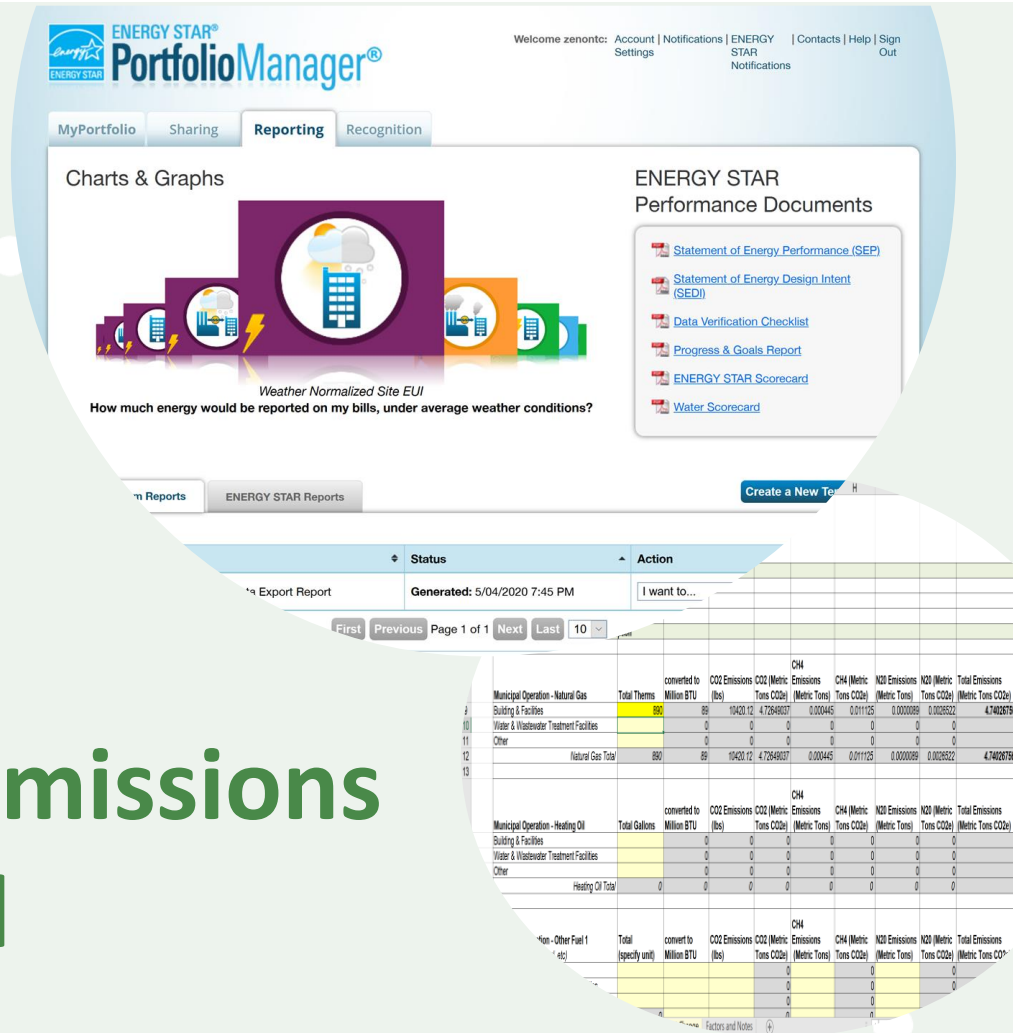




Tracking GHG Emissions from Municipal Operations



Announcements

More info on each initiative can be found in the rotating images at sustainablejersey.com

- **Certification Timeline Changes**
 - **Municipal** – Samantha, info@sustainablejersey.com
 - **Schools** – Veronique, lambertv@tcnj.edu
- **Free Municipal Tech Coaching** – Lauren, skowronl@tcnj.edu
- **Census Response** – Samantha, info@sustainablejersey.com



Upcoming Energy Webinars

Community Energy Efficiency Outreach Made Easier with Sustainable Jersey Toolkits!

Tuesday, May 12, 2020, 1:00 PM - 2:30 PM

Case Studies from New Jersey's Community Solar Energy Pilot Program Year 1

Wednesday, May 20, 2020, 1:00 PM - 2:30 PM

Energy Efficiency Outreach Green Team Trainings

Virtual trainings for launching commercial/residential energy efficiency outreach campaign.



Sustainable Jersey will be launching new guidebooks, toolkits, and resources to help make completing energy actions easier.



Today's Speakers



Zenon Tech-Czarny, Sustainable Jersey
Research and Project Specialist

Outline/Overview

- Why track GHG emissions from municipal operations?
- Reducing GHG emissions from municipal operations
- Municipal Carbon Footprint
- Energy Tracking & Management and ENERGY STAR Portfolio Manager
- Weather normalization
- Comparing two years
- Calculating change in municipal GHG emissions

Buildings

Fleets

GHG
Change
Calculator



Why track GHG emissions from Municipal Operations?

- Sustainable Jersey's Gold Star Standard in Energy
- It's good practice!

"You can't manage what you don't measure..."

...And you can't measure what you don't manage"

Gold Star Standard in Energy

Municipal Operations

3.6% annual reduction in GHG emissions from baseline year

- Municipal buildings
- Municipal Utility Authority
- Streetlights & traffic signals
- Fleet

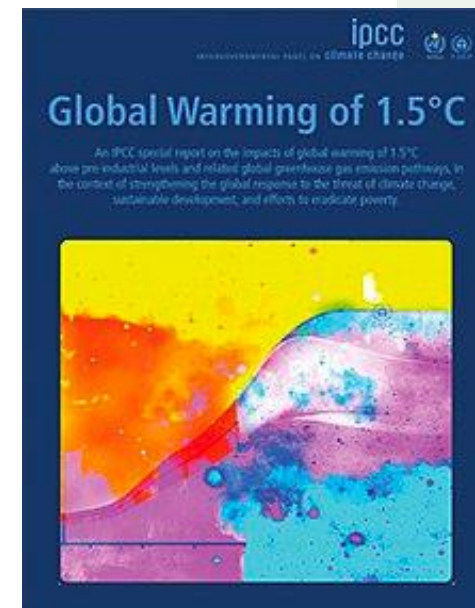
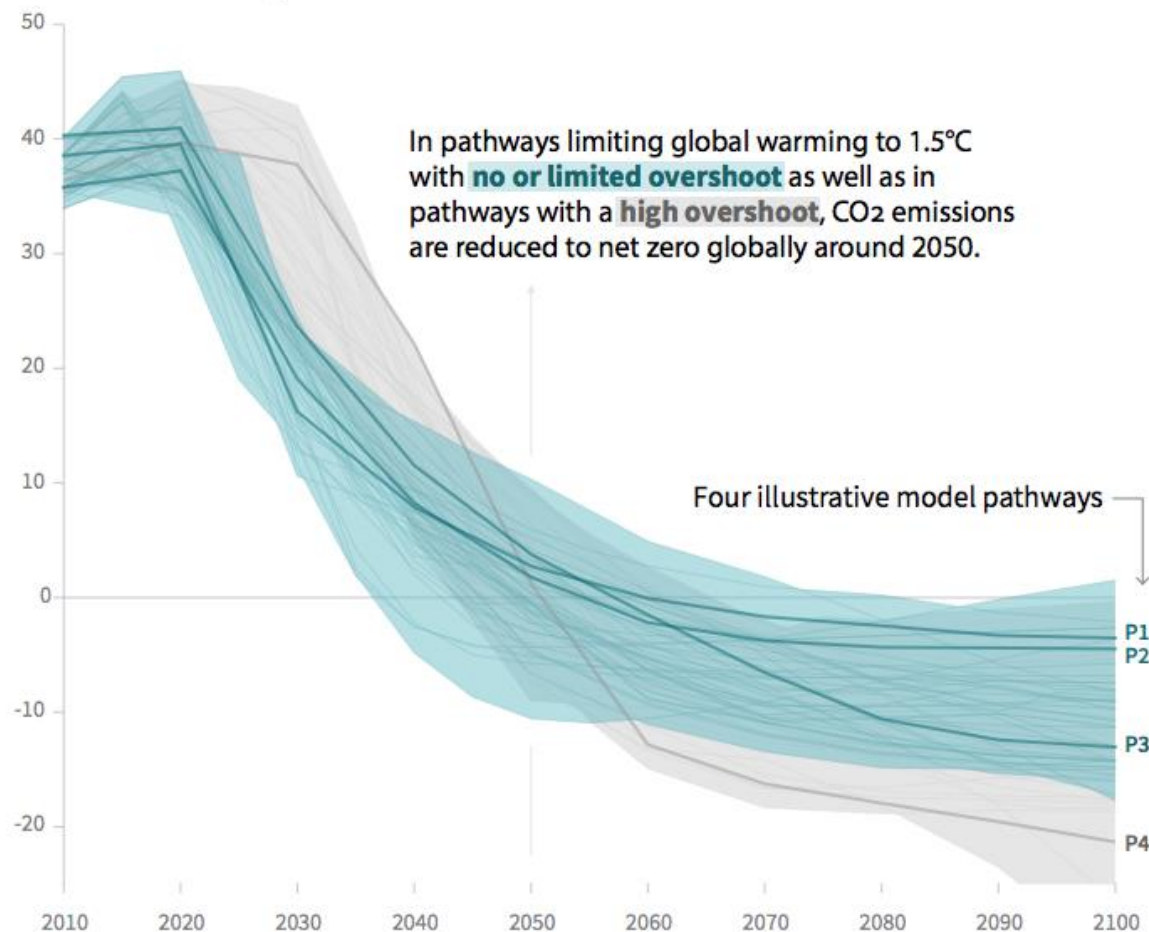
Community Wide

