

Local Greenhouse Gas (GHG) Inventory Tool

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February 15, 2022 | 2 PM Eastern

Three audio options:

1. Listen via computer
2. Use the “Call Me” feature
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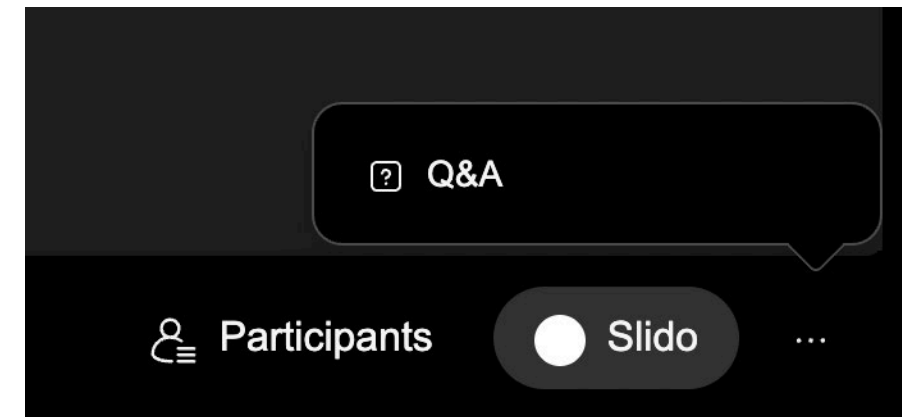
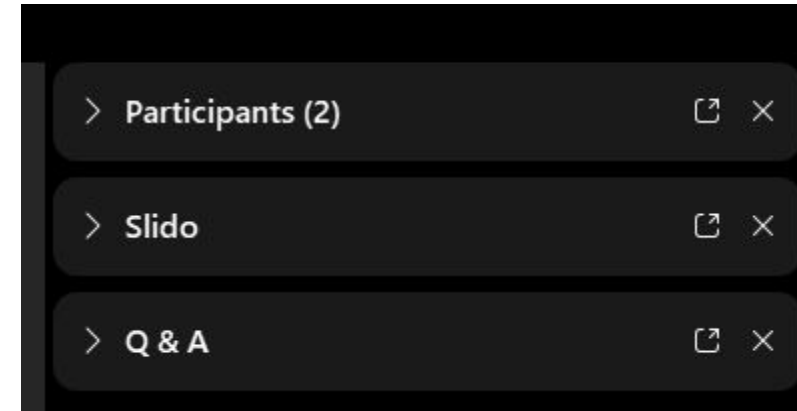
Webinar Panels

We'll use three panels

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

Adding Panels

- If some panels don't appear, hover over the bottom of the screen and select the desired panels
- Select More Options (...) for additional panels
- Highlighted backgrounds indicate active panels



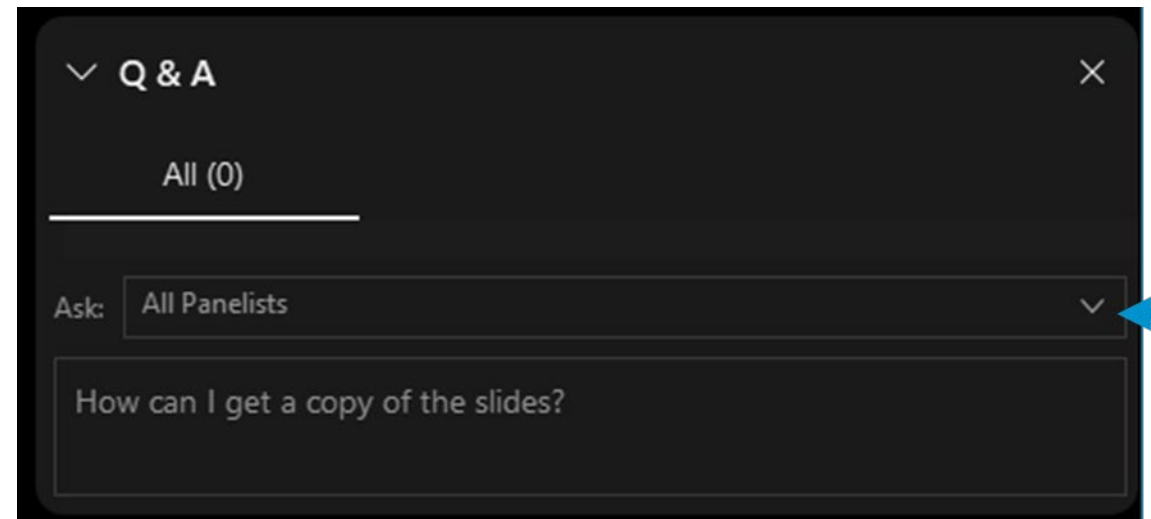
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Q&A

