United States Environmental Protection Agency

Local Climate and Energy Program

Local Greenhouse Gas Inventory Tool for Government Operations and Communities

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ICF INTERNATIONAL

Overview

- What is the Local GHG Inventory Tool?
- How are emissions estimated?
- How are results displayed? And how can results be used?

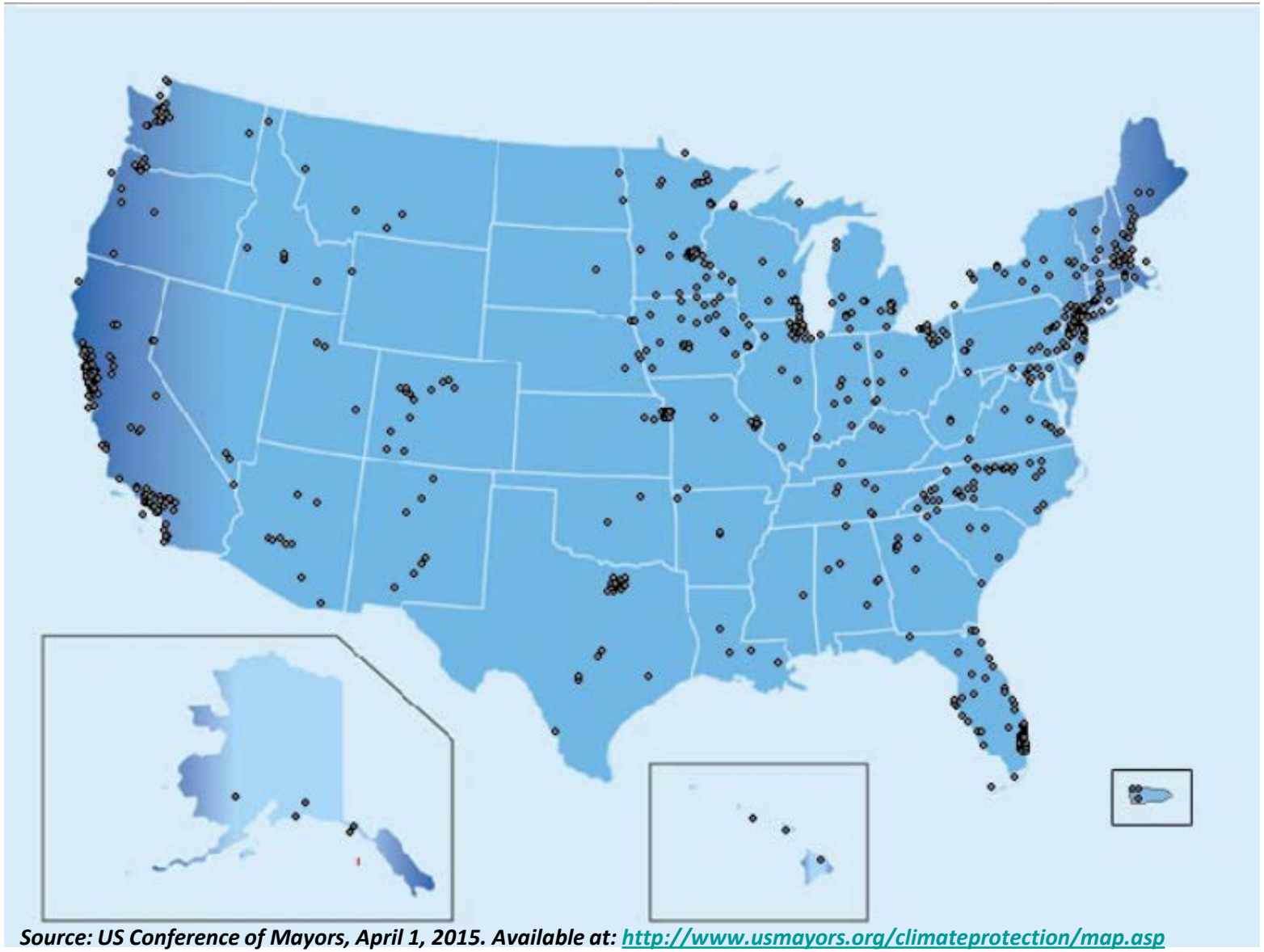
Background

- EPA's State and Local Program began in 1990s
- Developed the *State Workbook* for estimating state GHG emissions; later became Vol. VIII EIIP Guidance
- Inventories are time-intensive
  - Collecting the data
  - Identifying the correct emission factors
  - Setting up the infrastructure to calculate emissions
- Developed the State Inventory Tool (SIT) to help states overcome these challenges

Background

- Leveraged state experience to develop local tools
- It can be expensive to buy licensed software, have tools developed, or to participate in national climate programs
- Localities often require a quick estimate of GHG emissions to move on to mitigation

Local Inventory Background



Source: US Conference of Mayors, April 1, 2015. Available at: http://www.usmayors.org/climateprotection/map.asp

Background

- The tool does not include…

  …emissions estimates for multiple years at a time.

