



Massachusetts Department
of Energy Resources

COMMONWEALTH OF MASSACHUSETTS

*Charles Baker, Governor
Matthew Beaton, Secretary
Judith Judson, Commissioner*

*Green Communities Division
Webinar*

November 1, 2018

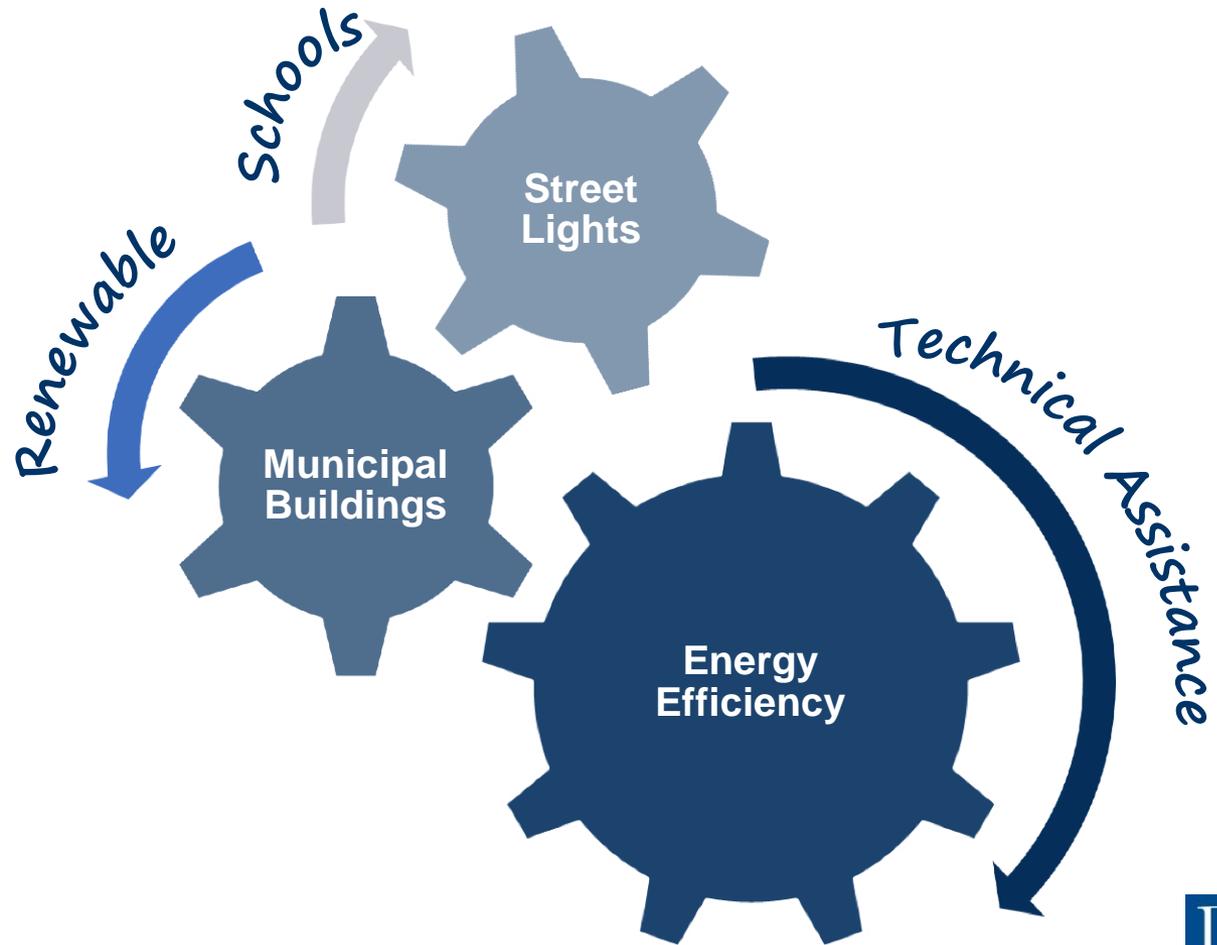
Green Communities Annual Reports

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Deputy Director
Green Communities

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NE Regional Coordinator
Green Communities

Green Communities Division

The energy hub for **all** Massachusetts cities and towns, not just designated “Green Communities.”



Helping Massachusetts Municipalities Create a Clean, Affordable, and Resilient Energy Future

Green Communities Division - Programs & Resources for Municipalities

- Green Communities Designation and Grant Program
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Technical Assistance
- Energy Management Services Procurement Oversight
- Website filled with tools & resources:
- www.mass.gov/orgs/green-communities-division-massdoer

Email updates via e-blasts – Sign up by sending an email to:

join-ene-greencommunities@listserv.state.ma.us



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Outreach - Regional Coordinators

- Regional Coordinators act as direct liaisons with cities and towns on energy efficiency and renewable energy activities
- Located at each of the DEP Regional Offices:



WERO – SPRINGFIELD: Jim Barry
Jim.Barry@mass.gov
413-755-2232



NERO – WILMINGTON: Neal Duffy
Neal.Duffy@mass.gov
978-694-3315



CERO – WORCESTER: Kelly Brown
Kelly.Brown@mass.gov
508-767-2703



SERO – LAKEVILLE: Seth Pickering
Seth.Pickering@mass.gov
508-946-2838



Upcoming Events

- Dec 7, 11AM: Next webinar – “***SMART Update for Cities and Towns.***”

- Email questions/topics to address to:
Joanne.Bissetta@mass.gov

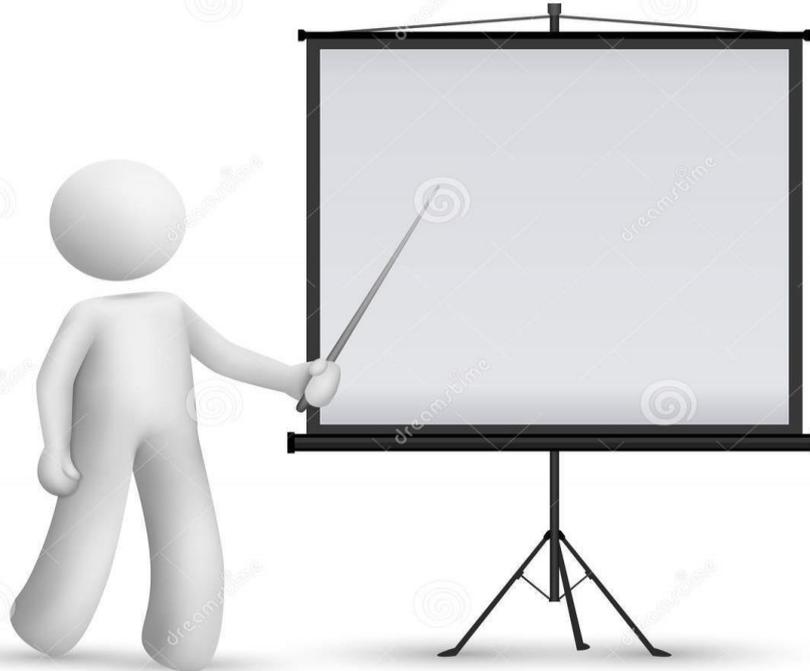


Recording & Presentation

- The webinar is being recorded and will be available on our website in approximately 48 hours at: www.mass.gov/orgs/green-communities-division-massdoer
- Click on the camera icon top right of your screen to save any slides for future reference
- Use the Q & A icon on your screen to type in questions



Today's Presentation



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Why Annual Reports?

