



Examples of Inventory Use USA Experience

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Outline



- IPCC Guidelines and the Inventory of U.S. Greenhouse Gas Emissions and Sinks
- Facility level Greenhouse Gas Reporting Program
- President Obama's Climate Action Plan
- The Clean Air Act

The Inventory of U.S. GHG Emissions and Sinks

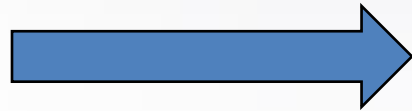


- **U.S. Government annually submits a national U.S. GHG Inventory Report**
 - Official U.S. Government GHG Inventory
 - Meets annual U.S. commitments under the UNFCCC
 - Impartial, policy-neutral (but policy relevant!)
- **Interagency effort led by EPA**
 - Data and input provided by DOE, USDA, DOT, DOD, USGS, the State Department
- **Open for 30 day public review and comment period**
 - Targeted “peer review” for technical audience
 - International peer review through the UNFCCC



GHG Inventories help track emission trends, impact of policies, inform projections, etc. because “Can’t manage what you don’t measure.”

IPCC Guidelines provide the foundation for the U.S. Inventory



2006 IPCC Guidelines

Inventory of U.S. Greenhouse Gas Emissions and Sinks

Aspects of the IPCC Guidelines that shape the U.S. Greenhouse Gas Inventory

- Tiers: different methodological options to suit country-specific circumstances
- Key Category Analysis: A system for prioritizing resources and improving the inventory
- Default emission factors for small source categories
- Methods for quantifying uncertainty
- Common definitions, units, and reporting tables to allow comparisons with other countries
- **Standards for transparency and documentation, which build trust among countries

What are the GHG emission trends?

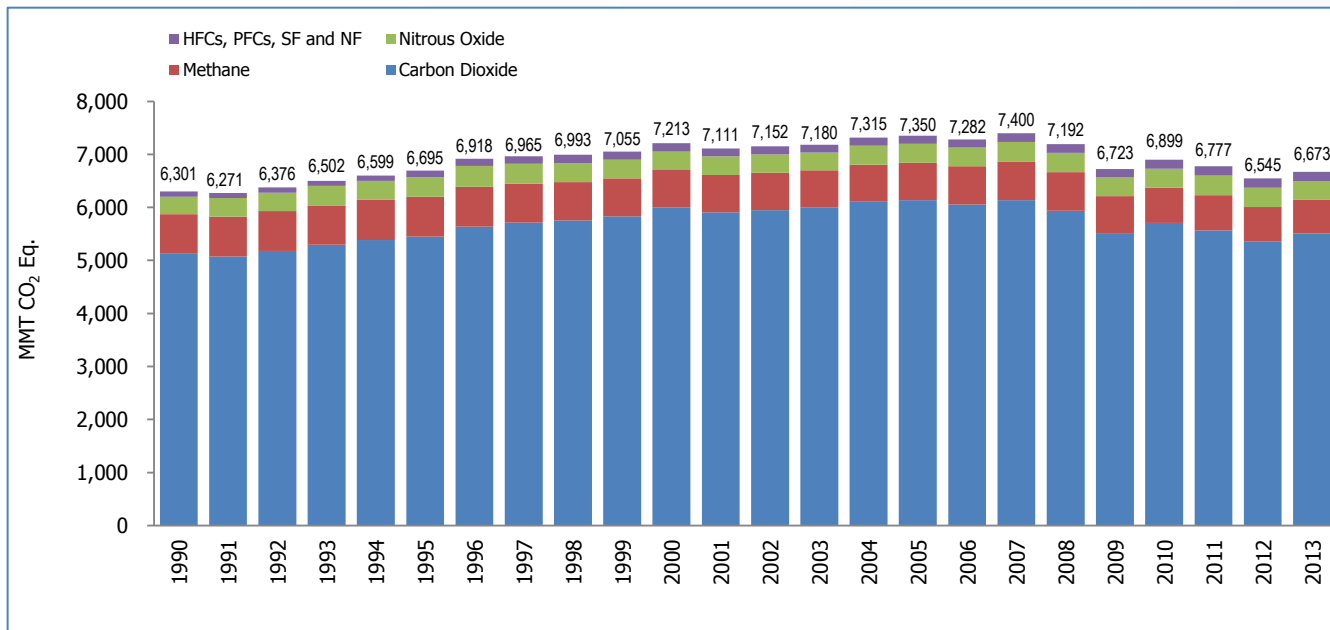


- **US GHG emissions**

- Increased 2% from 2012 to 2013
- Increased 5.9% from 1990 to 2013
- 9.2% below 2005 levels