  …emissions projections.

  …scenario planning.

  …life-cycle analysis.

  …benchmarking analysis.

Local Tool

- 2 Excel-based modules to evaluate GHG emissions for government operations and the community

Local Greenhouse Gas Inventory Tools (LGGIT)

- Local Government Greenhouse Gas Inventory Module
  - Based on Local Government Operations Protocol (LGOP), v 1.1
- Community Greenhouse Gas Inventory Module
  - Based on Global Community Protocol

Local Tool

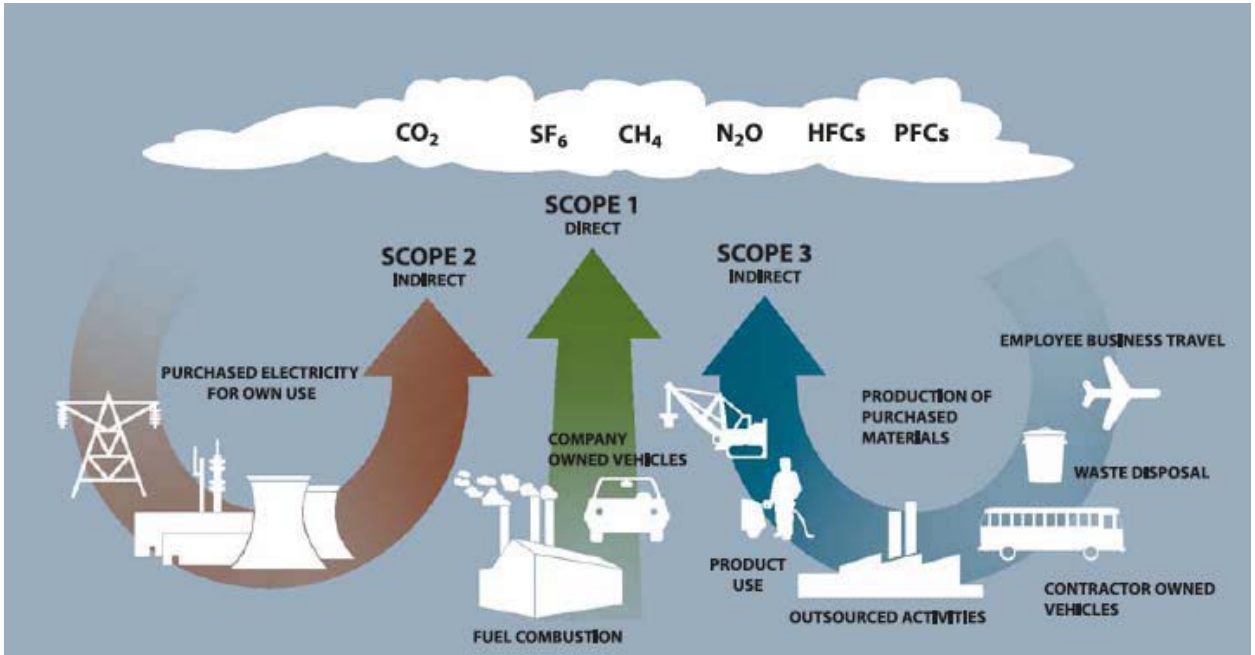
- Designed to accept any level of data granularity
  - Flexible to the needs and constraints of different municipalities.

- Data can be entered at any scale, ranging from city-wide activity data, data by department, to data by facility or meter

Increased granularity of data = increased accuracy and usefulness of results

Local Tool

- Calculates GHGs from local government operations and communities
- Categorized into 3 scopes, with emission sources categorized by scope



Source: WRI/WBCSD GHG protocol Corporate Standard, Chapter 4 (2004).

