# Overview of Resources for State Action on Climate

*EPA's Office of Atmospheric Programs*

*Presentation for NACAA – Emissions and Modeling Committee Meeting*

*April 5, 2022*

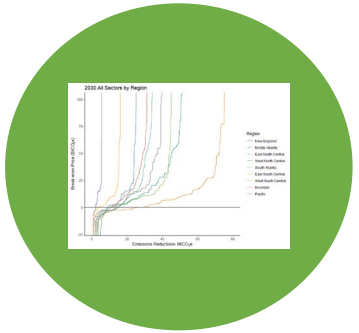
# Overview

## New suite of state-level resources to understand opportunities for action at subnational level

Now available online at https://www.epa.gov/ghgemissions/state-and-tribal-greenhouse-gas-data-and-resources

**Inventory of U.S. Greenhouse Gas Emissions and Sinks by State**

**State Inventory Tool Updates**



**State-level Non-$CO_2$ Technical and Economic Mitigation Potential Data**

Note: EPA's OAP also already publishes GHGRP State and Tribal Fact Sheets.

# Inventory of U.S. GHG Emissions and Sinks by State

- New data, fully disaggregating national *Inventory* across the 50 states for all gases, sectors/categories
  - Consistent with the national *Inventory* in terms of emission and removal totals across the time series, from 1990 to the most recent inventory year.
  - Updates on annual basis, publishing after national inventory (e.g., planning late summer each year)
  - Support researchers, policymakers, and the general public
- Completed concurrent reviews of state data (Fall 2021)
  - Letter peer review
  - State expert review (included 4 background informational webinars)
  - Published responses to feedback from both reviews
- Includes data caveats
  - This dataset should not be viewed as official data of any state government, and we provide information on how to access up-to-date official data from states where it exists.
  - Indicate clearly where data differences could exist when comparing EPA state-level GHG data with official state Inventories (i.e., scope, accounting approaches, time series, etc.) and explain complementary relationship to EPA's State Inventory Tool (SIT))

# What does "consistent with the *Inventory of U.S. Greenhouse Gas Emissions and Sinks*" mean?

State-level estimates:

- Adhere to international standards, including the Intergovernmental Panel on Climate Changes (IPCC) Guidelines and United Nations Framework Convention on Climate Change (UNFCCC) transparency reporting system
- Are based on the same methodologies as the national *Inventory* and reflect the latest methodological improvements in the national *Inventory*, including the use of Greenhouse Gas Reporting Program (GHGRP) data.
- Cover all anthropogenic sources and sinks, and all seven gases ($CO_2$, $CH_4$, $N_2O$, HFCs, PFCs, $SF_6$, $NF_3$).
- Cover the complete time series consistent with the national Inventory, starting with 1990 through the latest national Inventory year (i.e., 2019)
- Estimates were compiled to avoid double counting or gaps in emissions coverage between States. This ensures that State totals, when summed, will equal totals in the national *Inventory*. This is important for those looking for consistent, comparable, and complete state data for analyses and other purposes where double counting or omissions would be problematic.

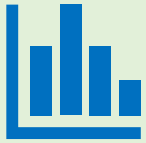
# Areas where differences with an existing state inventory may occur

- Organization of sectors (e.g., states may organize and allocate emissions by economic sector rather than IPCC sector; states including some Industrial Process and Product Use (IPPU) sources in Energy sector)
- Different methods and/or data than those used by EPA
- Differences in accounting approaches (e.g., due to state legislation/goals)
  - Consumption-based accounting approaches (i.e., inclusion of “Scope 3” emissions that occur outside state geographic boundaries)
  - Varying approaches to estimating transportation, including cross-border aviation and marine emissions
  - Treatment of biogenic $CO_2$
- Time series
- Use of Global Warming Potentials (GWPs) other than 100-year GWP from IPCC Fourth Assessment Report used by EPA per UNFCCC reporting

# GHG Inventory by State Publication Products

**Available online at: https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals**

## Data and supporting products



State-by-state GHG data accessible via the Data Explorer web tool (1990-2019) and other formats (e.g., xslx)