- **CO₂ emissions from fossil fuel combustion dominate total emissions and trends**

- The major contributor to the increase in overall GHG emissions was the increased combustion of fossil fuels in 2013, compared to 2012
- Increase in all sectors (electricity generation, transportation, industrial, residential and commercial)
 - Intensity for electricity generation due to increased coal use in 2013
 - Increased energy consumption in residential and commercial sectors due to weather



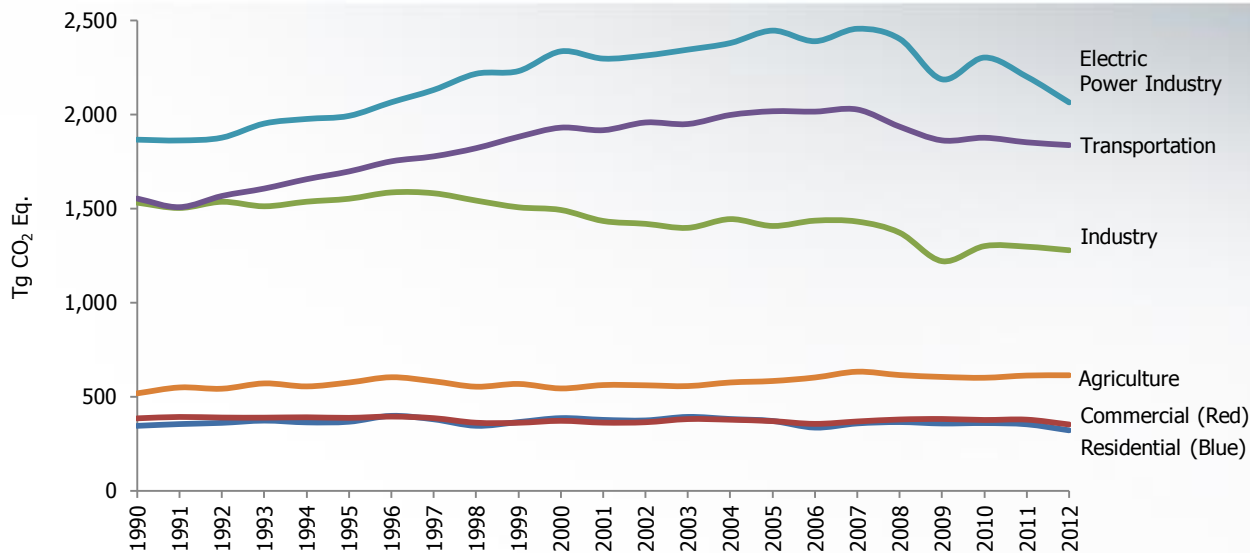
Over the same period:

↑ **GDP has grown by 75%**

↑ **U.S. Population has increased by 26%**

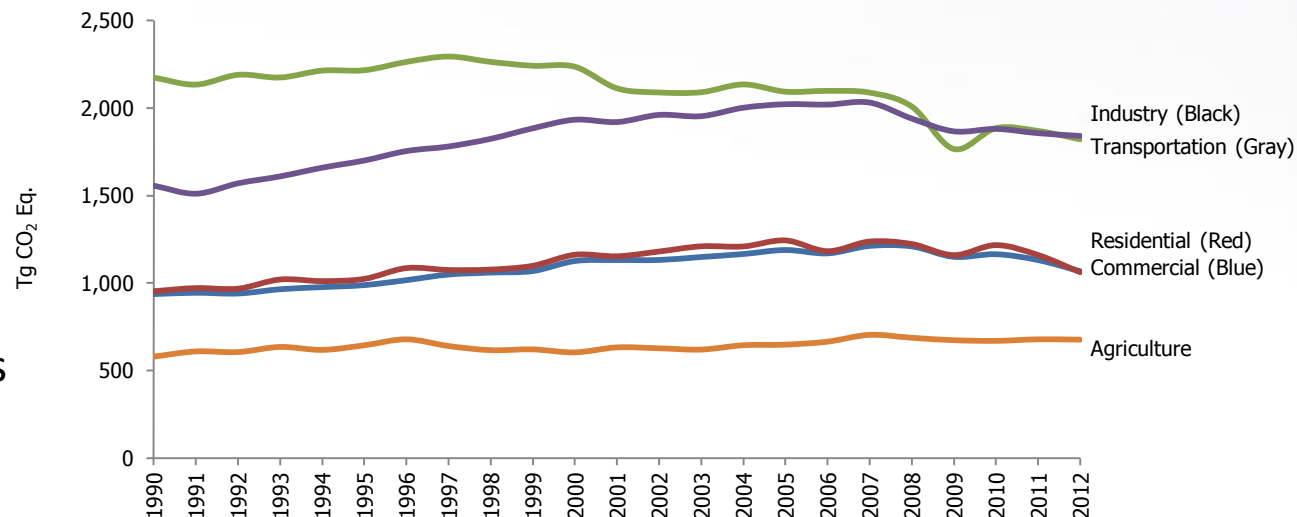
↑ **Energy consumption has increased by 15%**

2014 Inventory by Economic Sector



With electric power industry as a separate sector

With electric power industry emissions allocated to other sectors by electricity use



IPCC Guidelines informed the facility-level Greenhouse Gas Reporting Program (GHGRP)



2006 IPCC Guidelines

Greenhouse Gas Reporting Program (facility-level)

