

Climate Smart Communities Webinar

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- 1-866-394-2346
- Code: 1982360347#
- No audio signal will be transmitted over the Internet



Welcome

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Climate Smart Communities Webinar

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Climate Smart Communities Webinar

Website Address



<http://www.dec.ny.gov/energy/50845.html>

Climate Smart Community Webinars

- April 10, 10:30 a.m. *City of Kingston Urban Agriculture Zoning Project*
- May 8, 10:30 a.m. *Sustainable Municipal Fleet Management*

Coming Events

- March 25-27. *New York State Floodplain and Stormwater Managers Association Annual Meeting*. Poughkeepsie. <http://nyfloods.org>
- April 17. *Rochester Sierra Club Earth Day Forum. Climate Smart Communities: Let's get with the program.*
<http://newyork.sierraclub.org/rochester>
- May 19-20(21). *Local Solutions: Northeast Climate Change Preparedness Conference*. Manchester, NH.
<http://www.antiochne.edu/innovation/climate-change-preparedness/local-solutions-conference>



Climate Smart Communities Local Government Operations Greenhouse Gas Accounting Tool

March 13, 2014

Presented to
Climate Smart Communities

Presented by
VHB Engineering, Surveying and Landscape Architecture, P.C.





Agenda

- Background on Local Government Operations GHG Inventory
- Background on the LG Operations GHG Accounting Tool
- Tool Demo
- Community inventory overview
- Additional Resources

Climate Smart Communities Pledge

1. Pledge to Combat Climate Change by Becoming a Climate Smart Community
- 2. Set Goals, Inventory Emissions, Move to Action**
3. Decrease Energy Demand for Local Government Operations
4. Encourage Renewable Energy for Local Government Operations
5. Realize Benefits of Recycling and Other Climate Smart Solid Waste Management Practices
6. Promote Climate Protection Through Community Land Use Tools
7. Plan for Adaptation to Unavoidable Climate Change
8. Support a Green Innovation Economy
9. Inform and Inspire the Public
10. Commit to an Evolving Process

“ You can't manage what you don't measure. ”

Conducting a Local Government GHG Inventory

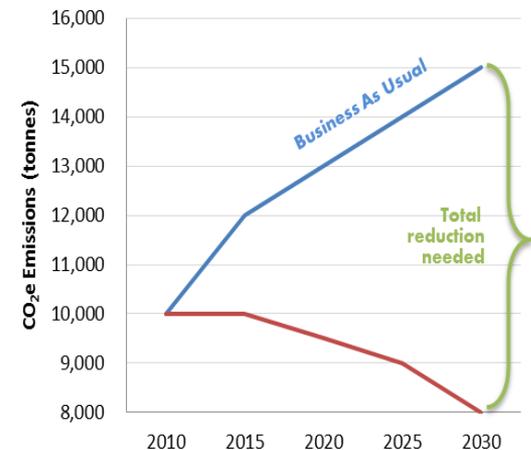
- Designate a GHG Inventory project coordinator /technical lead
- Identify key sources/contacts for data collection
- Define GHG inventory boundaries
- Identify emissions sources
- Select baseline year
- Collect data for all sources for selected baseline year
- **Enter data into the LG Operations GHG Accounting Tool**
- Report Results

Emissions Sectors	Possible Contacts
Buildings and other facilities	Facilities Manager, Finance Department
Streetlights and traffic signals	Facilities Manager, Finance Department, Parks Department
Vehicle fleet	Fleet Manager, Finance Department
Solid waste management and facilities	Public Works Department, Finance Department
Water delivery facilities	Public Works Department
Airport and port facilities	Airport Manager, Port Authority
Transit fleet	Public Transit Agency, Finance Department
Power generation facilities	Public Utility
Wastewater facilities	Wastewater Treatment Plant, Finance Department
Employee commute	Human Resources Department

Why is a LGO GHG Inventory important?

- Understanding emissions sources
- Establish a baseline
- Identify opportunities to reduce energy use and GHG emissions
- Lead by example
- Improve ability to manage energy use
- Save money

Figure 4: Example Business As Usual
Local Government Operations
GHG Emissions Forecast

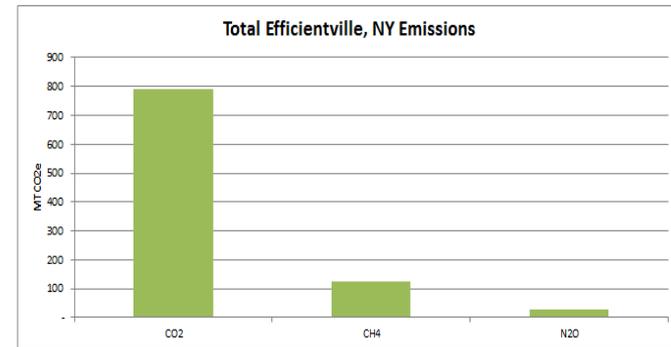


How does the tool help?

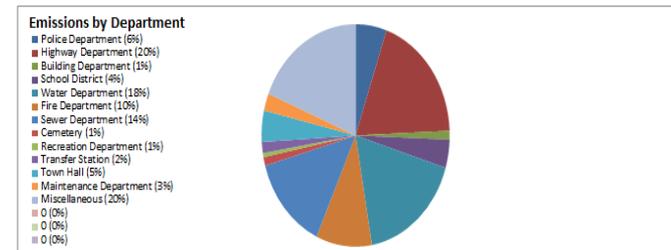
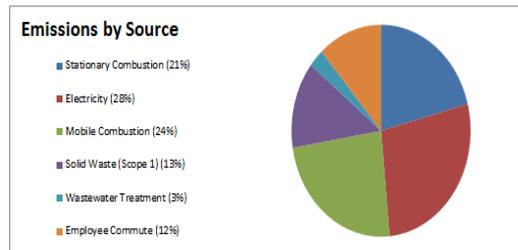
- Streamlines data collection
- Stores baseline data in one location
- Saves time
- Built-in calculations
- Runs reports

Summary-Emissions [Return to Table of Contents](#)

Total Efficientville, NY Emissions					
	CO ₂	CH ₄	N ₂ O	Total MT	Percent of Total
Scope 1	422	125	26	573	61%
Scope 2	258	0	1	259	28%
Scope 3	109	-	-	109	12%
Total Emissions	789	125	27	941	100%



Emissions by Source					
Source	CO ₂	CH ₄	N ₂ O	Total	Percent of Total
Stationary Combustion	197	0	0	197	21%
Electricity	258	0	1	259	28%
Mobile Combustion	225	-	-	225	24%
Solid Waste (Scope 1)	-	125	-	125	13%
Wastewater Treatment	-	-	26	26	3%
Employee Commute	109	-	-	109	12%
Total	789	125	27	941	100%



Background on the tool

- Developed in partnership with ICF International
- Customized for NY local governments
- Complies with the Local Government Operations Protocol
- Excel-based



Local Government Greenhouse Gas Accounting Tool

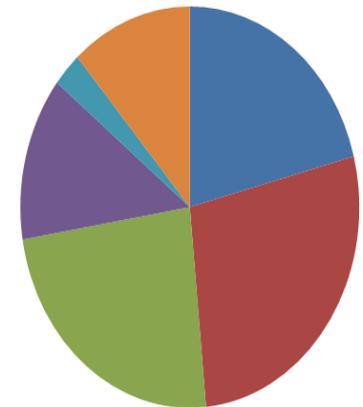
Developed by ICF International in consultation from VHB Engineering, Surveying and Landscape Architecture, P.C., independent contractors to NYSERDA.

What sectors/sources are covered by the tool?

- Stationary Combustion of Fossil Fuels
- Building/Facility Electricity Consumption
- Mobile Combustion of Fossil Fuels (Fleet)
- Solid Waste Disposal
- Wastewater Treatment
- Employee Commute
- Additional Emission Sources (optional)

Emissions by Source

- Stationary Combustion (21%)
- Electricity (28%)
- Mobile Combustion (24%)
- Solid Waste (Scope 1) (13%)
- Wastewater Treatment (3%)
- Employee Commute (12%)



Local Government Greenhouse Gas (GHG) Accounting Tool

What is this tool?

This tool is designed to help local governments in New York State evaluate the greenhouse gas reductions associated with various strategies for their local government operations. Understanding these reduction measures and their impacts on emission levels allows local governments to prioritize among the various options for inclusion in their local Climate Action Plan. This tool can help local governments begin preliminary decision-making of greenhouse gas reduction strategies before undertaking more detailed feasibility studies.

The tool helps users to develop a baseline municipal greenhouse gas inventory of local government operations, according to the Local Government Operations Protocol (LGOP), version 1.1. This baseline inventory is used to create a Business-As-Usual projection of emissions in 2020, which will be used to determine the impacts of various greenhouse gas reduction measures.

Use of default data:

This tool is pre-programmed with the default emission factors and system assumptions needed to calculate emissions according to the LGOP. Default values that are specific to local governments in New York State are used wherever possible. When State-level data is not available, National default values are used. The tool provides users the option to use the default data or to override default values with local government-specific information.

Important Terminology:

Scope - A common means of categorizing direct and indirect emissions to improve transparency and for identifying different types of climate policies and goals. There are three *scopes* of emissions:

Scope 1 - All direct GHG emissions from municipal operations.

Scope 2 - Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling for municipal operations.

Scope 3 - All other indirect emissions not covered in Scope 2, such as emissions from vehicles not owned or controlled by the city (e.g., employee commutes), waste disposal, or emissions from the production of purchased materials.

Emission Factors - An emission factor is an amount of GHG emissions associated with a unit of activity data. For example, kg CO₂ emitted per kWh electricity produced (kg CO₂/kWh), or lb. CO₂ emitted per gallon of gasoline (lb. CO₂/gal).

The Climate Smart Communities Program is jointly sponsored by six New York State Agencies: the Department of Environmental Conservation, the New York State Energy Research and Development Authority (NYSERDA), the Department of Transportation, the Department of Health, the Department of State, and the Public Service Commission.

How this tool is organized:

There are two main sections of this tool: 1) Background Data Collection, and 2) Emissions. In each, the user will enter data to configure the tool to their specific local government and will receive customized results. Please refer to the *User's Guide* for more detailed instructions.