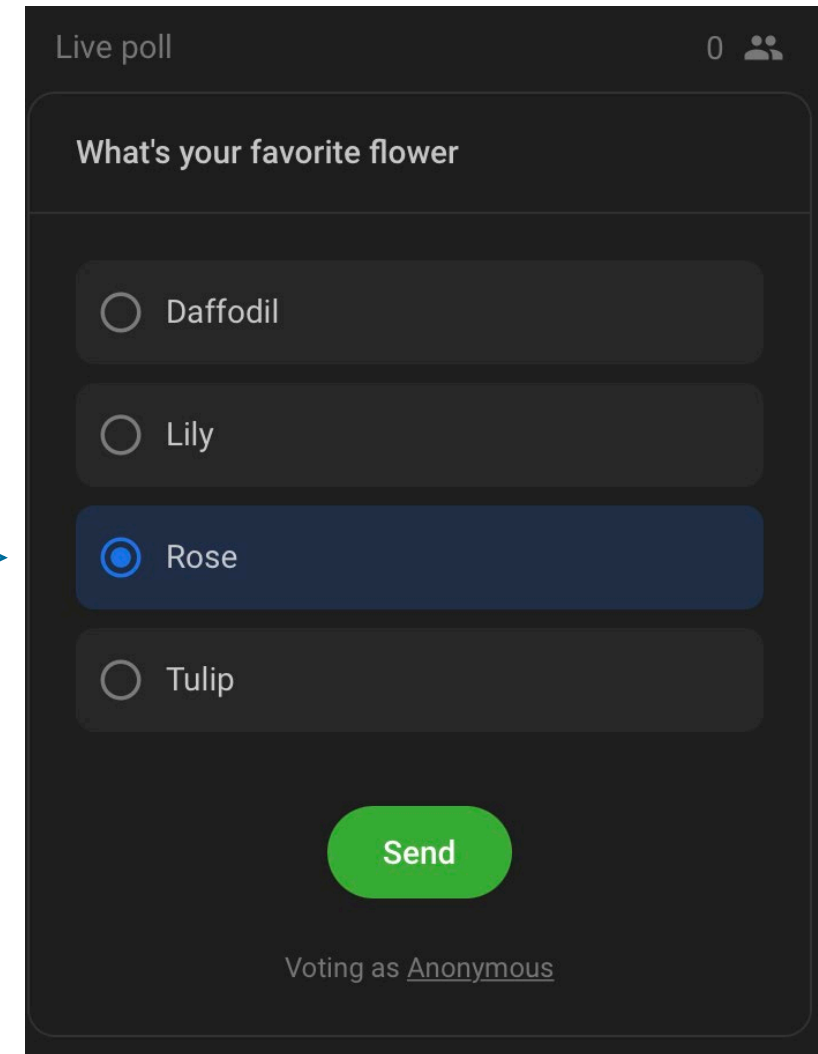
- Participants are muted
- Questions will be moderated at the end
- To ask a question:
 1. Select “All Panelists” from the drop-down menu
 2. Enter your question in the Q&A box
 3. Hit “Enter”



