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 4, 2019 for the reporting period July 1, 2018 – June 30, 2019***

Late reports WILL deem a community ineligible for the 2020 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:	**February-17**	**PLEASE NOTE:** For a municipality designated December 2017, the reporting period is 18 months, Jan 1, 2018 - June 30 2019
Date of Annual Report	12/4/19	
Name of Preparer of	Fred Davis	
Title	Chair, Medfield Energy Committee	
Municipality Name	**Town of Medfield**	

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.

Criteria 1 and 2

Type of as-of-right siting approval received: Generation; Solar

Type of expedited permitting approval received: Local

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 CR1 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.

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.

NO

NARRATIVE: Type of as-of-right siting approval received: Large-Scale Solar Photovoltaic Facilities Overlay District (PVOD) was adopted by Town Meeting on 4-28-2014 by Article 34.
Type of expedited permitting approval received: Section 300-19.13 requires that the Planning Board's site plan decision be filed with the Town Clerk within 120 days of a determination of completeness by the Town Planner.

PERMITTING:

3) 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:

NO

Table 1
Expedited Permitting Projects During Reporting Year (Please add rows as required)

Click here to view a sample version of this table.

PROJECT	Type (Generation	As-of-right	Applicant	Project Description	Status	Date	Decision Date

To insert additional rows, select this row, right-click, and select "Insert."							

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
Hilltop Wind	*Renewable Energy (wind) 9 MW*	*landfill*	*Peak Performance , LLC.*	*Six 1.5 MW wind turbines on 16 acres of land*	*Project approved*	*11/1/2016*	*1/21/2018*

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: 12/4/19

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 you submitted 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 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

YES

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 signficant changes in municipal fleet operations. **New this year: Identify top 3 buildings in terms of energy consumption. Note how efficient these buildings are by looking up their Energy Use Intensity (EUI) in MEI, located in the "Weather-normalized Building EUI" report; provide a brief statement addressing change in the past year and, if applicable, describe plans for improving building performance next year**

Sample Narrative: *Our buildings have a 12 percent decrease in energy use and the vehicles have a 4 percent reduction. 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. Our top 3 energy-using buildings are our high school (68 EUI), middle school (88 EUI) and town hall (78 EUI). Energy use in all three buildings has been fairly consistent over the past year. The middle school boiler has reached the end of useful life and is scheduled to be replaced in 2 years. We have implemented projects in the Town Hall and would have expected larger savings. We are investigating this.*

NARRATIVE: See to the bottom for a numerical tally of savings achieved to date.
Medfield Energy Committee is proud to submit this, Medfield's first Green Communities Annual Report. It represents a real team effort among a number of committee members. The team collaborated on assembling this report through an online draft version (google sheets) before finalizing and sending as an .xlsx file. MEC members contributing effort: Marie Nolan, Cynthia Greene, Alec Stevens, Paul Fechtelkotter; Fred Davis, Chair

7. Building Stock Changes

Please describe any building stock changes that have occurred since your last Annual Report, or Designation Appliction (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:

Using the Building Stock Change tab to handle the change from two old buildings into one new: the old Fire and the old Police buildings became the new Public Safety Building (different sf before and after). For the "before," we added together the sf of both the old buildings. Added only year 2018 amounts from MEI into the total columns.

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

- **Retrofit/Renovations:** Retrofits and Renovations will be factored into the 20% reduction and do not alter the energy use baseline. These do not increase building square footage and renovations should be done such that the renovated space becomes more efficient.

- **Additions:** The energy load for a building and its addition will be counted towards the 20% reduction target but will be pro-rated based on the "new" building square footage. For example, if a 10,000 sq. foot building added 5,000 sq. feet, then 66.67% of the energy usage for the building would be accounted for in monitoring the community's progress towards meeting its 20% energy reduction target.

Sample Building from Energy Baseline	
size (sq ft)	10,000
plus addition	5,000
TOTAL new building size	**15,000**
% Prorated energy use = (10,000/15,000) x 100	66%
Total Energy Use (MMBtu)	1,650
Prorated Energy use (1,650 x 0.66)	1,100
Subtract this amount from building use	**550**

Report this in Annual Report Table 2 "Building Stock Change Adjustment" as a negative number

- **New Construction:** The additional energy load from these buildings will NOT be added into the energy use baseline and therefore the additional load will NOT be factored into the 20% reduction target. Municipalities using MassEnergyInsight should flag the building to "exclude from baseline." However, a municipality will be expected to monitor the performance of this building, using MassEnergyInsight or another tool, under its annual Green Communities reporting to verify that it is performing as designed and modeled.