- Make Your Town EV Friendly
- Public Electric Vehicle Chargers
- Make Your Town Solar Friendly
- Community Led Solar Initiatives
- Residential EE Outreach
- Commercial EE Outreach



Global total net CO₂ emissions

Billion tonnes of CO₂/yr



Source: IPCC

Timing of net zero CO₂

Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios



Municipal Program Energy Actions

	Energy Efficiency	Renewable Energy	Alternative Fuel Vehicles (AFVs)
Municipal Operations	<ul style="list-style-type: none">• Energy Tracking and Management• Energy Efficiency for Municipal Facilities	<ul style="list-style-type: none">• On-Site Solar Energy• On-Site Geothermal• On-Site Wind Energy• Purchase Renewable Energy	<ul style="list-style-type: none">• Fleet Inventory• Green Fleet Target• Purchase AFVs
Community Energy Use	<ul style="list-style-type: none">• Residential Energy Efficiency Outreach• Commercial Energy Efficiency Outreach	<ul style="list-style-type: none">• Community Choice Aggregation (R-GEA)• Make Your Town Solar Friendly• Community-Led Solar Initiatives	<ul style="list-style-type: none">• Make Your Town EV Friendly• Public EV Chargers



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HOME

RESIDENTIAL

COMMERCIAL, INDUSTRIAL,
LOCAL GOV & MULTIFAMILY

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COMMERCIAL, INDUSTRIAL, LOCAL GOV. & MULTIFAMILY

▼ PROGRAMS

▶ NJ SMARTSTART BUILDINGS

▶ PAY FOR PERFORMANCE

▶ MULTIFAMILY PROGRAM

COMBINED HEAT AND POWER -
FUEL CELL

LOCAL GOVERNMENT ENERGY
AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT
PROGRAM (ESIP)

▶ DIRECT INSTALL

COMMUNITY ENERGY PLANS

BENCHMARKING

OIL, PROPANE, MUNICIPAL & COOP
ELECTRIC CUSTOMERS

DER MICROGRID FEASIBILITY
STUDIES

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Local Governments, Schools and Non-Profits



Throughout New Jersey, residents and business owners are looking for ways to save energy and the environment - local governments and schools are no exception. *New Jersey's Clean Energy Program* provides financial incentives for energy efficiency through a number of initiatives directed at local government facilities. Take a leadership role in energy efficiency for your municipality or school today!

Do you want to see how your building's energy use compares to others like it?

BENCHMARKING



Benchmarking is a free service that provides a performance assessment and valuable information on how to get your project started. Benchmarking is available to hospitals and other healthcare facilities, municipalities

Program Updates

- 2020 Clean Energy Conference
 - Enhanced Rebates Announced
 - Summary of FY20 Program Changes
 - New Jersey Clean Energy Learning Center
- Other updates posted.

Program Literature



**Applications
and Brochures**
Download the Latest
Program Materials

Find a Trade Ally

Select a
contractor for an
energy efficient
upgrade today!



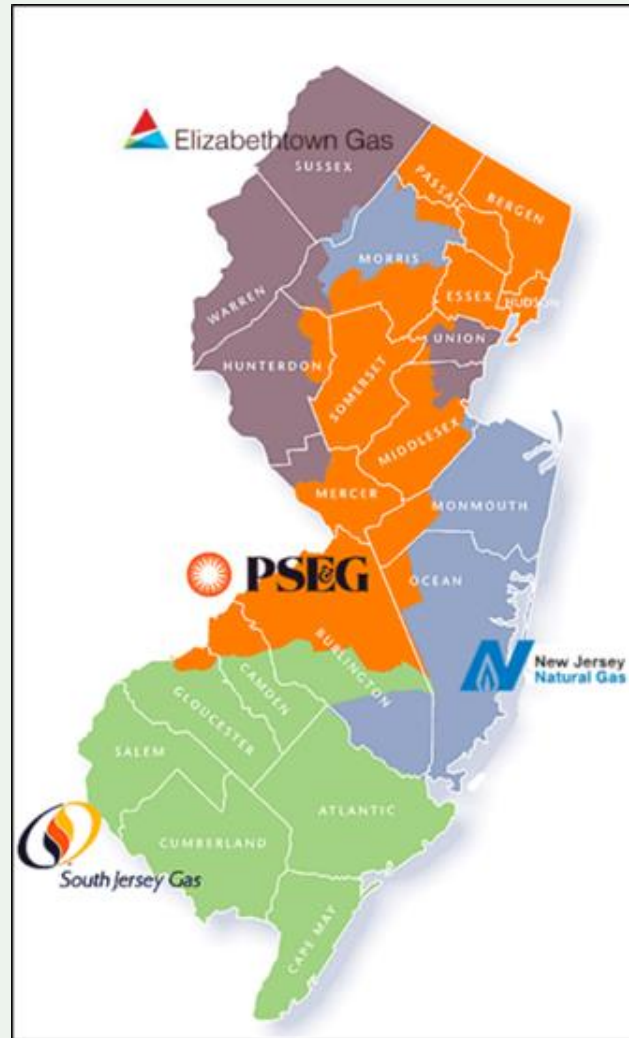
Success Stories



**Roxbury Township
Public Schools**
Kennedy Elementary
Shows its Smarts on
Energy Efficiency

Utility Incentive Programs

- Incentives vary by utility
- Contact your local natural gas and electric utilities



MUNICIPAL OPERATIONS: GHG REDUCTION STRATEGIES AND GOAL

STRATEGIES AND ACTIONS TO ACHIEVE GOLD	TIME TO IMPLEMENT	IMPACT ON MUNICIPAL GHG
Buildings and Street Lighting Efficiency		12-19%
Implement Energy Efficiency Measures	2-4 years	10-17%
Energy Tracking & Management	1 year	2%
Renewable Energy Generation		4-38%
On-Site Solar System	1-2 years	1-35%
On-Site Wind System	3-5 years	<1%
Geothermal System	2-3 years	3%
Greening the Municipal Fleet		15-18%
Purchase Alternative Fuel or Efficient Vehicles	3-7 years	4%
Convert Vehicles to Alternative Fuel	1 year	2%
Trip Optimization Software	1 Year	3-6%
Proper Vehicle Maintenance	1 Year	6%
Driver Training	1 year	3%
Estimated Impact from Reduction Strategies		31-75%