1) Background Data Collection

On the Control Sheet, the user will identify the local government, the inventory year for baseline measurements, and set up city departments. Depending on what data is available and at what scale, the user can determine how to configure the tool. Departments do not need to correspond to every department within the local government, but are set up to reflect organizational units for which the most comprehensive data is available. For example, if the user has local government-wide data, they may set up only one department, "Local Government." Alternatively, if the user has data broken down by billing units which are different from local government departments, they may name the "Departments" after those units.

The user will also set up information about their electricity providers. Users can select which utilities within New York State serve the municipal facilities, view the default emission factors for those utilities, and set new emission factors (if desired).

2) Emissions

After the user configures the tool on the Control Sheet, the tool calculates the municipal emissions, or the baseline greenhouse gas inventory for the local government's operations. The inventory is separated into the 7 main emission sectors below, which are consistent with the LGOP. Users can also enter emissions for any additional sources they desire.

1. Stationary Combustion of Fossil Fuels
2. Building/Facility Electricity Consumption
3. Mobile Combustion of Fossil Fuels (Fleet)
4. Solid Waste disposal
5. Wastewater Treatment
6. Employee Commutes
7. Additional Emission Sources (optional)

For each source, the user will be asked to enter data about relevant city activities (e.g., electricity consumed, fuel used) during the inventory baseline year. Default emission factors for each activity are provided, and users are given the option to override these factors, if necessary. There are multiple sheets for some emissions sources, but not for all sources. Each emissions source follows

How to use this tool:

This tool is designed to be flexible to your local government's needs, and can be conducted at any scale you decide. For example, you may choose to conduct a high-level inventory, entering fuel consumption and electricity use data for the local government as a whole. Alternatively, you can enter data at the department level, at the facility level, at the account level, or any combination of the above. The more specific the data provided, the more accurate the tool will be for estimating your city's municipal emissions and the impacts of emissions reduction measures.

Configuration:

Use the Control Sheet to configure the tool to your local government. Select a baseline year, set up local government departments, identify city electricity providers, and click the "Set Up" button to get started. See figure below for an example.

The screenshot shows the 'Control Sheet' spreadsheet with the following fields and callouts:

- 1) Please enter the name of your local government and the inventory baseline year below.**
 - Local Government: (Callout: Enter local government name and inventory year)
 - Year: (Callout: Enter local government name and inventory year)
- 2) Please specify the number of departments in your local government here by using the button to the right of the input field.**
 - Number of departments: (Callout: Select number of local government departments. Then enter their names in the yellow boxes that appear.)
- 3) Next, please enter the names of each department here.**
 - Department names: (Callout: Select number of local government departments. Then enter their names in the yellow boxes that appear.)
- 4) Now, please select the eGRID subregion where your local government is located.**
 - These eGRID selection and emission factors will be used to help calculate your local government's emissions.
 - Check off which eGRID Subregion your City is in. (Callout: Check off which eGRID Subregion your City is in.)
 - | | Emission Factors (lb/MWh) | | | Total EF
lb CO ₂ e/MWh |
|--|---------------------------|-----------------|------------------|--------------------------------------|
| | CO ₂ | CH ₄ | H ₂ O | |
| <input checked="" type="checkbox"/> NPCC NYC/Westchester | 610.67 | 0.024 | 0.00281 | 612.04 |
| <input type="checkbox"/> NPCC Long Island | | | | |
| <input type="checkbox"/> NPCC Upstate NY | | | | |
| <input type="checkbox"/> New York State Average | | | | |
 - Adjust emission factors if you have better data. (Callout: Adjust emission factors if you have better data)
- 4) Finally, please click on the "Set Up" button below.**
 - Set Up button: (Callout: Click "Set Up")

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

Stationary Combustion - Entry Sheet

Electricity Use - Entry Sheet

Mobile Combustion - Entry Sheet

Solid Waste - Control Sheet

Wastewater - Control Sheet

Employee Commute Sheet

Stationary Combustion - Data Sheet

Electricity Use - Data Sheet

Mobile Combustion - Data Sheet

Solid Waste - Entry and Calculations Sheet

Wastewater - Entry Sheet

Wastewater - Calculation Sheet

Stationary Combustion - Calculation Sheet

Electricity Use - Calculation Sheet

Mobile Combustion - Summary Sheet

Additional Emission Sources Sheet

Mobile Combustion - Calculation Sheet

Inventory Emissions Summary

Business-As-Usual Projections



Definitions Sheet

Please refer to this list for an explanation of any terms you may find within this tool.

Term	Definition
Baseline	A measurement, calculation, or time used as a basis for comparison.
Baseline Year	The first full year of energy use and emissions data. The baseline year is used in order to provide a comparison for later years.
BAU	Business As Usual. Used to refer to a future scenario in which the world continues at status quo.
Biogenic	Biogenic emissions or fuels are produced by the biological process. Note that this term refers only to recently produced (i.e., non-fossil) origin.
BOD₅	Biological Oxygen Demand. The amount of oxygen consumed in the biological process of waste, used to measure the amount of waste input or output in a system.
CO₂	carbon dioxide
CO₂e	Carbon dioxide equivalent emissions. This is determined by multiplying methane and nitrous oxide by their Global Warming Potential.
CH₄	Methane. Methane is a greenhouse gas with a GWP that is 21 times that of carbon dioxide produced through anaerobic decomposition of waste, enteric fermentation, natural gas and petroleum products, and other industrial processes.
Denitrification	The process by which microorganisms remove nitrogen from the soil and release it into the atmosphere in the form of nitrous oxide (N ₂ O).
Direct Emissions	The emissions generated on-site (as opposed to electricity delivered to the site) such as from the combustion of fossil fuels.
EF	Emission Factor. The value for scaling emissions to activity data. It represents emissions per unit of activity (e.g., grams of carbon dioxide emitted per kilowatt-hour consumed).
Effluent	The treated or untreated wastewater that flows out of a source.
EPA	United States Environmental Protection Agency
Fossil Fuel	Any fuel derived from the pre-historic burial of organic matter (such as coal, oil, or natural gas) and petroleum products (gasoline, diesel, etc.). Combustion of petroleum products releases greenhouse gases into the atmosphere.
Fugitive Emissions	Emissions of gases that escape from pressurized equipment, storage tanks, pipelines or wastewater treatment plants.

Factors

This sheet shows all factors used to calculate your city's greenhouse gas emissions. The Unit Conversion Factors are standard conversion factors that apply to multiple sheets in the tool. Each inventory sector additionally has a separate section on this sheet containing sector-specific emission factors. The majority of cells are hard-coded values, entered directly from the source provided. Values in blue text were calculated based on the available data to convert it to an appropriate format.

Please do not make any changes to the factors on this sheet. Users have the opportunity while moving through the tool to input alternate values for many variables. Use this sheet simply as a reference or to understand factor sources.

Unit Conversion Factors

	Multiply by
kWh to MWh	0.001
lbs. to metric tons	0.000453592
kg to metric tons	0.001
g to kg	0.001
lbs. to MMT	4.53592E-10
scf to mcf	0.001
mcf_scf	1000
ft3 to m3	0.028316847
Per Day to Per Year	365.25
grams to MT	0.000001
lbs. to kg	0.45359237
per Gallon to per MG	0.000001
ft ³ CH ₄ to MT CH ₄	0.00002

Legend:
Hard-wired factor
Calculated factor

CO ₂ to CO ₂ e	1
CH ₄ to CO ₂ e	21
N ₂ O to CO ₂ e	310

Stationary Fuel Factors

Fuel Emission Factors

Fuel	kg CO ₂	kg CH ₄	kg N ₂ O	Heat Content (MMBtu/unit)	Unit
	CO ₂	CH ₄	N ₂ O		
Natural Gas	54.505	0.0051	0.0001	1.028	mcf
Digester Gas	43.791	0.0027	0.0005	0.841	mcf

Control Sheet

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Check if you have completed this sheet.

1) Please enter the name of your local government and the inventory baseline year below.

Local Government
Year

Efficientville, NY	▲
2010	▼

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

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

The maximum number of departments is 45. The minimum is 1.

13	▲
	▼

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

1	Police Department
2	Highway Department
3	Building Department
4	School District
5	Water Department
6	Fire Department
7	Sewer Department
8	Cemetery
9	Recreation Department
10	Transfer Station
11	Town Hall
12	Maintenance Department
13	Miscellaneous

Helpful Hints

Setting up a baseline:

The GHG emissions inventory for the your local government should encompass all GHG emissions occurring during a selected calendar year. As the *Local Government Operations Protocol* indicates, reporting on a calendar year basis is considered standard under existing international, national, state, and voluntary reporting programs. As your local government 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.

4) Now, please select the eGRID subregion where your local government is located.

These eGRID selection and emission factors will be used to help calculate your local government emissions throughout the tool.

Default emission factors from the U.S. EPA for each eGRID subregion are provided below. The emission factors shown for each subregion are specific to that subregion, and represent the applicable subregions for New York State. You may override these emissions factors if you have specific data on your local utility.

eGRID Subregions	Emission Factors (lb/MWh)			Total EF
	CO ₂	CH ₄	N ₂ O	lb CO ₂ e/MWh
<input type="radio"/> NPCC NYC/Westchester				
<input type="radio"/> NPCC Long Island				
<input checked="" type="radio"/> NPCC Upstate NY	497.92	0.016	0.00677	500.35
<input type="radio"/> New York State Average				

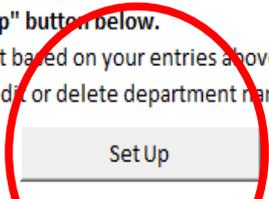
5) Please specify any custom facility types

Data entry sheets for Stationary Fuel Consumption and Electricity Use have a field allowing users to note the facility type for each building or account that is entered. While this does not affect the results, some users may find it useful to enter additional facility types. The default options, and the fields for entering custom types, are listed below.

Default Facility Types	Generator Public Health Facility Office Building Outdoor Lighting Parking Garage Public Safety Facility Recreation Facility School Warehouse Wastewater Infrastructure Water Infrastructure	
Optional Custom Types (fill in up to three)	Transfer Station Correctional Facility Other	<input type="text"/>

6) Finally, please click on the "Set Up" button below.

This will set up each sheet based on your entries above. You can always come back and add a department or change an emission factor. However, please do not edit or delete department names after you have run the Set Up process below.



Data Entry & Calculations

On this sheet, the user can enter stationary fuel combustion for each entity for which you have data. These entities may be of any scale—the entire local government, local government departments, buildings, or individual equipment such as furnaces.