Webinar Feedback

- A feedback form will pop-up in the Slido panel near the end of today's webinar with several questions
- Please make your selections and select "Send"

- EPA will post final materials on the Webinar Series page: www.epa.gov/statelocalenergy/state-local-and-tribal-webinar-series



Live poll 0

What's your favorite flower

Daffodil

Lily

Rose

Tulip

Send

Voting as Anonymous





Our Tools and Resources Support State, Local and Tribal Stakeholders on Climate and Energy



Develop Inventories and Set Goals

GHG INVENTORY TOOLS

State Inventory and Projection Tool

Develop and update inventories for 11 sectors. Forecast emissions through 2050

Local Inventory Tool

Develop community-wide inventories or inventories of local government operations only

Tribal Inventory Tool

Develop community-wide inventories or inventories of tribal government operations only



Design, Compare, or Evaluate Policy



AVoided Emissions and geneRation Tool

Evaluate changes in power plant emissions from energy policy



Health Benefits per kWh

Estimate the health benefits per kWh of clean energy



Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool

Quantify and monetize health impacts of reducing emissions



Energy Savings and Impacts Scenario Tool

Analyze energy savings, costs, and multiple benefits from energy efficiency programs



Communicate and Support Policy Implementation



Greenhouse Gas Equivalencies Calculator

Convert a unit of energy to the equivalent amount of CO₂ emissions from using that amount



Heat Island Reduction Program

Resources to implement heat island mitigation policies and projects



Technical Support

Provide 1-1 technical support for state, local and tribal stakeholders



Convene Stakeholders

Engage state, local and tribal decision-makers



Local Action Framework:

A Guide to Help Communities Achieve Energy and Environmental Goals



Energy and Environment Guide to Action:

State Policies and Best Practices for Advancing Energy Efficiency, Renewable Energy, and Combined Heat and Power



Quantifying the Multiple Benefits of Energy Efficiency and Renewable Energy:

A Guide for State and Local Governments



Local Government Climate and Energy Strategy Series:

A Guide to Developing and Implementing Greenhouse Gas Reduction Programs

Inventory Training Agenda

- Inventory Background
- Tool Overview
 - Background and Goals
 - Tool Basics
 - Tool Contents and Structure
- Tool Demo
 - Government Operations Module
 - Community Wide Module

Why prepare an inventory?

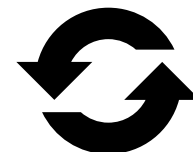
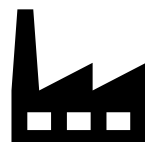
- To identify the greatest sources of GHG emissions within your geographic region
- To understand emission trends
- To provide a basis for developing an action plan or develop goals and targets
- To track progress at reducing emissions

Note: completing an inventory should not become an impediment to taking action; state, regional, or other data may be sufficient to get started



What is included in a GHG Inventory?

- Direct Emissions (aka scope 1)
 - Emissions that are released from activities within the inventory boundary
 - Fossil fuel combustion
 - Fertilizer application
 - Landfill operation
- Indirect Emissions (aka scope 2 and 3)
 - Emissions that occur outside the boundary because of activity or demand within the boundary
 - Purchased electricity (scope 2)
 - Everything Else (scope 3)
 - Off-site waste disposal
 - Lifecycle related emissions



Local GHG Inventory Tool Goals

- Respond to requests for assistance with measuring GHG emissions
- Help local governments across the US to evaluate GHGs associated with both government operations and community-wide activity
- Support development of baselines for tracking emission trends, developing mitigation strategies and policies, and assessing progress towards meeting goals
- Provide a **free**, easy-to-use tool consistent with accepted protocols and methodologies

Tool Basics

- Excel based
- Divided into 2 modules, can be used independently
 - Government Operations Module
 - Community-Wide Module
- Designed to be flexible to the needs and constraints of different tribal governments
 - data can be entered at any scale, ranging from community-wide activity data to data by facility or meter
 - default emissions factors are provided, but can be over-written with location-specific factors
 - customize year of inventory, number of departments, etc

Government Operations: Overview

- Based on the Climate Registry's *Local Government Operations Protocol*, version 1.1.