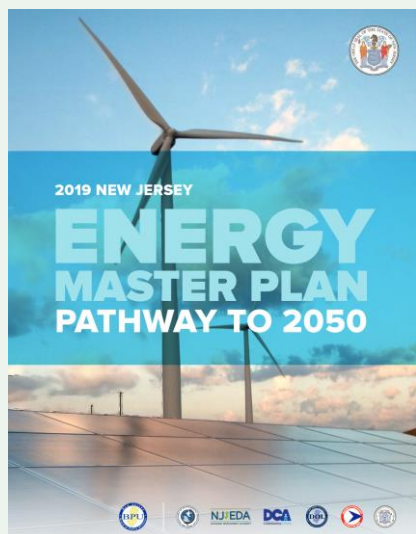
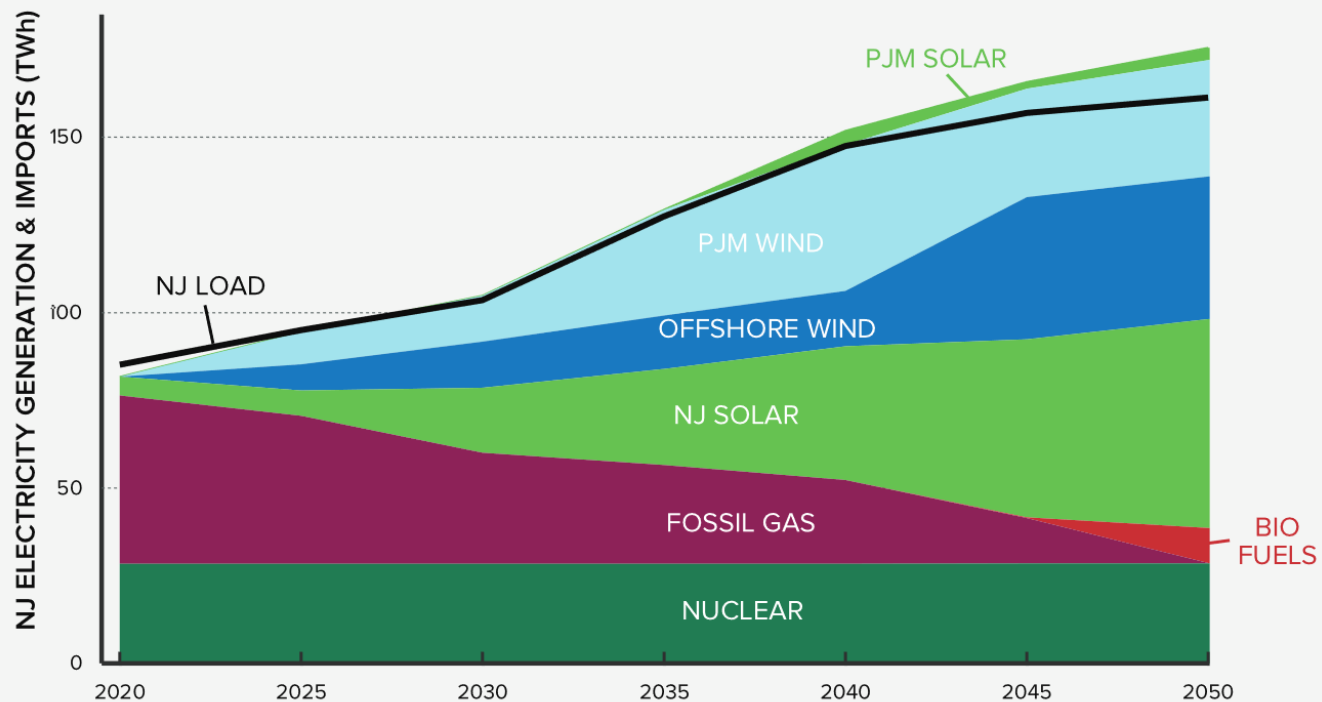


FIGURE 8.

Electricity Generation, Least Cost Scenario



Source: NJ Energy Master Plan

Municipal Carbon Footprint

Municipality:

complete applicable cells highlighted in yellow, grey cells contain formulas

STEP 1: Establish a Baseline Year

Baseline Year Selected:

2018

STEP 2: Scope 1 Emissions from Stationary Fuel Consumption in Baseline Year

		converted to	CO2	(Metric	Emissions	(Metric	Emissions	(Metric	Total Emissions
Municipal Operation - Natural Gas	Total Therm	Million BTU	Emissions (lbs)	Tons CO2e)	(Metric Tons)	(Metric Tons CO2e)	(Metric Tons)	(Metric Tons CO2e)	(Metric Tons CO2e)
Building & Facilities	26,426	2642.601	309395.7251	140.33964	0.013213005	0.33032513	0.00026426	0.0787495	140.7487169
Street Lights & Traffic Signals	5,316	531.6	62239.728	28.231486	0.002658	0.06645	0.00005316	0.0158417	28.31377795
Water & Wastewater Treatment Facilities	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
<i>Natural Gas Total</i>	<i>31742.01</i>	<i>3174.201</i>	<i>371635.453</i>	<i>168.5711</i>	<i>0.01587101</i>	<i>0.3967751</i>	<i>0.00031742</i>	<i>0.094591</i>	<i>169.0624349</i>
Municipal Operation - Heating Oil	Total Gallon	converted to	CO2	(Metric	Emissions	(Metric	Emissions	(Metric	Total Emissions
		Million BTU	Emissions (lbs)	Tons CO2e)	(Metric Tons)	(Metric Tons CO2e)	(Metric Tons)	(Metric Tons CO2e)	(Metric Tons CO2e)
Building & Facilities	0	0	0	0	0	0	0	0	0
Street Lights & Traffic Signals	0	0	0	0	0	0	0	0	0
Water & Wastewater Treatment Facilities	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
<i>Heating Oil Total</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

STEP 3: Scope 2 Emissions from Purchased or Acquired Electricity in Baseline Year

	Total Kwh	Total MWh	CO2e Emissions (lbs) *	CO2e (Metric Tons)	Total Emissions (Metric Tons CO2e)
Municipal Operation - Electricity					
Building & Facilities	785,773	785.773	1030934.176	467.62422	467.6242164
Street Lights & Traffic Signals	236,640	236.64	310471.68	140.82769	140.8276876
Water & Wastewater Treatment Facilities	0	0	0	0	0
Other	0	0	0	0	0
<i>Electricity Total</i>	<i>1022413</i>	<i>1022.413</i>	<i>1341405.86</i>	<i>608.4519</i>	<i>608.451904</i>

** includes CO2, CH4 and N2O emissions preconverted to carbon dioxide equivalents (CO2e)*

STEP 4: Scope 1 Emissions from Mobile Fuel Combustion in Baseline Year

Municipal Operation - Vehicle Emissions	Total Fuel Units	CO2 Emissions (lbs/fuel unit)	CO2 Emissions (lbs)	CO2 (Metric Tons CO2e)	CH4 Emissions (Metric Tons)	CH4 (Metric Tons CO2e)	N2O Emissions (Metric Tons)	N2O (Metric Tons CO2e)	Total Emissions (Metric Tons CO2e)
CO2 emissions by fuel usage									
Motor Gasoline (per gallon)	10,964.57	19.54	214247.6978	97.181192					
Diesel Fuel (per gallon)	11,691	22.37	261527.67	118.62704					
Compressed Natural Gas (per 1000 cubic feet)	0	120.36	0	0					
CH4 and N2O emissions by mileage	Total Mileage								
Totals from <i>Worksheet 3: "Vehicle CH4 & N2O"</i>	247842				0.008223546	0.20558866	0.00317615	0.34649326	
<i>Vehicle Fuel Total</i>			<i>475775.368</i>	<i>215.8082</i>	<i>0.00822355</i>	<i>0.2055887</i>	<i>0.00317615</i>	<i>0.346493</i>	<i>216.3603149</i>

TOTALS

	Total Emissions (Metric Tons CO2e)
MUNICIPAL CARBON FOOTPRINT	8110.754714

Baseline Year Data for Electricity, Natural Gas Usage, and/or Heating Oil
 If necessary, replace 2007 with the appropriate dates for your selected baseline year
 Reproduce this worksheet for each municipal facility
 Data in blue may require adjustment based on municipal billing cycles

Municipality:

Facility Location: Borough Hall

Annual Electricity Usage

**Meter # or
Account #:**

6308319

Month of Usage	Per Bill Date Range of Usage	Per Bill Electricity usage (kWh)	# of days in billing period*	per day	# of days in 2018	Value for 2018
January	12/31/17 - 1/30/18	11950	30	398.33	30	11950
February	1/31/18 - 2/28/18	10267	30	342.23	30	10267
March	3/1/18 - 3/31/18	11304	31	364.65	31	11304
April	4/1/18 - 4/30/18	9560	30	318.67	30	9560
May	5/1/18 - 5/31/18	11672	31	376.52	31	11672
June	6/1/18 - 6/30/18	14741	31	475.52	31	14741
July	7/1/18 - 7/31/18	18709	30	623.63	30	18709
August	8/1/18 - 8/31/18	17662	31	569.74	31	17662
September	9/1/18 - 9/30/18	17468	30	582.27	30	17468
October	10/1/18 - 10/31/18	12517	31	403.77	31	12517
November	11/1/18 - 11/30/18	11102	29	382.83	29	11102
December	12/1/18 - 12/31/18	12001	31	387.13	31	12001
Total KWhs:		158953				
Total MWhs:		158.953				

Natural Gas (therms)

NOTE: if your facility is not separately metered for natural gas usage you should NOT report estimated natural gas usage

Month of Usage	Per Bill Date Range of Usage	Meter # 1	# of days in billing period*	per day	# of days in 2007	Value for 2018
January	12/31/17 - 1/30/18	1341.99	30	44.73	30	1342
February	1/31/18 - 2/28/18	875.87	30	29.20	30	876
March	3/1/18 - 3/31/18	825.66	31	26.63	31	826
April	4/1/18 - 4/30/18	703.5	30	23.45	30	704
May	5/1/18 - 5/31/18	114.28	31	3.69	31	114
June	6/1/18 - 6/30/18	0	31	0.00	31	0
July	7/1/18 - 7/31/18	0	30	0.00	30	0
August	8/1/18 - 8/31/18	0	31	0.00	31	0
September	9/1/18 - 9/30/18	0	30	0.00	30	0
October	10/1/18 - 10/31/18	5.23	31	0.17	31	5
November	11/1/18 - 11/30/18	430.73	29	14.85	29	431
December	12/1/18 - 12/31/18	1000.37	31	32.27	31	1000
Total therms:		5300				