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 "Stationary-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 fuel consuming unit you are entering

ID#	Unit Description	Facility Type (if applicable)	Department
1	Green Youth Center	Recreation Facility	Recreation Department

2) Enter the activity data for the year 2010

Fuel Type	Fuel Consumption (mcf):
Natural Gas	1054

Please enter your fuel consumption for the inventory year here.

Helpful Hints -- Potentially Useful Conversions

Natural Gas/Digester Gas

- To convert ccf to mcf, multiply by 0.1
- To convert scf to mcf, multiply by 0.001
- To convert therms to mcf, multiply by 0.0973

Liquid Fuels

- To convert barrels to gallons, multiply by 42

Coal

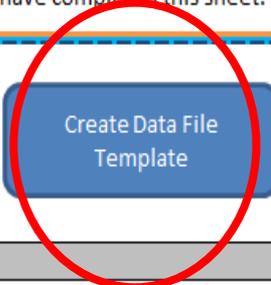
- To convert pounds to short tons, *divide* by 2000

Stationary-Data

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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 to the area below where it says "Saved Data" (i.e., from row 9 onward). 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. If new data are pasted over existing data, the existing data will be lost.



<i>Linker Row</i>						
ID#	Unit Description	Department	Fuel Type	Amount Consumed	Unit	Facility Type
17		0 0	0	0		0
<i>Saved Data</i>						
1	Sewer Generator	Sewer Department	Diesel	51	gal	Generator
2	Sewer Department NDH	Sewer Department	Diesel	20	gal	Public Health Facility
3	Efficientville Water Departn	Sewer Department	Propane	1427	gal	Wastewater Infrastructure
4	Cemetery	Cemetery	Propane	716	gal	Public Health Facility
5	Highway Dept HQ	Highway Department	Propane	675	gal	Office Building
6	Town Offices	Town Hall	Propane	60	gal	Office Building
7	Transfer Station	Transfer Station	Propane	38	gal	Transfer Station
8	Fire Station	Fire Department	Residual Fuel Oil No. 5	4284	gal	Firehouse
9	Water Treatment	Water Department	Residual Fuel Oil No. 5	4001	gal	Water Infrastructure
10	Town Hall	Town Hall	Residual Fuel Oil No. 5	2793	gal	Office Building
11	Highway Garage	Highway Department	Residual Fuel Oil No. 5	2378	gal	Parking Garage
12	Town Garage	Highway Department	Residual Fuel Oil No. 5	1535	gal	Parking Garage
13	Sewer Treatment	Sewer Department	Residual Fuel Oil No. 5	320	gal	Wastewater Infrastructure
14	Pool	Recreation Department	Residual Fuel Oil No. 5	122	gal	Recreation Facility
15	Maintenance Shop	Maintenance Department	Residual Fuel Oil No. 5	83	gal	Other
16	Efficientville Free Library	Miscellaneous	Propane	3844	gal	Other

Stationary-Calculations

Jump to...

Department Summary

[Emissions by Department](#)

[Fuel and Energy Consumption by Department](#)

Fuel Summary

[Emissions by Fuel Type](#)

[Fuel and Energy Consumption by Type](#)

Background Calculations

[CO₂ emissions by fuel type](#)

[CH₄ emissions by fuel type](#)

[N₂O emissions by fuel type](#)

[Activity data by department and fuel type](#)

[CO₂ emissions by department and fuel type](#)

[CH₄ emissions by department and fuel type](#)

[N₂O emissions by department and fuel type](#)

[Energy use by department and fuel type](#)

[Activity data by facility type and fuel type](#)

[CO₂ emissions by facility type and fuel type](#)

[CH₄ emissions by facility type and fuel type](#)

[N₂O emissions by facility type and fuel type](#)

[Energy use by facility type and fuel type](#)

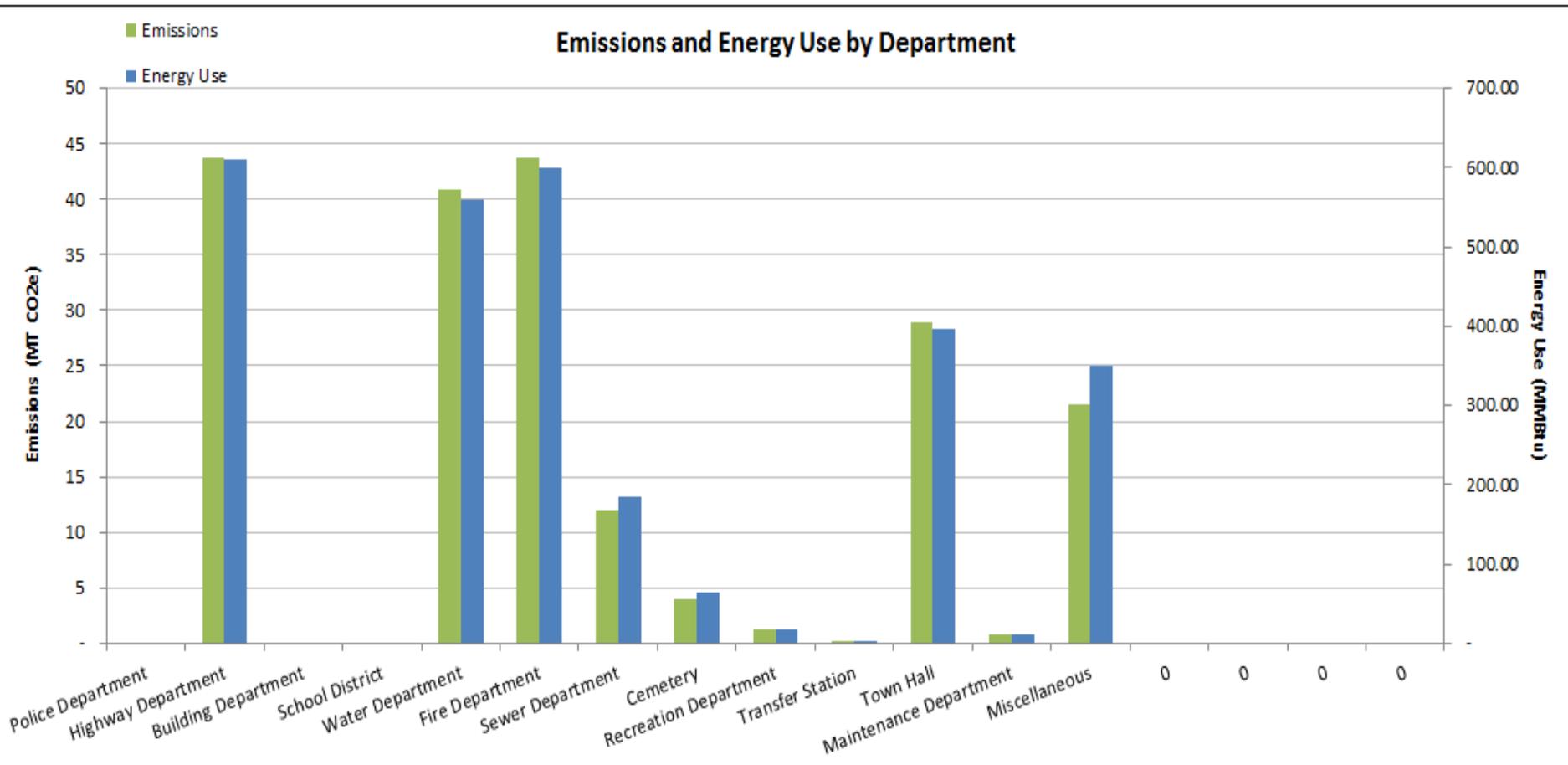
Department Summary

Emissions by Department (MT CO ₂ e)				
Department	CO ₂	CH ₄	N ₂ O	Total
Police Department	-	-	-	-
Highway Department	44	0	0	44
Building Department	-	-	-	-
School District	-	-	-	-
Water Department	41	0	0	41
Fire Department	44	0	0	44
Sewer Department	12	0	0	12
Cemetery	4	0	0	4
Recreation Department	1	0	0	1
Transfer Station	0	0	0	0
Town Hall	29	0	0	29
Maintenance Department	1	0	0	1
Miscellaneous	21	0	0	21
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
Total Stationary Combustion Emissions	197	0	0	197

Fuel and Energy (MMBtu) Consumption by Department				
Department	mcf	gal	tons	Energy Use
Police Department	-	-	-	-
Highway Department	-	4,588	-	609
Building Department	-	-	-	-
School District	-	-	-	-
Water Department	-	4,001	-	560
Fire Department	-	4,284	-	600
Sewer Department	-	1,818	-	184
Cemetery	-	716	-	65
Recreation Department	-	122	-	17
Transfer Station	-	38	-	3
Town Hall	-	2,853	-	396
Maintenance Department	-	83	-	12
Miscellaneous	-	3,844	-	350
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
Combustion Energy Use	-	22,347	-	2,797

Check to display: Emissions Energy Use

Emissions and Energy Use by Department



Electricity-Entry

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Check if you have completed this sheet.

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 local government, local government 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
21			

2 Enter the activity data for the year 2010

Electricity Consumed (kWh)	eGRID Subregion
	NPCC Upstate NY

Please select the city department to which this unit belongs from the dropdown menu. Departments were specified on the control sheet.

Electricity-Data

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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 to the area below where it says "Saved Data" (i.e., from row 9 onward). 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. If new data are pasted over existing data, the existing data will be lost.