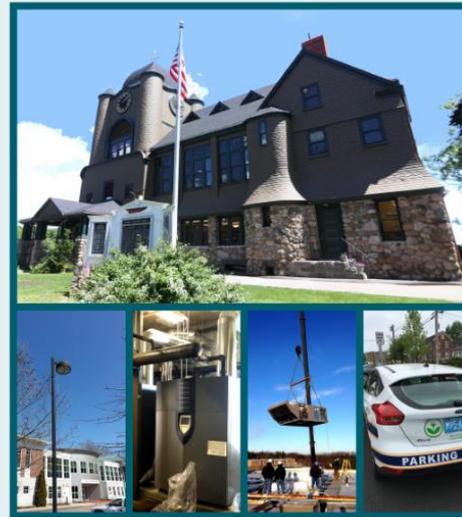
- Ensures grant \$ awarded to GCs in “good standing”
- Mechanism for GCs to “tell their story”
- Track progress
- ID trends
- Inform future program development



What do we do with the info?

- Analyze data
- Progress Reports
- Verify 20% reduction

Green Communities
Designation and
Grant Program

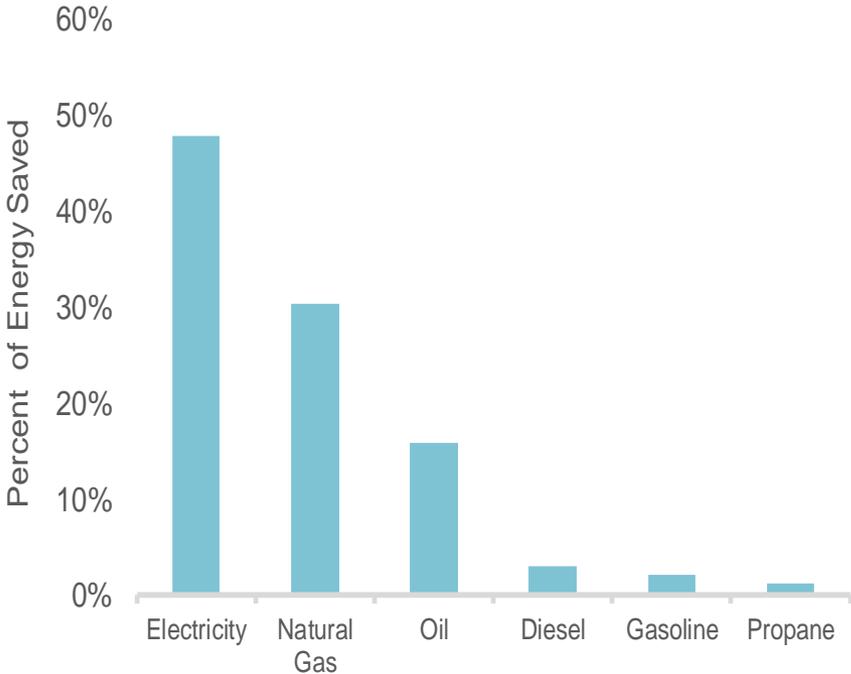
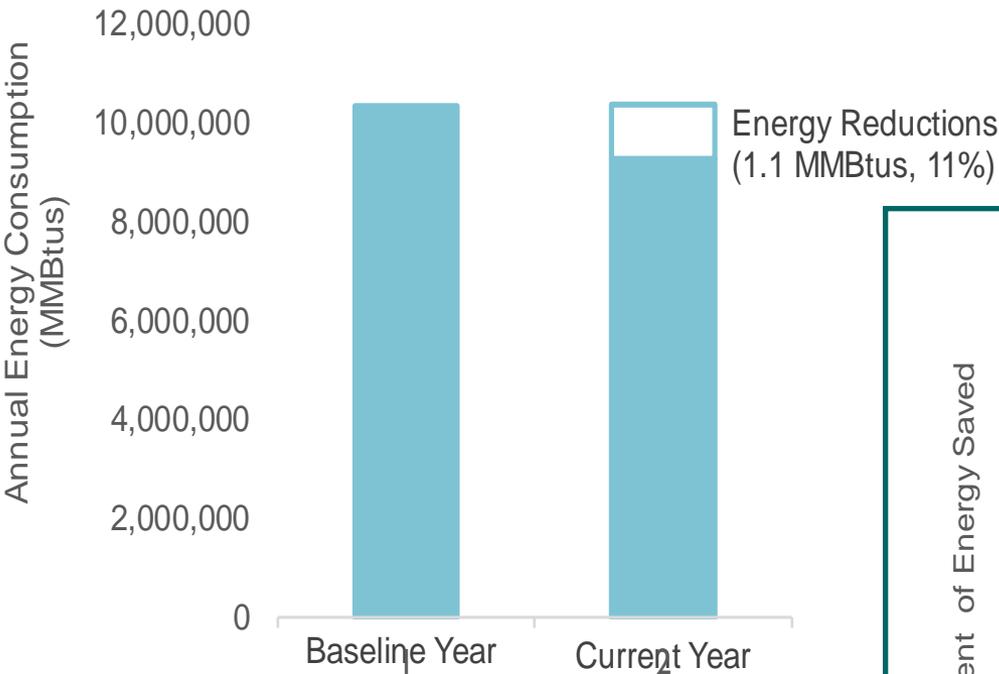


Massachusetts
Green Communities Program
2016 Progress Report

December 2017



Some Results from 2017



FY18 Annual Report Walk-through



WavebreakmediaMicro/dollar photo club



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Confirmation Page

GREEN COMMUNITY ANNUAL REPORT

1) In order for a municipality to maintain its Green Community Designation and be eligible for the next available Green Communities funding opportunity, reports must be submitted *no later than 5:00 PM December 3, 2018 for the reporting period July 1, 2017 – June 30, 2018*

Late reports **WILL** deem a community ineligible for Spring 2019 Competitive Grant.

2) Please be certain to address all areas in full. If certain requested information does not apply, then please note it as "N/A."

3) Please follow the instruction for reporting on each Criteria on the individual Criterion Excel Sheets.

4) If you have any questions on these reporting requirements, contact your DOER Green Communities Regional Coordinator (RC). The objective is to have a dialogue with Green Communities staff **BEFORE** the report is due so that minimal follow-up with the municipality is required after the due date.

5) Submit your community's full Excel file electronically as Excel via email with any other supporting files to Grant Administrator Jane Pfister - jane.pfister@mass.gov and your Regional Coordinator. **This page must be signed, made into a PDF, and submitted as a separate file.** Please submit only **one Excel file** for the annual report. DOER will not accept multiple spreadsheets

6) NOTE: In the case of any criteria violations(e.g. a vehicle purchased that does not meet the fuel efficient vehicle policy), the municipality will be asked to provide a corrective action plan. A first-time violation will be factored into consideration when DOER awards funds under the next available Green Communities funding opportunity. A second violation may prohibit the municipality from being eligible for any funds in the next available Green Communities funding opportunity.

8) Fields highlighted in yellow should be completed by Green Communities.

Date Designated: PLEASE NOTE: For a municipality designated February 2017, the reporting period is 18 months, Jan 1 2017 - June 30 2018

Date of Annual Report Submission

Name of Preparer of Annual Report

Title

Municipality Name

I confirm that I have reviewed this report and verify all information is true.

Signature of Chief Executive Officer

The Chief Executive Officer is defined as the manager in any city having a manager and in any town having a city form of government, the mayor in any other city, and the board of selectmen in any other town unless some other officer or body is designated to perform the functions of a chief executive officer under the provisions of a local charter or laws having the force of a charter. Any signatures of designees will be considered an attestation that the signatory has been designated the designee by the municipality.