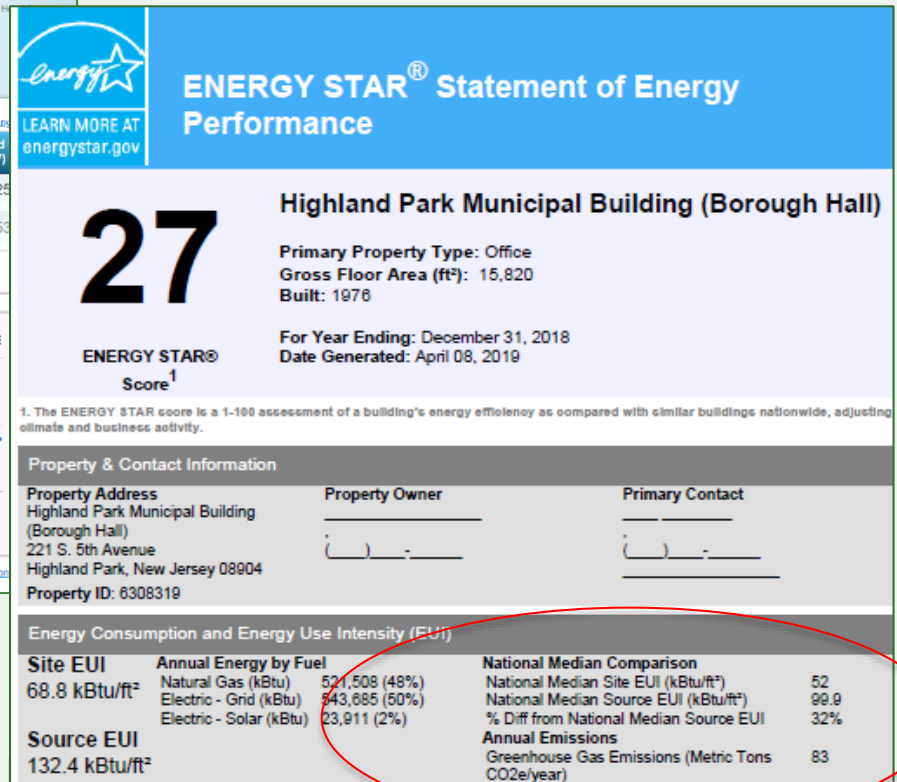
Energy Tracking and Management

For base 10 points

- Building portfolio
- Most recent twelve-months of energy use data for all buildings

For additional 10 points

- Benchmarking report for each building in the inventory
- Demonstrate ongoing Energy Tracking and Management system





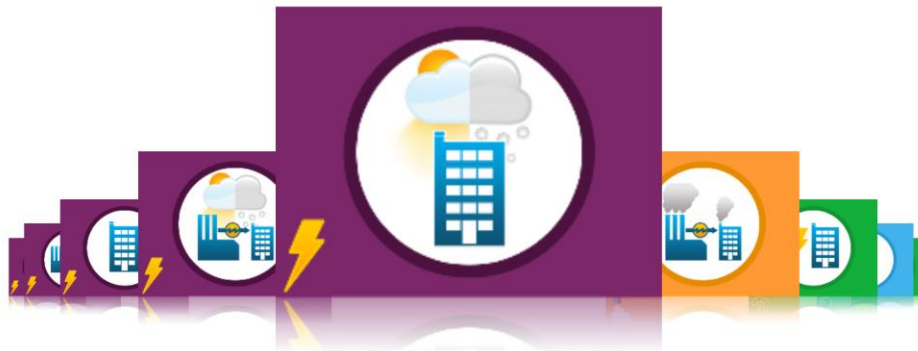
MyPortfolio

Sharing

Reporting

Recognition

Charts & Graphs



Weather Normalized Site EUI

How much energy would be reported on my bills, under average weather conditions?

ENERGY STAR Performance Documents

- [Statement of Energy Performance \(SEP\)](#)
- [Statement of Energy Design Intent \(SEDI\)](#)
- [Data Verification Checklist](#)
- [Progress & Goals Report](#)
- [ENERGY STAR Scorecard](#)
- [Water Scorecard](#)

My Custom Reports

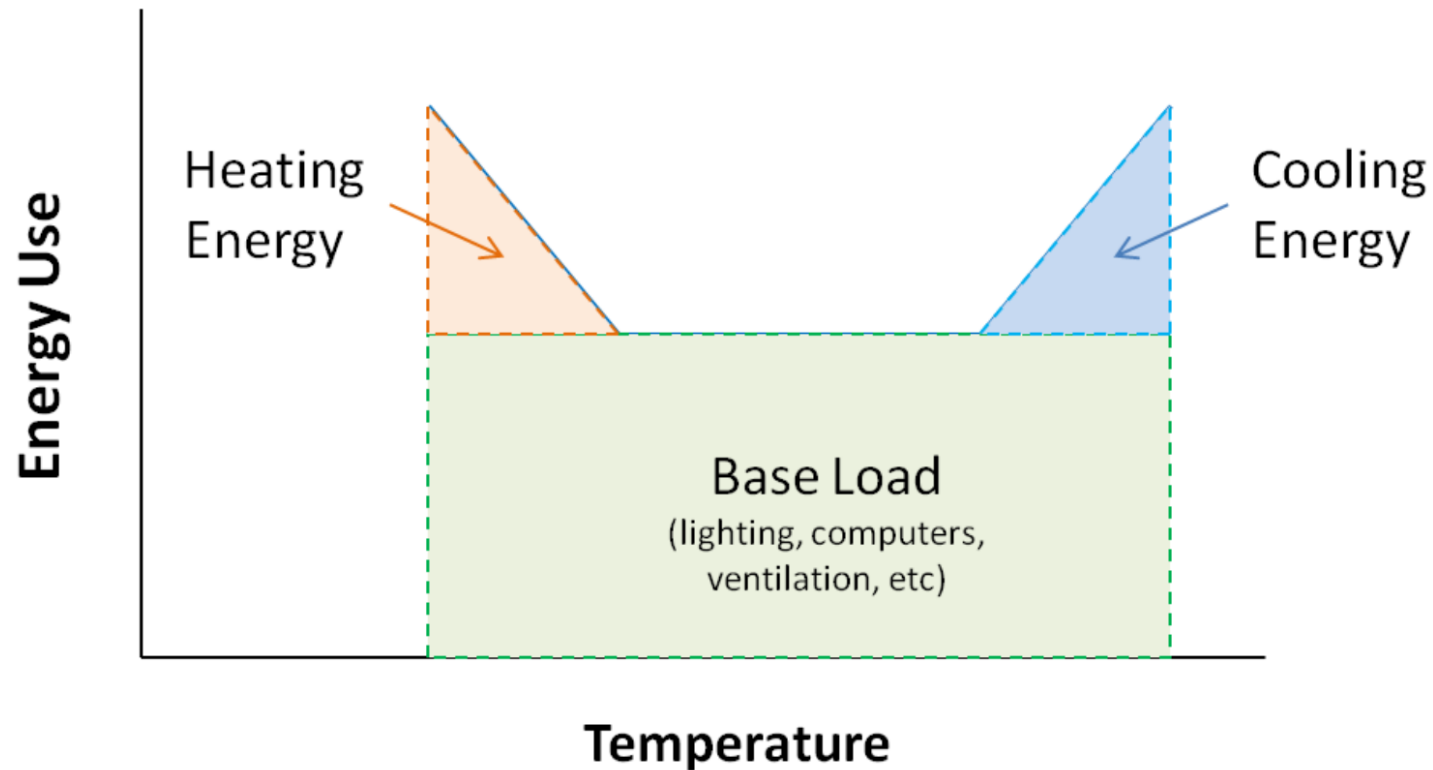
ENERGY STAR Reports

Create a New Template

◆	Name	◆	Status	▲	Action
	ENERGY STAR Certification Status		Last Modified: 5/06/2020 11:29 AM		<input type="text" value="I want to..."/>
	Energy Performance		Last Modified: 5/06/2020 11:19 AM		<input type="text" value="I want to..."/>