[Create Data File Template](#)

Linker Row

ID#	Unit Description	Department	eGRID Subregion	Electricity Consumed (kWh)	Facility Type
32		0 0	NPCC Upstate NY	0	0

Saved Data

1	Water Plant Slate Dock Rd	Water Department	NPCC Upstate NY	485280	Water Infrastructure
2	Sewer (Filter Building) Greenhouse	Sewer Department	NPCC Upstate NY	184842	Wastewater Infrastructure
3	Sewer Plant	Sewer Department	NPCC Upstate NY	182040	Wastewater Infrastructure
4	Firehouse and Town Offices	Fire Department	NPCC Upstate NY	73432	Office Building
5	Pool	Miscellaneous	NPCC Upstate NY	71623	Recreation Facility
6	Highway Garage	Highway Department	NPCC Upstate NY	43116	Parking Garage
7	Spec Light Distr Efficientville	Highway Department	NPCC Upstate NY	40529	Outdoor Lighting
8	Street Lighting Town	Highway Department	NPCC Upstate NY	34988	Outdoor Lighting
9	Transfer Station	Transfer Station	NPCC Upstate NY	30601	Public Health Facility
10	Town Hall	Town Hall	NPCC Upstate NY	27042	Office Building
11	Town Garage	Town Highway Department	NPCC Upstate NY	25993	Parking Garage
12	Pump House - Climate Smart Dr.	Water Department	NPCC Upstate NY	15841	Water Infrastructure
13	Spec. Sewer #2	Sewer Department	NPCC Upstate NY	10892	Wastewater Infrastructure
14	Sewer - Hospital Pump Station	Sewer Department	NPCC Upstate NY	9960	Wastewater Infrastructure
15	Town Landing (Dock)	Miscellaneous	NPCC Upstate NY	9447	Recreation Facility
16	Spec Sewer #1	Sewer Department	NPCC Upstate NY	8255	Wastewater Infrastructure
17	Cemetery	Cemetery	NPCC Upstate NY	6317	Public Health Facility
18	Cell Building Police	Police Department	NPCC Upstate NY	6089	Office Building
19	Sewer- Main Pump Station	Sewer Department	NPCC Upstate NY	3430	Wastewater Infrastructure
20	Landfill	Transfer Station	NPCC Upstate NY	3289	Public Health Facility
21	Sewer - Auxiliary Pump station	Sewer Department	NPCC Upstate NY	3003	Wastewater Infrastructure
22	Sequestration Lake	Miscellaneous	NPCC Upstate NY	2850	Recreation Facility
23	Christmas Lights	Town Hall	NPCC Upstate NY	2261	Outdoor Lighting
24	Parking Lot at Town Hall	Town Highway Department	NPCC Upstate NY	1962	Parking Garage
25	Concession Stand	Miscellaneous	NPCC Upstate NY	1326	Recreation Facility
26	Playground Pavillion	Miscellaneous	NPCC Upstate NY	84	Recreation Facility
27	Old Church Ballfields	Miscellaneous	NPCC Upstate NY	32	Recreation Facility
28	Gazbo Mini Park	Miscellaneous	NPCC Upstate NY	16	Recreation Facility

GHG Summary

Emissions by Department (in CO ₂ e)				
	CO ₂	CH ₄	N ₂ O	Total
Police Department	1.4	0.0	0.0	1.4
Highway Department	26.8	0.0	0.1	26.9
Building Department	-	-	-	-
School District	-	-	-	-
Water Department	113.2	0.1	0.5	113.7
Fire Department	16.6	0.0	0.1	16.7
Sewer Department	90.9	0.1	0.4	91.3
Cemetery	1.4	0.0	0.0	1.4
Recreation Department	-	-	-	-
Transfer Station	7.7	0.0	0.0	7.7
Town Hall	6.6	0.0	0.0	6.7
Maintenance Department	-	-	-	-
Miscellaneous	34.8	0.0	0.1	35.0
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
Total Emissions from Electricity Use	257.9	0.2	1.1	259.2

Mobile-Entry

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Check if you have completed this sheet.

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 "Mobile-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.

After you have completed data entry, please click on the "Update Calculations" button in Step 3.

Add/Update Record

Edit Record

Delete Record

Reset Form

1) Describe the vehicle(s) you are entering

ID#	Vehicle or vehicle group description	Department
21		

Vehicle Year	Vehicle Type	Vehicle Model (optional)	Fuel type

2) Enter the activity data for the year 2010

	Entries
Fuel consumed ():	
Vehicle miles traveled (VMT)*:	

* **Helpful Hint:** If you do not know the VMT for this entry, you can multiply the fuel consumed by the MPG of the vehicle/vehicle group. Use your own efficiency data or see the table below for average MPG by vehicle type and fuel. → $\text{Vehicle Miles} = \text{Gallons} \times \text{Miles/Gallon}$

3) Update the calculations.

Update Calculations

Vehicle Type	Average MPG	
	Gasoline & Other Fuels	Diesel & Biodiesel
Passenger Car	24.1	32.4
Light Truck	18.5	22.1
Heavy-Duty Vehicle	10.13	12.96
Motorcycle	50	N/A

Fuel type

Please select the type of fuel consumed by the vehicle from the dropdown menu.



Gasoline, Diesel, Biodiesel, Ethanol, CNG, LNG, LPG, Residual Fuel, Jet Fuel, Aviation Gasoline

Mobile-Data

[Return to Table of Contents](#)

Check if you have completed this sheet.

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[Create Data File Template](#)

Linker Row

ID#	Vehicle or vehicle group description	Department	Vehicle Year	Vehicle Type	Vehicle Model (optional)	Fuel type	Fuel consumption	VMT
21	0	0	0	0	0	0	0	0
<i>Saved Data</i>								
1	0	Highway Department	0	0	0	diesel	8015.6	0
3	0	Fire Department	0	0	0	diesel	1596	0
4	0	Efficiencyville Fire Department	0	0	0	diesel	1156	0
5	0	Maintenance Department	0	0	0	diesel	1013	0
7	0	Cemetery	0	0	0	diesel	318	0
8	0	Water Department	0	0	0	diesel	190	0
9	0	School District	0	0	0	diesel	100	0
10	0	Police Department	0	0	0	gasoline	4755	0
11	0	Highway Department	0	0	0	gasoline	3094	0
13	0	School District	0	0	0	gasoline	1390	0
14	0	Water Department	0	0	0	gasoline	1376	0
15	0	Fire Department	0	0	0	gasoline	1162	0
17	0	Efficiencyville Fire Department	0	0	0	gasoline	702	0
18	0	Transfer Station	0	0	0	gasoline	490	0
19	0	Building Department	0	0	0	gasoline	177	0
20	0	Sewer Department	0	0	0	gasoline	160	0

Use this sheet to answer questions about your local government's solid waste services.
Your answers to these questions will determine how your solid waste system emissions are calculated on the following sheets.

Please answer the following questions about your local government's solid waste services.

1) Does your local government have operational control over any landfills?

No

If no, then it is optional to report emissions for waste generated within your borders, but landfilled elsewhere, as Scope 3 emissions.

If you would like to do so, please visit the EPA's Waste Reduction Model (WARM). WARM is available both as a web-based calculator and in an Excel spreadsheet.

http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html

Please enter your results on the following page.

Calculate optional Scope
3 emissions in WARM

WARM may also be used to calculate emission reductions from alternative waste scenarios.

If you would like to use this feature, you may enter the results of the alternative scenario on the "Reductions - Solid Waste" tab.

Solid Waste-Control

Return to Table of Contents

Check if you have completed this sheet.

Use this sheet to answer questions about your local government's solid waste services. Your answers to these questions will determine how your solid waste system emissions are calculated on the following sheets.

Please answer the following questions about your local government's solid waste services.

1) Does your local government have operational control over any landfills?

Yes

2) To which local government department do your solid waste services belong?

Miscellaneous

3) How many landfills are in your local government? You may enter up to 10.

1

Landfill Name

1 Methane-Harvesting Landfill

Does the landfill have a LFG collection system?

Yes

If yes, is the LFG collection system comprehensive or partial?

Comprehensive

Every landfill you entered on the Solid Waste Control sheet is shown below under its designated categorization. The formulas shown below for landfills with landfill gas (LFG) collection systems come from the Local Government Operations Protocol.

Please provide any requested data in the yellow cells. For the methane content of LFG collected, you may choose to enter your own measured value or use a provided default.

Landfills with Comprehensive LFG Collection Systems

Note: If you would like to use the ARB First-Order Decay Model to calculate the emissions for any landfills, please select 'No' when asked if the landfill has an LFG collection system.

$$CH_4 \text{ emitted} = LFG \text{ Collected} \times \text{Fraction } CH_4 \text{ in LFG} \times \left\{ (1 - \text{Destruction Efficiency}) + \left[\frac{(1 - \text{Collection Efficiency})}{\text{Collection Efficiency}} \right] \times (1 - \text{Oxidation Efficiency}) \right\} \times MT/MMSCF \times GWP$$

Landfill Name	LFG Collected (MMSCF/yr)	Fraction of CH ₄ in LFG	CH ₄ Destruction Efficiency	CH ₄ Collection Efficiency	Oxidation Factor	MT CH ₄ / MMSCF	MT CH ₄	× GWP =	MT CO ₂ e
Methane-Harvesting Landfill	2	50%	99%	75%	0.1	19.125	6	21	125

Solid Waste Emissions Summary

Total Landfill Emissions (MT CO ₂ e)	
Landfill System	CH ₄
No LFG collection	-
Comprehensive LFG Collection	125
Partial LFG Collection	-
Total Emissions from Landfills in Efficientville, NY	125

Please answer the following questions about your wastewater treatment system.

1) Does your local government have operational control over wastewater treatment?

Operational Control

- Yes, we have one or more wastewater facilities under our operational control.
- No, wastewater treatment is not controlled by our government.

If no, then it is optional to report emissions for wastewater generated within your borders, but treated elsewhere, as Scope 3 emissions.

If that is the case, then select the check box below, and continue to answer the rest of the questions. The final results will be captured under Scope 3.

Calculate emissions from wastewater, but log them under Scope 3?

If you have selected "Yes" in question 1, checking the box above will not change how the results are reported.

2) To which local government department does your municipal wastewater treatment system belong?

Sewer Department

3) Do you have one or more facilities where wastewater is treated in **anaerobic** conditions?

Anaerobic

- Yes, we have one or more facilities with anaerobic treatment.
- No, all facilities use aerobic treatment.

4) Do you have one or more facilities where wastewater is treated in **aerobic** conditions?

Aerobic

- Yes, we have one or more facilities with aerobic treatment.
- No, all facilities use anaerobic treatment.

5) Is data available for your municipal system on both the amount of digester gas produced per day and the fraction of CH₄ in the biogas?

Digester Gas Data

- Yes, we have data on both the amount of digester gas produced and its methane content.
- No, both data items are not available. We would like to use default values.

6) Is data available for your municipal system on both the BOD₅ influent to your WWT process and the amount of BOD₅ removed during primary treatment?

BOD Data

Wastewater-Entry

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This sheet is where you will enter data for your wastewater treatment system. Fields are provided based on your responses to the questions on the previous sheet. To reset all values to 0, click the box below.

Reset Values

Information on population served by various systems.