- Covers ten emissions sectors:

- Stationary Fossil Fuel Combustion
 - Mobile Fossil Fuel Combustion
 - Solid Waste Management
 - Wastewater Treatment
 - Electricity Consumption
 - Employee Commute
 - Agriculture & Land Management
 - Urban Forestry
 - Waste Generation (offsite disposal)
 - Water Use (offsite supply/treatment)
 - Additional Sources
- Scope 1
- Scope 2
- Scope 3
-
- ```
graph LR; S1[Stationary Fossil Fuel Combustion] --- S1_Scope[Scope 1]; M1[Mobile Fossil Fuel Combustion] --- S1_Scope; SW1[Solid Waste Management] --- S1_Scope; WWT[Wastewater Treatment] --- S2[Scope 2]; EC[Electricity Consumption] --- S2; EC[Employee Commute] --- S2; ALM[Agriculture & Land Management] --- S3[Scope 3]; UF[Urban Forestry] --- S3; WGen[Waste Generation (offsite disposal)] --- S3; WUse[Water Use (offsite supply/treatment)] --- S3; AS[Additional Sources] --- S3;
```

# Community Module

- Based on ICLEI's *Global Protocol for Community-Scale GHG Emissions*, version 0.9
- Covers nine sectors of community-scale emissions:

- Stationary Fossil Fuel Combustion
  - Mobile Fossil Fuel Combustion
  - Solid Waste Management
  - Wastewater Treatment
  - Electricity Consumption
  - Agriculture & Land Management
  - Forestry
  - Waste Generation (offsite disposal)
  - Water Use (offsite supply/treatment)
  - Additional Sources
- Scope 1
- Scope 2
- Scope 3
-

# Tool Structure

- Table of Contents page
  - Main navigational portal
  - Track completion of each data source
- Inventory Control Sheet
  - Enter name of community and year of inventory
  - Set up electricity provider information
- Entry Sheet/Data Sheet
  - Enter/review descriptions and consumption activity by unit
  - Some sectors allow batch import of data
- Summary/Calculation Sheets
  - Show calculations/equations and summary data
  - No data entry required, informational only
- Inventory Summary Page
  - Compiles all entered data
  - Tables and charts of emissions data

# Government Operations: Table of Contents Page

| Table of Contents                                                                                                                                                   |                                       |                                           |                                    |                                         |                        |                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------|------------------------------------|-----------------------------------------|------------------------|-------------------------------------|
| Clicking on each box will take you to its respective worksheet in the tool. Use this table of contents to keep track of your progress as you move through the tool. |                                       |                                           |                                    |                                         |                        |                                     |
| Completed sheets are filled in. Incomplete sheets have a white background, while sheets that require no action by the user are in grey.                             |                                       |                                           |                                    |                                         |                        |                                     |
| Introduction                                                                                                                                                        |                                       | Read Me                                   |                                    | Definitions                             |                        |                                     |
| Inventory Control Sheet                                                                                                                                             |                                       |                                           |                                    |                                         |                        |                                     |
| Scope 1                                                                                                                                                             |                                       |                                           | Scope 2                            |                                         | Scope 3                |                                     |
| Stationary Combustion - Entry Sheet                                                                                                                                 | Mobile Combustion - Entry Sheet       | Solid Waste - Control Sheet               | Wastewater - Control Sheet         | Electricity Use - Entry Sheet           | Employee Commute Sheet | Agriculture & Land Management Sheet |
| Stationary Combustion - Data Sheet                                                                                                                                  | Mobile Combustion - Data Sheet        | Solid Waste - Entry Calculation & Summary | Wastewater - Entry Sheet           | Electricity Use - Data Sheet            | Water Use Sheet        | Urban Forestry Sheet                |
| Stationary Combustion - Calculation & Summary                                                                                                                       | Mobile Combustion - Summary Sheet     |                                           | Wastewater - Calculation & Summary | Electricity Use - Calculation & Summary |                        | Waste Production Sheet              |
|                                                                                                                                                                     | Mobile Combustion - Calculation Sheet |                                           |                                    |                                         |                        | Additional Emission Sources Sheet   |
| Inventory Emissions Summary                                                                                                                                         |                                       |                                           |                                    |                                         |                        |                                     |