- **Removal/Demolition:** For buildings that are removed from the building stock, the community has the option to adjust the energy use baseline by subtracting that building's energy use and revising the 20% reduction target accordingly. This will occur ONLY for buildings that are not replaced by a new building or leased space (see below).

- **Replacement of an Existing Building:** For buildings originally included in the baseline that go offline and are replaced by a new building, the energy use baseline will not change and the new building will be included in the 20% reduction target. If the new building is larger than the replaced building, then the energy use will be pro-rated according to the difference in their square footages. For example, if a 50,000 sq foot building was replaced with an 80,000 sq foot building, then 62.5% of the energy bills for the building would be accounted for in monitoring the community's progress towards meeting its 20% energy reduction target.

Sample Building from Energy Baseline	
original size (sq ft)	50,000
Size of new building	**80,000**
% Prorated energy use = (50,000/80,000) x 100	62.5%
Total Energy Use (MMBtu)	7,500
Prorated Energy use (4800 x 0.625)	4,688
Subtract this amount from building use	**2,812**

Report this in Annual Report Table 2 "Building Stock Change Adjustment" as a negative number

- **Acquisition of an Existing Building:** If a municipality acquires an old building (i.e., not new construction) after the baseline year, and that building is not replacing a building already included in the baseline, the additional load from such a building will not be required to be included in the consumption profile and therefore the additional load will not be factored into the 20% reduction target. HOWEVER, one of the following two should occur:

    - The municipality should address these buildings separately in its Annual Report, noting what their baseline energy use was when they were acquired and what measures are planned for their improved energy performance.

    - As an alternative, if a municipality so chooses, it can add the load from these buildings into the energy use baseline when they were acquired and include them in the 20% reduction target. (A municipality may choose to do this because it may provide a better opportunity for them to achieve the 20% reduction target). A municipality choosing to do this must provide an explanation in its Annual Report.

Building Stock Changes Calculator

Enter the name of the building in the appropriate cell, e.g. change "BUILDING ONE" to "High School". Name should match the name in MEI.	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 apropriate 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 apropriate cell in Table 2 - Progress
2019														
BUILDING ONE			0%			0		0						
BUILDING TWO			0%			0		0						
BUILDING THREE			0%			0		0						
BUILDING FOUR			0%			0		0						
BUILDING FIVE			0%			0		0	0	0	0	0	0	0
2018														
Public Safety Bldg	13,920	36,500	38%	2,902	12	1107	2,909	1109						
BUILDING TWO			0%			0		0						
BUILDING THREE			0%			0		0						
BUILDING FOUR			0%			0		0						
BUILDING FIVE			0%			0		0	2902	1107	-1795	2909	1109	-1800
2017														
BUILDING ONE			0%			0		0						
BUILDING TWO			0%			0		0						
BUILDING THREE			0%			0		0						
BUILDING FOUR			0%			0		0						
BUILDING FIVE			0%			0		0	0	0	0	0	0	0

Criterion 3 Step 2: Complete Table 2 - Progress

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. In MassEnergyInsight, this information is available in the "Annual Report Table 2" report; 3) If this is your community's first Annual Report, enter the energy consumption for past years as needed; 4) If your community did not submit an Annual Report last year, enter energy data for 2018 and 2019; 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 (add a tab to this workbook) listing the buildings, their total energy use, and calculations on how you arrived at their prorated use; 6) If your community needs to pro-rate energy use due to building stock changes, use the calculator provided on the tab to the left and enter the resulting numbers in Row 16 for non weather-normalized data, and in Rows 20 for weather-normalized data.