Population Served by Facilities with Nitrification/Denitrification

2,657 people

Population Served by Aerobic Treatment Facilities

2,657 people

Population Served by Septic Systems

people

Site-Specific Data Collected

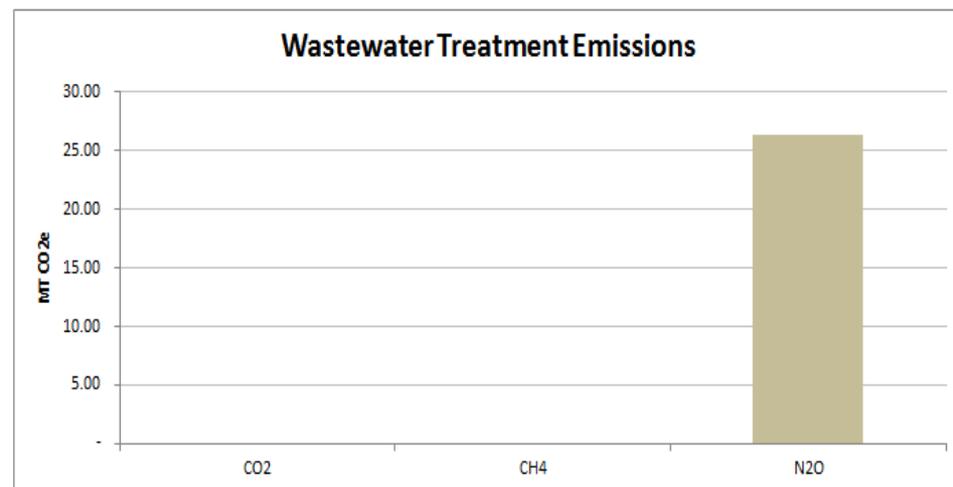
Average Total Nitrogen Discharged (measured)

kg N/day

This sheet shows the formulas used to determine your city's emissions from wastewater treatment, using methodology from the Local Government Operations Protocol (2010). The yellow cells link to the values you entered on the previous sheet, "Wastewater-Entry."

Your total emissions are summarized in the table below. You may scroll down to view the detailed calculations, but **no action is required on this sheet**. If you would like to change any of the entered values, you may do so on the previous sheet.

GHG Emissions Summary	
	MT CO ₂ e
CO ₂	-
CH ₄	-
N ₂ O	26.27
Total Emissions from Wastewater Treatment	26.27



Background Calculations

LGOP Equation 10.6 - Fugitive CH ₄ Emissions from Septic Systems (default BOD ₅ load)								
Population Served by Septic Systems	× Default BOD ₅ Load (kg BOD ₅ /day)	× Maximum CH ₄ Production Capacity (kg CH ₄ /kg BOD ₅)	× Septic CH ₄ Correction Factor	× day/yr	× MT/kg =	MT CH ₄	× GWP =	MT CO ₂ e
-	0.09	0.6	0.5	365.25	0.001	0	21	0.00

LGOP Equation 10.7 - Process N ₂ O Emissions from WWTP with Nitrification/Denitrification						
Effective Population Served by Nit/Denit	× Factor for Industrial Discharge into System	× Nit/Denit Emissions Factor (g N ₂ O/person/yr)	× MT/g =	MT N ₂ O	× GWP =	MT CO ₂ e
2,657	1.25	7	0.000001	0.02324875	310	7.21

LGOP Equation 10.10 - Process N ₂ O Emissions from Effluent Discharge (default N load data)												
Population Served	Factor for Industrial Discharge into System	× [Total N Load (kg N/person/day)	- N uptake* (kg N/kg BOD ₅)	× BOD ₅ Load]	× Effluent Emissions Factor (kg N ₂ O-N/kg sewage)	× N ₂ O/N ₂ Molecular Weight Ratio	× 1 - Fraction of Nitrogen Removed**	× day/yr	× MT/kg =	MT N ₂ O	× GWP =	MT CO ₂ e
2,657	1.25	0.026	0.05	0.09	0.005	1.571428571	0.3	365.25	0.001	0.061	310	19.06

Aerobic Treatment with Nitrification/Denitrification

Employee Commutes

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Check if you have completed this sheet.

Jump to...

[Step 1. Enter employee data by department](#)

[Step 2. Enter mode of transportation proportions](#)

[Employee Commute Emissions Summary](#)

[Chart: Employee Commute Emissions](#)

[Background Calculations](#)

[Employees per mode per department](#)

[Daily CO₂ emissions per mode per department](#)

[Annual CO₂ emissions per mode per department](#)

This sheet is where you will calculate Scope 3 emissions from employee commutes to work.

Please enter the number of employees per department and the proportion of those employees who take various modes of transportation to work. Default transportation mode data has been provided, but you may change them if you have additional data.

Once you enter this information, the total emissions from employee commutes will be calculated.

1. Enter Employee Data

Please enter the number of employees in each department. This will be used to calculate the commute emissions per department.

Department	Number of employees
Police Department	10
Highway Department	8
Building Department	12
School District	30
Water Department	4
Fire Department	8
Sewer Department	5
Cemetery	4
Recreation Department	5
Transfer Station	4
Town Hall	10
Maintenance Department	15
Miscellaneous	5

2. Enter mode of transit proportions, commute length, and work days

Please enter what percentage of employees use each form of transportation to work. These values will be used to determine how many local government employees travel by each mode every day. If you don't have this information, please copy and paste the default values into the yellow cells in column C. The calculator will use only the values in the yellow-shaded cells. Default values are from the American Communities Survey, and represent the average distribution of transit modes in New York State. For more accurate emissions estimates, use proportions gathered from a travel survey of local government employees. Links to sample travel surveys are located at the bottom of this page.

Mode	Employees who use mode (%)	Default Values
Single Occupancy Vehicle	75%	54%
Carpool	5%	7%
Motorcycle	1%	0%
Transit	5%	28%
Bike	4%	1%
Walk	6%	7%
Work at home	4%	4%
Other	0%	1%
Total	100%	

Please enter the average one-way commute length for local government employees. Default commute distance is based on the U.S. average vehicle trip length for work trips from the U.S. Department of Transportation Federal Highway Administration's 2009 National Household Travel Survey (Average Vehicle Trip (VT) Length by Purpose).

This commute distance may be longer than the average commute for local government employees. For the most accurate emissions estimates, use data from a travel survey of local government employees.

Average One-Way Commute Length (miles)	6.0	13.4
--	-----	------

Please enter the number of days each local government employee works per year. This number will be multiplied by the emissions from daily commutes. Default work-year days is provided, assuming a 5-day work week, two weeks (10 days) of vacation, and 10 federal holidays.

Workdays per year	240	240
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Links to Example Employee Travel Surveys

Arlington County, Virginia

<http://mobilitylab.org/2011/12/31/2009-atp-employee-commute-survey/>

Commonwealth of Massachusetts

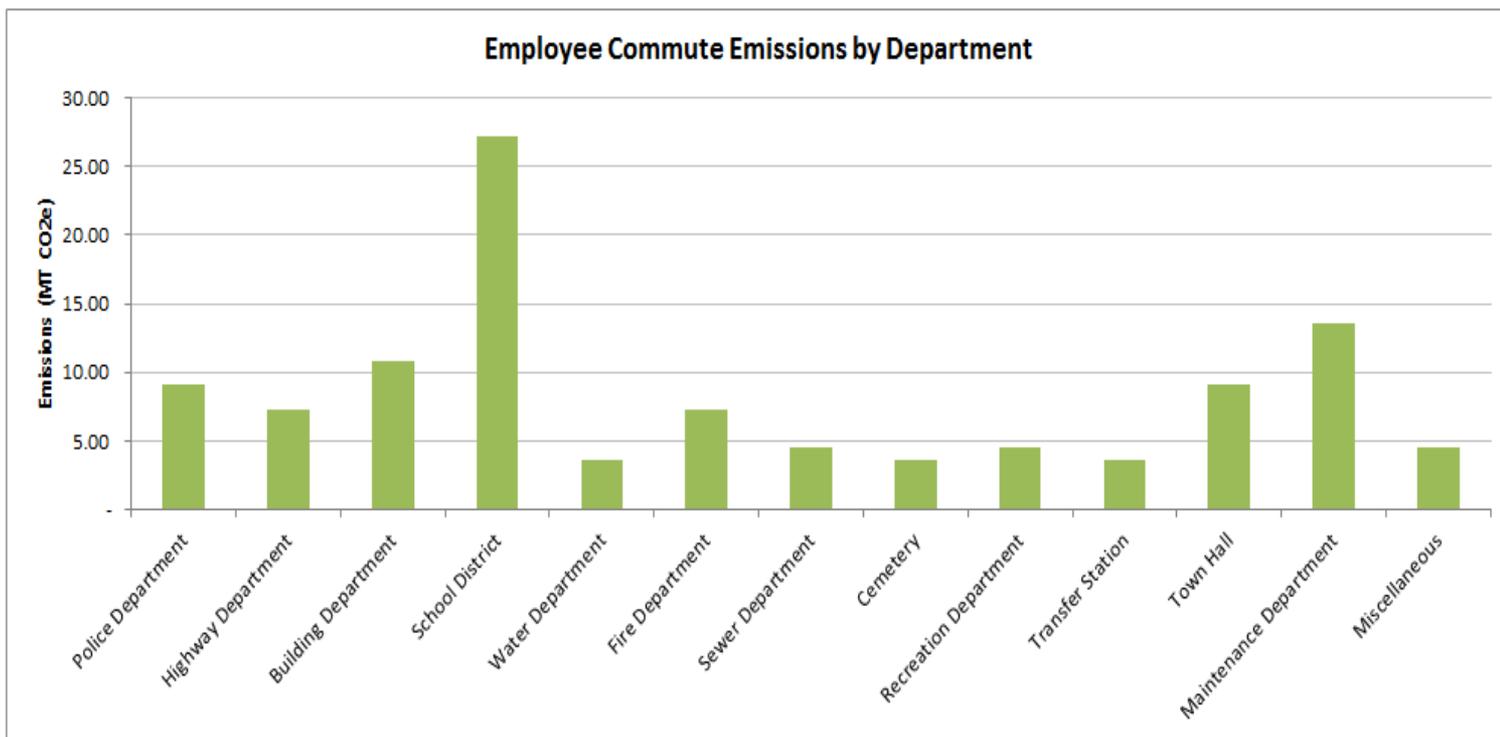
<http://www.mass.gov/dep/air/approvals/survempl.doc>