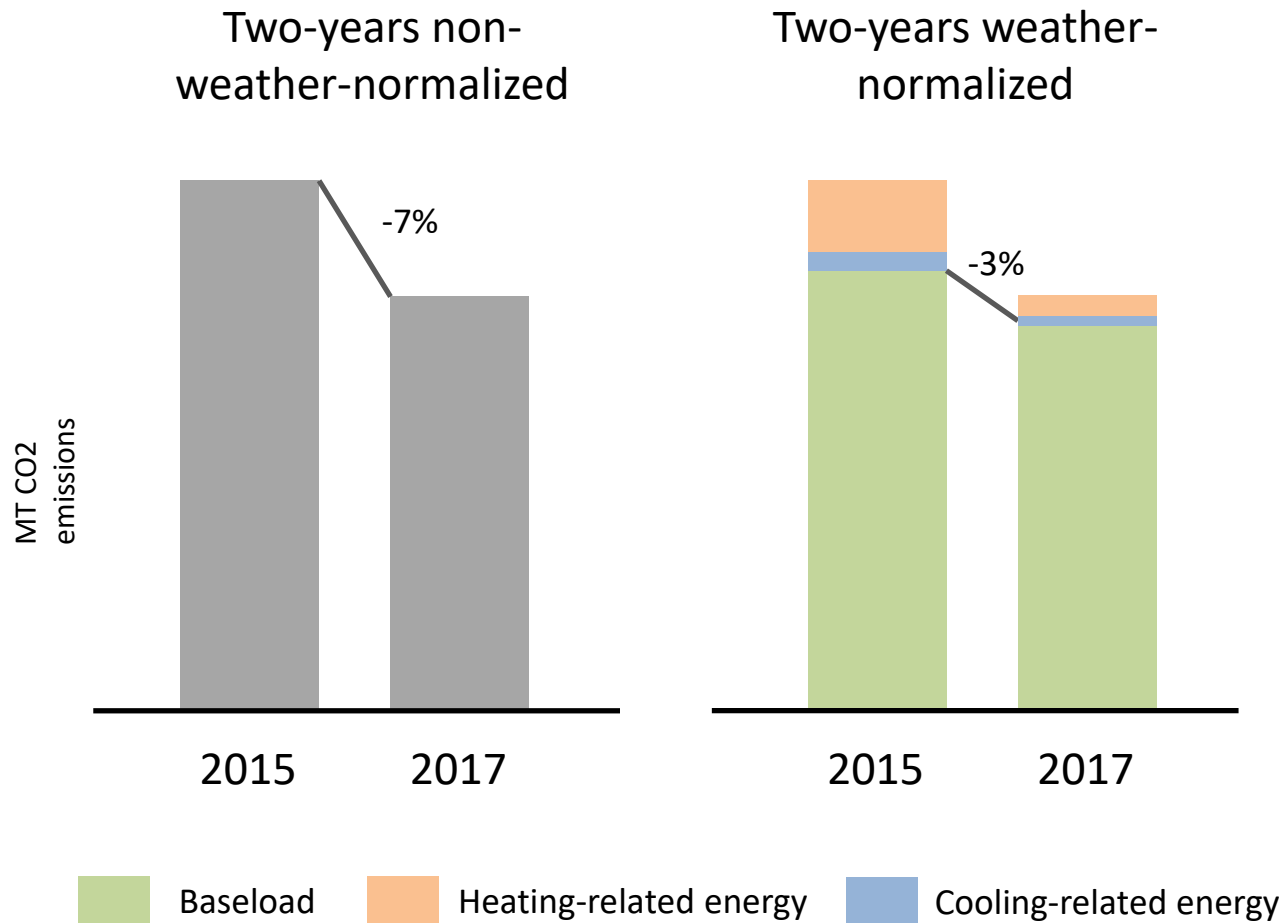
Weather Normalization

Figure 3 – Typical Building Profile for Energy and Temperature



<https://portfoliomanager.energystar.gov/pdf/reference/Climate%20and%20Weather.pdf>

Comparing two years



Property Name	Year Ending	Natural Gas Use (therms)	Weather Normalized Site Natural Gas Use (therms)	Electricity Use - Grid Purchase (kWh)	Weather Normalized Site Electricity (kWh)	Site Energy Use (kBtu)	Weather Normalized Site Energy Use (kBtu)
Building 1	12/31/2015	6391.829236	6409.2	80637.4	80637.4	914317.8	916053.2
Building 2	12/31/2015	6931.709277	6954.8	354260.3	354260.3	1901907.4	1904213
Building 3	12/31/2015	10977.73042	11205.2	768998.6	768998.6	3721596.6	3744338.8
		24301.26893	24569.2	1203896.3	1203896.3	6537821.8	6564605
Building 1	12/31/2017	5186.456198	5787.3	76485.2	75164	779613	835194.6
Building 2	12/31/2017	6506.46407	7121	314771.6	317280.2	1724647.1	1794661.7
Building 3	12/31/2017	9725.176684	11094.7	765584.4	765584.4	3584692.1	3721648.7
		21418.09695	24003	1156841.2	1158028.6	6088952.2	6351505
		-11.86%	-2.30%	-3.91%	-3.81%	-6.87%	-3.25%

Calculating change in municipal GHG emissions

- I. What to track?
- II. Buildings
 - Use ENERGY STAR Portfolio Manager (ESPM)
 - a. track building energy usage
 - b. export weather-normalized data
- III. Fleet
- IV. GHG Emissions Change Calculator
 - a. baseline year
 - b. comparison year

Buildings

Fleets

GHG
Change
Calculator



I. What to track?

1. Scope municipal operations to be tracked
 - a. Which buildings?
 - b. Municipally owned wastewater treatment plant
 - c. Municipally owned streetlight & traffic signals
2. Select years to compare
 - a. baseline year
 - b. comparison year
3. Gather data
 - a. Utility bills
 - b. Fleet data

Calculating change in municipal GHG emissions

- I. What to track?
- II. **Use ENERGY STAR Portfolio Manager to track building energy usage and export weather-normalized data.**
- III. Complete Fleet Inventory
- IV. Calculate percent change in GHG emissions from the baseline year to the comparison year.

Buildings

Fleets

GHG
Change
Calculator



Create an Account

Already have an account? [Sign In Here](#)

Accessing Your Account

Username: *

Password: *

Create a password that is at least 8 characters long and includes the following: lowercase letters, uppercase letters, numbers and/or characters (such as *, #, %, etc.).

Confirm Password: *

About Yourself

First Name: *

Last Name: *

Job Title: *

Email: *

Confirm Email: *

Note: We never share your email address with third parties.

Phone: *

Selecting a Username

You cannot change your username, so choose wisely. For organizations with multiple properties, we recommend you create a "corporate" account which "owns" all of the properties and have an administrator share properties with employees' individual accounts as

About Your Organization

Organization Name: *

Primary Business or Service of Your Organization: *

Is your organization an ENERGY STAR Partner? ☐ Yes ☒ No

Do you want your Account Name to be searchable by other Portfolio Manager users?

Do you want your Account Name to be searchable by other Portfolio Manager users? You must select "Yes" if you want to [connect](#) with other users to allow automatic upload of utility data or to share properties.

☒ Yes ☐ No

Confirm Your Identity

Please confirm that you are a human

☐ I'm not a robot



[Create My Account](#) [Cancel](#)

Primary Business or Service

If you have more than one "primary business," just pick the best option. Portfolio Manager will determine your category for a score based on the information, like square footage, that you enter for each of your property uses.

Connecting with Others in Portfolio Manager

You can [connect with other people](#) in Portfolio Manager to easily share information. Your account must be searchable in order for others to send you a connection request.

Set up a Property: Let's Get Started!

Properties come in all shapes and sizes, from a leased space in a large office building, to a K-12 school with a pool, to a large medical complex with lots of buildings. Since there are so many choices, Portfolio Manager can walk you through getting your property up and running. When you're done, you'll be ready to start monitoring your energy usage and pursue recognition!



Your Property Type

We'll get into the details later. For now, overall, what main purpose does your property serve?

Office

[Learn more about Property Types.](#)



Tip

To set up a property, you'll need information such as [gross floor area](#) and [operating hours](#).



Tip

Not sure what kind of property you are? Because we focus on whole building benchmarking, you want to select the property type that best reflects the activity in the majority of your building. Don't worry if you have other tenants with different business types, just select the main activity.



Test Properties

You may want to enter a property into Portfolio Manager that isn't actually a "real" property, either to familiarize yourself with features or maybe to train other people. By telling us this a "Test" property, we can give the option of including this property in your portfolio-level metrics, charts and table or not, depending what your needs are. This can be configured on your [Account Settings](#).



Your Property's Buildings

How many physical buildings do you consider part of your property?

- ☐ **None:** My property is part of a building
- ☒ **One:** My property is a single building
- ☐ **More than One:** My property includes multiple buildings ([Campus Guidance](#))

How many?



Your Property's Construction Status

Is your property already built or are you entering this property as a construction project that has not yet been completed?

- ☒ **Existing:** My property is built, occupied and/or being used. I will be using Portfolio Manager to track energy/water consumption and, perhaps, pursue recognition.
- ☐ **Design Project:** My property is in the conceptual design phase (pre-construction); I will be using Portfolio Manager to evaluate the energy efficiency of the design project.
- ☐ **Test Property:** This is not a real property. I am entering it to test features, or for other purposes such as training.