Convert the signature page into PDF and submit separately



Make sure CEO signs confirmation



Zoning and Permitting Info

Criteria 1 and 2

Type of as-of-right siting approval received:

Generation; Solar

Type of expedited permitting approval received:

Local

Criteria 1 and 2

Type of as-of-right siting approval received:

Type of expedited permitting approval received:

REGULATIONS (zoning & permitting):

1) Since your last Annual Report, or Green Communities Designation Application (if first Annual Report) Have any significant changes been made to the **zoning district(s)** for which the community received Green Communities designation? Significant changes, such as changes to the geographic extent of the district, allowed uses, and dimensional requirements, would impact the ability to construct a qualifying clean energy use in the district. Overlay districts, such as water protection districts that impose special permitting requirements, count as significant changes.
If yes, submit the same documentation required for designation for CRT1 to verify that you still meet the requirements (applicable sections of the zoning by-law, definitions, as well as a revised zoning map.)
Select YES or NO in the dropdown on the right.

<Select YES or NO>

2) Have any significant changes been made to **site plan, design, or other development review criteria** or any permit review procedures that would impact the ability to permit qualifying clean energy uses as-of-right and in a timely manner? Significant changes would be anything that pertains to the "by-right" nature of the zoning or to the amount of time necessary to review required permits.
If yes, attach a letter from municipal counsel that describes the changes, illustrates any potential impact on the siting of clean energy projects, and affirms continued compliance with the Green Communities As-of-Right Zoning and Expedited Permitting criteria.
Select YES or NO in the dropdown on the right.

<Select YES or NO>

NARRATIVE:

PERMITTING:

Since your last Annual Report, or Designation Application (if first Annual Report) have any clean energy projects applied for approval **under the zoning for which the community received Green Community Designation**? Have any clean energy project been approved for construction?

<Select YES or NO>

Select YES or NO in the dropdown on the right. If YES, fill out or update Table 1 below:

Table 1 Expedited Permitting Projects During Reporting Year (Please add rows as required)							
Click here to view a sample version of this table.							
PROJECT NAME	Type (Generation (Capacity), R&D, and/or Manufacturing)	As-of-right designated location	Applicant	Project Description	Status	Date Submitted	Decision Date
To insert additional rows, select this row, right-click, and select "Insert."							

REGULATIONS (zoning & permitting):

1) Since your last Annual Report, or Green Communities Designation Application (if first Annual Report) Have any significant changes been made to **the zoning district(s)** for which the community received Green Communities designation? Significant changes, such as changes to the geographic extent of

Be sure to select “YES or NO”

2) Have any significant changes been made to **site plan, design, or other development review criteria** or any permit review procedures that would impact the ability to permit qualifying clean energy uses as-of-right and in a timely manner? Significant changes would be anything that pertains to the “by-right” nature of the zoning or to the amount of time necessary to review required permits.

If **yes**, attach a letter from municipal counsel that describes the changes, illustrates any potential impact on the siting of clean energy projects, and affirms continued compliance with the Green Communities As-of-Right Zoning and Expedited Permitting criteria.

Select **YES** or **NO** in the dropdown on the right.

NARRATIVE:

PERMITTING:

Since your last Annual Report, or Designation Application (if first Annual Report) have any clean energy projects applied for approval **under the zoning for which the community received Green Community Designation**? Have any clean energy project been approved for construction?

Select **YES** or **NO** in the dropdown on the right. If **YES**, fill out or update **Table 1** below:

<Select YES or NO>

<Select YES or NO>

<Select YES or NO>

Table 1

[Click here to return to Table 1](#)

Table 1: SAMPLE Expedited Permitting Projects

PROJECT NAME	Type (Generation (Capacity), R&D, and/or Manufacturing)	As-of-right designated location	Applicant	Project Description	Status	Date Submitted	Decision Date
<i>Hilltop Wind</i>	<i>Renewable Energy (wind) 9 MW</i>	<i>landfill</i>	<i>Peak Performance, LLC.</i>	<i>wind turbines on 16 acres of land</i>	<i>Project approved</i>	<i>11/1/2016</i>	<i>1/21/2018</i>

General Instructions / Crit 1 & 2 / **Crit 1 & 2 - Table 1 Sample** / Crit 3 - Overview / Building Stock Changes Doc / Building Stock Ch



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Criterion 3 Overview

Criterion 3 Instructions: Complete Steps 1-7 Below

1. Read and complete all questions below.

2. Complete Table 2: Progress

[Go to Table 2](#)

Complete Table 2 for baseline year and reporting year, located 3 tabs to the right. ALL categories are required, with the exception of open space.

Fuel use from all vehicles, including those characterized as exempt AND non-exempt under Criterion 4, must be included.

Renewable Energy is a fuel source and the amount of renewable energy consumed by the Green Community must be included.

If you are using MEI, note that there is a report available (entitled Annual Report Table 2). This contains the data you need to enter into Table 2. Please review the data in MEI and, if accurate, enter it into Table 2, located 3 tabs to the right. Note also that if you click on the "years" down arrow on that MEI report, you can choose which year is your baseline year.

3. Complete Table 3: Energy Use (NON-MEI Users)

[Go to Table 3](#)

REMEMBER to load all diesel, gasoline, heating oil and propane energy usage, as well as renewable energy usage that is NOT virtually net-metered, into MEI prior to providing a date that your data is complete. Also, confirm that Table 3 in MEI matches the data provided in Table 2.

If your community uses MassEnergyInsight (MEI) to provide data for Table 2, provide the date the information in MassEnergyInsight was last verified. By including a date below, you are confirming that the information in MEI is accurate and complete (including all fees and renewable energy) and that you wish to report your Green Community annual energy usage directly through MEI. If your community does not use MEI, please complete "Crit 3 - Tab 3 Non-MEI User Only."

DATE:

To include a percentage of the energy use of a Regional School District, please include that prorated usage as a separate entry in lines 17 and 21 of Table 2. Enter here the % you are using to prorate the energy usage (i.e. the percentage of the RSD funding that the municipality contributes). Contact your Regional Coordinator if you need assistance.

% of RSD

4. Complete Table 4: Energy Conservation Measures (ECMs)

[Go to Table 4](#)

Update your ECMs in Table 4 by: 1) listing measures that were completed since your last Annual Report or Green Communities Designation, 2) listing new measures planned or in progress, 3) and providing an ECM type in Column F.

If your community uses an Energy Management Services (EMS) Agreement, your EMS annual report may be used to fulfill your Green Communities Annual Report Table 4 requirement. Please provide the date it was filed with DOER, or the date it will be filed if filing is anticipated in the next six months. Other efficiency measures undertaken independently of the performance contract should be reported using Table 4. All other portions of the Green Communities Annual Report must be completed.

DATE:

5. Complete Table 5: Renewable Energy Projects

[Go to Table 5](#)

Update your conventionally net-metered (aka "behind the meter") RE projects in Table 5 by: 1) changing any status dates, and 2) adding any new RE projects.

Does your Green Community use any energy produced by renewable energy within your community? For example, solar PV systems installed on school or municipal buildings and the building uses the electricity generated, or a biomass boiler installed in a municipal building. Please select YES or NO in the drop-down on the right. If YES, complete Table 5 and be sure to include the renewable energy consumed in the building's MassEnergyInsight account or whatever energy tracking tool your community uses.

<Select YES or NO>

6. Provide a Narrative

Provide a brief narrative explaining changes seen and what is anticipated for the next year. Any notes on successes or challenges are welcome. Also include changes in building operating hours as well as building use, and/or significant changes in municipal fleet operations.