St. Louis, Missouri

http://www.stlrcga.org/documents/public_policy/commute.pdf

Employee Commute Emissions Summary

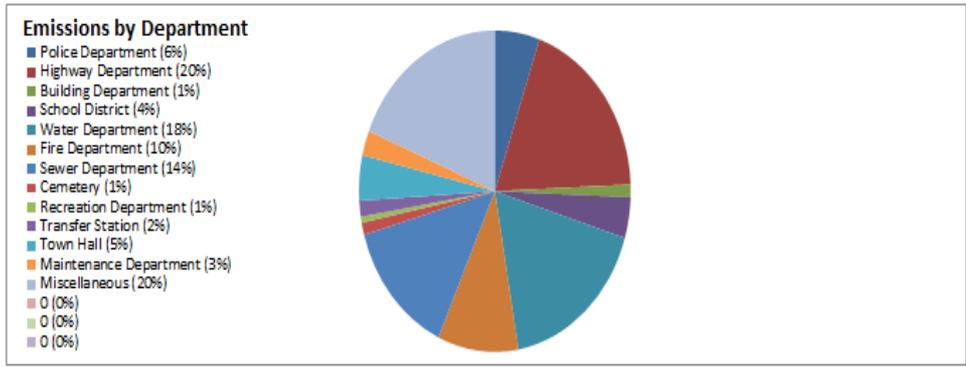
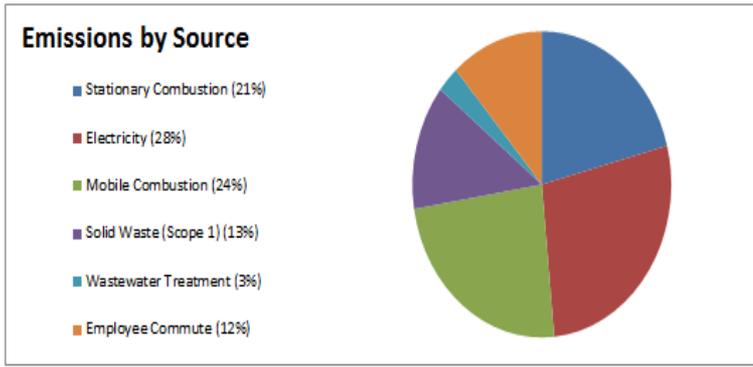
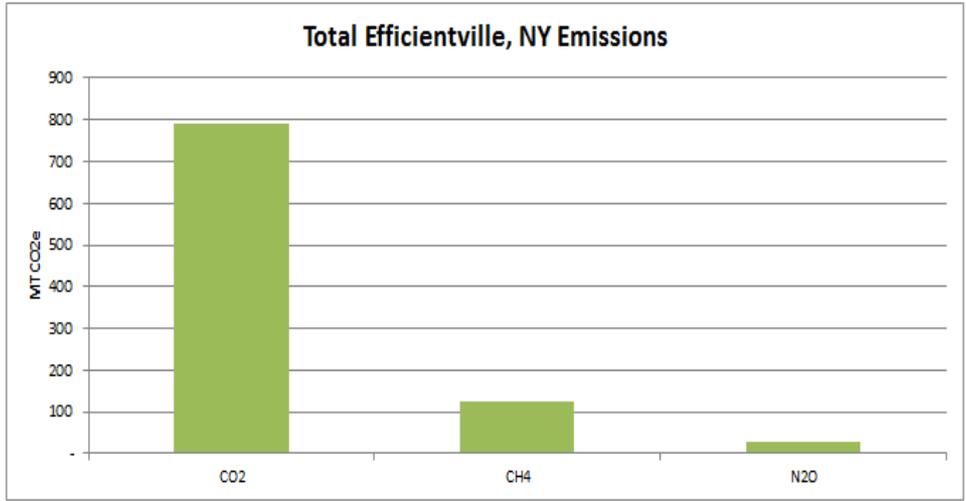
Emissions by Department (MT CO ₂ e)	
	CO ₂
Police Department	9.06
Highway Department	7.25
Building Department	10.88
School District	27.19
Water Department	3.63
Fire Department	7.25
Sewer Department	4.53
Cemetery	3.63
Recreation Department	4.53
Transfer Station	3.63
Town Hall	9.06
Maintenance Department	13.59
Miscellaneous	4.53
Total	108.75



Summary-Emissions

Total Efficientville, NY Emissions					
	CO ₂	CH ₄	N ₂ O	Total MT	Percent of
				CO ₂ e	Total
Scope 1	422	125	26	573	61%
Scope 2	258	0	1	259	28%
Scope 3	109	-	-	109	12%
Total Emissions	789	125	27	941	100%

Emissions by Source					
Source	CO ₂	CH ₄	N ₂ O	Total	Percent of
Stationary Combustion	197	0	0	197	21%
Electricity	258	0	1	259	28%
Mobile Combustion	225	-	-	225	24%
Solid Waste (Scope 1)	-	125	-	125	13%
Wastewater Treatment	-	-	26	26	3%
Employee Commute	109	-	-	109	12%
Total	789	125	27	941	100%



Emissions by Department		
Department	Total	Percent of Total
Police Department	52	6%
Highway Department	187	20%
Building Department	12	1%
School District	40	4%
Water Department	172	18%
Fire Department	94	10%
Sewer Department	136	14%
Cemetery	12	1%
Recreation Department	6	1%

BAU Projections

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Check if you have

This sheet will project your city's emissions in 2020 under a business-as-usual (BAU) scenario, based on your local government's current operations emission profile and the emissions and energy consumption growth factor(s) entered below. This BAU scenario will be used to estimate the potential benefits of reduction measures.

Please enter growth factors for your local government's operations below. These growth factors represent the local government's energy consumption will grow (as a percent) from the inventory year to 2020. You can choose to enter a growth factor for the local government or a growth factor for each emission source. If you choose the former, it should represent a single rate at which the local government will increase its electricity generation, and other variables that contribute directly to emissions. If you believe these variables will change differently, some sources will stay the same or even decline, please select option (b). Both methods result in the same BAU emissions.

Below, please select which option you prefer, and enter the appropriate growth factor(s).

1) Select a growth factor option.

BAU Growth Option

- a) Enter one growth factor for all of the local government's energy consumption and GHG emissions.
- b) Enter a separate growth factor for each emission source (e.g., stationary combustion, water heating, etc.).

2) Enter Growth Factor

Overall, Efficientville, NY government emissions will grow by

2%

from 2010 to 2020.

Helpful Hints

Business-As-Usual (BAU) emission scenarios refer to your local government's projected emissions after a specific period of time if no changes are made to the status-quo—for example, if no additional policies are enacted.

To estimate your BAU emissions, you need to provide information on what your city will be like in 2020, assuming no new policies. While it is likely that you may not know the specific growth rates requested, *below are suggestions for growth rates you may have more information about that can serve as a proxy.*

Expected local government population growth rate → Wastewater, Solid Waste growth rate

Local government growth rate (# of employees) → Stationary Combustion, Electricity Consumption, Mobile Combustion, Water Consumption, Employee Commute growth rate

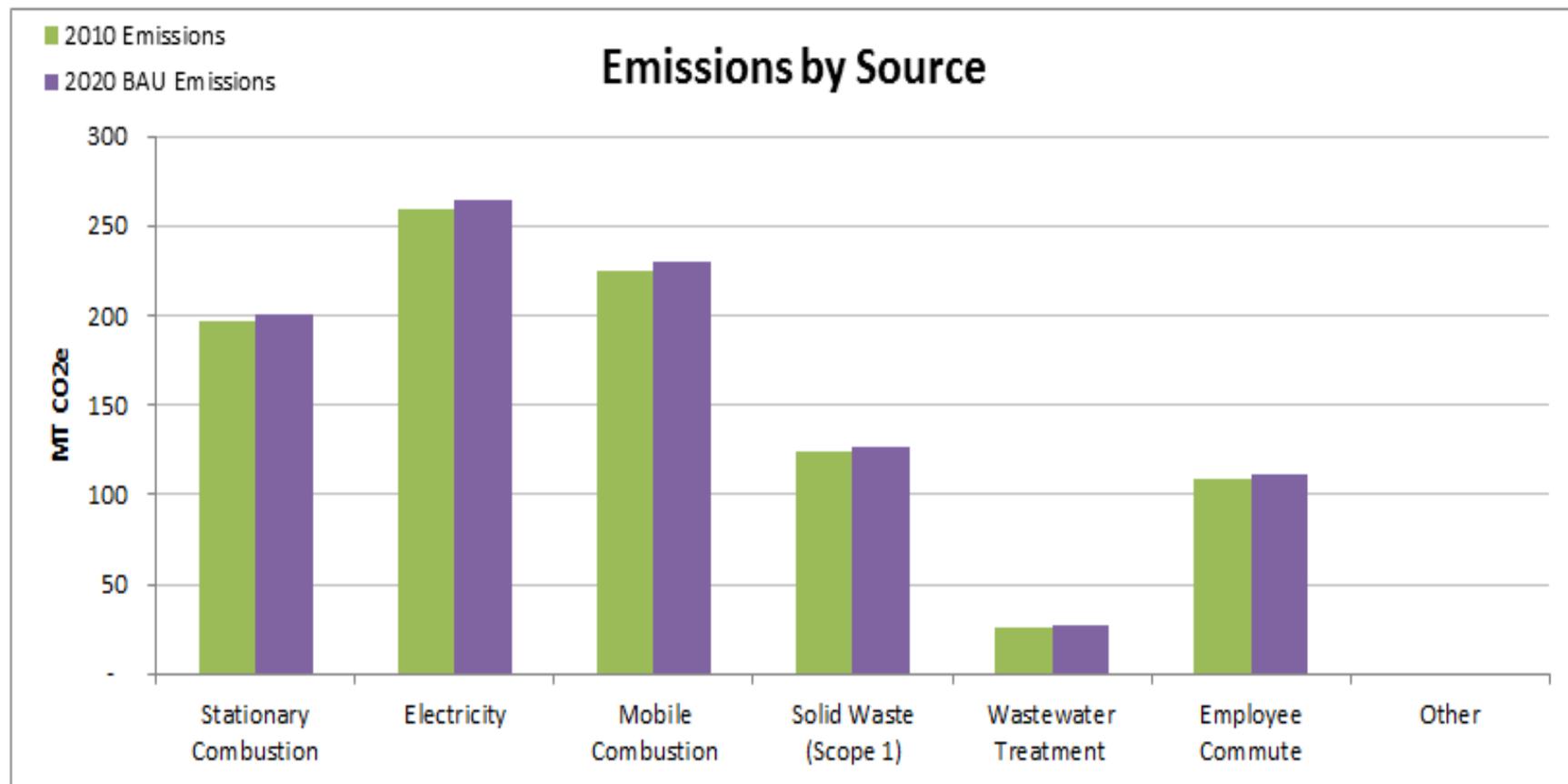
Local government vehicle fleet growth rate → Mobile Combustion growth rate

You may also use historical growth rates as a guide to estimate future growth rates.