Get Started!

[Cancel](#)

Set Up a Property: Basic Property Information

Tell us a little bit more about your property, including a name that you will use to look up your property and its address.

About Your Property

Name:	*	<input type="text" value="Municipal Building"/>
Country:	*	<input type="text" value="United States"/>
Street Address:	*	<input type="text" value="10 Main St"/> <input type="text"/>
City/Municipality:	*	<input type="text" value="Ewing"/>
County:		<input type="text" value="Mercer"/>
State/Province:	*	<input type="text" value="New Jersey"/>
Postal Code:	*	<input type="text" value="08628"/>
Year Built:	*	<input type="text" value="1970"/>
Gross Floor Area:	*	<input type="text" value="3,000"/> <input type="text" value="Sq. Ft."/> <input type="checkbox"/> Temporary Value
<p>Gross Floor Area (GFA) is the total property floor area, measured from the principal exterior surfaces of the building(s). Do not include parking. Details on what to include.</p>		
Irrigated Area:		<input type="text"/> <input type="text" value="Sq. Ft."/>
Occupancy:	*	<input type="text" value="90"/> %
Property Photo (optional):		<input type="button" value="Browse..."/> No file selected.

Select an image file on your computer with the format type of .jpg, .jpeg, .png or .gif; photos will be resized to fit a space of 2.78 inches wide x 2 inches tall.

▼ Building Use [Edit Name](#)

Office refers to buildings used for the conduct of commercial or governmental business activities. This includes administrative and professional offices.

Gross Floor Area (GFA) should include all space within the building(s) including offices, conference rooms and auditoriums, break rooms, kitchens, lobbies, fitness areas, basements, storage areas, stairways, and elevator shafts.

If you have restaurants, retail, or services (dry cleaners) within the Office, you should most likely include this square footage and energy in the Office Property Use. There are 4 exceptions to this rule when you should create a separate Property Use:

- If it is a [Property Use Type that can get an ENERGY STAR Score](#) (note: Retail can only get a score if it is greater than 5,000 square feet)
- If it accounts for more than 25% of the property's GFA
- If it is a vacant/unoccupied Office
- If the Hours of Operation differ by more than 10 hours from the main Property Use

[More on this rule.](#)

Property Use Detail	Value	Current As Of	Temporary Value
★ Gross Floor Area	* <input type="text" value="3,000"/> <input type="text" value="Sq. Ft."/> <input type="text" value=""/>	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>
★ Weekly Operating Hours	<input type="text" value="65"/> <input type="checkbox"/> Use a default	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>
★ Number of Workers on Main Shift	<input type="text" value="6.9"/> <input checked="" type="checkbox"/> Use a default	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>
★ Number of Computers	<input type="text" value="6"/> <input checked="" type="checkbox"/> Use a default	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>
Percent That Can Be Heated	<input type="text" value="50 % or more"/> <input checked="" type="checkbox"/> Use a default	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>
★ Percent That Can Be Cooled	<input type="text" value="50 % or more"/> <input checked="" type="checkbox"/> Use a default	<input type="text" value="1/1/1970"/>	<input type="checkbox"/>

★ This Use Detail is used to calculate the 1-100 ENERGY STAR Score.



MyPortfolio

[Sharing](#)[Reporting](#)[Recognition](#)

Municipal Building



10 Main St, Ewing, NJ 08628 | [Map It](#)

Portfolio Manager Property ID: 10907637

Year Built: 1970

[Edit](#)



Not currently eligible for
[ENERGY STAR Certification](#)

[Change Metric](#)

**Weather Normalized
Source EUI (kBtu/ft²)** [Why not score?](#)

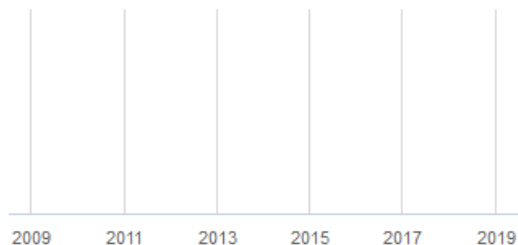
Current: [N/A](#)

Baseline: [N/A](#)

[Summary](#)[Details](#)[Energy](#)[Water](#)[Waste & Materials](#)[Goals](#)[Design](#)

[Refresh](#) to see **Source EUI Trend**

[Change Metric](#)



[Change Metrics](#)

[Change Time Periods](#)

Metrics Summary

Metric Change	Not Available (Energy Baseline) Change	Not Available (Energy Current) Change	Change ?
ENERGY STAR Score (1-100)	Not Available	Not Available	N/A
Source EUI (kBtu/ft²)	Not Available	Not Available	N/A
Site EUI (kBtu/ft²)	Not Available	Not Available	N/A
Energy Cost (\$)	Not Available	Not Available	N/A
Total GHG Emissions Intensity (kgCO2e/ft²)	Not Available	Not Available	N/A
Water Use (All Water Sources) (kgal)	Not Available	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A

Municipal Building

10 Main St, Ewing, NJ 08628 | [Map It](#)
Portfolio Manager Property ID: 10907637
Year Built: 1970
[Edit](#)

Not currently eligible for ENERGY STAR Certification

Weather Normalized Source EUI (kBtu/ft²)
Current: N/A
Baseline: N/A

- Summary
- Details
- Energy
- Water
- Waste & Materials
- Goals
- Design

Meter Summary

0 Energy Meters Total
In order to receive metrics for your property, you must provide meters. You have not entered any meters yet.
[Add A Meter](#)
Current Energy Date
Not Available
[Enter Your Bills](#)

- Four Ways to Enter Bill Data
- 1. Manual
 - 2. Use our simple spreadsheet (on the bottom of each meter's Manage Bills page) to upload or [Copy/Paste](#)
 - 3. Use our [complex spreadsheet](#) (multiple meters + multiple properties)
 - 4. [Find an organization](#) to electronically enter your data

Meters - Used to Compute Metrics (0)

[Add A Meter](#)

Get Started Setting Up Meters for Municipal Building

There are four ways to enter meter data. First, you can enter manually, starting below. Second, you can set up your meters below, then upload a specially formatted spreadsheet with just your bill data. Third, for advanced users, you can use our upload tool that allows you to set up all of your meters and enter bill data. And finally, you can hire an organization that exchanges data to update your energy data automatically.



Sources of Your Property's Energy

What kind of **energy** do you want to track? Please select all that apply.

- ☒ Electric
 - ☒ purchased from the grid
 - How Many Meters?
 - ☐ generated onsite with my own solar panels
 - ☐ generated onsite with my own wind turbines
- ☒ Natural Gas
 - How Many Meters?
- ☐ Propane
- ☐ Fuel Oil (No. 2)
- ☐ Diesel
- ☐ District Steam
- ☐ District Hot Water
- ☐ District Chilled Water
- ☐ Fuel Oil (No. 4)
- ☐ Fuel Oil (No. 5 and No. 6)
- ☐ Coal (anthracite)
- ☐ Coal (bituminous)
- ☐ Coke
- ☐ Wood
- ☐ Kerosene
- ☐ Fuel Oil (No. 1)
- ☐ Other:



Tracking Energy

To track your energy, create an energy meter for each source of energy from a utility, a neighboring building, or an onsite solar or wind panel. If you purchase a raw fuel (e.g. gas) and produce your own fuel (e.g., electricity or chilled water), you only need a meter for the fuel you purchased (e.g. gas), and

2 Energy Meters for Municipal Building (click table to edit)

<input type="checkbox"/>	Meter Name	Type	Other Type	Units	Date Meter became Active	In Use?
<input type="checkbox"/>	Natural Gas	Natural Gas		Please select the units in which you want to report the usage for Natural Gas. therms	Please provide the "Date Meter became Active" which should match the earliest bill you would like to enter for Natural Gas. 01/01/2020	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Electric Grid Me	Electric - Grid		Please select the units in which you want to report the usage for Electric Grid Meter. kWh (thousand	Please provide the "Date Meter became Active" which should match the earliest bill you would like to enter for Electric Grid Meter. 01/01/2020	<input checked="" type="checkbox"/>

Your meters have been created! If you have your energy consumption information for these meters, you can enter it below. Or, you can [continue with setting up your meters](#) and enter your energy bills later.

Your Meter Entries for Municipal Building

Now we need actual energy consumption information in order to start providing you with your metrics and, possibly, your score!

