U.S. EPA Greenhouse Gas Reporting Program RY 2023 Data Release

U.S. Environmental Protection Agency
Greenhouse Gas Reporting Program

Webinar
October 23, 2024
1:00pm EST

Three Audio Options:
1) Listen on Computer
(2) Use the WebEx “call-me” feature
(3) Dial 1-855-797-9485 or
Event number: 2430 459 7510

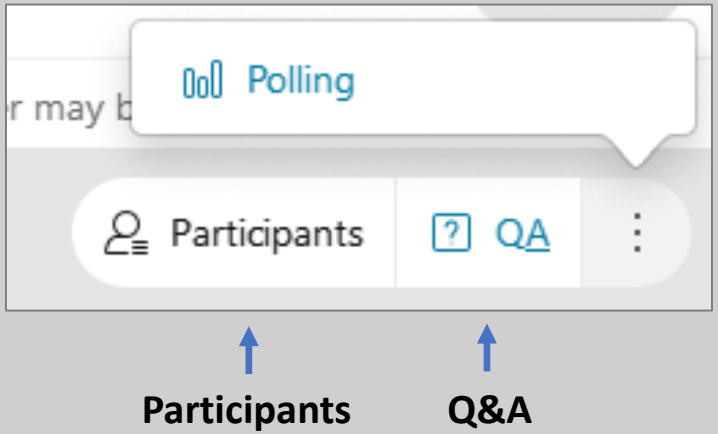
Webinar Panels

We will use two panels

- Participants, and Question & Answer (Q&A)
- Use the arrow to expand or collapse the panels

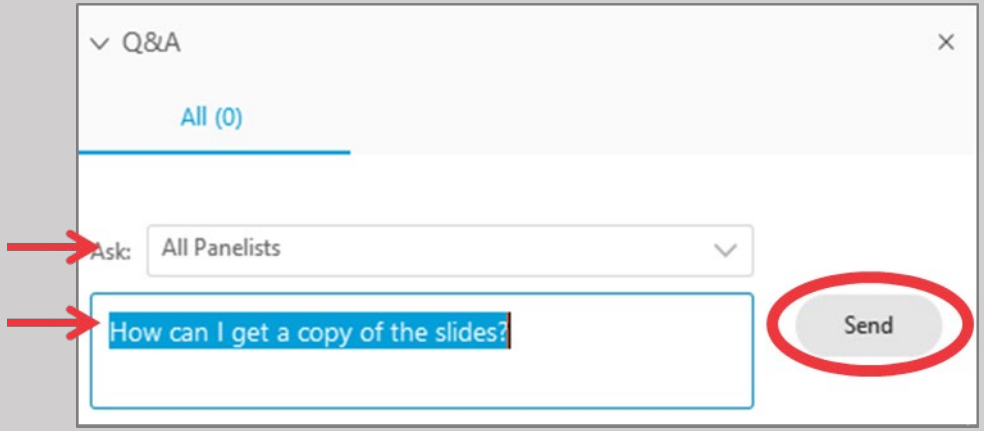
Adding Panels

- If some panels don't appear, select the desired panels in the lower right
- Select More Options (…) for additional panels



Q&A

- Participants are muted
- Questions will be moderated at the end
- To ask a question:
  1. Select “All Panelists” from the drop-down menu
  2. Enter your question in the Q&A box
  3. Hit “Send”



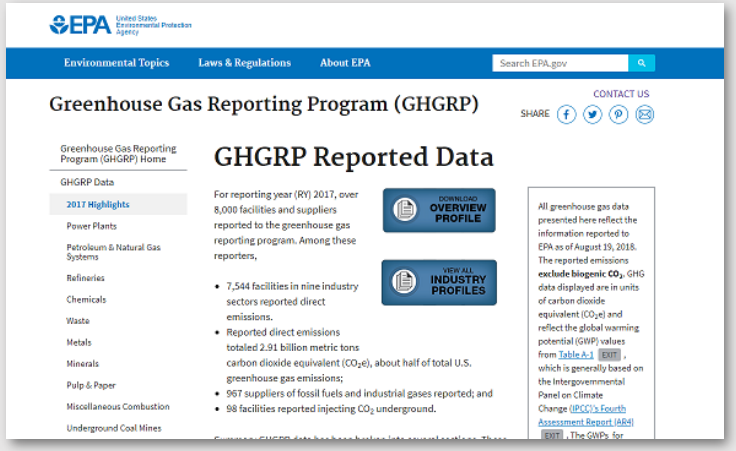
- EPA will post webinar materials to the web in the coming weeks: www.epa.gov/ghgreporting

Outline

- Options for viewing GreenHouse Gas Reporting Program (GHGRP) data
- Note on state-level data aggregation for some sectors
- Note on GHGRP Scope
- Introducing StoryMaps
- Facility Level Information on GreenHouse gases Tool (FLIGHT) overview and demo
- GHGRP data highlights and resources
  - Data sets
  - Sector profiles
- EPA Envirofacts
  - Greenhouse gas (GHG) search
  - GHG customized search (new customized query builder)
    - Downloadable files (too big for Envirofacts search)
- Interactive State/Tribal Fact Sheet
- Demographic Data features
- Help Resources

EPA's GHGRP Data Highlights

Best for: Data at a glance



Data Highlights Link:

www.epa.gov/ghgreporting/ghgrp-reported-data

FLIGHT

Best for: Exploring data

FLIGHT Link:

https://ghgdata.epa.gov/ghgp/main.do

EPA's Envirofacts

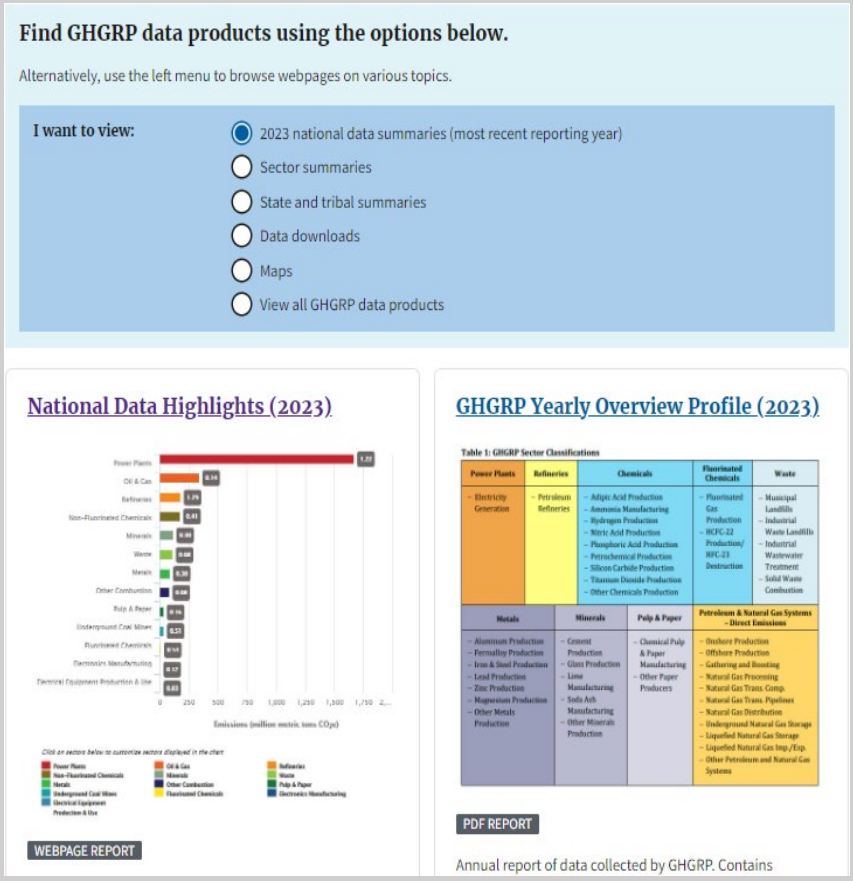
Best for: Querying and downloading data

Envirofacts GHG Link:

www3.epa.gov/enviro/facts/ghg/search.html

FIND and USE GHGRP DATA

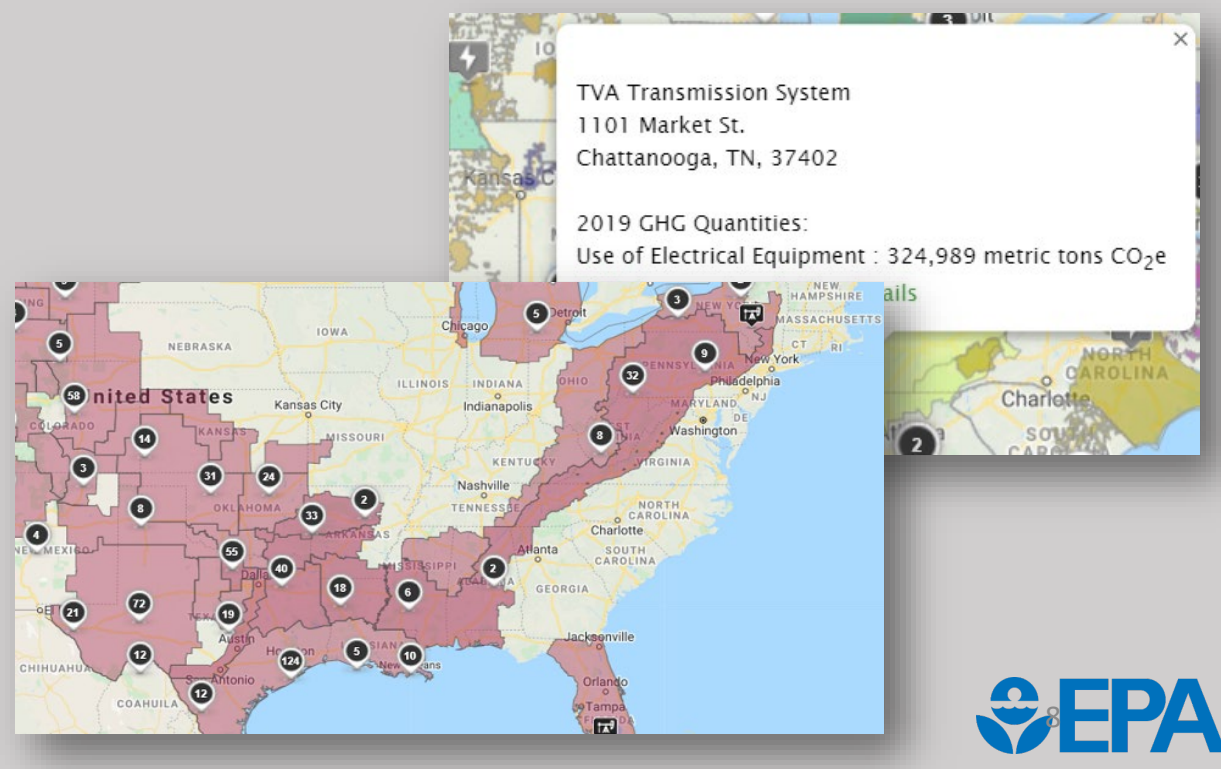
Best for: Finding Our Data



Find and Use Data Link:
www.epa.gov/ghgreporting/find-and-use-ghgrp-data

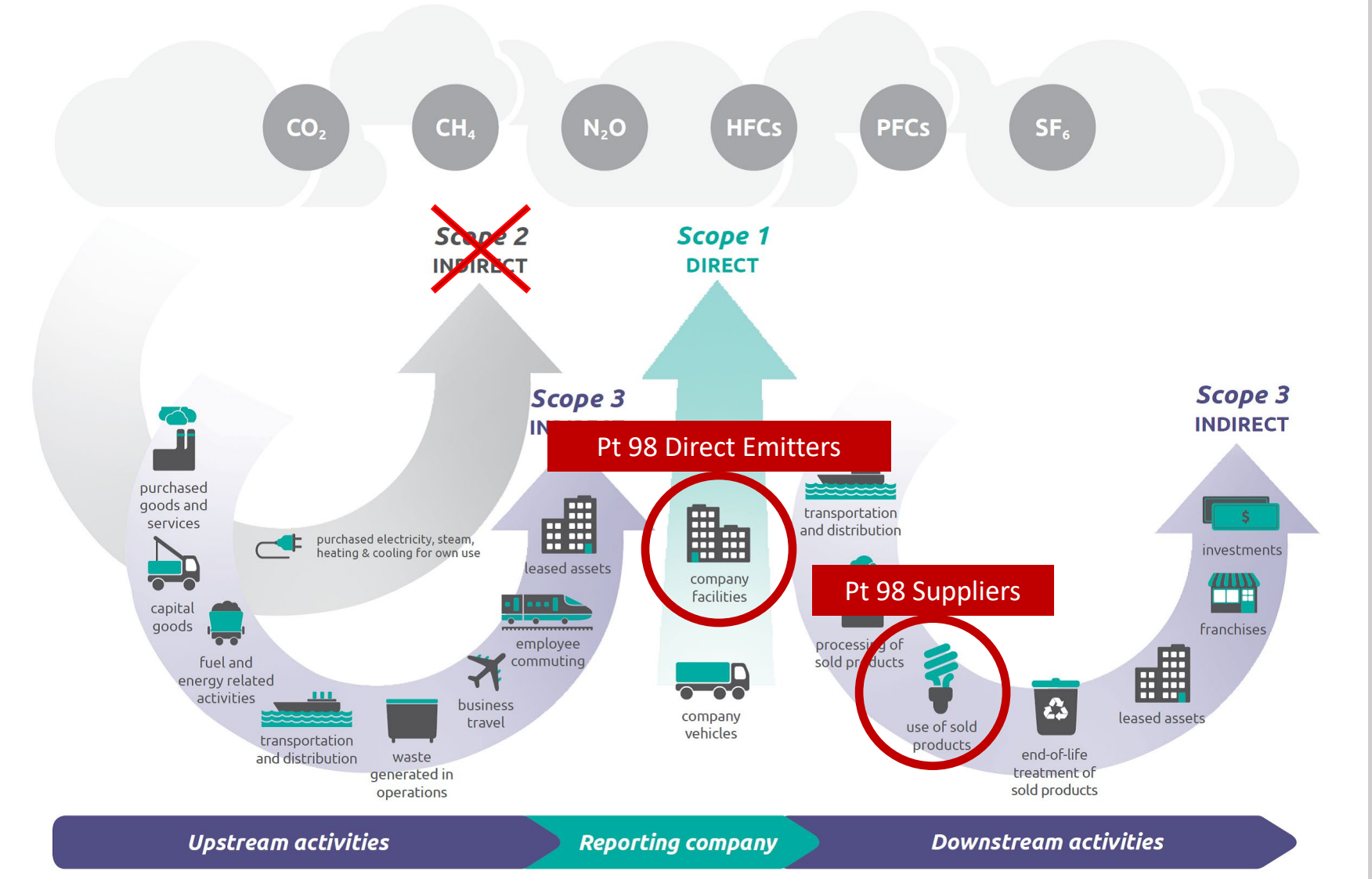
Note on Non-Geolocated Data

- The following direct emitter sources report data that cannot be disaggregated to individual locations or states. Their data uses a corporate or other address that may not match where the emissions come from:
  - Onshore oil and gas production
  - Onshore gathering and boosting
  - Use of electrical equipment
- This Effects
  - State Aggregations in FLIGHT
  - State & Tribal Fact Sheets
  - Demographic Data Highlights