WEATHER NORMALIZED DATA - DOER is requiring 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

Table 2: Timeline of Annual Municipal Energy Use

	Baseline MMBtu	2016 MMBtu	2017 MMBtu	2018 MMBtu	2019 MMBtu	For Most Recent Year: Change
Note Fiscal (FY) or Calendar Year (CY): FISCAL YEAR	2015	2016	2017	2018	2019	
Null						#DIV/0!
Buildings	45,369	34,933	38,685	41,158	41,956	7.5%
Open Space	53	71	108	96	88	-66.0%
Street & Traffic Lights	390	389	389	389	389	0.3%
Vehicles	7,318	7,454	7,371	7,662	6,888	5.9%
Water/Sewer	7,530	7,171	6,835	7,626	7,529	0.0%
Building Stock Change Adjustment			0	-1795	0	
Regional School Prorated						
TOTAL ENERGY CONSUMPTION (NO Weather Normalization)	60,660	50,018	53,388	55,136	56,850	6.3%
Weather Normalized Consumption (without building stock adjustment)	57,442	53,834	55,597	57,839	58,239	-1.4%
Building Stock Change Adjustment (weather - normalized)			0	-1800	0	
Regional School Prorated (weather-normalized)						
TOTAL ENERGY CONSUMPTION (Weather-Normalized)	57,442	53,834	55,597	56,039	58,239	-1.4%

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: <Select 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		
	kWh	MMBtu	Therms	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	kWh	MMBtu	Therms	MMBtu	Total 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

Project Type	For use in next Table 4 - ECMs Definition/Includes:
Behav & Training	Behavioral programs, building operator training, etc.
Building Control	HVAC controls, energy management systems (NO vending misers)
Exterior Lighting	Streetlights, traffic lights, parking lots/garages, exterior lighting
Interior Lighting	Interior lighting & controls
Fuel Conversion	Conversion from one heating fuel type to another (often oil to natural gas)
Hot Water	Hot water heaters, pipe insulation, showerheads, faucet aerators, efficient dish washers
HVAC	Heating or cooling equipment, economizers, destratification fans, dehumidifiers, duct
Pump/Motor/Drive	Pumps, motors, variable frequency/speed drives
Refrigeration	Refrigeration and controls, including vending misers
Retrocommission	Retrocommissioning and submetering projects
Vehicles	Energy-savings vehicles & their operations: GPS, anti-idling retrofits, routing software, big
Weatherization	Insulation, air-sealing, windows, etc.
Comprehensive	Large-scale retrofit of the entire building or multiple systems. Examples: building renovations, lighting + HVAC + EMS
Other	Use this only if types above do not fit

Status Type	Definition/Includes:
Complete	Project is complete & operational.
Active	Project is actively underway - procurement completed and in any stage of construction.
Planned	Identified project that will be pursued; may be in budgeting or procurement.
Abandoned	Project is not completed and will no longer be pursued.

Criterion 3 Step 4: UpdateTable 4 - ECMs

Update projects that were listed as "planned" or "active" in last Annual Report or Energy Reduction Plan and add new projects.