The IPCC Guidelines helped to shape the regulatory Greenhouse Gas Reporting Program (2009)

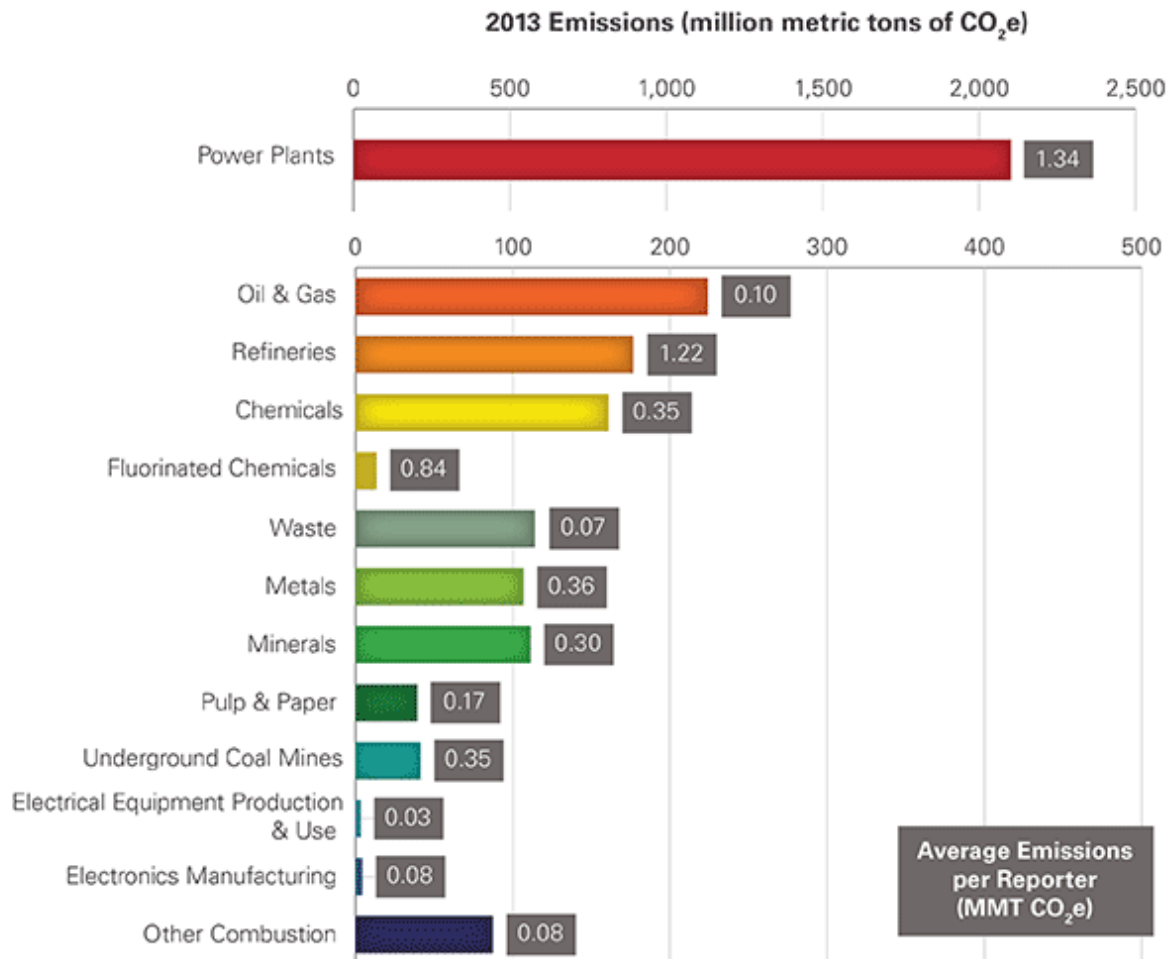
- Identification of advanced tier 2 and tier 3 methodologies
- Classification of anthropogenic sources
- Definitions, measurement units, classification of sources
- *“EPA systematically reviewed the list of source categories developed from the U.S. GHG Inventory and the IPCC guidance to ensure the inclusion of those that emit the most significant amounts of GHG emissions while minimizing the number of reporters.” **