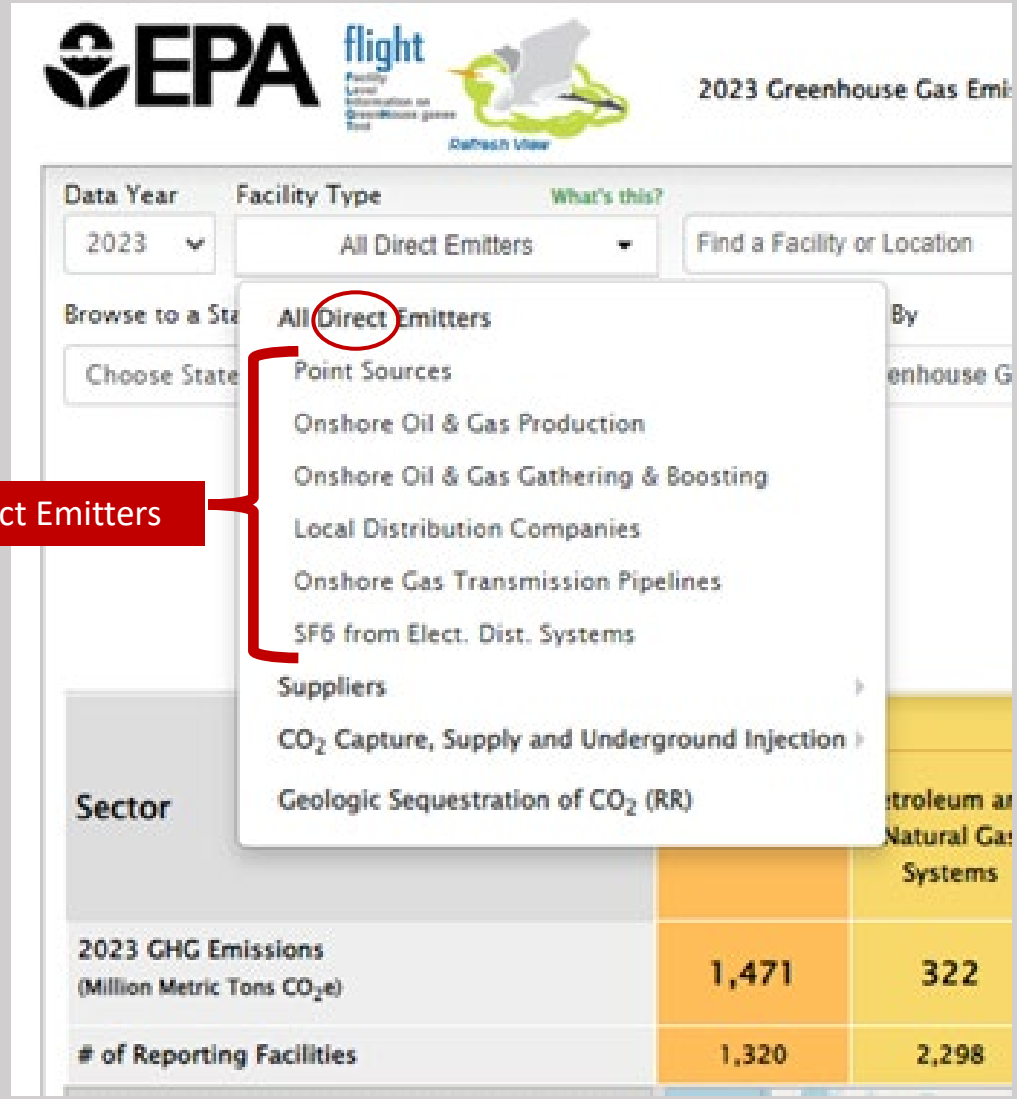
Scope of Published GHGRP Data

- https://www.wri.org/initiatives/greenhouse-gas-protocol



Scope of GHGRP in data products

- FLIGHT https://ghgdata.epa.gov/ghgp/main.do



Scope of GHGRP in data products

- Data Summary Download https://www.epa.gov/ghgreporting/data-sets

All emissions data is presented in units of metric tons of carbon dioxide equivalent using GWP's from IPCC's AR4 (see FAQs tab)

Facility Id	FRS Id	Facility Name	City	State	Zip Code	Address	County	Latitude	Longitude	Primary NAICS Code
1002685	110071162081	AC 857 A	Offshore	TX	00000			26.30	-94.90	211120
1004377	110043803578	121 REGIONAL DISPOSAL FACILITY	MELISSA	TX	75454	3820 SAM RAYBURN HIGHWAY	COLLIN COUNTY	33.30	-96.54	562212
1010040	110071159872	15-18565/15-18662	Hazard	KY	40701	1021 Tori Drive	PERRY COUNTY	37.27	-83.24	
1000112	110071159492	23rd and 3rd	BROOKLYN	NY	11232	730 3rd Avenue	Kings	40.66	-74.00	221112
1003742	110038508335	31st Street Landfill	WESTCHESTER	IL	60154	11700 W 31ST ST	COOK COUNTY	41.83	-87.92	562212
1003188	110000599273	3M BROWNWOOD	BROWNWOOD	TX	76801	4501 HIGHWAY 377 SOUTH	BROWN COUNTY	31.67	-99.00	326113
1005043	110071160392	3M CO	MAPLEWOOD	MN	55144		RAMSEY COUNTY	44.95	-93.00	541715
1003739	110000589159	3M CO - GUIN	GUIN	AL	35563	6675 US HIGHWAY 43	MARION COUNTY	33.97	-87.90	326113
1007698	110000421776	3M CO - WAUSAU DOWNTOWN	WAUSAU	WI	54401	144 ROSECRANS ST	MARATHON COU	44.95	-89.64	212313
1004206	110000367567	3M COMPANY	DECATUR	AL	35609	1400 STATE DOCKS RD.	MORGAN COUNT	34.64	-87.03	325211
1006665	110013886875	3M CORDOVA	CORDOVA	IL	61242	22614 ROUTE 84 NORTH	ROCK ISLAND COU	41.76	-90.28	325998
1004836	110000423667	3M Cottage Grove Center - Site	Cottage Grove	MN	55016	10746 Innovation Rd	WASHINGTON CC	44.79	-92.91	325998
1003408	110071161417	3M INDUSTRIAL MINERAL PRODUCTS DIVISION	LITTLE ROCK	AR	72206	3110 WALTERS DRIVE	PULASKI COUNTY	34.71	-92.25	327999
1004914	110000425059	3M MAGNETIC TAPE MANUFACTURING DIVISION	HUTCHINSON	MN	55350	905-915 ADAMS STREET SOUTHEAST	MCLEOD COUNTY	44.88	-94.36	326199
1004804	110000443805	3M NEVADA PLANT	NEVADA	MO	64772	2120 E. AUSTIN	VERNON COUNTY	37.83	-94.33	326113
1013282		3M Pittsboro	Moncure	NC	27559	4191 Hwy 87 South		35.66	-79.18	327999
1001106	110040862527	48th Street Peaking Station	HOLLAND	MI	49423	491 E 48TH ST	Allegan	42.76	-86.09	221112
1004680	110013945062	58TH ST LF (MAIN COUNTY LF)	MIAMI	FL	33178	8831 NW 58TH ST	MIAMI-DADE COU	25.83	-80.35	562212
1000766	110064649901	59th Street			10019	850 12TH AVE	New York	40.77	-73.99	221330
1000767	110070834991	74th Street	NEW YORK	NY	10021	506 E 75TH ST	New York	40.77	-73.95	221330

Pt 98 Direct Emitters

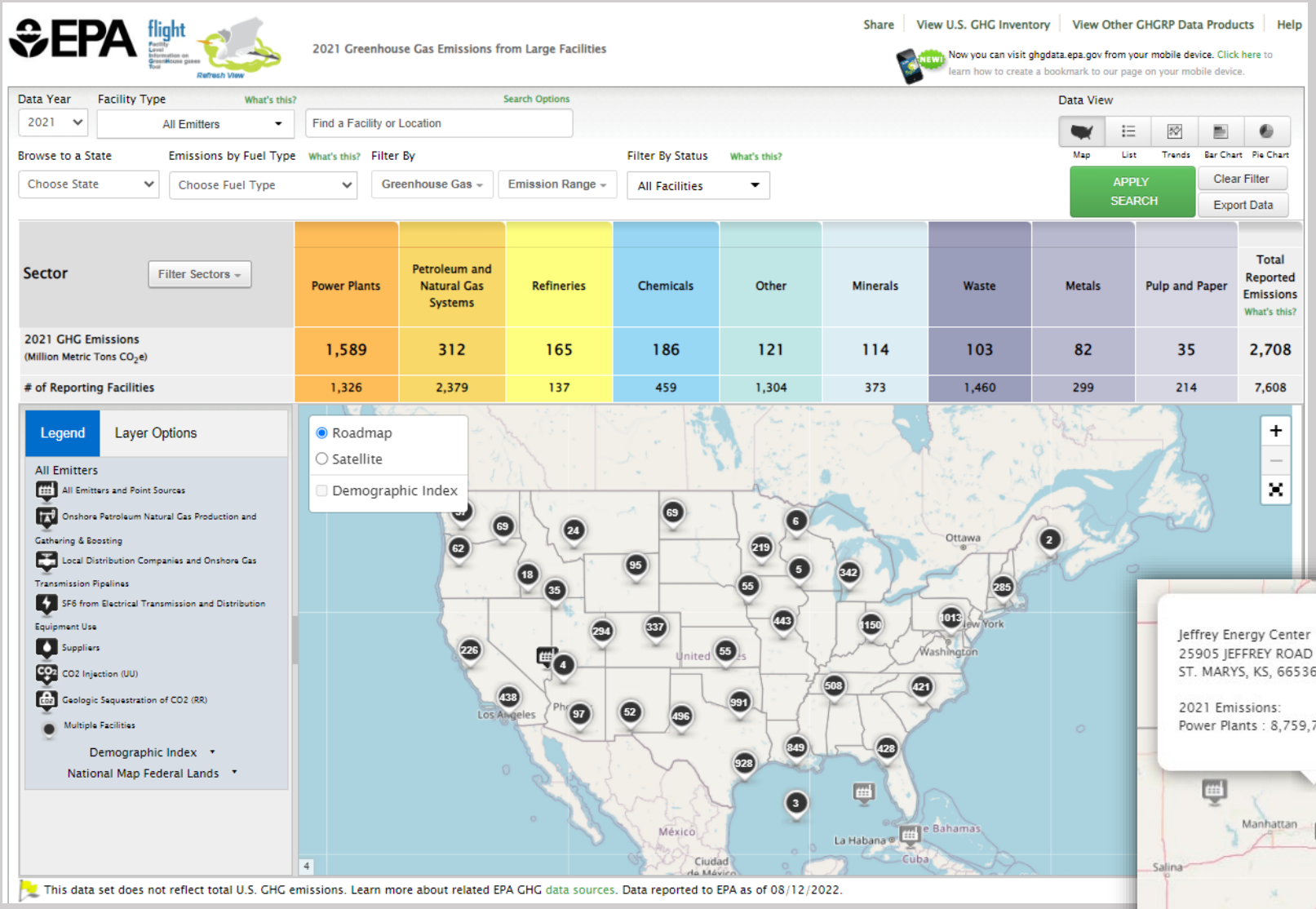
Direct Emitters | Onshore Oil & Gas Prod. | Gathering & Boosting | Transmission Pipelines | LDC - Direct Emissions | SF6 from Elec. Equip. | Suppliers | CO2 Injection | Geologic Sequestration of CO