Methodology Report

Responses to Reviews

New state GHG Data/Web area Links to official state GHGs

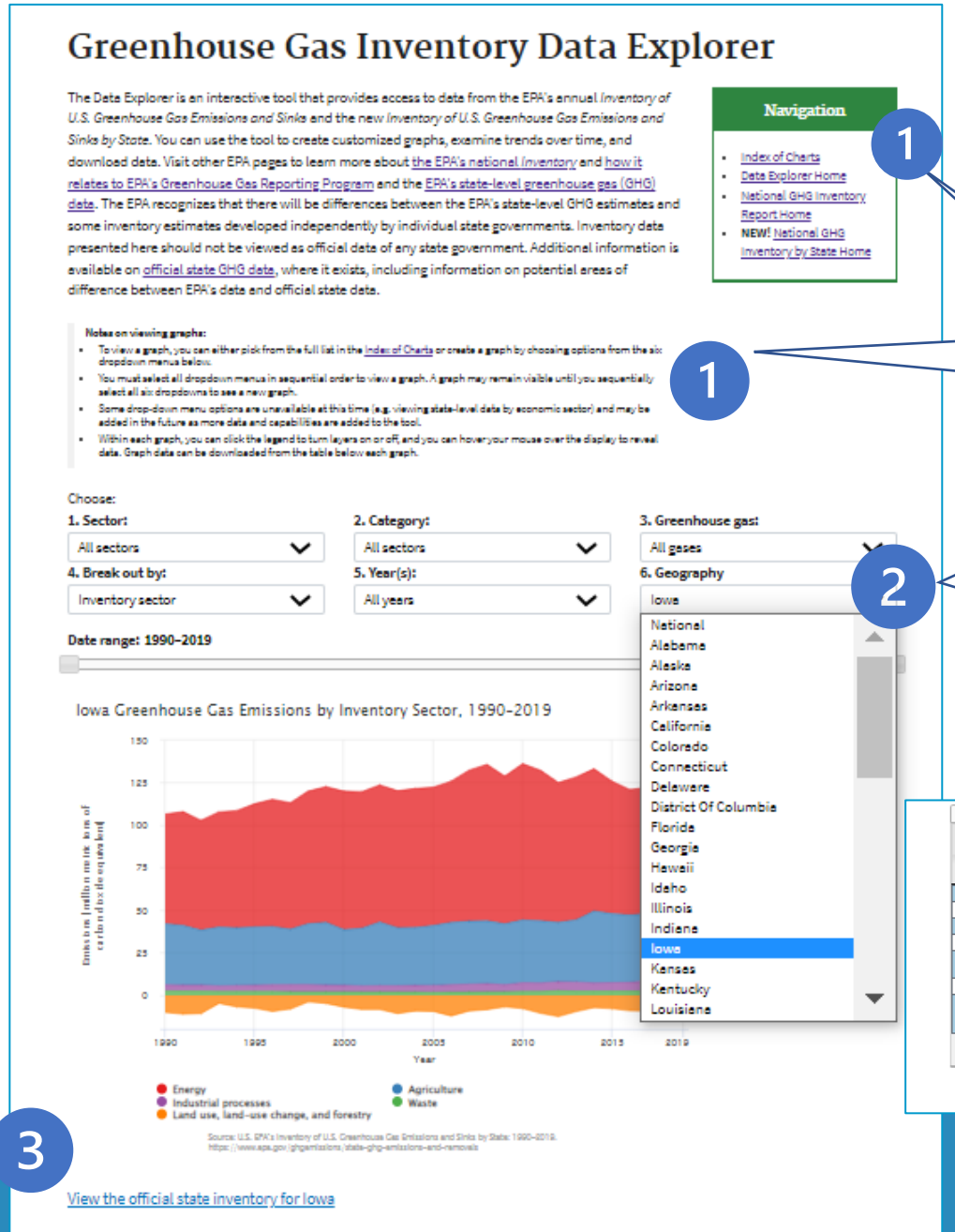
Supplemental fact sheets to respond to state comments on areas where differences with official state inventories may occur, including State Inventory Tool crosswalk

**Include data caveats in products and in web content**

Clearly communicate that this dataset should not be viewed as official data of any state government and provide information on how to access up-to-date official data from states where it exists. EPA data is supplemental and complementary to official state data. Link to fact sheet on differences with official state inventories: https://www.epa.gov/system/files/documents/2022-03/fact-sheet-differences-epa-and-offical-state-ghgi.pdf

# View State GHG Data

**Available in GHG Inventory Data Explorer**
**https://cfpub.epa.gov/ghgdata/inventoryexplorer/**




1) EPA updated introduction to reflect availability of official state data and relevant data caveats.