2 Energy Meter(s) for Municipal Building


► Natural Gas

▼ Electric Grid Meter


	Start Date	End Date	Usage kWh (thousand Watt-hours)	Total Cost (\$)	Estimation	Green Power	Demand (kW)	Demand Cost (\$)
<input type="checkbox"/>	<input type="text" value="12/12/2019"/> 	<input type="text" value="01/12/2020"/> 	<input type="text" value="1,000"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>

✖ [Delete Selected Entries](#)

+ [Add Another Entry](#)

 [Learn how to copy/paste](#)

Upload data in bulk for this meter:

 You can use the single-meter spreadsheet to either:
"Upload" the file below, or copy and paste the data from the
spreadsheet into the table above ([instructions in this FAQ](#)).
Use this single-meter [spreadsheet template](#).

No file selected.

[Cancel](#)



MyPortfolio

Sharing

Reporting

Recognition

This report template, [Weather Normalized Data Export Report](#), has been successfully copied into your account.

To begin using this template right away, you need to [edit this template](#) to include the properties from your account you want to see on the spreadsheet. Once you have added your properties to this report template, [Generate a Spreadsheet](#) in order to pull information you have selected from your account and into your template to create a spreadsheet download.

Keep in mind: If you have chosen a large number of properties

Edit Report Template: Weather Normalized Data Export Report

1 Name Your Template

Name: *

Please provide a unique name for this template

2 Select Timeframe

Timeframe: *

with period ending

Each property must have 12 full months of data for metrics to be calculated. If metrics cannot be calculated, "N/A" will be displayed in your report. Pick the **last day** of the 12 month period that you want.

3 Select Properties

Properties:

4 Select Information & Metrics

Information & Metrics: * [Select Information & Metrics](#) Selected Items: [15](#)

[Save Template](#) [Cancel](#)

Your template has been successfully saved.

In addition to saving your template for future use, you can go ahead and use it right away to:

- **Generate a Report** - Pull information you have selected from your account and into your template to create a report for download.
- [Request Data from Others](#) - Ask other people to fill out your template with information from their accounts.
- [Share Template with Others](#) - Give your template to other people so that they can use it to prepare spreadsheets from their accounts.

Keep in Mind: If you have chosen a large number of properties and/or metrics in your template, it may take a little longer to generate your report. [Learn more about creating large spreadsheets.](#)

My Custom Reports

ENERGY STAR Reports

**Your new report(s) has been generated**

◆	Name	◆	Status	▲
	Weather Normalized Data Export Report		Generated: 5/06/2020 3:06 PM	

I want to...

View Current Report

Download Current Report in Excel

Download Current Report in XML

Generate New Report

Edit this Template

Share this Template

Request Data using this Template

Delete this Template

I want to... ▾

Weather Normalized Data Export Report

Date Downloaded: 05/06/2020 07:40 PM EDT

Date Generated: 05/06/2020 07:40 PM EDT

Number of properties in report: 3

Property Id	Property Name	Year Ending	Address 1	City	State/Province	Postal Code	Natural Gas Use (therms)	Weather Normalized Site Natural Gas Use (therms)	Electricity Use - Grid Purchase (kWh)	Weather Normalized Site Electricity (kWh)	Site Energy Use (kBtu)	Weather Normalized Site Energy Use (kBtu)
7456057	Sample Library	12/31/2016	88 Rose Street	Ewing	New Jersey	08628	32680.30	35379.20	2185493.00	2185493.00	10724933.30	10994819.1
7921322	Municipal Building	12/31/2016	123 Main Street	Ewing	New Jersey	08628	80449.00	87917.00	6259162.60	6195127.50	29401165.70	29929473.3
10890625	Town Hall	12/31/2016	123 Main Street	Ewing	New Jersey	08628	80449.00	87917.00	6259162.60	6195127.50	29401165.70	29929473.3
							193578.30	211213.20	14703818.20	14575748.00	69527264.70	70853765.70
7456057	Sample Library	12/31/2019	88 Rose Street	Ewing	New Jersey	08628	25435.20	27542.20	2011680.60	2011680.60	9407375.10	9618078.8
7921322	Municipal Building	12/31/2019	123 Main Street	Ewing	New Jersey	08628	81517.00	88637.10	5300464.30	5300464.30	26236886.10	26948898
10890625	Town Hall	12/31/2019	123 Main Street	Ewing	New Jersey	08628	81517.00	88637.10	5300464.30	5300464.30	26236886.10	26948898
							188469.20	204816.40	12612609.20	12612609.20	61881147.30	63515874.80

Calculating change in municipal GHG emissions

- I. What to track?
- II. Use ENERGY STAR Portfolio Manager to track building energy usage and export weather-normalized data.
- III. **Complete Fleet Inventory**
- IV. Calculate percent change in GHG emissions from the baseline year to the comparison year.

Buildings

Fleets

GHG
Change
Calculator



Vehicle data must include fuel usage and vehicle miles traveled by all municipal vehicles, whether owned or leased. Data must be provided for all departments with any type of motorized vehicle including Purchasing, Finance, Fire, Police, Public Works, etc. Reasonable estimates may be provided when exact data is not available.

complete cells highlighted in yellow, grey cells contain formulas

Vehicle Identification Number (if applicable)	Vehicle Type (bus, truck, sedan, segway, scooter, etc)	Year	Make	Model	Fuel Type (Gasoline, Diesel, Electricity, etc)	Odometer Reading at end of Baseline Year	Miles Traveled in Baseline Year	Annual Fuel Usage in Baseline Year	Fuel Units (Gallons, GGE, kWh)	Annual Fuel Cost in Recent Year	Average Fuel Efficiency in Baseline Year (miles per fuel unit)
1A2B3C4D5E6F7G8H9	Sedan	2014	Ford	Crown Victoria	Gasoline	20000	10000	400	Gallons	1,000	25.00
2A2B3C4D5E6F7G8H9	Sedan	2014	Ford	Crown Victoria	Gasoline	20000	10000	400	Gallons	1,000	25.00
3A2B3C4D5E6F7G8H9	Sedan	2014	Ford	Crown Victoria	Gasoline	20000	10000	400	Gallons	1,000	25.00
							30000	1200	Gallons	3000	
4A2B3C4D5E6F7G8H9	Truck	2014	Ford	F-15	Gasoline	20000	10000	450	Gallons	1,500	22.22
5A2B3C4D5E6F7G8H9	Truck	2014	Ford	F-15	Gasoline	20000	10000	450	Gallons	1,500	22.22
6A2B3C4D5E6F7G8H9	Truck	2014	Ford	F-15	Gasoline	20000	10000	450	Gallons	1,500	22.22
							30000	1350	Gallons	4500	
7A2B3C4D5E6F7G8H9	Garbage Truck	2014	Freightliner	M2106	Diesel	10000	5000	1000	Gallons	2500	5.00
8A2B3C4D5E6F7G8H9	Sedan	2015	Nissan	Leaf	Electricity	10000	10000	1000	kWh	500	10.00

Municipality: **Municipality X** complete cells highlighted in yellow, grey cells contain formulas

Year Selected: **2016**

Enter baseline year mileage for each type of municipal vehicle.

Methane and Nitrous Oxide Emissions Factors for Highway Vehicles

Vehicle Type/Control Technology	Model Year	Total Mileage for Each Vehicle Type	N ₂ O (g/mi)	CH ₄ (g/mi)	N ₂ O grams	CH ₄ grams	N ₂ O Metric Tons	CH ₄ Metric Tons
Gasoline Passenger								
EPA Tier 2	2004 and Later	30000	0.0036	0.0173	108	519	0.000108	0.000519
Low Emission	2000-2003		0.015	0.0105	0	0	0	0
EPA Tier 1	1995-1999		0.0429	0.0271	0	0	0	0
EPA Tier 0	1981-1994		0.0647	0.0704	0	0	0	0
Oxidation Catalyst	1975-1980		0.0504	0.1355	0	0	0	0
Non-Catalyst	1973-1974		0.0197	0.1696	0	0	0	0
Uncontrolled	1972 and Earlier		0.0197	0.178	0	0	0	0
Gasoline Light-Duty Trucks								
EPA Tier 2	2005 and Later	30000	0.0066	0.0163	198	489	0.000198	0.000489
Low Emission	2001-2004		0.0157	0.0148	0	0	0	0
EPA Tier 1	1995-2000		0.0871	0.0452	0	0	0	0
EPA Tier 0	1986-1994		0.1056	0.0776	0	0	0	0
Oxidation Catalyst	1975-1985		0.0639	0.1516	0	0	0	0
Non-Catalyst	1973-1974		0.0218	0.1908	0	0	0	0
Uncontrolled	1972 and Earlier		0.0220	0.2024	0	0	0	0
Gasoline Heavy-Duty Vehicles								
EPA Tier 2	2004 and Later		0.0134	0.0333	0	0	0	0
Low Emission	1996-2003		0.032	0.0303	0	0	0	0
EPA Tier 1	1996-2003		0.175	0.0655	0	0	0	0
EPA Tier 0	1996 and Later		0.2135	0.263	0	0	0	0
Oxidation Catalyst	1996 and Later		0.1317	0.2356	0	0	0	0
Non-Catalyst	1985-1995		0.0473	0.4181	0	0	0	0
Uncontrolled	1984 and Earlier		0.0497	0.4604	0	0	0	0
Diesel Passenger Cars								
Advanced	1996 and Later		0.001	0.0005	0	0	0	0
Moderate	1983-1995		0.001	0.0005	0	0	0	0
Uncontrolled	1982 and Earlier		0.0012	0.0006	0	0	0	0
Diesel Light-Duty Trucks								
Advanced	1996 and Later		0.0015	0.001	0		0	0
Moderate	1983-1995		0.0014	0.0009	0	0	0	0
Uncontrolled	1982 and Earlier		0.0017	0.0011	0	0	0	0
Diesel Heavy-Duty Vehicles								
Advanced	1996 and Later	5000	0.048	0.0051	240	25.5	0.00024	0.0000255
Moderate	1983-1995		0.048	0.0051	0	0	0	0
Uncontrolled	1982 and Earlier		0.048	0.0051	0	0	0	0
Motorcycles								
Non-Catalyst	1996 and Later		0.0069	0.0672	0	0	0	0
Uncontrolled	1995 and Earlier		0.0087	0.0899	0	0	0	0