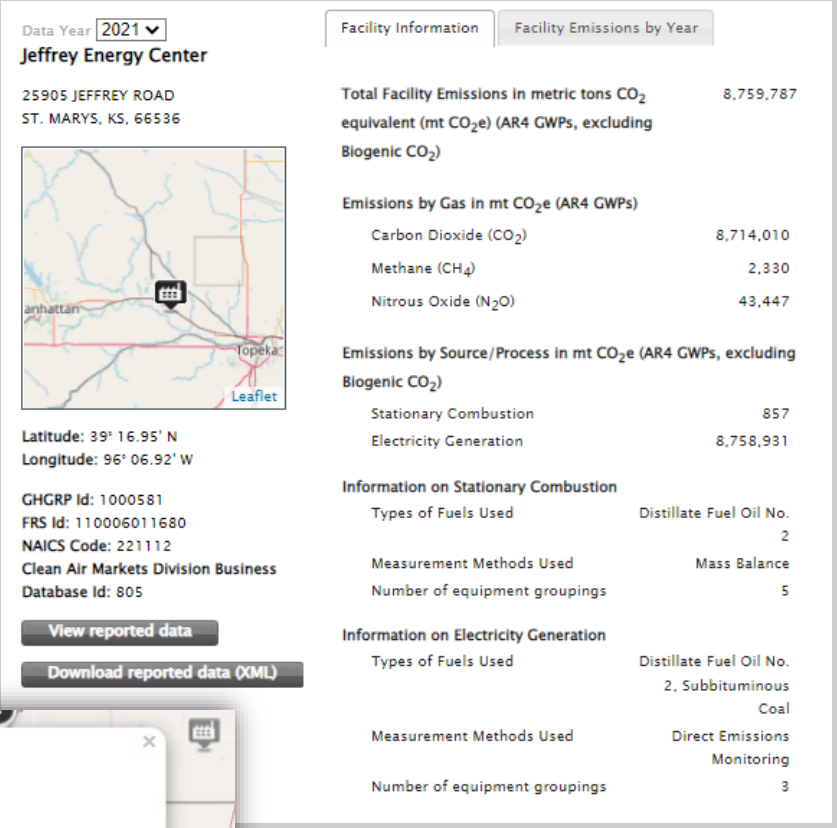
Introducing GHGRP StoryMaps

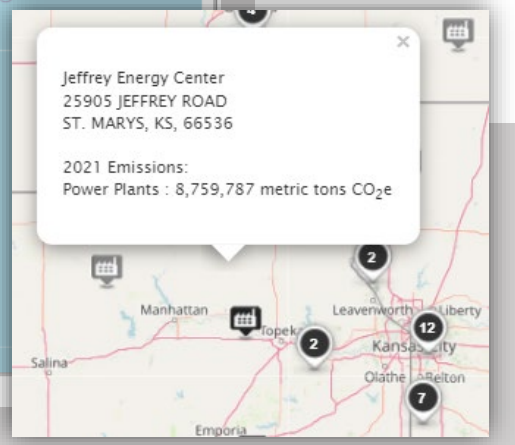
- https://www.epa.gov/ghgreporting/ghgrp-storymaps

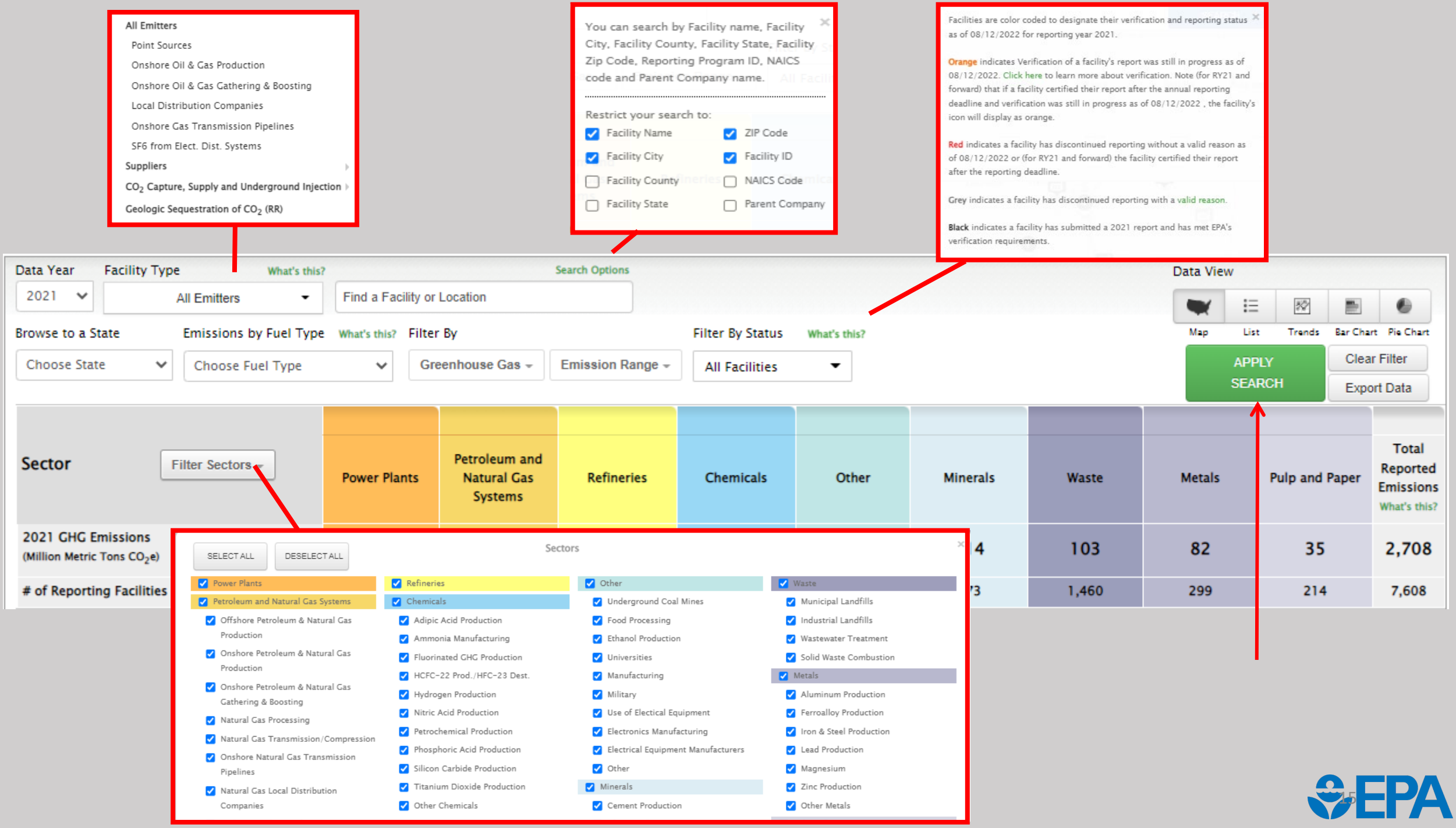
Live Demonstration of GHGRP Data Tools and Resources