Sample Narrative: Our buildings have a 15 percent decrease in energy use and the vehicles have a 4 percent reduction. We have implemented projects in the Town Hall and would have expected larger savings. We are investigating this. We are also intending to implement a large retrofit at the drinking water treatment plant this year that should yield a significant level of savings. We are saving an amount in energy use in our library, now that it opens 10 more hours a week. Also, a former administration building is now being used by the preschool.

NARRATIVE:

NARRATIVE:

7. Building Stock Changes

Please describe any building stock changes that have occurred since your last Annual Report, or Designation Application (if first Annual Report). Include the year and whether any changes are a replacement, addition, removal or renovation. The adjustments to energy usage should be entered on Table 2, Lines 16 and 20. You may use the Building Stock Changes Calculator provided.



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Follow the Steps

Criterion 3 Instructions: Complete Steps 1-7 Below

1. Read and complete all questions below.

2. Complete Table 2: Progress

[Go to Table 2](#)

Complete Table 2 for baseline year and reporting year, located 3 tabs to the right. ALL categories are required, with the exception of open space.

Fuel use from all vehicles, including those characterized as exempt AND non-exempt under Criterion 4, must be included.

Renewable Energy is a fuel source and the amount of renewable energy consumed by the Green Community must be included.

If you are using MEI, note that there is a report available (entitled Annual Report Table 2). This contains the data you need to enter into Table 2. Please review the data in MEI and, if accurate, enter it into Table 2, located 3 tabs to the right. Note also that if you click on the "years" down arrow on that MEI report, you can choose which year is your baseline year.

3. Complete Table 3: Energy Use (NON-MEI Users)

[Go to Table 3](#)

REMEMBER to load all diesel, gasoline, heating oil and propane energy usage, as well as renewable energy usage that is NOT virtually net-metered, into MEI prior to providing a date that your data is complete. Also, confirm that Table 3 in MEI matches the data provided in Table 2.

If your community uses MassEnergyInsight (MEI) to provide data for Table 2, provide the date the information in MassEnergyInsight was last verified. By including a date below, you are **confirming that the information in MEI is accurate and complete (including all fuels and renewable energy)** and that you wish to report your Green Community annual energy usage directly through MEI. If your community does not use MEI, please complete "Crit 3 - Tbl 3 Non-MEI User Only."

DATE:
11/29/18

MassEnergyInsight Account Complete?

Monitoring Cost Dashboard Setup Completeness Dashboard Data Loaded - Overview Data Loaded - Detail Bill Alerts ESCO Report - Annual Data ESCO Report

Data Loaded - Detail

This report shows whether or not data is loaded for a given account and period. Green cells containing values indicate data loaded for that account and period. Green cells but no use values showing indicate competitive supply data loaded. Blank cells indicate no data loaded or no meter read that period. Accounts with an orange cell in the "Null" column have no data loaded for that account.

Department	Complex	Fuel (units)	FY 2017											
			July	August	September	October	November	December	January	February	March	April	May	June
Department of public Works	Null	Electric (kWh)	2,836	2,882	2,381	1,805	2,222	2,678	3,496	3,933	3,093	3,102	2,284	2,725
		Propane (gallons)	0	0	0	148	228	330	110	200	108	0	0	0
	Communications	Electric (kWh)	368	358	274	141	628	1,200	1,400	1,217	1,053	621	194	183
	DPW Buildings	Electric (kWh)	27,045	29,509	26,132	19,404	20,955	22,753	25,101	23,034	21,510	22,687	20,654	22,742
		Oil (gallons)	0	0	0	0	1,208	2,000	5,458	2,580	4,133	3,618	210	0
		Propane (gallons)	0	0	0	0	0	0	0	0	0	0	0	0
	DPW Parcel A	Solar electric	654	643	533	439	341	240	211	199	178	131	475	578
		Electric (kWh)	49,350	55,020	47,670	38,430	37,800	43,990	43,050	38,430	42,420	41,160	39,690	40,950
		Oil (gallons)	0	0	99	0	838	1,698	2,988	1,098	1,835	1,050	120	0
	DPW Streets	Propane (gallons)	0	0	0	0	668	838	1,462	999	1,822	489	0	0
		Electric (kWh)	8,417	8,484	10,002	11,583	11,931	12,919	14,201	11,726	10,508	10,647	8,165	7,807
	DPW Town common	Electric (kWh)	51	95	138	367	59	367	244	87	55	63	57	16
	Transfer station	Electric (kWh)	999	824	1,046	870	1,304	1,741	1,971	1,607	1,464	1,363	926	869
	WWTP	Electric (kWh)	57,874	56,631	51,862	51,557	59,909	73,256	75,510	69,874	76,158	71,953	59,006	58,026
Oil (gallons)		0	0	0	0	0	0	0	0	0	0	0	0	
Propane (gallons)		0	0	0	0	176	273	44	384	384	207	0	0	
Recreation	Null	Electric (kWh)	1,328	1,414	424	28	24	75	48	23	21	21	41	585
School Dept	Null	Electric (kWh)	170,818	163,096	236,056	213,986	216,604	239,409	241,512	223,233	211,847	251,290	219,891	233,190
		Oil (gallons)	0	0	0	0	14,869	21,595	34,283	13,698	14,507	12,708	7,082	0
	Flashing Lights	Electric (kWh)	16	0	13	14	14	15	12	15	12	12	10	17
Vehicles	Null	Diesel						8,993						10,840
		Gasoline						19,567						20,064

Annual Report Table 2 (MMBTU) Fiscal Year (July 1 start) 2015 Baseline

Please make sure that any data submitted to DOER contains complete Data! The data in this table reflects the data in the Baseline. Buildings marked in MassEnergyInsight as "Exclude from Baseline" are not included in this dashboard. Please set the baseline year filter on the right to your baseline year and create a custom view so that this report always shows the correct data.

		2015	2016	2017	2018
Null	Use (MMBTU)	1,827	1,839	1,807	1,900
	% Difference in MMBTU % diff..	0.00%	0.65%	-1.09%	4.03%
Building	Use (MMBTU)	38,554	33,978	35,499	33,205
	% Difference in MMBTU % diff..	0.00%	-11.87%	-7.92%	-13.87%
Open Space	Use (MMBTU)	6	5	7	4
	% Difference in MMBTU % diff..	0.00%	-15.41%	15.76%	-29.68%
Street/Traffic Lights	Use (MMBTU)	440	440	436	319
	% Difference in MMBTU % diff..	0.00%	0.00%	-0.76%	-27.47%
Vehicle	Use (MMBTU)	8,072	7,360	7,671	7,472
	% Difference in MMBTU % diff..	0.00%	-8.82%	-4.96%	-7.43%
Water/Sewer	Use (MMBTU)	3,105	2,769	2,732	2,768
	% Difference in MMBTU % diff..	0.00%	-10.84%	-12.02%	-10.86%

Table 2 Instructions:

- 1) Enter your community's baseline year (including whether it's a Fiscal Year or Calendar Year);
- 2) Enter total MMBtus per category (Rows 10-15) for the **baseline year and the current reporting year.**

Table 2: Timeline of Annual Municipal Energy Use							
	Baseline MMBtu	2015 MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu		For Most Recent Year: Change
Note Fiscal (FY) or Calendar Year (CY)		2015	2016	2017	2018		
Null							#DIV/0!
Buildings							#DIV/0!
Open Space							#DIV/0!
Street & Traffic Lights							#DIV/0!
Vehicles							#DIV/0!
Water/Sewer							#DIV/0!