Source: U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005, EPA 430-R-07-002, Annex 3.2, (April 2007), web site: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>

TOTALS	65000						N₂O Metric Tons	CH₄ Metric Tons
							0.000546	0.0010335

enter these totals into worksheet 3

Municipality:	Municipality X	<i>complete cells highlighted in yellow, grey cells contain formulas</i>						
Baseline Year Selected:	2016							
Fleet Inventory Contact Name:	John Doe	Department:	Public Works	Contact Email:	jdoo@MunicipalityX.org			
				Contact Phone:	111-222-3333			
Fleet Summary								
# light duty vehicles	4							
# heavy duty vehicles	3							
Total Fleet Size:	7							
Total Fuel Costs for all Municipal Vehicles in Year				\$18,000				
Fuel Consumption (and Scope 1 Emissions from Mobile Fuel Combustion)								
Municipal Operation - Vehicle Emissions CO2 emissions by fuel usage	Total Fuel Units consumed by all municipal vehicles in baseline year	CO2 Emissions (lbs/fuel unit)	CO2 Emissions (lbs)	CO2 (Metric Tons CO2e)				
Motor Gasoline (gallons)	2550	19.54	49827	22.6011635				
Diesel Fuel (gallons)	1000	22.37	22370	10.1468687				
Biodiesel B20 (gallons)		17.89	0	0				
Natural Gas (gge)		15.25	0	0				
Propane (gallons)		12.67	0	0				
Other 1 specify fuel (units)			0	0				
Other 2 specify fuel (units)			0	0				
Other 3 specify fuel (units)			0	0				
Carbon dioxide emissions coefficients: http://www.eia.doe.gov/oiaf/1605/excel/Fuel%20Emission%20Factors.xls								
Municipal Operation - Vehicle Emissions CH4 and N2O emissions by mileage	Total Mileage	CH4 Emissions (Metric Tons)	CH4 (Metric Tons CO2e)	N2O Emissions (Metric Tons)	N2O (Metric Tons CO2e)			
Totals from Worksheet 2, "Vehicle CH4 & N2O"	65000	0.0010335	0.02584	0.000546	0.1627			
	Total Emissions (Metric Tons CO2e)							
FLEET CARBON FOOTPRINT		32.93657766						

Calculating change in municipal GHG emissions

- I. What to track?
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- III. Complete Fleet Inventory
- IV. **Calculate percent change in GHG emissions from the baseline year to the comparison year.**

Buildings

Fleets

GHG
Change
Calculator



Beta Municipal Operations GHG Emissions Change Calculator

Intro

This calculator was created to help municipalities calculate the change in GHG emissions from municipal operations. It's part of Sustainable Jersey's Gold Star Standard in Energy's Municipal Operations Action and meant to be used with ENERGY STAR Portfolio Manager and Sustainable Jersey's Fleet Inventory. See the Municipal Operations Action (<https://www.sustainablejersey.com/actions/gold-star-standards/#open/action/565>) and the Guide (URL) for more information on how to calculate GHG emissions change in municipal operations.

Instructions:

- 1. Enter the Baseline year information and data in the Baseline year sheet.** On Sheet 1. Baseline Year, fill the bright yellow cells. The light-yellow cells are required if applicable to the municipality, e.g., if the municipality uses oil or propane or if streetlights are municipally operated. The weather-normalized stationary fuel consumption and weather-normalized purchased electricity come from the Weather Normalized Data Export Report.
- 2. Enter the comparison year information and data in the comparison year sheet.** On Sheet 2. Comparison Year and % Change, fill the cells with the comparison year data.
- 3. Review the percent change.** Once the data is filled in, the percent change is automatically calculated on the Percent change sheet. The 'Total Percent Change' cell shows the overall percent change between the baseline and the comparison year, and the 'Annual Percent Change' is the average annual percent change for each year between the two years. If there is an increase in overall emissions, the 'Total Percent Change' will turn red; if there is a reduction it will turn green. If the 3.6% annual reduction requirement has not been met, the cell with the percent change will turn red, and if it is achieved, it will be green.
- 4. Submit.** Once the calculator is complete, and the annual rate of reduction is met, record the percent change in your narrative for the Municipal Operations action submission and upload the completed GHG Emissions Change Calculator. Upload the Weather-Normalized Data Export Report and the baseline and comparison year Fleet Inventory spreadsheets to the action submission. In the future, assuming the portfolio doesn't significantly change, the same spreadsheet can be used with the same baseline year data and the new comparison year to complete the change in GHG emissions.

Baseline Year

Municipality:	Municipality X			* Complete applicable cells highlighted in yellow			
Baseline Year							
Year (Select from dropdown): 2016							
Electricity Factorset (lb CO2e/MWh) 762.11							
Stationary Fuel Consumption							
Municipal Operation - Natural Gas							
Total Therms		converted to Million BTU	CO2 Emissions (lbs)	CO2 (Metric Tons CO2e)	CH4 Emission (Metric Tons)	Natural Gas Use (therms)	Normalized Site Natural Gas Use (therms)
Weather Normalized Building & Facilities		211213.2	2472884.146	1121.682196	0.1056066	32680.30	35379.20
Water & Wastewater Treatment Facilities		0	0	0	0	80449.00	87917.00
Other		0	0	0	0	80449.00	87917.00
Natural Gas Total		211213.2	2472884.146	1121.682196	0.1056066	211213.20	2185493.00
Purchased Electricity							
Municipal Operation - Electricity							
Total Kwh		Total MWh	CO2e Emissions (lbs)	CO2e (Metric Tons)	CO2 Emissions (lbs/fuel unit)	CO2 Emissions (lbs)	CO2 (Metric Tons CO2e)
Weather Normalized Building & Facilities		14575748	11108323.31	5038.654362	2550	49827	22.6011635
Street Lights & Traffic Signals		0	0	0	1000	22370	10.1468687
Water & Wastewater Treatment Facilities		0	0	0	0	0	0
Other		0	0	0	0	0	0
Electricity Total		14575748	11108323.31	5038.654362	0	0	0
* includes CO2, CH4 and N2O emissions							
http://www.eia.doe.gov/oiaf/1605/excel/Fuel%20Emission%20Factors.xls							
Mobile Fuel Combustion							
Municipal Operation - Vehicle Emissions							
CO2 emissions by fuel usage		Total Fuel Units	CO2 Emissions (lbs/fuel unit)	CO2 Emissions (lbs)	CO2 (Metric Tons CO2e)	Total Mileage	CH4 Emissions (Metric Tons)
Motor Gasoline (per gallon)		2550	19.54	49827	22.6011635	65000	0.0010335
Diesel Fuel (per gallon)		1000	22.37	22370	10.1468687		0.02584
Compressed Natural Gas (per 1000 cubic feet)			120.36	0	0		0.000546
Municipal Operation - Vehicle Emissions							
CH4 and N2O emissions by mileage		Total Mileage			CH4 Emissions (Metric Tons)	CH4 (Metric Tons CO2e)	N2O Emissions (Metric Tons)
Totals from Worksheet 3, "Vehicle CH4 & N2O"		65000			0.0010335	0.0258375	0.000546
Vehicle Fuel Total				72197	32.74803216	0.0010335	0.0258375
Totals							
Baseline Year Emissions							
6196.5427							

Comparison Year[illegible]

Percent Change									
GHG Emissions Change									
								Total Percent Change	-15.40%
								Difference in Number of Years	3
								Average Annual Percent Change	-5.13%

Action update and
guide coming soon!



Contact Information:

Zenon Tech-Czarny, Sustainable Jersey
Research and Project Specialist

czarnyz@tcnj.edu

(609) 771-2549

PROGRAM UNDERWRITERS



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