FLIGHT


EPA
flight
2021 Greenhouse Gas Emissions from Large Facilities
Share
View U.S. GHG Inventory
View Other GHGRP Data Products
Help
Data Year
2021
Facility Type
All Emitters
Find a Facility or Location
Search Options
Data View
Map
List
Trends
Bar Chart
Pie Chart
Browse to a State
Choose State
Emissions by Fuel Type
Choose Fuel Type
Filter By
Greenhouse Gas
Emission Range
Filter By Status
All Facilities
APPLY SEARCH
Clear Filter
Export Data
Sector
Filter Sectors
Power Plants
Petroleum and Natural Gas Systems
Refineries
Chemicals
Other
Minerals
Waste
Metals
Pulp and Paper
Total Reported Emissions
2021 GHG Emissions (Million Metric Tons CO2e)
1,589
312
165
186
121
114
103
82
35
2,708
# of Reporting Facilities
1,326
2,379
137
459
1,304
373
1,460
299
214
7,608
Legend
Layer Options
All Emitters
Roadmap
Satellite
Demographic Index
This data set does not reflect total U.S. GHG emissions. Learn more about related EPA GHG data sources. Data reported to EPA as of 08/12/2022.


Data Year 2021
Jeffrey Energy Center
25905 JEFFREY ROAD
ST. MARYS, KS, 66536
Latitude: 39° 16.95' N
Longitude: 96° 06.92' W
GHGRP Id: 1000581
FRS Id: 110006011680
NAICS Code: 221112
Clean Air Markets Division Business Database Id: 805
View reported data
Download reported data (XML)
Facility Information
Facility Emissions by Year
Total Facility Emissions in metric tons CO2 equivalent (mt CO2e) (AR4 GWPs, excluding Biogenic CO2) 8,759,787
Emissions by Gas in mt CO2e (AR4 GWPs)
Carbon Dioxide (CO2) 8,714,010
Methane (CH4) 2,330
Nitrous Oxide (N2O) 43,447
Emissions by Source/Process in mt CO2e (AR4 GWPs, excluding Biogenic CO2)
Stationary Combustion 857
Electricity Generation 8,758,931
Information on Stationary Combustion
Types of Fuels Used Distillate Fuel Oil No. 2
Measurement Methods Used Mass Balance
Number of equipment groupings 5
Information on Electricity Generation
Types of Fuels Used Distillate Fuel Oil No. 2, Subbituminous Coal
Measurement Methods Used Direct Emissions Monitoring
Number of equipment groupings 3


Jeffrey Energy Center
25905 JEFFREY ROAD
ST. MARYS, KS, 66536
2021 Emissions:
Power Plants : 8,759,787 metric tons CO2e
Manhattan
Topeka
Leavenworth
Kansas City
Salina
Emporia


All Emitters
Point Sources
Onshore Oil & Gas Production
Onshore Oil & Gas Gathering & Boosting
Local Distribution Companies
Onshore Gas Transmission Pipelines
SF6 from Elect. Dist. Systems
Suppliers
CO2 Capture, Supply and Underground Injection
Geologic Sequestration of CO2 (RR)
You can search by Facility name, Facility City, Facility County, Facility State, Facility Zip Code, Reporting Program ID, NAICS code and Parent Company name.
Restrict your search to:
Facility Name
ZIP Code
Facility City
Facility ID
Facility County
NAICS Code
Facility State
Parent Company
Facilities are color coded to designate their verification and reporting status as of 08/12/2022 for reporting year 2021.
Orange indicates Verification of a facility's report was still in progress as of 08/12/2022. Click here to learn more about verification. Note (for RY21 and forward) that if a facility certified their report after the annual reporting deadline and verification was still in progress as of 08/12/2022 , the facility's icon will display as orange.
Red indicates a facility has discontinued reporting without a valid reason as of 08/12/2022 or (for RY21 and forward) the facility certified their report after the reporting deadline.
Grey indicates a facility has discontinued reporting with a valid reason.
Black indicates a facility has submitted a 2021 report and has met EPA's verification requirements.
Data Year
2021
Facility Type
What's this?
All Emitters
Search Options
Find a Facility or Location
Data View
Map
List
Trends
Bar Chart
Pie Chart
Browse to a State
Choose State
Emissions by Fuel Type
What's this?
Choose Fuel Type
Filter By
Greenhouse Gas
Emission Range
Filter By Status
What's this?
All Facilities
APPLY SEARCH
Clear Filter
Export Data
Sector
Filter Sectors
Power Plants
Petroleum and Natural Gas Systems
Refineries
Chemicals
Other
Minerals
Waste
Metals
Pulp and Paper
Total Reported Emissions
What's this?
2021 GHG Emissions (Million Metric Tons CO2e)
4
103
82
35
2,708
# of Reporting Facilities
3
1,460
299
214
7,608
Sectors
SELECT ALL
DESELECT ALL
Power Plants
Petroleum and Natural Gas Systems
Offshore Petroleum & Natural Gas Production
Onshore Petroleum & Natural Gas Production
Onshore Petroleum & Natural Gas Gathering & Boosting
Natural Gas Processing
Natural Gas Transmission/Compression
Onshore Natural Gas Transmission Pipelines
Natural Gas Local Distribution Companies
Refineries
Chemicals
Adipic Acid Production
Ammonia Manufacturing
Fluorinated GHG Production
HCFC-22 Prod./HFC-23 Dest.
Hydrogen Production
Nitric Acid Production
Petrochemical Production
Phosphoric Acid Production
Silicon Carbide Production
Titanium Dioxide Production
Other Chemicals
Other
Underground Coal Mines
Food Processing
Ethanol Production
Universities
Manufacturing
Military
Use of Electical Equipment
Electronics Manufacturing
Electrical Equipment Manufacturers
Other
Minerals
Cement Production
Waste
Municipal Landfills
Industrial Landfills
Wastewater Treatment
Solid Waste Combustion
Metals
Aluminum Production
Ferroalloy Production
Iron & Steel Production
Lead Production
Magnesium
Zinc Production
Other Metals

Data Highlights

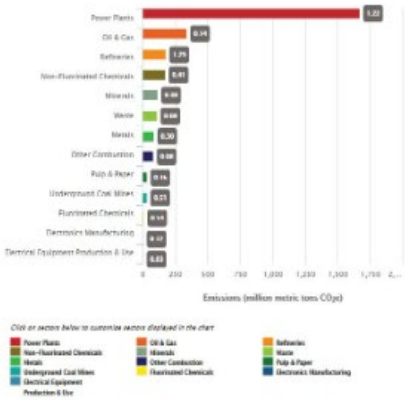
Find GHGRP data products using the options below.

Alternatively, use the left menu to browse webpages on various topics.

I want to view:

- (●) 2021 national data summaries (most recent reporting year)
- ( ) Sector summaries
- ( ) State and tribal summaries
- ( ) Data downloads
- ( ) View all GHGRP data products

National Data Highlights (2021)



GHGRP Yearly Overview Profile (2021)

GHGRP Reported Data

For reporting year (RY) 2021, over 8,000 facilities and suppliers reported to the Greenhouse Gas Reporting Program (GHGRP). Among these reporters,

- 7,608 facilities in nine industry sectors reported direct emissions;
- Reported direct emissions totaled 2.71 billion metric tons carbon dioxide equivalent (CO_2e);
- 966 suppliers of fossil fuels and industrial gases reported; and
- 87 facilities reported injecting CO_2 underground (Subpart UU).