**ENVIRONMENTAL PROTECTION AGENCY, [EPA-HQ-OAR-2008-0508; FRL-8963-5]*

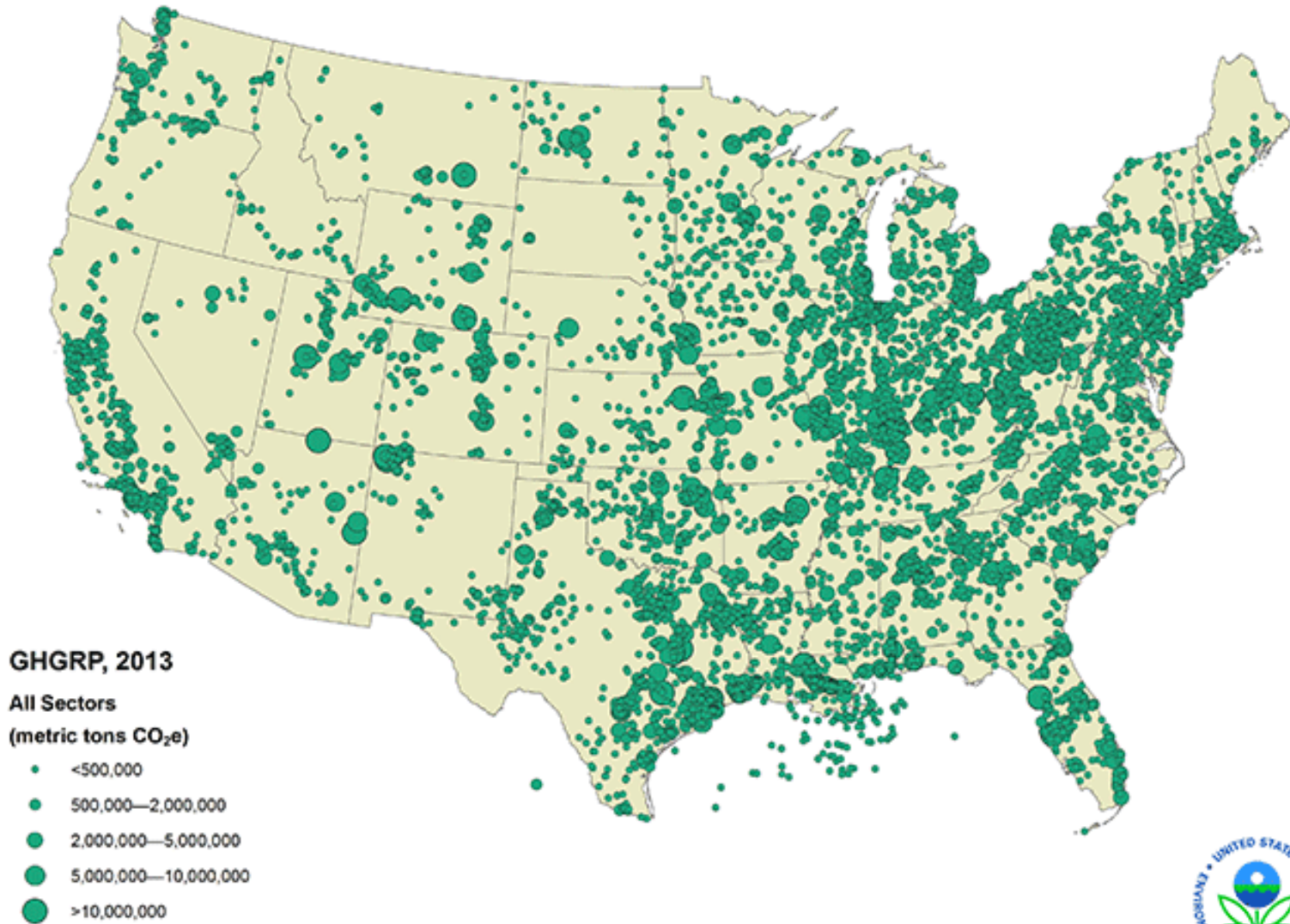
Data Reported to GHGRP



GREENHOUSE GAS REPORTING PROGRAM: DIRECT GHG EMISSIONS REPORTED BY SECTOR



Geographic Distribution of GHGRP Emissions



GHGRP, 2013

All Sectors
(metric tons CO₂e)

- <500,000
- 500,000—2,000,000
- 2,000,000—5,000,000
- 5,000,000—10,000,000
- >10,000,000

Data Source: 2013 Greenhouse Gas Reporting Program
As of: 08/18/2014



EPA GHG Emissions Data Programs

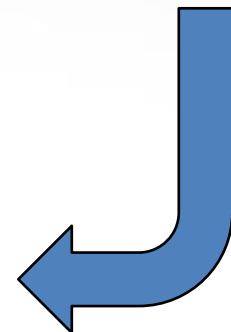
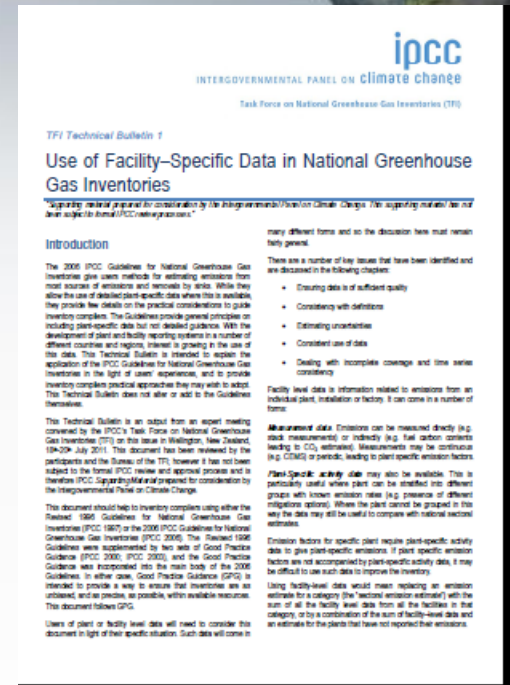