NOTE: IGNORE COLORS

Click here to view a sample version of this table

Table 4
Energy Conservation Measures Data

ECMs - Update projects that were listed as "planned" or "active" in last Annual Report or Energy Reduction Plan and add new projects.				Status		Energy Data						Financial Data					Reference Data		Payback Data	
Category (select one from drop-down)	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 Propane Savings (gallons)	Projected Annual Gasoline Savings (gallons)	Projected Annual Diesel Savings (gallons)	Projected Annual Cost Savings ($)	Total Installed Cost ($)	Green Community Grant ($)	Utility Incentives ($)	Net Cost ($)	Funding Source(s) for Net Costs	Source for Projected Savings	ck bck with In	
	Blake Middle School	Low-Flow Aerators and	Hot Water	Planned	Summer 2020		719					$827	$720		$720	$0	N/A	Rise Engineering (Appen	0.9	0
	Blake Middle School	Exterior LED	Exterior Lighting	Complete	05/08/18	67,180						$11,085	$34,133	$18,287	$15,846	$0	Green Communiti	Doer qurt report 1 may-ju	3.2	1.65
	Blake Middle School	All interior lighting (oring	Interior Lighting	Complete	11/22/19	107,394						$17,720	$40,700		$40,700	$0	No cost to Town c	Commonwealth Electrica	$0	$0
	Blake Middle School	Behavioral Based Meas	Behavioral and Training	Planned	Summer 2020	32,757						$3,931	$1,000	Pay-for-Performance		$1,000	Green Communiti	MAPC (Appendix D1)	0.3	0.25
	Blake Middle School	EMS	Retrocommission	Complete	Summer 2019	2,008	2,754					$3,521	$25,000	$77,956	$3,546	$21,454	Green Communiti	Doer qurt report 1 may-ju	7.1	6.09
	Blake Middle School	100-300 Side Lighting (c	Interior Lighting	Complete	11/22/19							$0	$0		$0	$0	No cost to Town c	Commonwealth Electrica	NA	NA
	Blake Middle School	New DHW Storage	Hot Water	Planned	Summer 2020		1,050					$1,202	$8,000		$4,000	$4,000	Green Communiti	Rise Engineering (Appen	6.7	3.33
	Blake Middle School	Roof Insulation	Weatherization	Planned	Summer 2020	1,111	6,212					$7,144	$100,000		$50,000	$50,000	Green Communiti	Rise Engineering (Appen	14	7
	Council on Aging	*COA parking Lights (pr	Exterior Lighting	Complete	Fall 2016	4,508						$676	$3,000		$1,127	$1,873	Town Budget	Town of Medfield	4.4	2.77
	Council on Aging	COA Entrance	Weatherization	Planned	Summer 2020		500					$450	$5,500			$5,500	Town Budget	Town of Medfield	12	12.22
	Council on Aging	*Interior Lighting (presu	Interior Lighting	Complete	Fall 2016	16,750						$2,512	$34,570		$4,187	$30,383	Town Budget	AECOM (Appendix B1)	14	12.09
	Dale Street Elementary School	Exterior LED	Exterior Lighting	Planned	Summer 2020	2,037						$336	$927		$509	$418	Green Communiti	Rise Engineering (Appen	2.8	1.24
	Dale Street Elementary School	All interior lighting (oring	Interior Lighting	Complete	11/22/19	57,416						$9,474	$21,688		$21,688	$0	No cost to Town c	Commonwealth Electrica	0	0
	Dale Street Elementary School	Steam traps	HVAC	Planned	Summer 2020		7,710					$8,866	$25,000		$12,500	$12,500	Green Communiti	Rise Engineering	2.8	1.41
	Dale Street Elementary School	Low-Flow Aerators and	Hot Water	Planned	Summer 2020		522					$600	$414		$414	$0	N/A	Rise Engineering (Appen	0.7	0
	Dale Street Elementary School	2nd Floor Lighting (com	Interior Lighting	Complete	11/22/19							$0	$0		$0	$0	No cost to Town c	Commonwealth Electrica	NA	NA
	Medfield High School	Exterior LED	Exterior Lighting	Complete	05/08/18	93,868						$15,488	$46,628	$24,484	$22,144	$0	Green Communiti	Doer qurt report 1 may-ju	3.1	1.58
	Medfield High School	Low-Flow Aerators and	Hot Water	Planned	Summer 2020		1,052					$1,209	$1,114		$1,114	$0	N/A	Rise Engineering (Appen	0.9	0
	Medfield High School	EMS	Retrocommission	Planned	Summer 2020	13,917	2,959					$5,908	$50,000		$5,221	$44,779	Green Communiti	Rise Engineering (Appen	8.5	7.58
	Medfield High School	Behavioral Based Meas	Behavioral and Training	Planned	Summer 2020	72,649						$8,718	$1,000	Pay-for-Performance		$1,000	Green Communiti	MAPC (Appendix D1)	0.1	0.11
	Medfield High School	All interior lighting (oring	Interior Lighting	Complete	11/22/19	242,014						$39,932	$88,334		$88,334	$0	No cost to Town c	Commonwealth Electrica	0	0
	Medfield High School	2nd Flr & LL Lighting (c	Interior Lighting	Complete	11/22/19							$0	$0		$0	$0	No cost to Town c	Commonwealth Electrica	NA	NA
	Medfield Public Library	*MPL Lighting (presume	Interior Lighting	Complete	Summer 2020	16,305						$2,446	$350			$350	Town Budget	Town of Medfield (Appen	0.1	0.14