Figure 1: Direct GHG Emissions Reported by Sector (2021)

(●) By Emissions

( ) By Number of Facilities

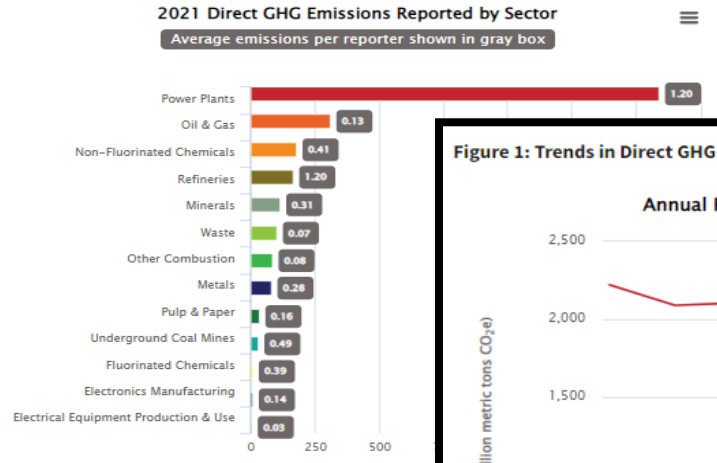
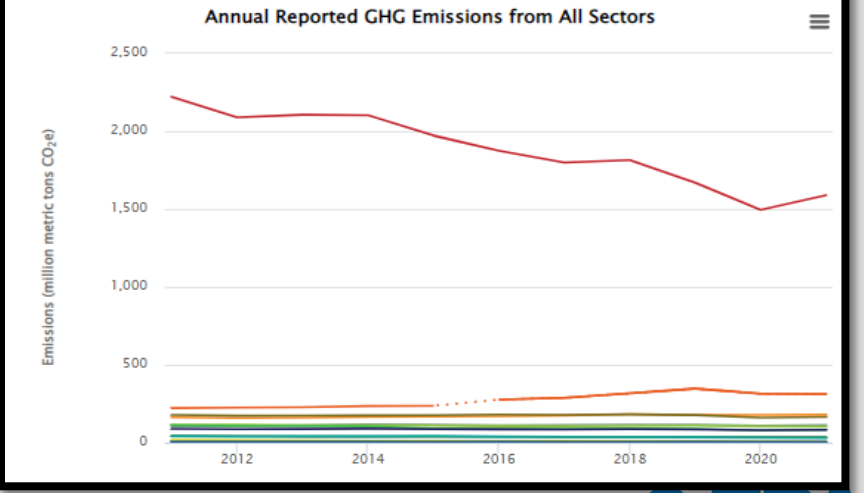
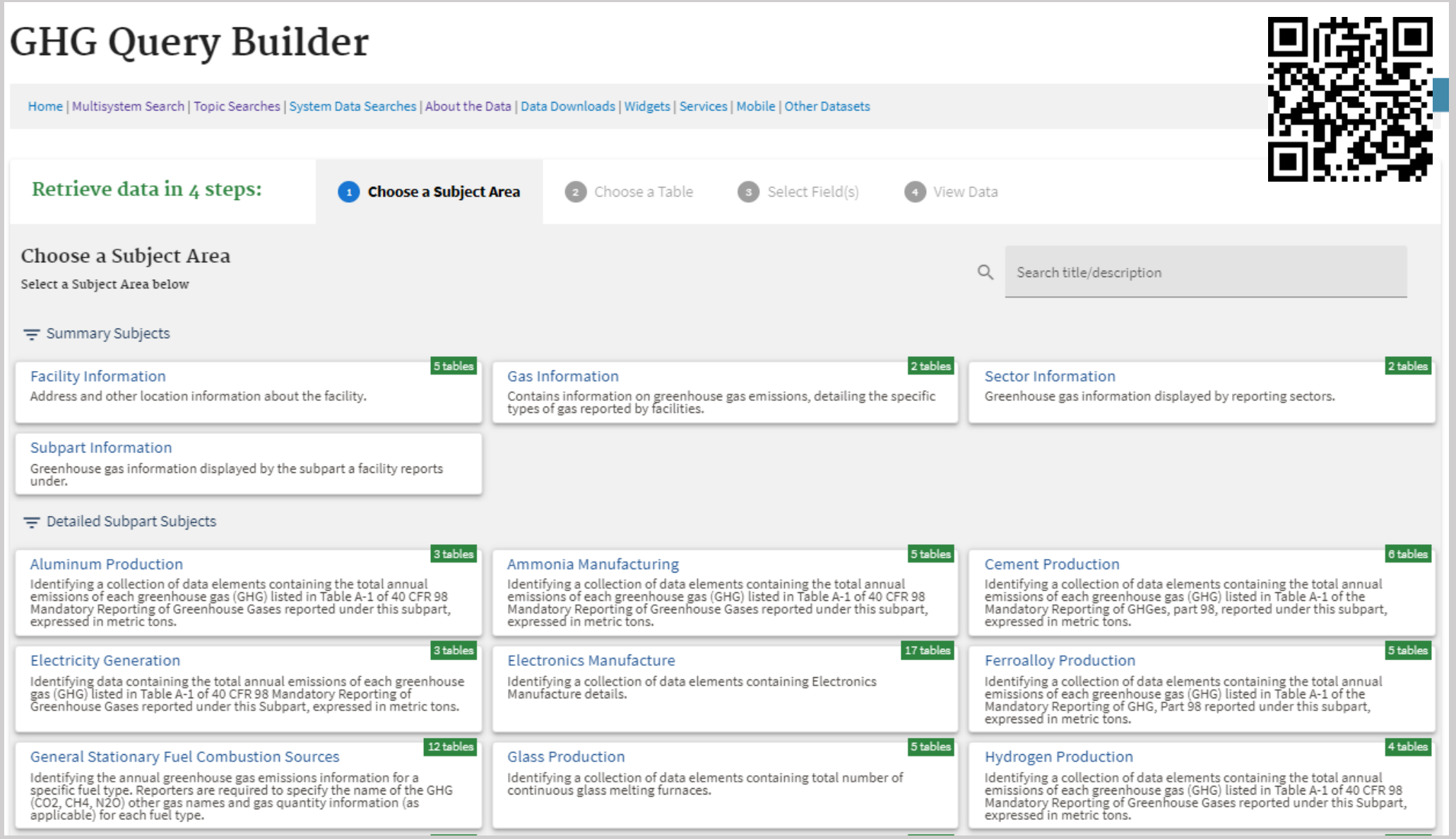


Figure 1: Trends in Direct GHG Emissions (2011-2021) [1,2,3]



Envirofacts custom: https://enviro.epa.gov/query-builder/ghg



New: GraphQL Services

- Service endpoint: https://data.epa.gov/dmapservice/query/graphql
- GraphQL Resources
  - https://graphql.org/learn/queries/
  - https://ropensci.org/blog/2020/12/08/accessing-graphql-in-r/
- EF Query Builder will show GraphQL syntax, e.g.:

```
query batchQuery($offset: Integer, $limit: Integer , $orderBy: OrderBy! )
{ghg__rlps_ghg_emitter_subpart(offset: $offset, limit: $limit,where: {and: {year: {
equalsSensitive: 2023 }}}, orderBy: $orderBy, ){ address1 address2 city co2e_emission county
facility_name county_fips gas_code gas_name facility_id ghg_quantity latitude longitude year
state state_name subpart_category subpart_name subpart_type zip }}
```

Envirofacts RESTful Service V2 syntax

More info: https://www.epa.gov/enviro/envirofacts-data-service-api

https://data.epa.gov/efservice/[table]/[column][operator][value]/[join]/[first]:[last]/[sort]/[format]

- **(1) Table Name** – At least one table name is required. Up to three table names can be entered.
- **(2) Column Name** – This is an optional entry. Enter a column name and value to limit the results.
- **(3) Operator** – This is an optional entry. This parameter allows users to pass in an operator with the query. Default output is "=" and does not require an operator, but users can enter "<", " >", "=", “equals”, “notEquals”, “beginsWith", “endsWith”, “contains", “excludes”, “like”, “notLike”, operators as well via the URL. The “beginsWith" operator will return rows where the start of a column value is equal to the search value. While the “contains" will return rows where the search value is contained within the column value. Additional details on operators is available in the
- **(4) Column Value** – This is an optional entry. The column value is queried against the database, using the operator, without modification. Use the data Model to double check the case for the value.
- **(5) Joins-** ‘ <join_type> / <table>’ ; join types: “join”, “cross”, “full_outer”, “left”, “right”
- **(6) First/Last ROWS** – This is an optional entry. Specify the rows to display by entering '/ <first_row> : <last_row>' Results numbering starts at 0. So to get the first five hundred rows enter rows/0:499 If “rows” is not specified, the default is the first 10000 rows.
- **(7) Sort-** ‘/sort/[column]:[direction]/ ‘ direction is optional and can be “asc” or “desc”
- **(8) Output Format** – This is an optional entry. The default output is in XML; however, output options of JSON, CSV or Excel can be requested in the URL. The output format is not case sensitive.