BAU 2020 Emissions and Energy Use Scenarios

If Efficientville, NY continues to conduct business-as-usual, it will emit

960 MT CO₂e in 2020.



Under business-as-usual, Efficientville, NY will consume

6,042 MMBtu in 2020.

What about the community-scale inventory?

- Regional GHG inventories completed for each of the 10 regions defined by the Regional Economic Development Council (2010 baseline year)
- Developed for each region as a whole, and with a **community-level allocation** for each of the villages, towns, cities, and counties that make up the region.
- Sectors for the regional inventory included:
 - Stationary energy consumption (residential, commercial, and industrial);
 - Mobile energy consumption;
 - Energy generation and supply;
 - Industrial processes;
 - Solid waste and wastewater management;
 - Agriculture; and
 - Land use, land use change, and forestry (LULUCF)



Mid-Hudson Regional Greenhouse Gas Emissions Inventory

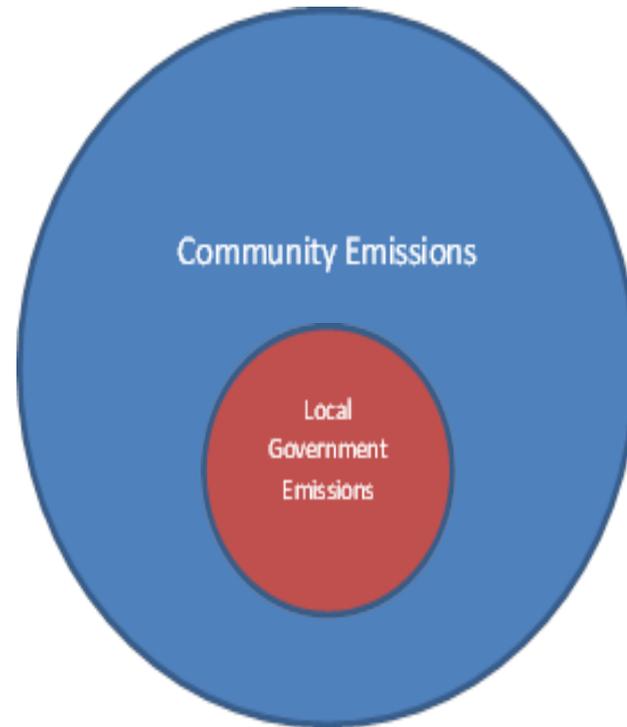
Final Report for Mid-Hudson Tier II Regional Greenhouse Gas Emissions (GHG) Inventory

Prepared for
New York State Energy Research and Development Authority (NYSERDA)
17 Columbia Circle
Albany, New York 12203-6399

Prepared by
ICF International, Sub-consultant to VHB, Inc.

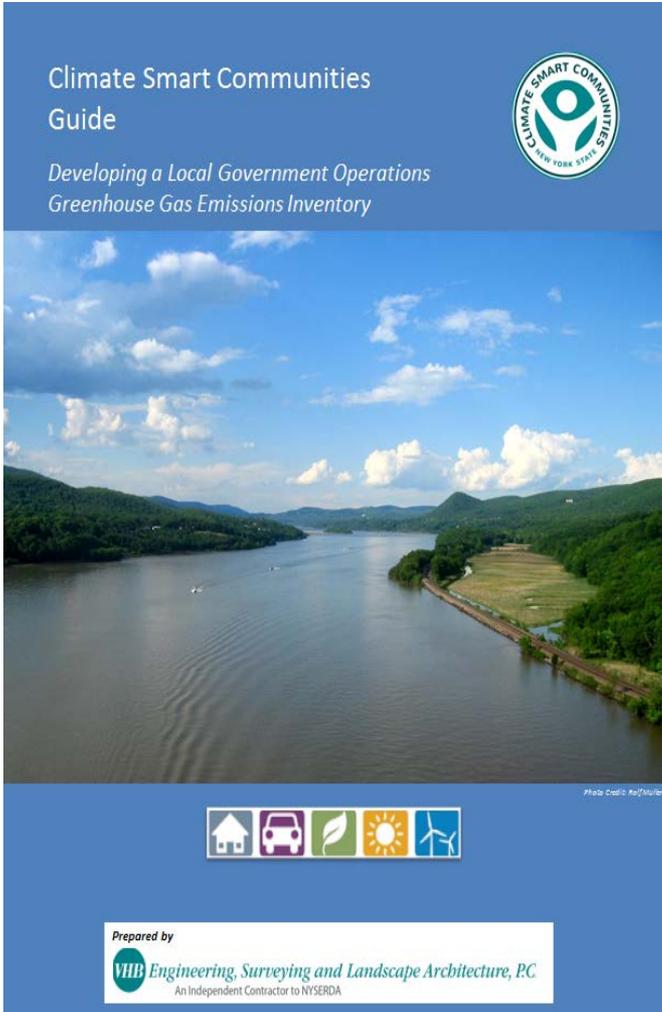
December 13, 2012

- LG Inventory accounts for emissions associated with facilities, vehicles, and other processes owned and operated by your local government.
- Community inventory accounts for emissions associated with activities occurring within your community's boundaries.
- The LG emissions would be included **WITHIN** the total community emissions.





Additional Resources



- CSC Guide – *Developing a Local Government Operations Greenhouse Gas Emissions Inventory*
- [Local Government Operations Greenhouse Gas Accounting Tool](#)
- User's Guide: [Local Government Greenhouse Gas Accounting Tool](#)
- [Mid-Hudson Regional Greenhouse Gas Emissions Inventory](#)
- [Local Government Operations Protocol \(LGOP\)](#)
- Mid-Hudson CSC Website:
<http://www.midhudsoncsc.org/>





Thank you!

Kari Hewitt
Sustainability Planner

On behalf of VHB, Inc: Mid-Hudson CSC Regional Coordinator

climatesmart@vhb.com

Phone: 617-607-0971





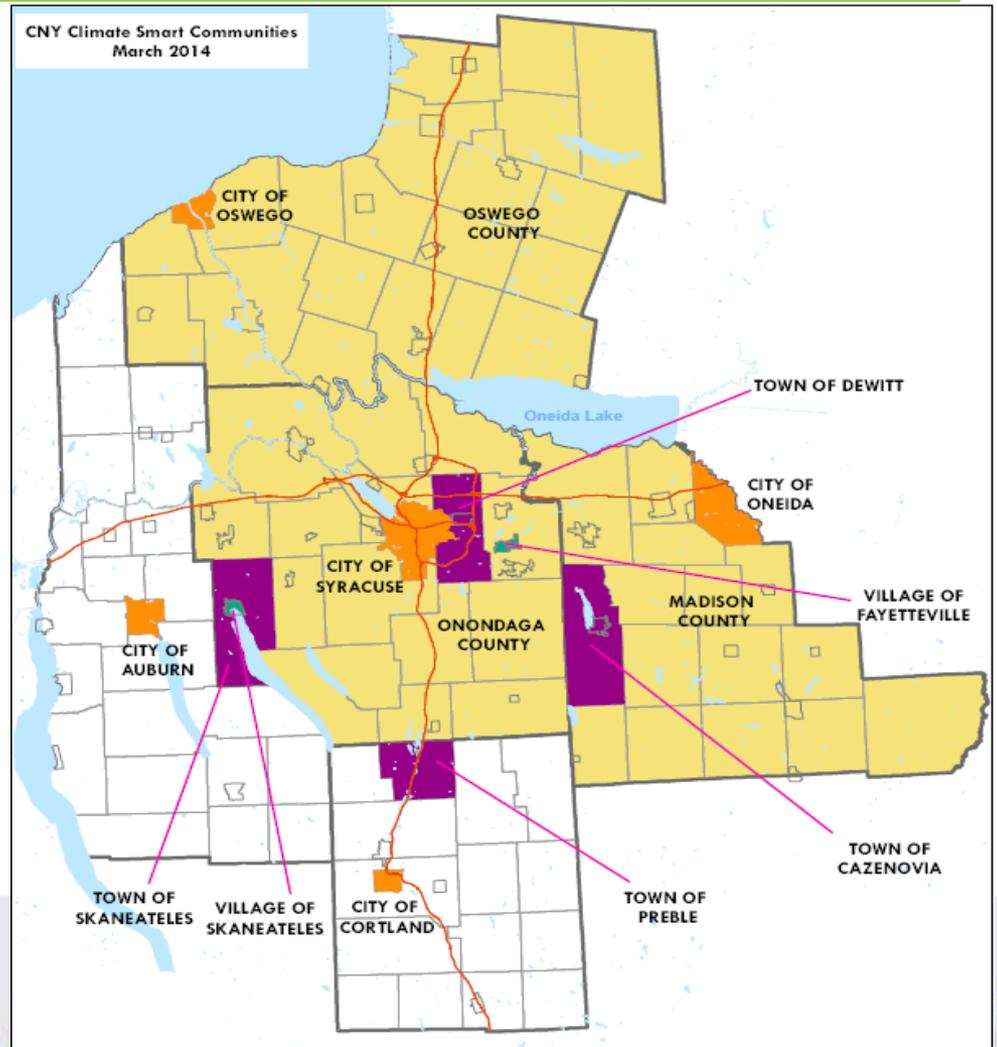
Collaborating with Universities to Produce Municipal Greenhouse Gas Inventories

Presentation Outline

1. CNY RPDB's Role as the Regional Climate Smart Communities Coordinator
2. Partnerships with Local Colleges and Universities
3. Course-Based Partnership with SUNY-ESF
4. Summer Interns
5. Benefits to Students, Municipalities and CNY RPDB
6. Lessons Learned

CNY RPDB's Role as CSC Coordinator

- Public agency serving five counties and population of 791,000
- 14 communities have adopted the CSC Pledge
- Continuation of US EPA-funded C₂IP:
 - ✓ GHG Inventory
 - ✓ Climate Action Plan
 - ✓ Demonstration Projects
 - ✓ Community Education and Outreach