	Medfield Public Library	Attic Air Sealing	Weatherization	Planned	Summer 2020	521	381					$380	$3,500		$1,750	$1,750	Town Budget	Rise Engineering (Appen	9.2	4.61
	Medfield Public Library	Interior Lighting	Interior Lighting	Active	Winter 2020	41,298						$6,195	$90,695		$10,325	$80,370	Green Communiti	AECOM (Appendix B2)	15	12.97
	Medfield Public Library	EMS	Building Controls Install	Planned	Summer 2020	2,605	213					$685	$50,000		$9,600	$40,400	Green Communiti	Rise Engineering (Appen	73	58.98
	Medfield Public Library	Low-Flow Aerators	Hot Water	Planned	Summer 2020	3,984						$637	$88		$0	$88	Green Communiti	Rise Engineering (Appen	0.1	0.14
	Medfield Public Library	Attic Insulation	Weatherization	Planned	Summer 2020	73	86					$86	$2,500		$0	$2,500	Green Communiti	Rise Engineering (Appen	29	29.07
	Medfield Public Library	Pipe Insulation	HVAC	Planned	Summer 2020		46					$46	$600			$600	Green Communiti	Rise Engineering (Appen	13	13.04
	Medfield Public Library	MPL Exterior Lighting	Exterior Lighting	Complete	05/08/18	5,510						$827	$9,287	$1,173	$5,886	$2,229	Green Communiti	Doer qurt report 1 may-ju	2.7	0.99
	Memorial Elementary School	Exterior LED	Exterior Lighting	Complete	05/08/18	53,134						$8,767	$29,210	$16,620	$12,590	$0	Green Communiti	Doer qurt report 1 may-ju	3.4	1.9
	Memorial Elementary School	All interior lighting (oring	Interior Lighting	Complete	11/22/19	70,937						$11,705	$28,100		$28,100	$0	No cost to Town c	Commonwealth Electrica	0	0
	Memorial Elementary School	Low-Flow Aerators and	Hot Water	Planned	Summer 2020		539					$620	$425		$425	$0	N/A	Rise Engineering (Appen	0.7	0
	Memorial Elementary School	EMS	System Upgrade and R	Planned	Summer 2020	6,127	1,520					$2,850	$100,000		$9,759	$90,241	Green Communiti	Rise Engineering (Appen	35	31.66
	Memorial Elementary School	Wing 3 Lighting (consoli	Interior Lighting	Complete	11/22/19							$0	$0		$0	$0	No cost to Town c	Commonwealth Electrica	NA	NA
	Streetlights	Exterior LED	Exterior Lighting	Complete	6/1/19	69,435						$31,870	$81,505		$11,182	$70,323	Green Communiti	Fred Davis Corporation (A	3	2.5
	Town Garage	*Garage Controls (presu	Building Control	Complete	Fall 2016		33,200					$29,880	$0		$0	$0	Town Budget	Town of Medfield	0	0
	Town Garage	Interior Lighting	Interior Lighting	Active	Winter 2020	49,788						$8,215	$22,500		$22,500	$0	No cost to Town c	Commonwealth Electrica	0	0
	Town Hall	Interior Lighting	Interior Lighting	Active	Winter 2020	31,869						$5,258	$15,000		$15,000	$0	No cost to Town c	Commonwealth Electrica	0	0
	Town Hall	TH Parking Lights	Exterior Lighting	Complete	05/08/18	15,972						$1,916	$3,812	$1,677	$2,135	$0	Green Communiti	Doer qurt report 1 may-ju	3	0.88
	Town Hall	Low-Flow Aerators	Hot Water	Planned	Fall 2017	5,976						$956	$132		$0	$132	Green Communiti	Rise Engineering (Appen	0.1	0.14
	Town Hall	EMS	Retrocommission	Planned	Summer 2020	3,212	212					$758	$15,000		$640	$14,360	Green Communiti	Rise Engineering (Appen	20	18.94
	Vehicles	Anti-Idling Policy	Vehicles	Planned	Summer 2020					1,000	1,000	$3,500				$0	N/A	Town of Medfield	0	0
	Vehicles	Fleet Management Stra	Vehicles	Planned	Summer 2020					2,380	3,140	TBD	TBD		$0	TBD	Green Communiti	MAPC (Appendix D2)	TBD	TBD
	Wheelock Elementary School	New Boilers (2)	HVAC	Complete	Summer 2016		4,836					$4,352	fe replacement	School Building Authority Grant	life replacement		Town Budget	Town of Medfield		
	Wheelock Elementary School	Exterior LED	Exterior Lighting	Complete	05/08/18	5,366						$885	$7,445	$6,041	$1,404	$0	Green Communiti	Doer qurt report 1 may-ju	8.3	6.83
	Wheelock Elementary School	All interior lighting (oring	Interior Lighting	Complete	11/22/19	65,074						$10,737	$63,000		$63,000	$0	No cost to Town c	Commonwealth Electrica	0	0
	Wheelock Elementary School	2nd Floor Lighting (com	Interior Lighting	Complete	11/22/19							$0	$0		$0	$0	No cost to Town c	Commonwealth Electrica	NA	NA
	Wheelock Elementary School	Low-Flow Aerators and	Hot Water	Planned	Summer 2020		454					$522	$370		$370	$0	N/A	Rise Engineering (Appen	0.7	0
	Pfaff Recreation Center	Lighting	Exterior Lighting	Active	Winter 2020	12,486						$2,060	$7,050		$7,050	$0	No cost to Town c	Commonwealth Electrica	0	0
To insert additional	To insert additional rows, select																			
				TOTAL Projected Savings		1,173,281	64,965	0	0	3,380	4,140	275,752	1,018,297	146,238	473,766	476,250				
			TOTAL MMBtu SAVINGS	11,494		4003.234772	6496.5	0	0	419.12	575.46									