Non-MEI Users

Criterion 3 Step 3: Complete Table 3 OR use MEI (NOTE: provide a separate table for each year of implementation of Energy Reduction Plan and note the year here, e.g. FY11 or CY11)

Select Plan Year:

NOTE: IF USING MASSENERGYINSIGHT, there is NO need to complete this table.

Table 3: Annual Municipal Energy Use in Native Units and MMBtu - Plan Year <Select Year>

Please enter "0" for any fuels not used																	
	Electricity		Natural Gas		#2 Distillate Fuel Oil		Propane		Gasoline		Diesel		Electric Renewable Energy		Thermal Renewable Energy		Total MMBtu
	kWh	MMBtu	Therms	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	kWh	MMBtu	Therms	MMBtu	
School		0		0		0		0		0		0		0		0	0
Town Hall		0		0		0		0		0		0		0		0	0
Police Station		0		0	0	0		0		0		0		0		0	0
SUBTOTAL FOR BUILDINGS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drinking Water/Wastewater Treatment Plant		0		0		0		0		0		0		0		0	0
Pumping in Aggregate		0		0		0		0		0		0		0		0	0
Open Space*		0		0		0		0		0		0		0		0	0
Vehicles in Aggregate		0		0		0	0	0		0		0		0		0	0
Street and Traffic Lights in Aggregate		0		0		0		0		0		0		0		0	0
TOTAL ENERGY CONSUMPTION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Table 2

Table 2: Timeline of Annual Municipal Energy Use						
	Baseline MMBtu	2015 MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu	For Most Recent Year: Change
Note Fiscal (FY) or Calendar Year (CY)	FY 2015	2015	2016	2017	2018	
Null	1,827				1,900	-4.0%
Buildings	38,554				33,205	13.9%
Open Space	6				4	33.3%
Street & Traffic Lights	440				319	27.5%
Vehicles	8,072				7,472	7.4%
Water/Sewer	3,105				2,768	10.9%
Building Stock Change Adjustment			0	0	0	
Regional School Prorated						
TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	52,004	0	0	0	45,668	12.2%
Weather Normalized Consumption (without building stock adjustment)						#DIV/0!

Crit 3 - Overview

Building Stock Changes Doc

Building Stock Change Calculato

Crit 3 - Table 2 Progress

Crit 3 -Tbl 3 for No

Weather Normalized Data

DOER is encouraging Green Communities to assess their progress using weather-normalized data through a DOER-approved weather normalization methodology. Qualifying methods include use of MassEnergyInsight or Energy Star Portfolio Manager. Please contact your Regional Coordinator for assistance if you use a different energy-tracking tool. **Enter weather-normalized total energy consumption in Table 2, Row 19. In MassEnergyInsight, this information is available in the "Annual Report Table 2" report**

TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	52,004	0	0	0	45,668	12.2%
Weather Normalized Consumption (without building stock adjustment)	50,126				49,126	2.0%
Building Stock Change Adjustment (weather - normalized)			0	0	0	
Regional School Prorated (weather-normalized)						
TOTAL ENERGY CONSUMPTION (Weather-Normalized)	0	0	0	0	0	#DIV/0!

Building Stock Change

	Baseline MMBtu	2015 MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu	For Most Recent Year: Change
Note Fiscal (FY) or Calendar Year (CY)		2015	2016	2017	2018	
Null	1,827				1,900	-4.0%
Buildings	38,554				33,205	13.9%
Open Space	6				4	33.3%
Street & Traffic Lights	440				319	27.5%
Vehicles	8,072				7,472	7.4%
Water/Sewer	3,105				2,768	10.9%
Building Stock Change Adjustment			0	0	0	
Regional School Prorated						
TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	52,004	0	0	0	45,668	12.2%
Weather Normalized Consumption (without building stock adjustment)						#DIV/0!
Building Stock Change Adjustment (weather-normalized)			0	0	0	
Regional School Prorated (weather-normalized)						
TOTAL ENERGY CONSUMPTION (Weather-Normalized)	0	0	0	0	0	#DIV/0!



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Building Stock Change

Example:

- New Senior Center
- Addition to DPW building that was completed on Jan. 1st

Required Information:

- Building square footage (before and after)
- Building energy use (weather normalized and non-)



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Building Stock Changes Doc

GC Annual Report FY2018-FINAL

Guidance for Reporting Building Stock Changes in Annual Report

For changes in building stock (including additions, new construction, demolition, replacement or acquisition), **PLEASE CONSULT WITH DOER TO DETERMINE THE PROPER TREATMENT OF THEIR ENERGY USE IN THE FUTURE ANNUAL REPORTS.** In general, the guidance provided in the table below will be followed. However, due to the unique nature of many building projects, a community should consult with DOER regarding building stock changes prior to submission of its Green Communities Annual Report. Please contact your Regional Coordinator to initiate this conversation. **You may find the "Building Stock Change Calculator" on the next tab over helpful.**

Building Stock Changes Summary Guidance

	New or Altered Building Energy Included in Energy Consumption vs. Baseline?	How to Report?
Retrofit/Renovation	Yes	Annual report
Addition	Yes, pro-rated by square footage	Annual report
New Construction	No	Separate monitoring
Removal/Demolition	Up to community's discretion	Annual report
Replacement of an Existing Building	Yes	Annual report
Acquisition of an Existing Building	Only if desired	Separate monitoring or add to baseline in annual report

Building Stock Changes Doc | Building Stock Change Calculato | Crit 3 - Table 2 Progress | Crit 3 -Tbl 3 for Non-|



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Building Stock Change Calculator

GC Annual Report FY2018-FINAL

USE THIS CALCULATOR FOR ALL BUILDING STOCK CHANGES

This Building Stock Changes Calculator is for both **new buildings** and **building additions**. Different information is to be entered depending on whether you are entering data for a new building or an addition, so make sure to follow the instructions in row 9 for each column. You are only required to enter information into the yellow cells in the table. The green cells in the table will populate when the relevant information is entered into the yellow cells. The orange cells in the worksheet (columns M and P) are the numbers that will be used to adjust the Total Energy Use for the year, and will automatically populate in Table 2 Progress (the worksheet on the next tab to the right). Starting with the current reporting year, enter any new buildings and building additions that occurred. Start with Building One, if you have more than one applicable building in a given year then move on to Building Two etc. Please change the generic "BUILDING ONE" label to the actual name of the building (e.g. Senior Center, High School, Police Station).

