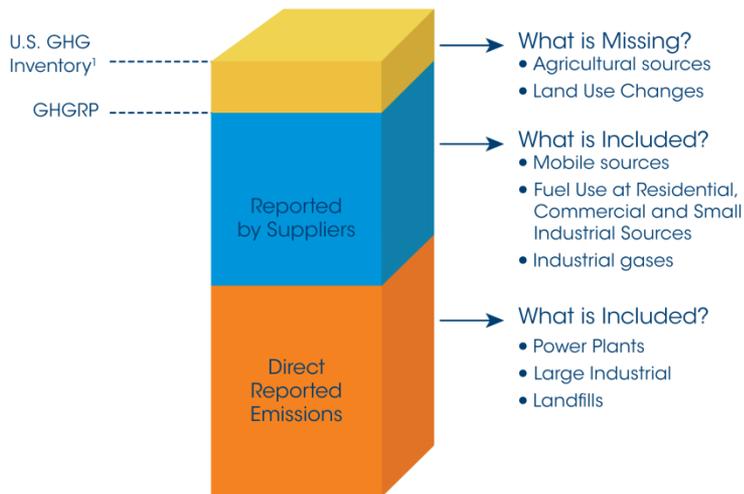


EPA GHG Emissions Data Programs



- Inventory of U.S. Greenhouse Gas Emissions and Sinks (Inventory) tracks total annual U.S. emissions across all sectors of the economy using national-level data
- GHGRP collects detailed emissions data from large greenhouse gas emitting facilities in the United States
 - GHGRP covers most, but not all, U.S. GHG emissions
 - GHGRP does not include agriculture, land use, and small sources

GHGRP Covers the Majority of U.S. GHG Emissions



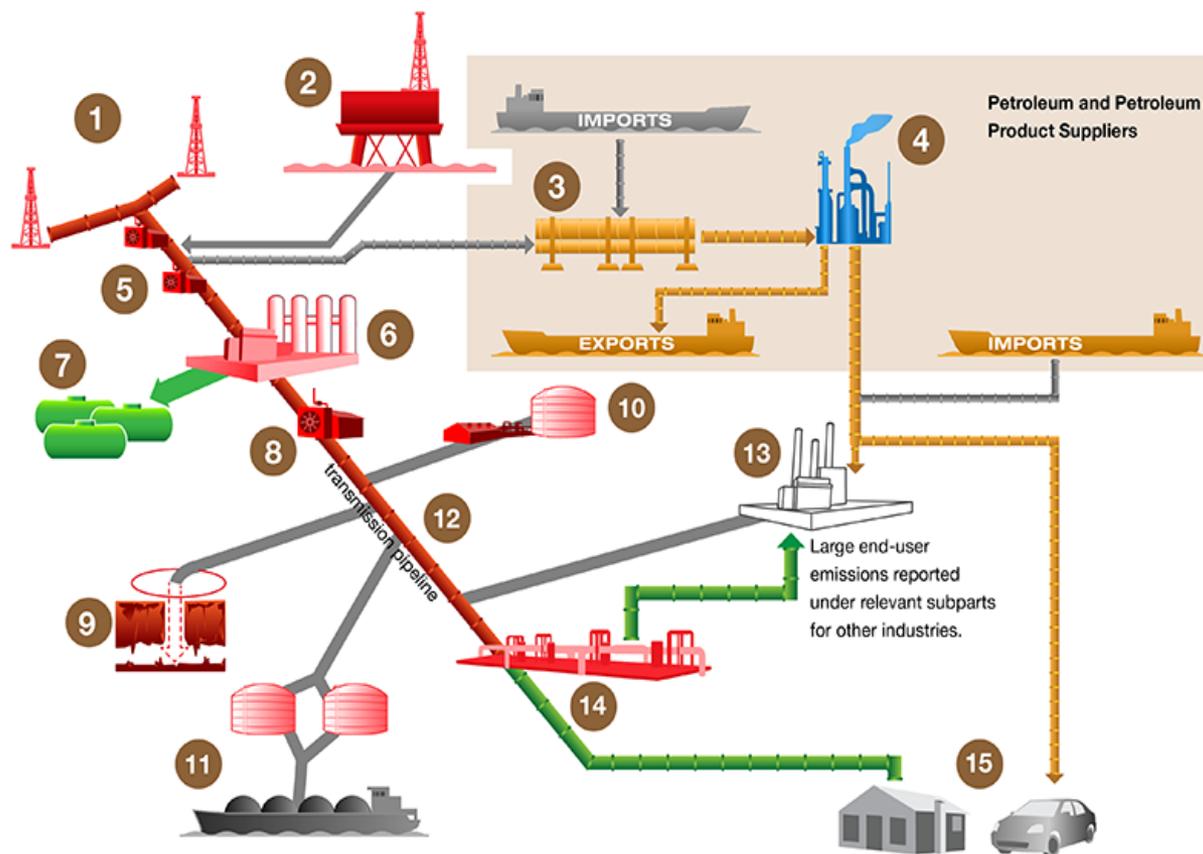
¹ Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2011, April 2013.

Task	Inventory	Greenhouse Gas Reporting Program
Find total U.S. emissions	✓	
Review trend data for the past 20 years	✓	
Browse a map to find largest emitters in your area		✓
Compare facility emissions across an industrial sector		✓
Find <u>reported</u> emissions by state		✓



Overview of GHGRP Petroleum and Natural Gas Systems (Subpart W)

Petroleum and Natural Gas in GHGRP



Production & Processing

1. Onshore Petroleum & Natural Gas Production
2. Offshore Petroleum & Natural Gas Production
3. Total Crude Oil to Refineries
4. Petroleum Refining
5. Gathering and Boosting
*Data collection will begin in RY16
6. Gas Processing Plant
*May contain NGL Fractionation equipment
7. Natural Gas Liquids (NGL) Supply

Natural Gas Transmission & Storage

8. Transmission Compressor Stations
9. Underground Storage
10. Liquefied Natural Gas (LNG) Storage
11. LNG Import-Export Equipment
12. Natural Gas Transmission Pipeline
*Data collection will begin in RY16

Distribution

13. Large End Users
14. Natural Gas Distribution
15. Natural Gas & Petroleum Supply to Small End Users

	Subpart W: Emissions from petroleum & natural gas systems
	Subpart Y: Emissions from petroleum refineries
	Subpart MM: CO ₂ associated with supplies of petroleum products
	Subpart NN: CO ₂ associated with supplies of natural gas & natural gas liquids
	Not reported under GHGRP

Note: Certain petroleum and/or natural gas operations are covered by subparts of the GHGRP other than Subpart W.

Subpart W Methods



- Many emission sources include multiple methods for calculating emissions totals, including:
 - Direct measurement
 - Parameter measurement
 - Engineering calculations
 - Emission factors
 - Leak surveys
 - CEMS
 - Simulation software
- Some methods use a combination of the techniques above.

What's New for 2014?



- In August 2011, EPA deferred the reporting deadline for a number of Subpart W equation inputs until March 31, 2015. The inputs to equations whose reporting deadline was deferred until 2015 are listed in Table A-7 of 40 CFR Part 98 Subpart A.
- In October 2014, EPA finalized the approach to collecting these deferred inputs (79 FR 63750, October 24, 2014).
- As a result, reporters were required to submit both an expanded set of Subpart W data for Reporting Year 2014 and the deferred data elements for Reporting Years 2011, 2012, and 2013 by March 31, 2015.