Click anywhere in the Table of Contents to jump to a section of the tool

# Community Module: Control Sheet

Q44

**Inventory Control Sheet** Return to Table of Contents  Check if you have completed this sheet.

Complete the 4 steps below to set up the tool for your community.

1) Please enter the name of your city and the inventory year below.

City

Year

2) The sectors included in the community inventory are defined below. These are the main sectors defined in the Global Protocol for Community-Scale GHG Emissions and the main sectors used to categorize GHG emissions. These sectors will be used to standardize data entry for calculations throughout the tool.

- 1 Residential
- 2 Commercial/Institutional
- 3 Industrial
- 4 Energy Generation

3) Select the eGRID subregion where your community is located and enter utility-specific emissions factors, if available, for the utilities that provide electric service for your community.

Utility selections and emission factors will be used to help calculate your community emissions throughout the tool.

Please see the map below the table to identify the eGRID subregion that includes your community.

| eGRID Subregion          | Emission Factors (lb/MWh) |                 |                  | Total EF<br>lb CO <sub>2</sub> e/MWh |
|--------------------------|---------------------------|-----------------|------------------|--------------------------------------|
|                          | CO <sub>2</sub>           | CH <sub>4</sub> | N <sub>2</sub> O |                                      |
| Utility Name             |                           |                 |                  |                                      |
| <input type="checkbox"/> |                           |                 |                  | -                                    |
| <input type="checkbox"/> |                           |                 |                  | -                                    |
| <input type="checkbox"/> |                           |                 |                  | -                                    |
| <input type="checkbox"/> |                           |                 |                  | -                                    |

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Introduction Read Me TOC Definitions **Control Sheet** Stationary-Entry Stationary-Data Stationary-Calcs Mobile-Entry Mobile-Data

Enter Tribe Name and Inventory Year

Select eGRID subregion or enter utility factors

"Set Up" Inventory

**Helpful Hints**

**Setting up a baseline:**

The GHG emissions inventory for your city should encompass all GHG emissions occurring during a selected calendar year. As the *Global Protocol for Community Scale GHG Emissions* indicates, reporting on a calendar year basis is considered standard under existing international, national, state, and voluntary reporting programs. As your city monitors and tracks progress over time in reducing GHG emissions, it is necessary that you establish a performance baseline with which future years may be compared.

The selection of the base year should take into account several factors: data availability, anomalies present in the baseline caused by external factors such as weather or economic conditions, emission reduction efforts that the city has undertaken in recent years, and the context in larger state, national, or voluntary efforts.

# Community Module: Data Entry Page

Municipal GHG Planning Tool 6-13-11a.xlsm - Microsoft Excel

Navigation/Tracking Buttons

Return to Table of Contents  Check if you have completed this sheet.

## Electricity-Entry

**Data Entry & Calculations**

On this sheet, the user can enter electricity use for each entity for which you have data. These entities may be of any scale—the entire city, city departments, buildings, or individual meters.

To use the form below, first enter the data for a given unit, then click "Add/Update Record." The data will be saved, and the fields will remain filled in. The purpose of this process is to facilitate similar data entries for multiple entities. **Note: you will receive a confirmation message when the record has been successfully added.** At any point, you may click "Reset Form" to clear all fields. (If you would like to enter more than one record at a time, you may proceed to the "Electricity-Data" sheet and directly add data there.)