	U.S. GHG Inventory (UN Requirement)	GHG Reporting Program (Facility Reporting by Regulation)
Scale	<ul style="list-style-type: none"> National 	<ul style="list-style-type: none"> Facility
Coverage	<ul style="list-style-type: none"> All U.S. anthropogenic emissions <ul style="list-style-type: none"> Energy Industrial Processes Agriculture and Land Use Waste 	<ul style="list-style-type: none"> ~55% US direct anthropogenic emissions ~30% US indirect anthropogenic emissions (e.g., fuel & chemical suppliers) Over 8,000 facilities Facilities > 25,000 metric tons CO₂ equivalent per year Excludes agriculture
GHGs	<ul style="list-style-type: none"> CO₂, CH₄, N₂O, Fluorinated GHGs 	<ul style="list-style-type: none"> CO₂, CH₄, N₂O, Fluorinated GHGs
Methods	<ul style="list-style-type: none"> IPCC higher “tier” Mix of measurement-based emission factors, models, and GHGRP data 	<ul style="list-style-type: none"> Mix of continuous, periodic measurements, and sampling Engineering calculations & emission factors
Time series	<ul style="list-style-type: none"> 1990 – present 	<ul style="list-style-type: none"> Annually, since 2010

IPCC TFI provided technical information on using facility level data to improve national inventories



Greenhouse Gas Reporting Program



Inventory of US GHG Emissions and Sinks

GHG Emissions Data and U.S. Climate Policy



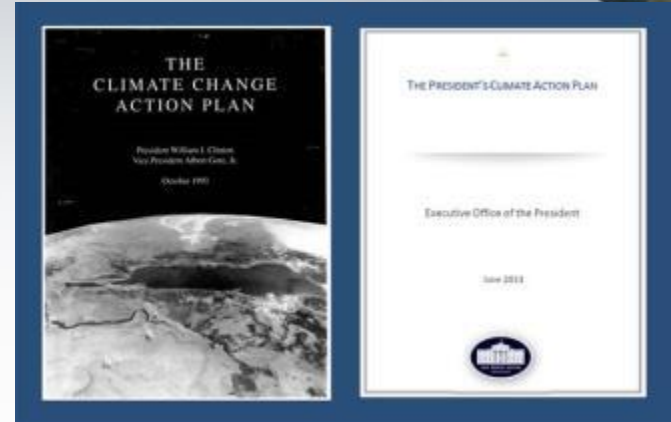
Inventory of US GHG Emissions and Sinks



Greenhouse Gas Reporting Program



Identification of significant emission sources



- **EPA Clean Power Plan**
- **Interagency Methane Strategy**
- **Energy Efficiency Standards**
- **Federal Facilities**
- **Land-Use Change and Forestry**
- **Department of Agriculture “10 Building Blocks”**
- **Etc.**

GHG Emissions Data and US Regulations



Inventory of US GHG Emissions and Sinks



Identification of significant emission sources

Clean Air Act

- **Automobiles:**
 - Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act
- **New and existing power plants**
 - EPA Clean Power Plan proposal
- **Aviation**
 - Proposed Greenhouse Gas Endangerment and Cause or Contribute Findings Under CAA Section 231 for Aircraft

Accessing EPA GHG Data



- U.S. GHG Inventory (National-level data)
 - <http://www.epa.gov/climatechange/ghgemissions/userinventoryreport.html>
- Facility-Level GHGRP Reporting Data
 - <http://www.epa.gov/ghgreporting/>

Greenhouse Gas Emissions Data

Information and data about greenhouse gas emissions are available at the global, national, facility, and individual levels.

Global



Find out more about global greenhouse gas emissions and trends.

[Learn More »](#)

National



Review EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks* report, which contains annual estimates of greenhouse gas emissions and removals associated with human activities, for each year since 1990.

[Learn More »](#)

Facility



Explore facility-level greenhouse gas data collected through EPA's Greenhouse Gas Reporting Program data. You can view emissions from individual facilities or from many facilities organized by sector or state.

[Learn More »](#)

Individual



Use EPA's Individual Greenhouse Gas Emissions Calculator to estimate your carbon footprint.

[Learn More »](#)