Government Module Overview

Local Climate and Energy Program

- **Scope 1**
  - Stationary Combustion
  - Mobile Combustion
  - Solid Waste
  - Wastewater
- **Scope 2**
  - Electricity Use
- **Scope 3**
  - Employee Commute
  - Agriculture & Land Management
  - Urban Forestry
  - Waste Generation
  - Water Use
- **Other (Scope 1, 2, or 3)**
  - Additional Emission Sources

Community Module Overview

Local Climate and Energy Program

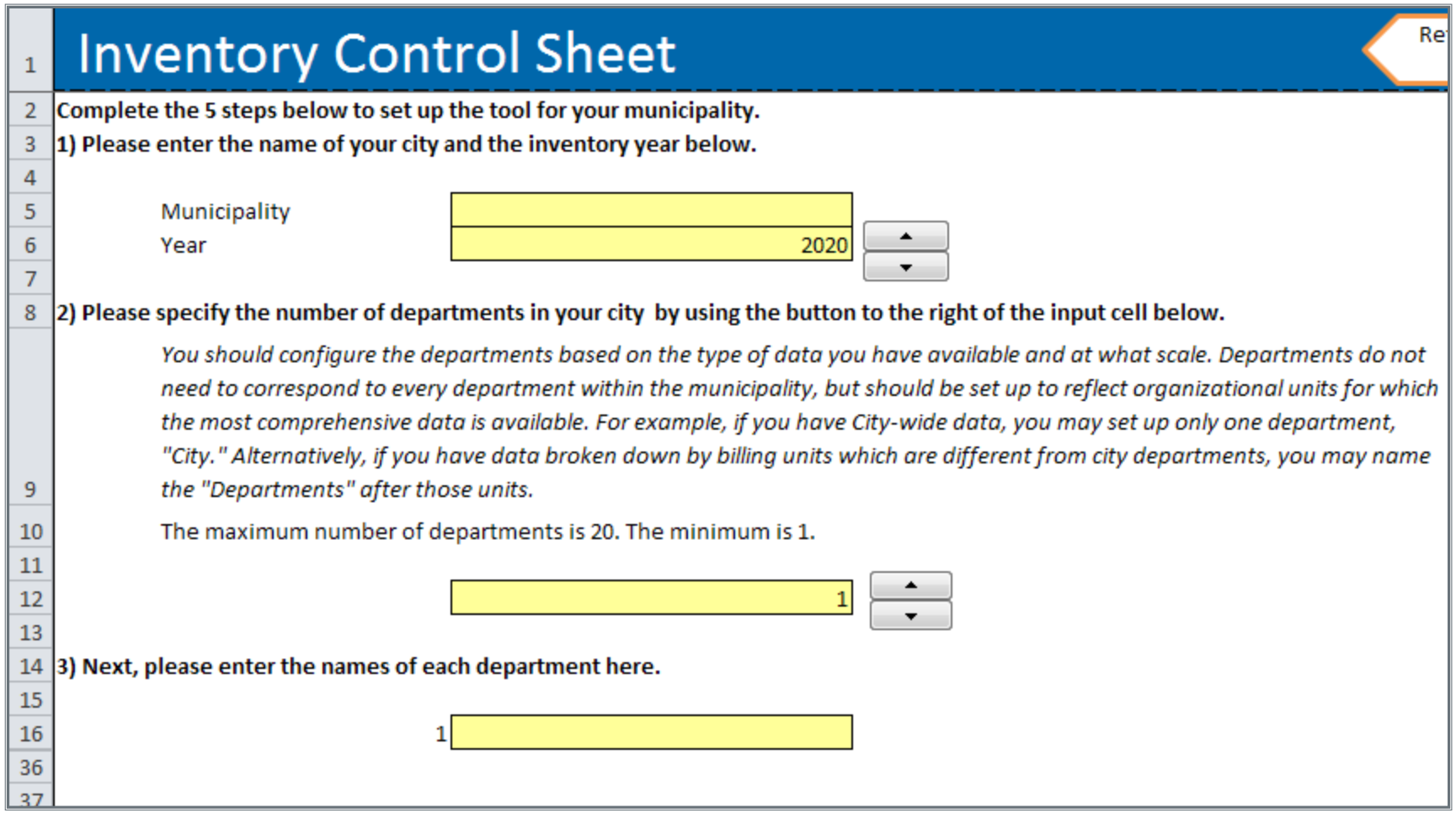
- **Scope 1**
  - Stationary Combustion
  - Mobile Combustion
  - Solid Waste
  - Wastewater
- **Scope 2**
  - Electricity Use
- **Scope 3**
  - Agriculture & Land Management
  - Urban Forestry
  - Waste Production
  - Water Use
- **Other (Scope 1, 2, or 3)**
  - Additional Emission Sources

Local Tool

- 1 control worksheet to set up each module
  - Municipality, inventory year, department setup, eGRID subregion and emission factors
- 3 types of worksheets:
  - Entry Sheets
  - Data Sheets
  - Calculation and Summary Sheets

Control Sheet

- Tool set up on Control Worksheet



Inventory Control Sheet

Complete the 5 steps below to set up the tool for your municipality.

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

Municipality

Year 2020

2) Please specify the number of departments in your city by using the button to the right of the input cell below.