If you would like to change any aspect of a previous entry, select "Edit Record." A drop-down menu will appear. Select the entry you would like to change, make changes to the entry fields as needed, then click "Add/Update Record." To delete a record entirely, click the "Delete Record" button. A dropdown menu will appear for you to select the entry to delete. After you confirm that you would like the entry deleted, the saved data will be erased.

Add/Update Record Edit Record Delete Record **Reset Form**

**1 Describe the electricity consuming unit you are entering**

| ID# | Unit Description | Facility Type (if applicable) | Department |
|-----|------------------|-------------------------------|------------|
| 1   |                  |                               |            |

**2 Enter the activity data for the year 2008**

| Electricity Consumed (kWh) | Electric Utility |
|----------------------------|------------------|
|                            |                  |

Add/Edit/Delete entries

Enter description and consumption data

SANBAG ICE Municipal GHG Planning Tool 6-13-11a.xlsm

TOC Definitions Sheet Factors Control Sheet Electricity-Entry Stationary-Data Stationary-Calcs Electricity-Entry Electricity-Data Electri...



# Community Module: Navigation Page Revisited

Table of Contents boxes  
change color as you mark  
sheets complete

Table of Contents

Clicking on each box will take you to its respective worksheet in the tool. Use this table of contents to keep track of your progress as you move through the tool.

The background color of completed sheets are filled in below. Incomplete sheets have a white background, while sheets that require no action by the user are grey.