Envirofacts RESTful V1 Service Examples

- Retrieve Facility Information of emitters and suppliers to Greenhouse Gas (first 101 records):

https://data.epa.gov/efservice/PUB_DIM_FACILITY/ROWS/0:100

Here we just retrieve information from the PUB_DIM_FACILITY table. This is a summary table containing facility details for both emitters and suppliers.

The results can be returned in four formats: XML (default), **Excel**, **CSV**, or **JSON**. To specify Excel, CSV or JSON, just add "/EXCEL, "/CSV or "/JSON" to the URL.

https://data.epa.gov/efservice/PUB_DIM_FACILITY/ROWS/0:100/JSON
https://data.epa.gov/efservice/PUB_DIM_FACILITY/ROWS/0:100/EXCEL
https://data.epa.gov/efservice/PUB_DIM_FACILITY/ROWS/0:100/CSV

- Retrieve Facility Information and Gas details for direct emitters (first 101 records in XML)

https://data.epa.gov/efservice/PUB_DIM_FACILITY/FACILITY_TYPES/Direct%20Emitter/PUB_FACTS_SUBP_GHG_EMISSION/PUB_DIM_GHG/ROWS/0:100

Here we are utilizing three tables: PUB_DIM_FACILITY (facility info), PUB_FACTS_SUBP_GHG_EMISSION (Gas details and amounts), and PUB_DIM_GHG (additional Gas details). We also are adding the column "FACILITY_TYPES" within our URL, so that we only retrieve "Direct Emitter" information.

- If you wanted to get the same information as above for all Colorado facilities, you would add "/STATE/=/CO" to the URL.

https://data.epa.gov/efservice/PUB_DIM_FACILITY/STATE/=/CO/PUB_FACTS_SUBP_GHG_EMISSION/PUB_DIM_GHG

State and Tribal Fact Sheet

GHGRP State and Tribal Fact Sheet

About this tool:

- This page provides an interactive fact sheet summarizing GHGRP emissions for the current year.
- Choose a state, EPA Region, or tribal lands to view maps, charts, and tables summarizing emissions.
- Data download options are available at the bottom of the page.

See more GHGRP data pr

Visit GHGRP's website to find and use more GH

EPA GHGRP 2021 Summary Fact Sheet - Colorado

Select

Number of Facilities

123

2021 Emissions (metric tons CO_2e)

41,899,750

This page provides a summary of GHGRP emissions data reported by facilities in Colorado based on 2021 data (as of 8/7/2021).

Sectors: Electrical Equipment, Electronics Manufacturing, Metals, Minerals, Miscellaneous Combustion, Natural Gas & Natural Gas Liquids, Non-Fluorinated Chemicals, Petroleum Products, Natural Gas Systems, Power Plants, Refineries, Underground Coal Mines, Waste

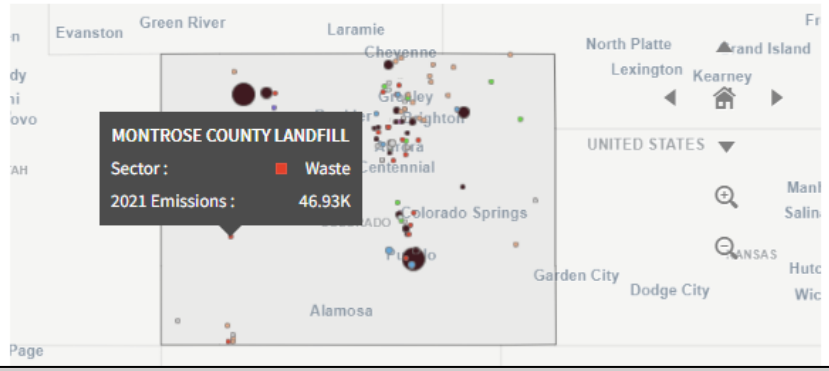
Greenhouse Gases: Carbon Dioxide, HFCs, HFEs, Methane, Nitrogen Trifluoride, Nitrous Oxide, Other Fully Fluorinated GHGs, PFCs, Sulfur Hexafluoride

Note: State emissions totals do not include emissions from the Petroleum and Natural Gas Systems Onshore Production and Gathering and Boosting segments, as these emissions are repo basin level, which may cross state boundaries. State emission totals also do not include emissions from electric distribution systems, which are reported at the corporate level, and cannot b individual states.

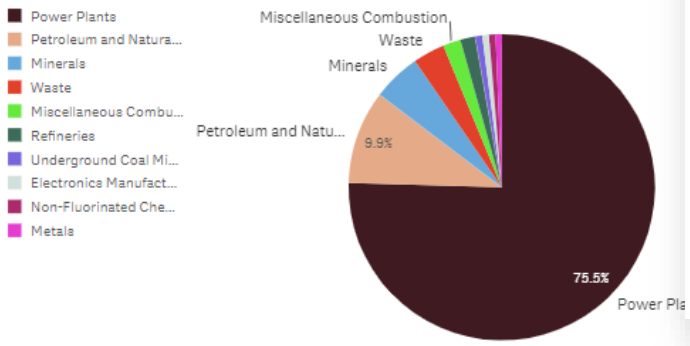
Summary of Emissions in 2021

Select Fi

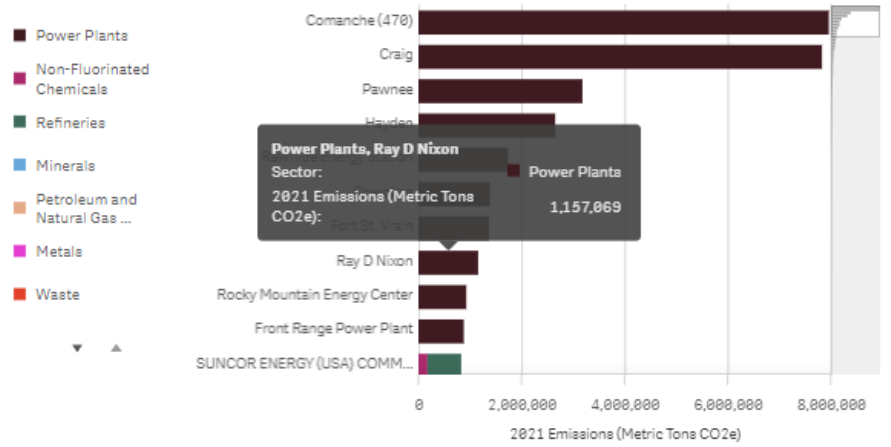
Map of GHGRP Facilities Reporting Emissions in 2021