2) Choose to view data by inventory sectors, gas and use new "geography" dropdown to view national or state data. Data can be downloaded via table below chart in CSV format

3) EPA is including links to latest official state GHG Inventory if available

# New Web Page for Official State GHG Inventories

**Greenhouse Gas Emissions** CONTACT US

- GHG Emissions and Removals Home
- Overview of Greenhouse Gases
- Sources of GHG Emissions and Removals
- Global Emissions and Removals
- National Emissions and Removals
- State and Tribal GHG Data and Resources
- Facility-Level Emissions
- Carbon Footprint Calculator
- GHG Equivalencies Calculator
- Capacity Building for GHG Inventories

## Learn more about Official State Greenhouse Gas Inventories

Across the United States, many states are developing and publishing state level GHG inventories on a regular basis. EPA's state-level data does not replace official state data but is intended to supplement and complement official state data. Learn more about potential reasons EPA's estimates may differ from official state estimates (pdf). To explore official state greenhouse gas inventories where available, please visit the following links.

### States

- Alaska EXIT
- California EXIT
- Colorado EXIT
- Delaware EXIT
- Hawaii EXIT
- Illinois EXIT
- Iowa EXIT
- Louisiana EXIT
- Maine EXIT
- Maryland EXIT
- Massachusetts EXIT
- Nevada EXIT
- New Hampshire EXIT

Includes full list of states with official GHG Inventories

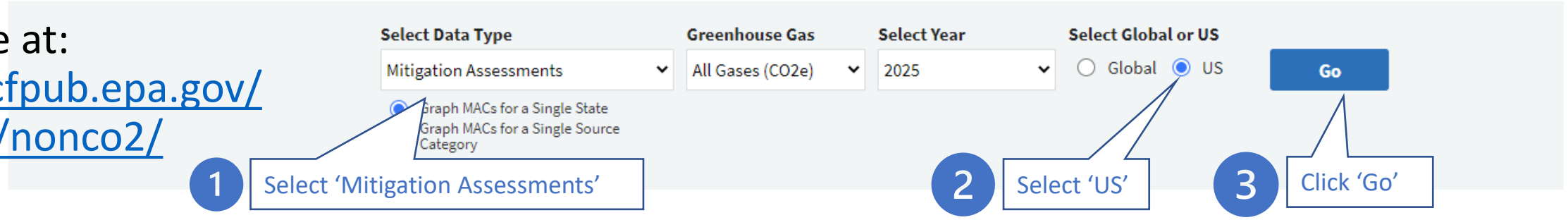
# State-level Non-$CO_2$ GHG Mitigation Report and Dataset

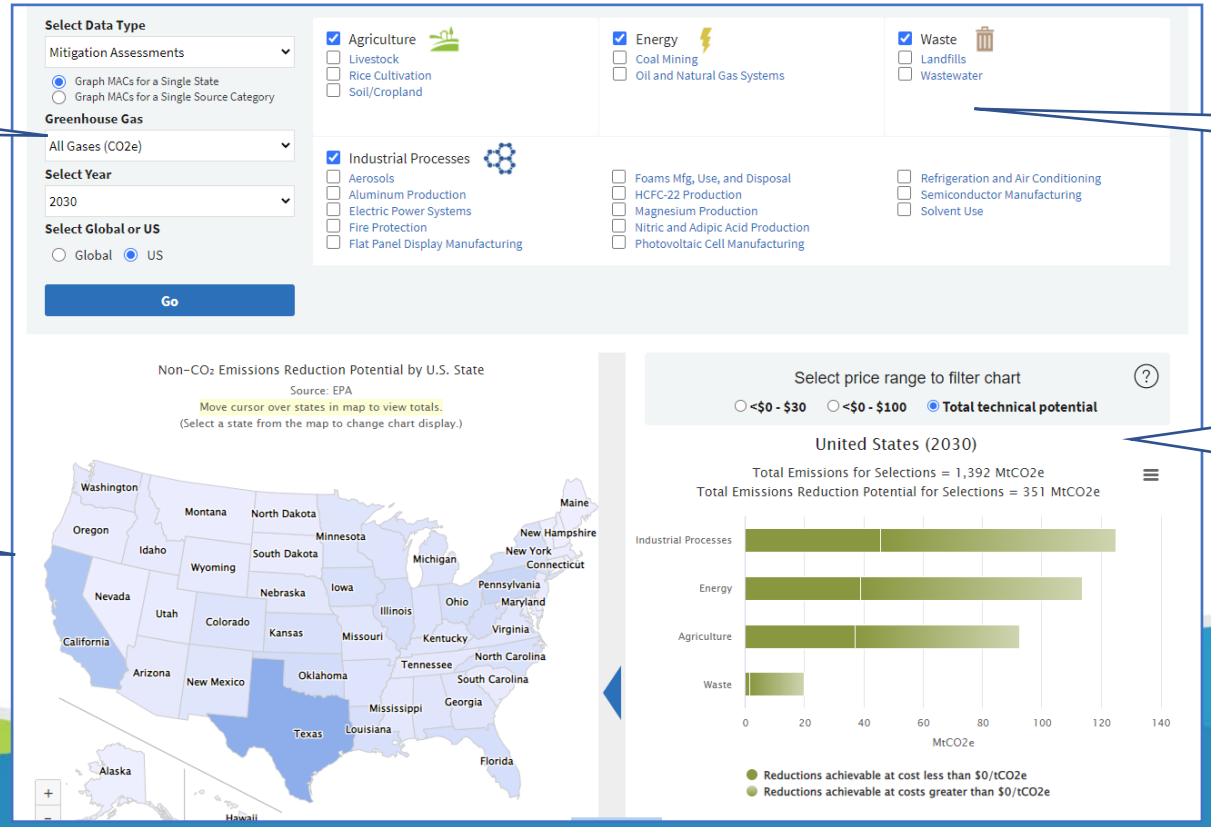
- U.S. state-level companion report to [Global Non-$CO_2$ Greenhouse Gas Emission Projections and Mitigation report](#).
- Provides technical and economic mitigation estimates for non-$CO_2$ GHGs from anthropogenic sources at the U.S. state-level.
- Covers all non-$CO_2$ GHGs from 20+ sources and sectors for the time period 2020 – 2050.
- Web-based summary report and interactive data-tool are intended to provide analysis of the abatement potential and costs of implementing specific abatement technologies.