You should configure the departments based on the type of data you have available and at what scale. Departments do not need to correspond to every department within the municipality, but should be set up to reflect organizational units for which the most comprehensive data is available. For example, if you have City-wide data, you may set up only one department, "City." Alternatively, if you have data broken down by billing units which are different from city departments, you may name the "Departments" after those units.

The maximum number of departments is 20. The minimum is 1.

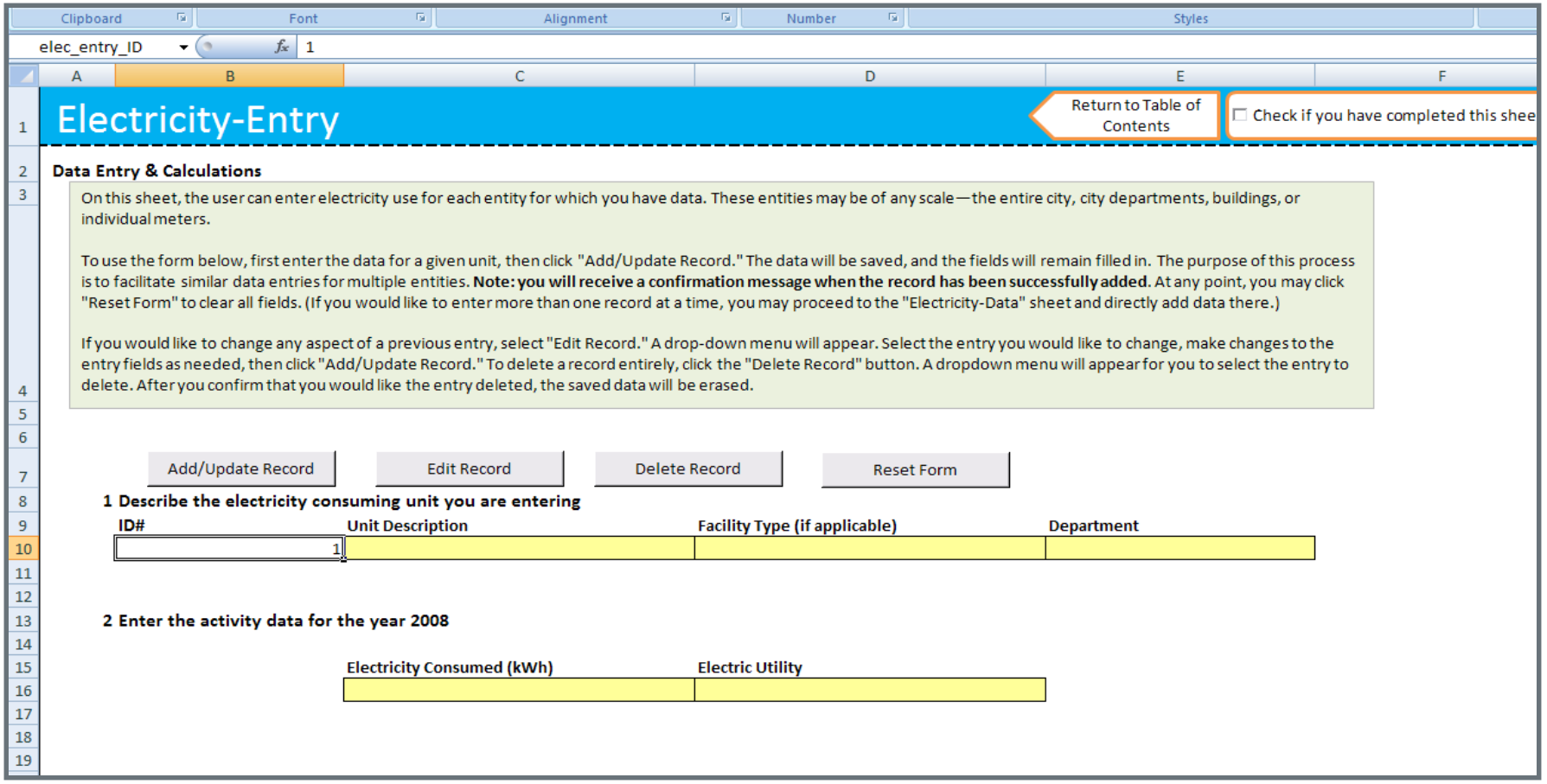
1

3) Next, please enter the names of each department here.