Direct GHG Emissions Reported by Sector in 2021

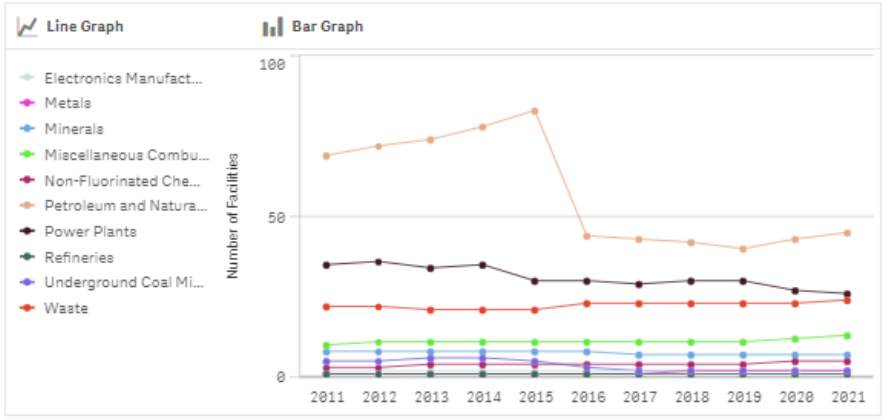


Direct GHG Emissions by Facility and Industry Sector in 2021



Trends in Emissions

Trends in Number of Facilities by Sector



Data as of 8/12/2022

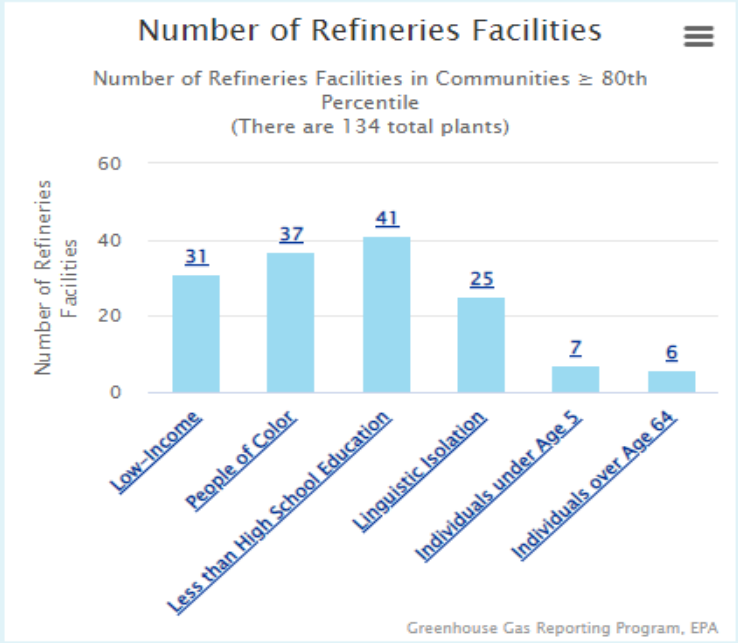
Demographic Data Highlights

Select a Sector | Indicator definitions | FAQs

This graph displays the number of facilities located in or near communities which meet or exceed the 80th percentile nationally for each key demographic indicator. You can explore the distribution of all facilities for a particular demographic indicator by selecting the label or bar for the indicator.

Select a sector

Refineries



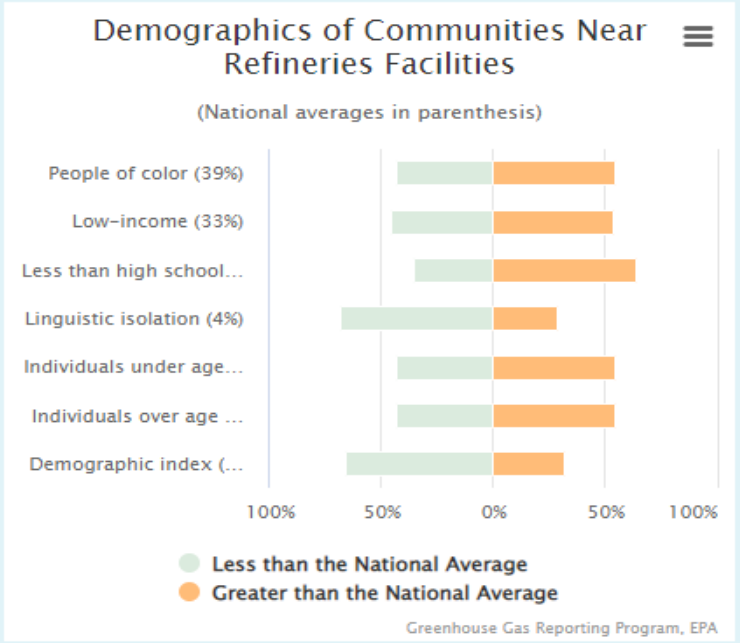
This graph compares the key demographics of communities near facilities in your selected sector to the national average. The national average for each demographic based on all Census block groups is shown in parentheses.

Compare by:

- (●) Demographic Indicator
- ( ) Sector

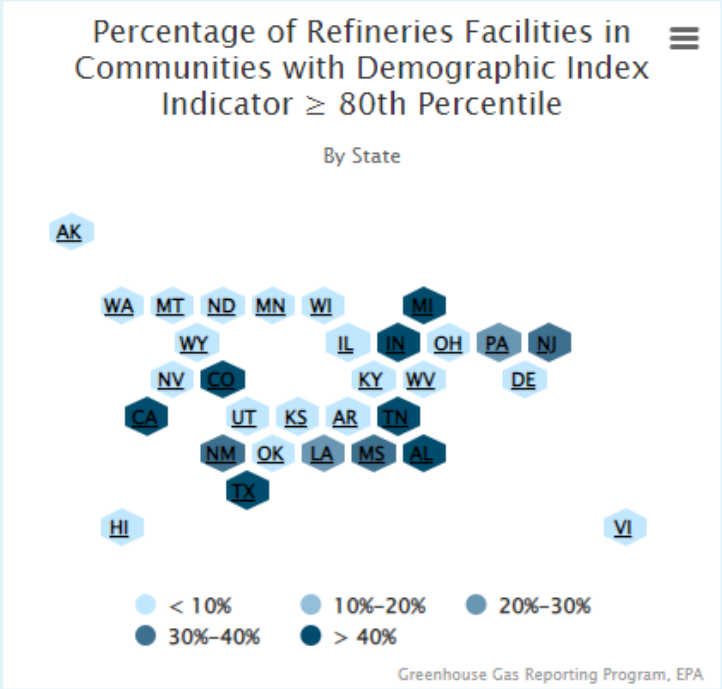
Select a sector

Refineries



Demographic Data Highlights

The map below displays the percentage of facilities in the selected sector within each state that are in communities which are at or exceed the 80th percentile nationally for the selected demopgrahic indicator. Click on a state to explore state-level data.



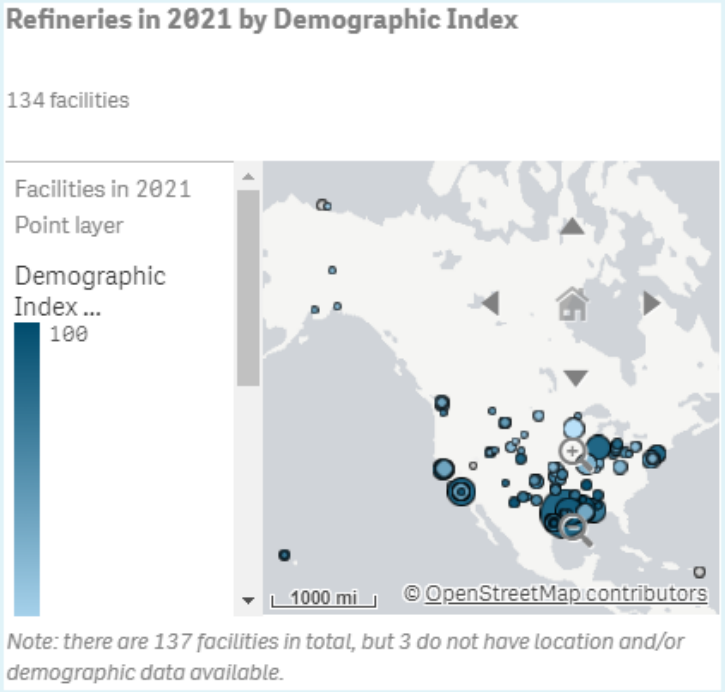
Select a sector

Refineries

Select an indicator

Demographi

The following map shows the locations of facilities in the selected sector, with the color gradient indicating the percentile value for each facility for the selected demographic indicator.



Note: there are 137 facilities in total, but 3 do not have location and/or demographic data available.

Select a sector

Refineries

Select an indicator

Demographi

Show Tribal Lands

For Help

- GHGRP FLIGHT Help
  https://ccdsupport.com/confluence/display/ghgp/Home

- Contact us:
  Email to ghgreporting@epa.gov or use web-form:
  https://www.epa.gov/ghgreporting/forms/contact-us-about-ghg-reporting-0

Links

- Find and Use GHGRP Data:
  www.epa.gov/ghgreporting/find-and-use-ghgrp-data
- FLIGHT
  https://ghgdata.epa.gov/ghgp/main.do
- GHGRP Data Highlights
  www.epa.gov/ghgreporting/ghgrp-reported-data
- GHGRP Data Sets
  www.epa.gov/ghgreporting/ghg-reporting-program-data-sets
- Envirofacts (EF) Database
  https://enviro.epa.gov/envirofacts/ghg/search
- EF Greenhouse Gas Customized Search
  https://enviro.epa.gov/query-builder/ghg
- EF Greenhouse Gas Model
  www.epa.gov/enviro/greenhouse-gas-model
- EF Greenhouse Gas RESTful Data Service
  https://www.epa.gov/enviro/greenhouse-gas-restful-data-service
- GHGRP Help
  https://ccdsupport.com/confluence/
- GHGRP State Fact Sheet
  www.epa.gov/ghgreporting/ghgrp-state-fact-sheet
- Demographic Data Highlights:
  https://edap.epa.gov/public/extensions/GHGRP-Demographic-Data-Highlights/GHGRP-Demographic-Data-Highlights.html