# View State-level Non-$CO_2$ GHG Data

Visit the web summary report

- Available at: https://cfpub.epa.gov/ghgdata/nonco2/




Filter by non-$CO_2$ GHG

Filter by sector and/or source

Use map to drill down to state-level data

Filter by mitigation cost range and drill down into sector level detail

# State Inventory Tool—2022 Updates


- EPA's State Inventory Tool has been available to states since 2003 to support the development of state-level estimates of GHG emissions and sinks
- Published comprehensive updates to the Tool in March 2022
  - Update to include latest 2019 data (e.g., activity data, emission factors)
  - Allow manual entry of additional emissions sources
  - Update methods for ODS subs
- Publish additional updates in summer 2022
  - Improve alignment with *Inventory by State* while maintaining ability for states to customize
  - Prioritize updates based on comparison of emissions estimates, magnitude of emissions, and technical feasibility
  - Expected priority areas: Natural Gas and Oil, Waste, Industrial Processes

https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool

# Fact Sheet on Crosswalk of GHG Inventory by U.S. State with existing State Inventory Tool (excerpt shown)

Available online: https://www.epa.gov/system/files/documents/2022-03/factsheet-crosswalk-between-ghg-by-state-and-sit.pdf

| IPCC Sector/Source and/or Sink category | Gas(es) | Included in SIT (Y/N/P) | Uses same data/ method (Y/N) | Key Differences | Plans to align SIT with *GHG Inventory by U.S. State* data |
|---|---|---|---|---|---|
| Electrical Transmission and Distribution | $SF_6$ | Y | N | The *GHG Inventory U.S. State* uses transmission miles and GHGRP data to allocate to the states. The SIT tool uses state and national electricity sales. | * |
| $N_2O$ from Product Uses | $N_2O$ | N | N | This source category is not included in SIT. | Δ |
| **Agriculture** | | | | | |
| Enteric Fermentation | $CH_4$ | Y | Y (SIT state-level emission factors as based on national Inventory outputs) | NA | NA |
| Manure Management | $CH_4$, $N_2O$ | Y | Y (SIT simplifies waste management system categories into dry versus liquid) | NA | NA |
| Rice Cultivation | $CH_4$ | Y | N | For the *GHG Inventory by U.S. State*, EPA is implementing a combination of IPCC Tier 1 and Tier 3 approaches, utilizing the Daycent process model to run Tier 3 components. The SIT tool simplifies the calculation between ratoon and primary area of rice, multiplied by a seasonal emission factor. | * |
| Liming | $CO_2$ | Y | Y | NA | NA |
| Urea Fertilization | $CO_2$ | Y | Y | NA | NA |
| Field Burning of Agricultural Residues | $CH_4$, $N_2O$ | Y | Y | NA | NA |

# Contact EPA with additional questions

- GHG Inventory by US State: GHGInventory@epa.gov
- State-level Non-$CO_2$ GHG Mitigation: ragnauth.shaun@epa.gov
- State Inventory Tool: denny.andrea@epa.gov