1

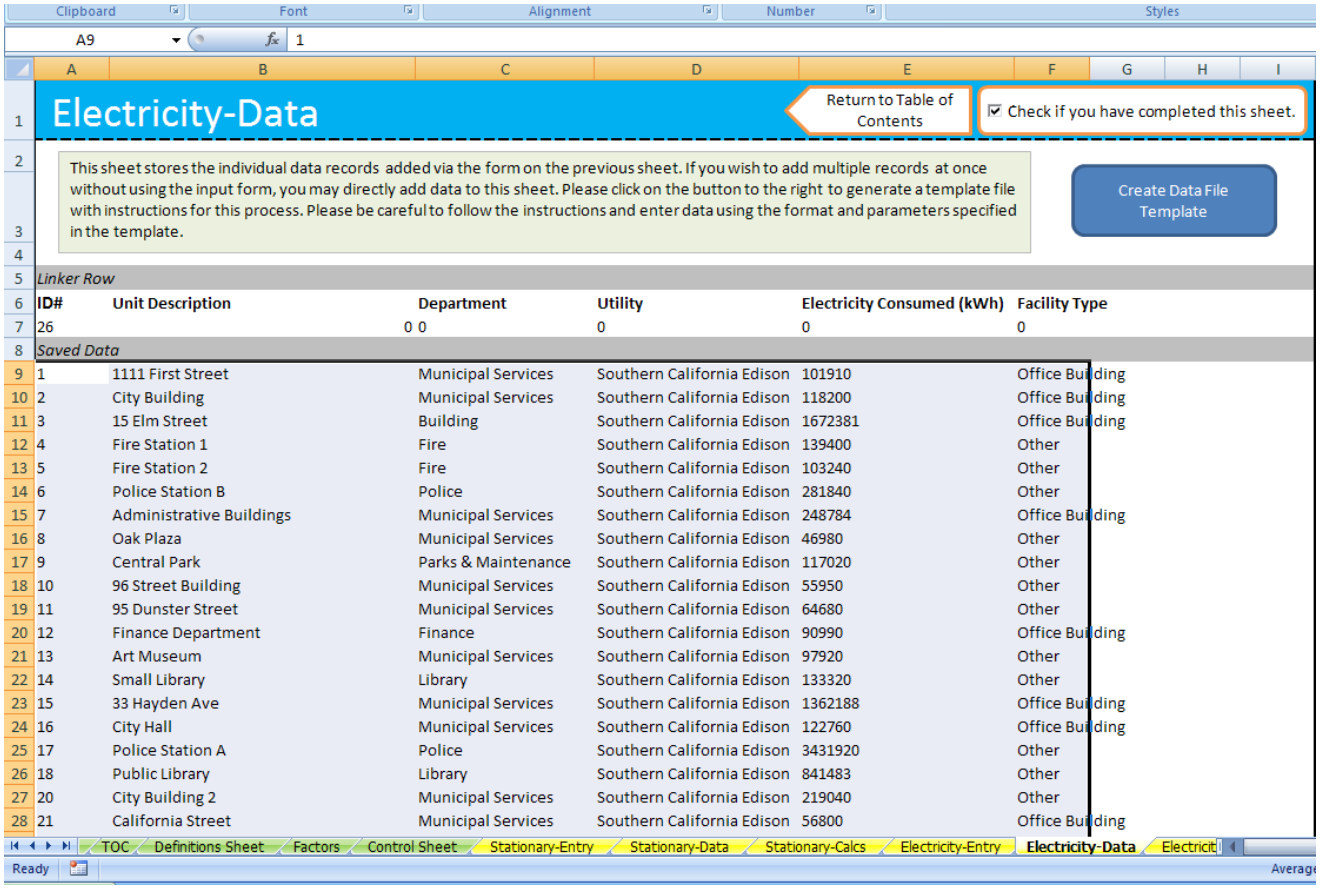
Entry Sheets

- Data entered individually on Entry Sheets
  - Example: Electricity Consumption Data



Data Sheets

- Data entered in a “batch upload” on Data Sheets
  - Template can be exported, and emailed to source experts to collect activity data



Electricity-Data

Return to Table of Contents

Check if you have completed this sheet.

This sheet stores the individual data records added via the form on the previous sheet. If you wish to add multiple records at once without using the input form, you may directly add data to this sheet. Please click on the button to the right to generate a template file with instructions for this process. Please be careful to follow the instructions and enter data using the format and parameters specified in the template.