Building Stock Changes Calculator

	IF NEW BUILDING, enter the OLD BUILDING'S sq. footage, if ADDITION, enter the building's sq. footage BEFORE the addition	IF NEW BUILDING, enter the NEW BUILDING'S sq. footage, if ADDITION, enter the building's sq. footage AFTER the addition	THIS COLUMN WILL POPULATE % of energy to include	Non-Weather-Normalized energy use (MMBTU) - this can be found in MassEnergyInsight - Energy Reduction Plan Guidance Table 3 (MMBTU)	IF NEW BUILDING - enter the number 12. If ADDITION, enter the # of months the addition was online during the reporting yr.?	Non-Weather-Normalized Prorated energy use (MMBTU) -	Weather-Normalized energy use (MMBTU) - This can be found in MassEnergyInsight - Annual Building Energy Use - Weather Normalized	Weather-Normalized Prorated energy use (MMBTU)	Total Non-Weather-Normalized Energy Use	Total Prorated Non-Weather-Normalized Energy Use	Difference to be used to adjust Non-Weather-Normalized total - This will populate the appropriate cell in Table 2 - Progress	Total Weather-Normalized Energy Use	Total Prorated Weather-Normalized Energy Use	Difference to be used to adjust Weather-Normalized total This will populate the appropriate cell in Table 2 - Progress
2018			0%			0	0	0	0	0	0	0	0	0
BUILDING ONE			0%			0	0	0	0	0	0	0	0	0
BUILDING TWO			0%			0	0	0	0	0	0	0	0	0
BUILDING THREE			0%			0	0	0	0	0	0	0	0	0
BUILDING FOUR			0%			0	0	0	0	0	0	0	0	0
BUILDING FIVE			0%			0	0	0	0	0	0	0	0	0
2017			0%			0	0	0	0	0	0	0	0	0
BUILDING ONE			0%			0	0	0	0	0	0	0	0	0
BUILDING TWO			0%			0	0	0	0	0	0	0	0	0
BUILDING THREE			0%			0	0	0	0	0	0	0	0	0
BUILDING FOUR			0%			0	0	0	0	0	0	0	0	0
BUILDING FIVE			0%			0	0	0	0	0	0	0	0	0
2016			0%			0	0	0	0	0	0	0	0	0
BUILDING ONE			0%			0	0	0	0	0	0	0	0	0
BUILDING TWO			0%			0	0	0	0	0	0	0	0	0
BUILDING THREE			0%			0	0	0	0	0	0	0	0	0
BUILDING FOUR			0%			0	0	0	0	0	0	0	0	0
BUILDING FIVE			0%			0	0	0	0	0	0	0	0	0
2015			0%			0	0	0	0	0	0	0	0	0
BUILDING ONE			0%			0	0	0	0	0	0	0	0	0



Building Stock Change Calculator

Building Stock Changes Calculator

	If NEW BUILDING, enter the <u>OLD BUILDING'S</u> sq. footage, if ADDITION, enter the building's sq. footage <u>BEFORE</u> the addition	If NEW BUILDING, enter the <u>NEW BUILDING'S</u> sq. footage, if ADDITION, enter the building's sq. footage <u>AFTER</u> the addition	THIS COLUMN WILL POPULATE % of energy to include	Non Weather-Normalized energy use (MMBTU) - this can be found in <i>MassEnergyInsight - Energy Reduction Plan Guidance Table 3 (MMBtu)</i>
2018				
Senior Center	5,450	8,500	64%	893
DPW Bldg	4,220	9,000	47%	1,265
BUILDING THREE			0%	
BUILDING FOUR			0%	
BUILDING FIVE			0%	
2017				
BUILDING ONE			0%	
BUILDING TWO			0%	
BUILDING THREE			0%	
BUILDING FOUR			0%	
BUILDING FIVE			0%	

ERP Guidance Table 3b - Municipal Energy Consumption for 2018 (MMBTU)

Please make sure that any data submitted to DOER contains complete Data!

Building	Water	2018		
		Electric	Gas	Total
Water	295	1,901	2,196	
William H Lincoln K-8	2,392	3,122	5,515	
Public Safety	2,781	2,115	4,896	
Lawrence K-8	2,182	5,104	7,265	
Edward Devotion K-8		8,035	8,035	
Michael Driscoll K-8	974	6,247	7,221	
Phys Ed / Unified Arts Building	4,899	21,462	26,361	
Brookline HS	6,175	1,211	7,386	
Old Lincoln	126	8,767	8,893	
Edith C Baker K-8	1,750	6,528	8,278	
Heath K-8	1,059	4,003	5,061	
The Lynch Center	88	778	865	
Station 1	308	1,787	2,093	



Building Stock Change Calculator

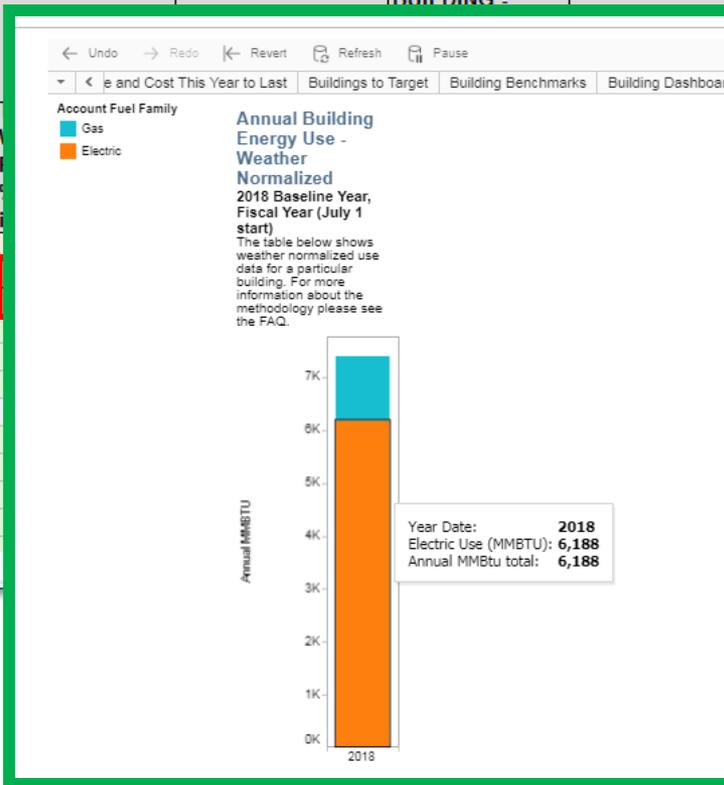
Building Stock Changes Calculator

If NEW BUILDING, enter the OLD BUILDING'S sq. footage, if ADDITION, enter the building's sq. footage BEFORE the addition

If NEW BUILDING, enter the NEW BUILDING'S sq. footage, if ADDITION, enter the building's sq. footage AFTER the addition

2018		
Senior Center	5,450	8,500
DPW Bldg	4,220	9,000
BUILDING THREE		
BUILDING FOUR		
BUILDING FIVE		
2017		
BUILDING ONE		
BUILDING TWO		
BUILDING THREE		
BUILDING FOUR		
BUILDING FIVE		

If NEW BUILDING -



Weather-Normalized energy use (MMBTU) - This can be found in *MassEnergyInsight - Annual Building Energy Use - Weather Normalized*

Weather Normalized Prorated energy use (MMBTU)

	756	485
	1,564	1149
		0
		0
		0
		0
		0
		0
		0



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Building Stock Change Calculator

Building Stock Changes Calculator

	If NEW BUILDING, enter the <u>OLD BUILDING'S</u> sq. footage, if ADDITION, enter the building's sq. footage <u>BEFORE</u> the addition	If NEW BUILDING, enter the <u>NEW BUILDING'S</u> sq. footage, if ADDITION, enter the building's sq. footage <u>AFTER</u> the addition	THIS COLUMN WILL POPULATE % of energy to include	<u>Non Weather-Normalized</u> energy use (MMBTU) - this can be found in <i>MassEnergyInsight - Energy Reduction Plan Guidance Table 3 (MMBtu)</i>	If <u>NEW BUILDING</u> - enter the number 12. If <u>ADDITION</u> , enter the # of months the addition was online during the reporting yr.?	<u>Non Weather-Normalized</u> Prorated energy use (MMBTU) -	<u>Weather-Normalized</u> energy use (MMBTU) - This can be found in <i>MassEnergyInsight - Annual Building Energy Use - Weather Normalized</i>	<u>Weather Normalized</u> Prorated energy use (MMBTU)
2018								
Senior Center	5,450	8,500	64%	893	12	573	756	485
DPW Bldg	4,220	9,000	47%	1,265	6	929	1,564	1149
BUILDING THREE			0%			0		0
BUILDING FOUR			0%			0		0
BUILDING FIVE			0%			0		0
2017								
BUILDING ONE			0%			0		0
BUILDING TWO								0
BUILDING THREE								0
BUILDING FOUR								0
BUILDING FIVE								0