Introduction Read Me Definitions

Inventory Control Sheet

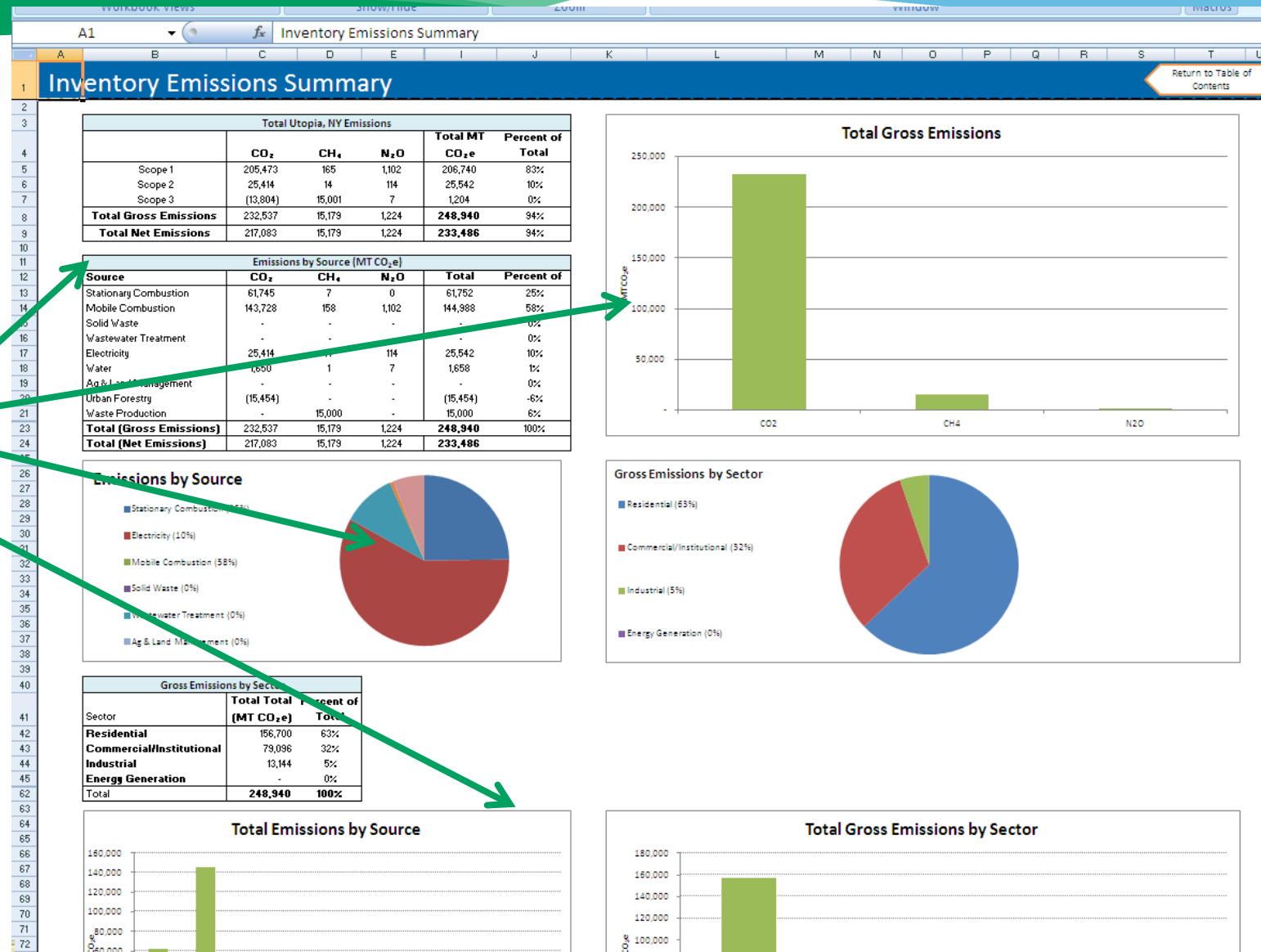
Scope 1 Scope 2 Scope 3

|                                          |                                  |                                           |                                    |                                         |                  |                               |
|------------------------------------------|----------------------------------|-------------------------------------------|------------------------------------|-----------------------------------------|------------------|-------------------------------|
| Stationary Units - Entry Sheet           | Mobile Units - Entry Sheet       | Solid Waste - Control Sheet               | Wastewater - Control Sheet         | Electricity Use - Entry Sheet           | Water Use        | Agriculture & Land Management |
| Stationary Units - Data Sheet            | Mobile Units - Data Sheet        | Solid Waste - Entry Calculation & Summary | Wastewater - Entry Sheet           | Electricity Use - Data Sheet            | Waste Production | Urban Forestry                |
| Stationary Units - Calculation & Summary | Mobile Units - Summary Sheet     |                                           | Wastewater - Calculation & Summary | Electricity Use - Calculation & Summary |                  | Additional Emission Sources   |
|                                          | Mobile Units - Calculation Sheet |                                           |                                    |                                         |                  |                               |

Inventory Emissions Summary

# Community Module: Summary Page

Charts and Tables of:  
Total Emissions  
Emissions by Source & Sector



# Tool Demo

- Government Operations Module
- Community Wide Module

# Training and Technical Assistance

Download Tool

[www.epa.gov/statelocalenergy/tribal-greenhouse-gas-inventory-tool](https://www.epa.gov/statelocalenergy/tribal-greenhouse-gas-inventory-tool)

Local and Tribal GHG Inventory Tool Office Hours

February 22, 2022; 2-3pm EST (11am-12pm PST)

[www.eventbrite.com/e/us-epa-local-and-tribal-greenhouse-gas-inventory-tool-office-hours-tickets-247279388307](https://www.eventbrite.com/e/us-epa-local-and-tribal-greenhouse-gas-inventory-tool-office-hours-tickets-247279388307)

For more Information

[www.epa.gov/statelocalenergy/state-local-and-tribal-webinar-series](https://www.epa.gov/statelocalenergy/state-local-and-tribal-webinar-series)

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## Connect with the State and Local Climate and Energy Program

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