Create Data File Template

Linker Row

ID#	Unit Description	Department	Utility	Electricity Consumed (kWh)	Facility Type
26		0 0	0	0	0

Saved Data

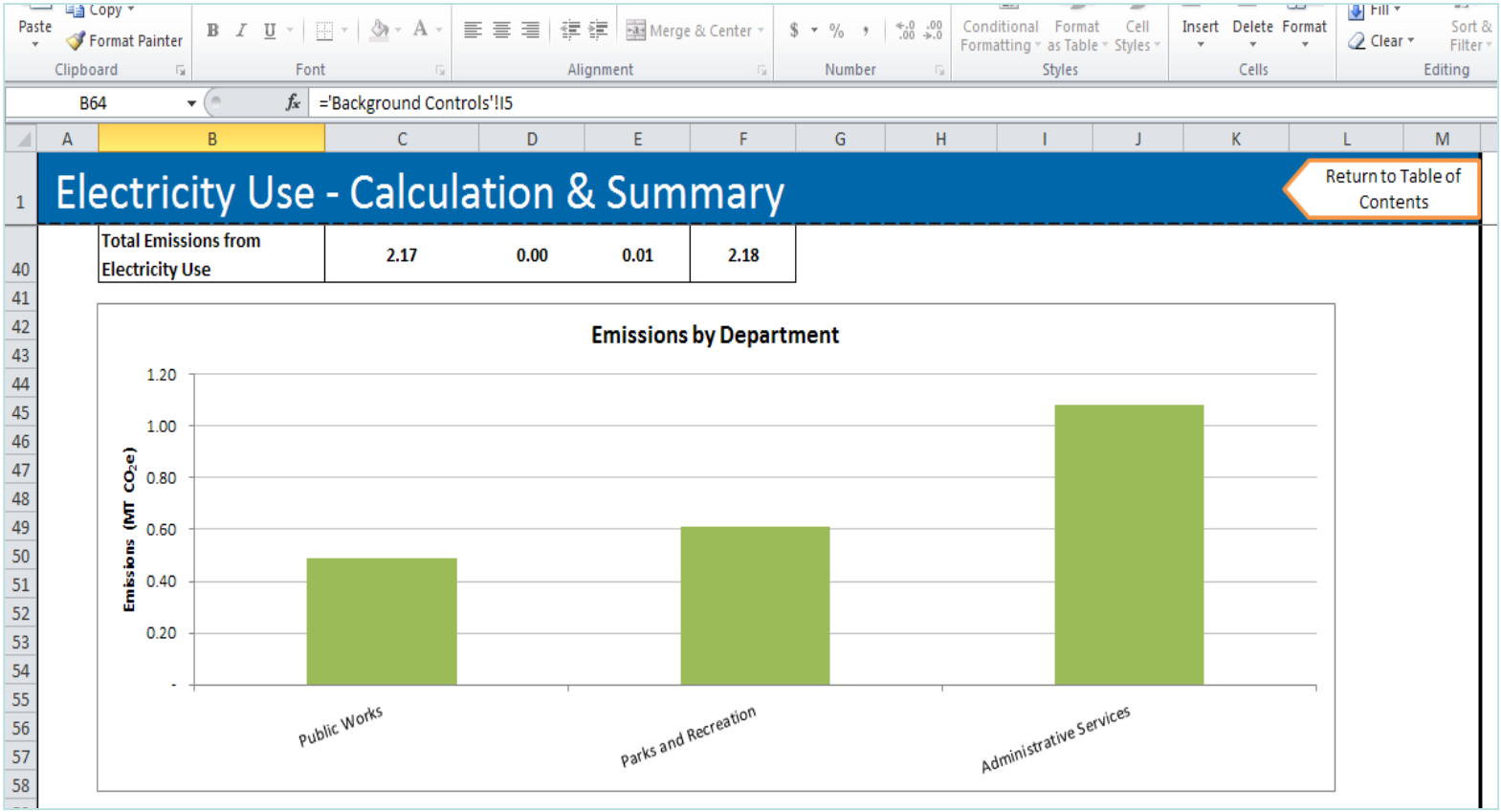
1	1111 First Street	Municipal Services	Southern California Edison	101910	Office Building
2	City Building	Municipal Services	Southern California Edison	118200	Office Building
3	15 Elm Street	Building	Southern California Edison	1672381	Office Building
4	Fire Station 1	Fire	Southern California Edison	139400	Other
5	Fire Station 2	Fire	Southern California Edison	103240	Other
6	Police Station B	Police	Southern California Edison	281840	Other
7	Administrative Buildings	Municipal Services	Southern California Edison	248784	Office Building
8	Oak Plaza	Municipal Services	Southern California Edison	46980	Other
9	Central Park	Parks & Maintenance	Southern California Edison	117020	Other
10	96 Street Building	Municipal Services	Southern California Edison	55950	Other
11	95 Dunster Street	Municipal Services	Southern California Edison	64680	Other
12	Finance Department	Finance	Southern California Edison	90990	Office Building
13	Art Museum	Municipal Services	Southern California Edison	97920	Other
14	Small Library	Library	Southern California Edison	133320	Other
15	33 Hayden Ave	Municipal Services	Southern California Edison	1362188	Office Building
16	City Hall	Municipal Services	Southern California Edison	122760	Office Building
17	Police Station A	Police	Southern California Edison	3431920	Other
18	Public Library	Library	Southern California Edison	841483	Other
20	City Building 2	Municipal Services	Southern California Edison	219040	Other
21	California Street	Municipal Services	Southern California Edison	56800	Office Building