Total <u>Non-Weather Normalized</u> Energy Use	Total Prorated <u>Non-Weather Normalized</u> Energy Use	Difference to be used to adjust <u>Non-Weather-Normalized</u> total This will populate the appropriate cell in Table 2 - Progress	Total <u>Weather-Normalized</u> Energy Use	Total Prorated <u>Weather-Normalized</u> Energy Use	Difference to be used to adjust <u>Weather-Normalized</u> total This will populate the appropriate cell in Table 2 - Progress
2158	1502	-656	2320	1633	-687



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Table 2: Timeline of Annual Municipal Energy Use

	Baseline MMBtu	2015 MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu	For Most Recent Year: Change
Note Fiscal (FY) or Calendar Year (CY)		2015	2016	2017	2018	
Null	1,827				1,900	-4.0%
Buildings	38,554				33,205	13.9%
Open Space	6				4	33.3%
Street & Traffic Lights	440				319	27.5%
Vehicles	8,072				7,472	7.4%
Water/Sewer	3,105				2,768	10.9%
Building Stock Change Adjustment			0	0	-656	
Regional School Prorated						
TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	52,004	0	0	0	45,012	13.4%
Weather Normalized Consumption (without building stock adjustment)	50,126				49,126	2.0%
Building Stock Change Adjustment (weather - normalized)			0	0	-687	
Regional School Prorated (weather-normalized)						
TOTAL ENERGY CONSUMPTION (Weather-Normalized)	50,126	0	0	0	48,439	3.4%

Pro-rating RSD Energy Data

Table 2 Instructions: 5) If your baseline includes a proportion of energy consumed by a regional school district, provide the pro-rated energy use in Row 17 for non weather-normalized use and Row 21 for weather-normalized use. Attach a worksheet showing the building use energy use and calculations

Non-weather normalized		
	baseline mmbtus	2018 mmbtus
Total energy Regional School District	17,551	11,284
45% of Regional school district	7898	5078

Weather normalized		
	baseline mmbtus	2018 mmbtus
Total energy Regional School District	13,735	11,295
45% of Regional school district	6181	5083

	C	D	E	F	G	H	I
Table 2: Timeline of Annual Municipal Energy Use							
	Baseline MMBtu	2015 MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu	For Most Recent	
Note Fiscal (FY) or Calendar Year (CY)		2015	2016	2017	2018		
Null	1,827				1,900	-4.0%	
Buildings	38,554				33,205	13.9%	
Open Space	6				4	33.3%	
Street & Traffic Lights	440				319	27.5%	
Vehicles	8,072				7,472	7.4%	
Water/Sewer	3,105				2,768	10.9%	
Building Stock Change Adjustment			0	0	-656		
Regional School Prorated	7898				5078		
TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	59,902	0	0	0	50,090	16.4%	
Weather Normalized Consumption (without building stock adjustment)	50,126				49,126	2.0%	
Building Stock Change Adjustment (weather - normalized)			0	0	-687		
Regional School Prorated (weather- normalized)	6181				5083		
TOTAL ENERGY CONSUMPTION (Weather-Normalized)	56,307	0	0	0	53,522	4.9%	

Follow the Steps

To include a percentage of the energy use of a **Regional School District**, please include that prorated usage as a separate entry in lines 17 and 21 of Table 2: **Enter here** the % you are using to prorate the energy usage (i.e. the percentage of the RSD funding that the municipality contributes). Contact your Regional Coordinator if you need assistance.

% of RSD
45%

4. Complete Table 4: Energy Conservation Measures (ECMs)

[Go to Table 4](#)

Update your ECMs in Table 4 by: 1) listing measures that were completed since your last Annual Report or Green Communities Designation, 2) listing new measures planned or in progress, 3) and providing an ECM type in Column F.

If your community uses an Energy Management Services (EMS) Agreement, your EMS annual report may be used to fulfill your Green Communities Annual Report Table 4 requirement. Please provide the date it was filed with DOER, or the date it will be filed if filing is anticipated in the next six months. Other efficiency measures undertaken independently of the performance contract should be reported using Table 4. All other portions of the Green Communities Annual Report must be completed.

DATE:
N/A

5. Complete Table 5: Renewable Energy Projects

[Go to Table 5](#)

Update your conventionally net-metered (aka "behind the meter") RE projects in Table 5 by: 1) changing any status dates, and 2) adding any new RE projects.

Does your Green Community use any energy produced by renewable energy within your community? For example, solar PV systems installed on school or municipal buildings and the building uses the electricity generated, or a biomass boiler installed in a municipal building. Please select YES or NO in the dropdown on the right. If YES, complete Table 5 and be sure to include the renewable energy consumed in the building's MassEnergyInsight account or whatever energy tracking tool your community uses

<Select YES or NO>



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Table 4 - Sample

SAMPLE Criterion 3 Step 4: Complete Table 4 - ECMs

[Click here to return to Table 4](#)

Table 4
SAMPLE Energy Conservation Measures Data

ECMs				Status		Energy Data			
Category	Building/Site Name	Energy Conservation Measure Name	ECM Type (select one from drop-down)	Status (select one from drop-down)	Status Date (Month -year completed or planned)	Projected Annual Electricity Savings (kWh)	Projected Annual Natural Gas Savings (therms)	Projected Annual Oil Savings (gallons)	Projected Annual Gasoline Savings (gallons)
Buildings	Green School	Lighting Retrofit	Interior Lighting	Complete	Feb-18	95,252	0	0	0
Buildings	Town Hall	Air Sealing	Weatherization	Active	Dec-18	0	230	0	0
Buildings	Town Hall	New Boiler	HVAC	Planned	May-19	0	17,122	0	0
Street Lights		LED Conversion	Exterior Lighting	Complete	Jan-18	6,000	0	0	0
Buildings	Drinking Water Treatment Plant	2 Variable Speed Drives	Pump/Motor/Drive	Complete	Nov-17	500,000	0	0	0
Vehicles		Anti-idling retrofit for 2 police cruisers	Vehicles	Planned	Jul-19	0	0		400
				TOTAL Projected Savings		601,252	17,352	0	400
				TOTAL MMBtu SAVINGS	4,513	2,051	2,412	0	50

Tell Us More...

6. Provide a Narrative

Provide a brief narrative explaining changes seen and what is anticipated for the next year. Any notes on successes or challenges are welcome. Also include changes in building operating hours as well as building use, and/or significant changes in municipal fleet operations

Sample Narrative: Our buildings have a 12 percent decrease in energy use and the vehicles have a 4 percent reduction. We have implemented projects in the Town Hall and would have expected larger savings. We are investigating this. We are also intending to implement a large retrofit at the drinking water treatment plant this year that should yield a significant level of savings. We are seeing an uptick in energy use in our library, now that it open 10 more hours a week. Also, a former administration building is now being used by the preschool.

NARRATIVE:

Please describe any building stock changes that have occurred **since your last Annual Report or Designation Application (if first Annual Report)**. Include the year and whether any changes are a replacement, addition, removal or renovation. The adjustments to energy usage should be entered on Table 2, Lines 16 and 20. You may use the Building Stock Changes Calculator provided.