Communities that have signed the CSC pledge:

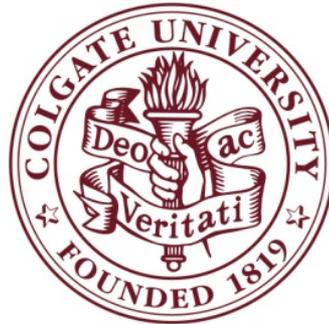
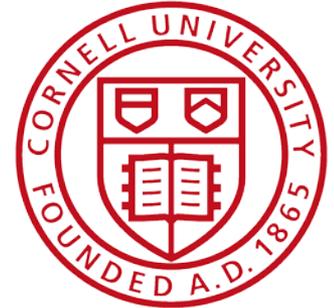
■ Cities
 ■ Towns
 ■ Villages
 ■ Counties

0 2.5 5 10 Miles

Partnerships with Colleges and Universities



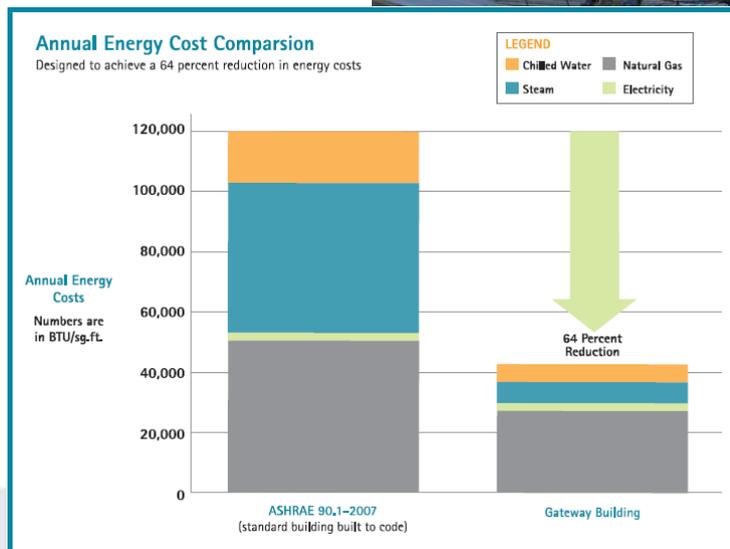
State University of New York
College of Environmental Science and Forestry



HOBART AND WILLIAM SMITH
COLLEGES

Course-Based Partnership with SUNY-ESF

- Strong sustainability leader in Central NY and beyond
- Set a target date of June 30, 2015 to achieve carbon neutrality
- Broad array of initiatives:
 - ✓ Green Buildings
 - ✓ Renewable Energy
 - ✓ Forest Sequestration
 - ✓ Composting and Recycling
 - ✓ Biofuels
 - ✓ Alternative Fuel Vehicles



Course-Based Partnership with SUNY-ESF



An Independent Contractor to:



Course-Based Partnership with SUNY-ESF

- Professor Richard Smardon, EST 427/627: Environmental and Energy Auditing
- Worked with about 100 students over last 3 years:
 - ✓ GHG Inventories
 - ✓ CAPs
- Learning Objectives:
 - ✓ Learn and use greenhouse gas accounting methods
 - ✓ Assess energy utilization
 - ✓ Develop strategies for energy reduction



Course-Based Process

- Alignment of project and course goals:
 - Research methods (the “80/20” rule)
 - Research documentation
 - Research results
 - Ownership
- Orientation of students and ongoing communication:
 - Attend weekly classes
 - Email and Dropbox
- Create a detailed weekly timeline
- Student deliverables – interim reports, not final documents

Course-Based Process



Expect (and plan ahead for) Frustration!

Summer Interns



Student Internship Opportunity
Madison County, NY
Greenhouse Gas Emissions Analysis

Please Post Until February 1, 2011

The Central New York Regional Planning and Development Board is seeking a graduate or exceptional undergraduate student intern for the Spring 2011 semester to work with Madison County Government to begin the process of tackling climate change. This is an unpaid position at 8-10 hrs./week. The intern will report to Director of Madison County Planning, Scott Ingraine. It is expected that the student will be located on site with a desk and computer at the Madison County Planning Office.

Madison County has committed to reduce greenhouse gas emissions by joining ICLEI-Local Governments for Sustainability USA. The intern will work in the Madison County Planning Department to develop a baseline emissions inventory (also called a carbon footprint) for County government operations and the community.

To help Madison County develop a local climate protection plan, the intern will:

- Assist the County in completing the first climate protection initiative: a greenhouse gas emissions (GHG) inventory and forecast. The intern will work with multiple agencies to collect information and use GHG software to compile the emissions data.
 - Communicate the county's climate protection efforts to key staff, officials and citizens.
 - Help the county begin thinking about and designing its climate action plan.
- The Regional Planning and Development Board seeks students with:
- Prior experience working for and knowledge of government, particularly local government;
 - Experience with issues surrounding energy use, transportation, utilities, and/or solid waste;
 - Assertive personality, persistence, and strong people skills critical for working with a variety of municipal departments and personalities;
 - General understanding of the causes, science, and impacts of global warming/climate change;
 - Basic computer and data manipulation skills.

Fostering sustainable community action that generates cost-effective and persistent greenhouse gas reductions while improving the environmental, economic, public health, and social conditions in our communities.

Program Overview

Over the next three years, the CNY RPDB will provide technical assistance and financial resources to the Central New York local governments to:

- improve energy performance in local government operations; and
- remove barriers for greenhouse gas management and the reduction of carbon dioxide (CO2) emissions through the development of effective local government programs, policies, and outreach in the areas of land use, transportation, and community master plans.

Local governments that receive grants will be required to develop and report greenhouse gas emissions inventories and to develop an annual climate protection plan.



Central New York Regional Planning & Development Board
126 North Salina St., 100 Clinton Square, Suite 200, Syracuse, NY 13202
Phone: 315 424-2471 Fax: 315 424-2473 madon@rpdb.org www.rpdb.org

AGREEMENT
BETWEEN THE
CENTRAL NEW YORK REGIONAL PLANNING & DEVELOPMENT BOARD
126 N. Salina Street, Suite 200
Syracuse, New York 13202

AND
The City of Cortland

ARTICLE 1: PARTIES: The parties to this Agreement are the Central New York Regional Planning and Development Board (CNY RPDB), 126 N. Salina Street, Suite 200, Syracuse, New York 13202, and the City of Cortland (Contractor), 25 Court Street, Cortland, NY 13216

ARTICLE 2: PURPOSE: The Central New York Regional Planning and Development Board entered into an Agreement with the US Environmental Protection Agency for the Climate Change Innovation Program, CFDA # 66.041. The City of Cortland will provide financial compensation, supervision, and data sharing services to the CNY RPDB for the purpose of developing a climate action plan document.

ARTICLE 3: DOCUMENTS FORMING AGREEMENT: This Agreement consists of Articles 1 through 17 and Appendix 1, Scope of Services.

ARTICLE 4: TIME OF PERFORMANCE: The duration of this Agreement will be from June 3, 2013 through August 9, 2013.

ARTICLE 5: ADMINISTRATIVE REQUIREMENTS: The Contractor agrees to comply with OMB Circular A-133, *Audits of States, Local Governments and Nonprofit Organizations*, and agrees to adhere to the accounting principles and procedures required therein, use adequate internal controls and maintain necessary source documentation of all costs incurred.

ARTICLE 6: COMPENSATION: In full consideration for the services provided by the Contractor, the Contractor will invoice CNY RPDB \$2,000. This compensation will be pro-rated for any reduction in services.

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Internship Evaluation Form
Department of Environmental Studies
Supervisor: Samuel Gordon, Senior Planner
Student: Casey Guyer

Please rate the student intern on each of the characteristics listed below by circling the appropriate number: (1) Outstanding, (2) Above Average, (3) Average, (4) Unsatisfactory or (5) Unable to Judge.

1. Ability to learn	(1)	2	3	4	5
2. Interest	(1)	2	3	4	5
3. Preparation of tasks and assignments	1	(2)	3	4	5
4. Initiative: desire and willingness to take on new assignments.	(1)	2	3	4	5
5. Quality of work performed.	1	(2)	3	4	5
6. Acceptance of work performed.	(1)	2	3	4	5
7. Reaction to criticism.	(1)	2	3	4	5
8. Cooperation: willingness to work effectively with others.	(1)	2	3	4	5
9. Dependability: working through an assignment to completion.	1	(2)	3	4	5
10. Judgment.	(1)	2	3	4	5
11. Communication skills.	1	(2)	3	4	5
12. Potential for further development in the field.	1	(2)	3	4	5
13. Creativity and/or resourcefulness.	1	(2)	3	4	5
14. Degree to which you think the intern accomplished his/her objectives for the internship.	(1)	2	3	4	5
15. Overall evaluation of the intern's performance.	1	(2)	3	4	5

Recruitment

Detailed Workplan and Agreements

Student Evaluation

An Independent Contractor to:



Benefits to Students

- Meeting student demand for education on energy and climate issues
- Experiential learning is critical for doing this work:
 - Learning the methods and tools
 - Seeing local government in action
- Students and interns have assumed responsible positions in government and industry:
 - NYS DEC
 - Massachusetts DOER
 - DNV-GL
 - CNY RPDB



Benefits to Students



An Independent Contractor to:



Benefits to Municipalities and CNY RDPB

- No (or very low) financial cost
- More staff resources and time for the project:
 - Collect and analyze data
 - Research best practices
 - New ideas
- Increase local capacity
- Create a community “buzz”
- Boost project’s credibility
- Strengthen local and regional connections

Lessons Learned

- Student labor may be “free” – but don’t underestimate time for training and supervision
- Start with a formal course if possible:
 - Professor and TA oversight increases student accountability
 - Can identify the “stars” for internship opportunities
 - Classes or student teams with advanced undergraduates or graduate students are preferable
- Maintain data integrity:
 - Keep track of all the data and data sources
 - Consistent units (tonnes vs. tons) and costs (gasoline, electricity, etc.)
- Training students takes time but may pay dividends:
 - Increase capacity
 - Implement better municipal procedures to improve data collection

Questions?



Chris Carrick

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Climate Smart Communities Webinar

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Climate Smart Communities Webinar

Website Address



<http://www.dec.ny.gov/energy/50845.html>