TOC | Definitions Sheet | Factors | Control Sheet | Stationary-Entry | Stationary-Data | Stationary-Calcs | Electricity-Entry | Electricity-Data | Electricit

Ready

Calculation & Summary Sheets

- Data are transparently converted to GHG emissions on Calculation & Summary Sheets
  - Example: Electricity Consumption Data



Emission Factors

- Emission Factors are from publicly available resources

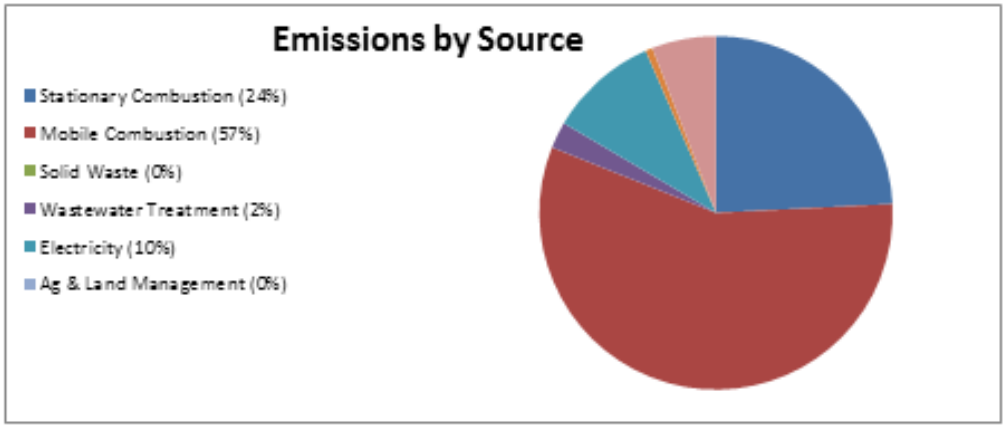
Scope 1	Emission Factor Source
Stationary Combustion	US EPA Mandatory Reporting Rule
Mobile Combustion	U.S. EPA, National GHG Inventory
Solid Waste	U.S. EPA, National GHG Inventory
Wastewater	U.S. EPA, National GHG Inventory
Scope 2	
Electricity Use	EPA's eGRID
Scope 3	
Employee Commute	U.S. EPA, National GHG Inventory
Agriculture & Land Management	U.S. EPA, National GHG Inventory
Urban Forestry	U.S. EPA, State Inventory Tools
Waste Generation	U.S. EPA, National GHG Inventory
Water Use	California Energy Commission

Summary Worksheet

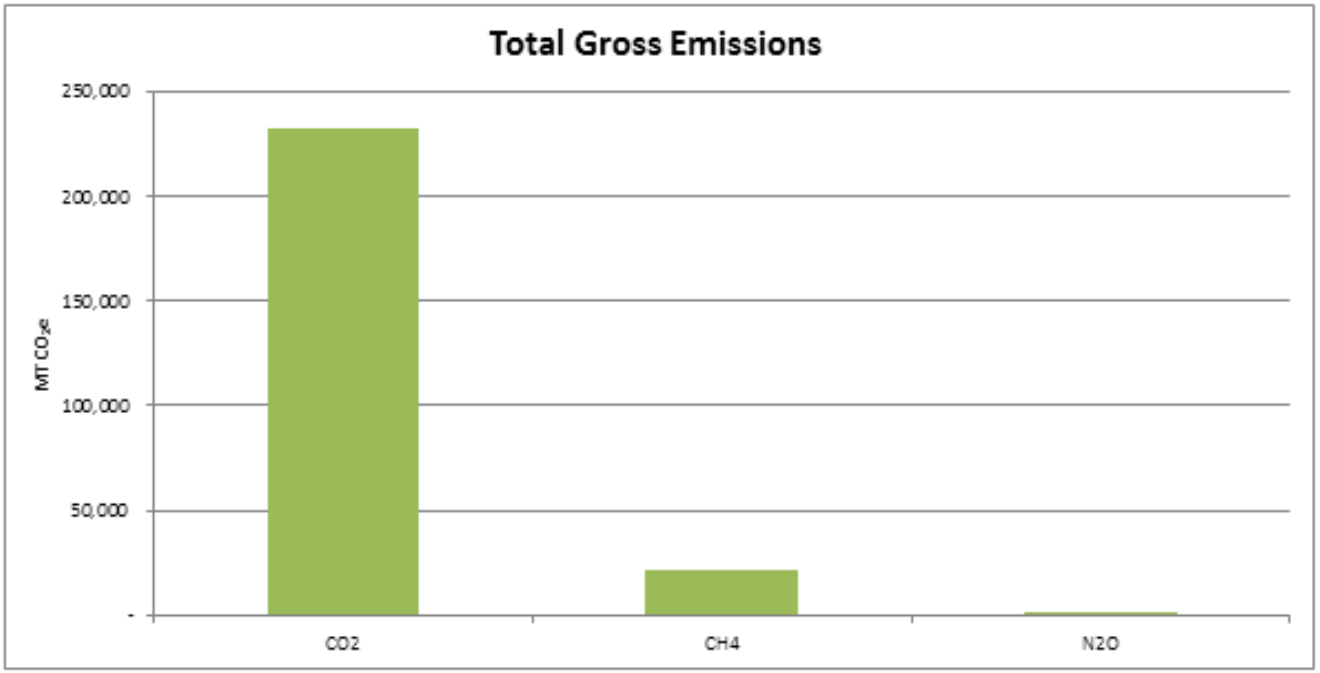
- Tabular and graphical data summaries
- Summary of emissions by:
  - Scope
  - Source
  - Department