7. Building Stock Changes

Please describe any building stock changes that have occurred since your last Annual Report, or Designation Application (if first Annual Report). Include the year and whether any changes are a replacement, addition, removal or renovation. The adjustments to energy usage should be entered on Table 2, Lines 16 and 20. You may use the Building Stock Changes Calculator provided.

NARRATIVE:

Criterion 4 – Answer the Questions

Criterion 4 - Purchase Fuel Efficient Vehicles

Since your last Annual Report OR Green Communities Designation (if first Annual Report) has your municipality...

1) Replaced an exempt or non-exempt vehicle?

<Select YES or NO>

2) Acquired a new exempt or non-exempt vehicle, and/or conducted inter-departmental vehicle transfers?

<Select YES or NO>

NOTE: Inter-departmental transfers must comply with MPG requirements of Fuel Efficiency Policy

If the answer to #1 and/or #2 above is "yes", Please provide a list of all vehicles (Both exempt and non-exempt) for ALL departments, including schools (as appropriate), that were acquired, retired and/or transferred in since your last Annual Report or Designation Application (if first Annual Report). Please do not report any exempt off-road vehicles, trailers, etc. In the spreadsheet on the following tab (Crit 4 -Table 6), 1) List in the top table all vehicles acquired or transferred since the last annual report, noting which vehicles they are replacing, and/or 2) List all vehicles removed from the municipal fleet in the bottom table

3) Installed an electric vehicle charging station?

<Select YES or NO>

4) Installed idle-reduction technology on any vehicles?

<Select YES or NO>

5) Implemented anti-idling technology and/or campaigns?

<Select YES or NO>

6) Implemented a driving monitoring system that records miles driven and/or fuel consumption?

<Select YES or NO>

7) Implement a fuel use reporting system for operators on fuel efficiency ?

<Select YES or NO>

8) Implement any other policies and/or technologies not listed above? Estimate annual fuel savings from each new technology or policy in the yellow box below. Also attach any new vehicle policies and technologies adopted by the municipality to this annual report.

NARRATIVE:

9) For communities that met Criterion 4 through alternative compliance, provide a narrative in the space below of the policies and programs that have been adopted to reduce fuel consumption.

NARRATIVE:

10) For communities that met Criterion 4 through alternative compliance, provide as a status regarding the success of these programs and policies.

NARRATIVE:

Table 6

Changes in Vehicle Inventory

Provide a list of all vehicles (both exempt and non-exempt) for ALL departments, including schools, that were acquired, retired, and transferred to other departments since your last Annual Report or Designation Application (if first Annual Report). Please do not report any exempt off-road vehicles, trailers, motorcycles, etc. NOTE: For the purposes of the program, municipalities must use the EPA make/model of FuelEconomy.gov for vehicles with a GVWR < 8,500 pounds.

List new acquisitions in this table

Make	Model	Model Year	Month/Yr. Acquired	Weight: GVW, GVW, or WB	> 8500 lbs? (Y or N)	Exempt or Non-Exempt? (E or NE)	CONSIDER ED HFC Rating	Vehicle Function	Is this a new acquisition?	Vehicle transferred to "Table 6" from "Table 5"?
Ford	Fusion	2018	Aug-17	3000	N	NE	31	Inspector/Reserve Officer	YES	Transferred
Ford	Explorer	2017	Apr-18	4000	N	E	13	Police CRUISER	YES	Transferred
Ford	Explorer	2018	Apr-18	4000	N	E	13	Police CRUISER	YES	Transferred
Ford	F550	2018	Apr-18	6000	Y	E		DPV	YES	Transferred
Chevrolet	Silverado 4500	2014	Jul-14	6000	N	NE	18	Police and Reserve Officer	Transferred	Transferred
Chevrolet	Equinox	2018	Jul-18	4000	N	NE	25	Engineer	YES	Transferred

Since your last Annual Report OR Green Communities Designation (if first Annual Report) has your municipality...

- 1) Replaced an exempt or non-exempt vehicle?
- 2) Acquired a new exempt or non-exempt vehicle, and/or conducted inter-departmental vehicle transfers?

List vehicle retirements in this table

Make	Model	Model Year	Month/Yr. Retired	Weight: GVW, GVW, or WB	> 8500 lbs? (Y or N)	Exempt or Non-Exempt? (E or NE)	CONSIDER ED HFC Rating	Vehicle Function	Was this vehicle removed from the fleet?
Ford	Focus	2013	Jul-15	3000	N	NE	18	Reserve	YES
Ford	Taurus	2005	Jan-05			E		Police Officer	YES
Chevy	Imp	2005			Y	E		DPV	YES

Table 6

Changes in Vehicle Inventory

Provide a list of all vehicles (Both exempt and non-exempt) for ALL departments, including schools, that were acquired, retired, and transferred to other departments in the Annual Report or Designation Application (if first Annual Report). Please do not report any exempt off-road vehicles, trailers, streetsweepers, etc. NOTE: For the program, municipalities must use the EPA combined fuel economy estimate listed at FuelEconomy.gov for vehicles with a GVWR < 8,500 pounds.

List new acquisitions in this table

Make	Model	Model Year	Month/Year acquired	Drive System: 2WD, 4WD, AWD	> 8500 pounds? (Y or N or NA)	Exempt or Non-Exempt? (E or NE)	COMBINED MPG Rating	Vehicle Function	Is this a new acquisition?	What vehicle did it replace? Please reference vehicle listed in "Vehicles Retired" table below. If transferred from another department, indicate which one.
Ford	Focus	2018	Aug-17	2WD	N	NE	31	Inspector/Assessor shared car	YES	Crown Victoria in row 42
Ford	Explorer	2017	Apr-18	AWD	N	E	19	Police CRUISER	YES	no replacement
Ford	Explorer	2018	Apr-18	AWD	N	E	19	Police CRUISER	YES	Taurus in row 43
Ford	F550	2018	Apr-18	4WD	Y	E		DPW	YES	chevy dump row 44
Chevrolet	Silverado 1500	2014	Jul-14	4WD	N	NE	18	Parks and Recreation	Transferred	transferred from Engineer Dept.
Chevrolet	Equinox	2018	Jul-18	AWD	N	NE	26	Engineer	YES	Chevy Silverado (above)

Vehicle Function	Is this a new acquisition?	What vehicle did it replace? Please reference vehicle listed in "Vehicles Retired" table below. If transferred from another department, indicate which one.
Inspector/Assessor shared car	YES	Crown Victoria in row 42
Police CRUISER	YES	no replacement
Police CRUISER	YES	Taurus in row 43
DPW	YES	chevy dump row 44
Parks and Recreation	Transferred	transferred from Engineer Dept.
Engineer	YES	Chevy Silverado (above)



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Criterion 5 - Minimize Life-Cycle Costs in New Construction

Is the stretch code still in effect?

<Select YES or NO>

Were any residential occupancy permits issued since your last Annual Report or Designation Application (if first Annual Report)?

<Select YES or NO>

How many occupancy permits were issued for new commercial construction over 100,000 sq.ft.?

<select one>

Please provide in the space below any anecdotal information about your community's experience with the Stretch Code (e.g. local banks loaning more to people purchasing stretch code homes, satisfied homeowners, frustrated builders, etc.).

DOER will access HERS scores reported to ResNet to ensure compliance



Other Notes

Please provide in the space below any information about additional measures taken by the community that are consistent with its status as a designated Green Community (e.g. additional as-of-right siting put in place since designation for renewable

Please provide in the space below what percentage of your municipality's electricity consumption is supported by renewable energy generation? Of this percentage, how much of this is onsite generation? How much of this is net metering?



Thank you!

Questions?



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