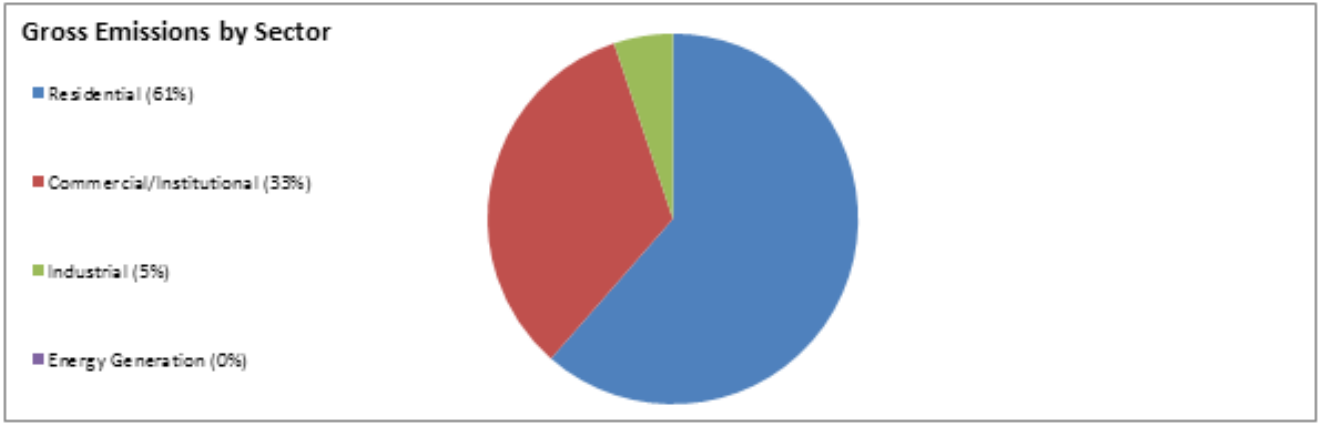
Total Utopia, NY Emissions					
	CO_2	CH_4	N_2O	Total MT CO_2e	Percent of Total
Scope 1	205,473	6,181	1,250	212,904	83%
Scope 2	25,414	14	114	25,542	10%
Scope 3	(13,804)	15,001	7	1,204	0%
Total Gross Emissions	232,537	21,195	1,372	**255,104**	94%
Total Net Emissions	217,083	21,195	1,372	**239,650**	94%

Emissions by Source ($MT CO_2e$)					
Source	CO_2	CH_4	N_2O	Total	Percent of
Stationary Combustion	61,745	7	0	61,752	24%
Mobile Combustion	143,728	158	1,102	144,988	57%
Solid Waste	-	-	-	-	0%
Wastewater Treatment	-	6,016	148	6,164	2%
Electricity	25,414	14	114	25,542	10%
Water	1,650	1	7	1,658	1%
Ag & Land Management	-	-	-	-	0%
Urban Forestry	(15,454)	-	-	(15,454)	-6%
Waste Production	-	15,000	-	15,000	6%
Total (Gross Emissions)	232,537	21,195	1,372	**255,104**	100%
Total (Net Emissions)	217,083	21,195	1,372	**239,650**	



Summary Worksheet





Applications

- Estimate of GHG emissions to quickly move toward mitigation
- Results could provide justification for increased funding of climate programs
- Analyze the GHG impact of mitigation efforts using the Local Tool
  - For example, to track decreased energy consumption from EE programs and improved building codes

For More Information

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For More Information

Questions???