SAMPLE Criterion 3 Step 4: Complete Table 4 - ECMs

Click here to return to Table 4

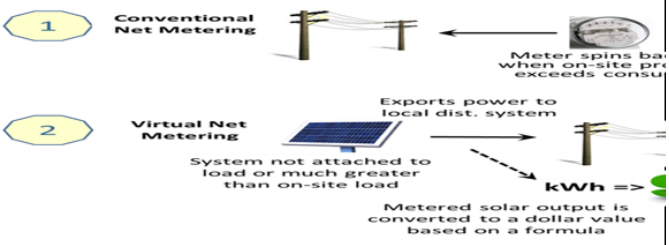
Table 4
***SAMPLE* Energy Conservation Measures Data**

ECMs				Status		Energy Data						Financial Data					Reference 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 Propane Savings (gallons)	Projected Annual Gasoline Savings (gallons)	Projected Annual Diesel Savings (gallons)	Projected Annual Cost Savings ($)	Total Installed Cost ($)	Green Community Grant ($)	Utility Incentives ($)	Net Cost ($)	Funding Source(s) for Net Costs	Source for Projected Savings
Buildings	Green School	Lighting Retrofit	Interior Lighting	Complete	Feb-11	95,252	0	0	0	0	0	$8,000	$25,000	$0	$12,500	$12,500	Town Capital	http://www.energystar.g
Buildings	Town Hall	Air Sealing	Weatherization	Active	Dec-14	0	230	0	0	0	0	$1,100	$3,500	$1,750	$1,750	$0	N/A	A-Z Energy Audit, 2008
Buildings	Town Hall	New Boiler	HVAC	Planned	Nov-17	0	17,122	0	0	0	0	$5,000	$50,000	$35,000	$15,000	$0	N/A	Boilers-to-Go Quote, 2009
Street Lights		LED Conversion	Exterior Lighting	Active	Jan-15	6,000	0	0	0	0	0	**$2,500**	$5,000	$0	$2,500	**$2,500**	Town	LED Signals Today Quote,
Buildings	Drinking Water Treatment	2 Variable Speed Drives	Pump/Motor/Drive	Complete	Nov-16	500,000	0	0	0	0	0	$40,000	$200,000	$0	$100,000	$100,000	Town Bond	Energy Masters
Vehicles		Anti-idling retrofit for 2	Vehicles	Planned	Aug-18	0	0	400	400	400	400	$4,500	$6,000	$0	$0	$6,000	Town	green.autoblog.com
			TOTAL Projected Savings			**601,252**	**17,352**	**400**	**400**	**400**	**400**	**$61,100**	**$289,500**	**$36,750**	**$131,750**	**$121,000**		
			TOTAL MMBtu SAVINGS	**4,662**		**2,051**	**2,412**	**50**	**50**	**50**	**50**							

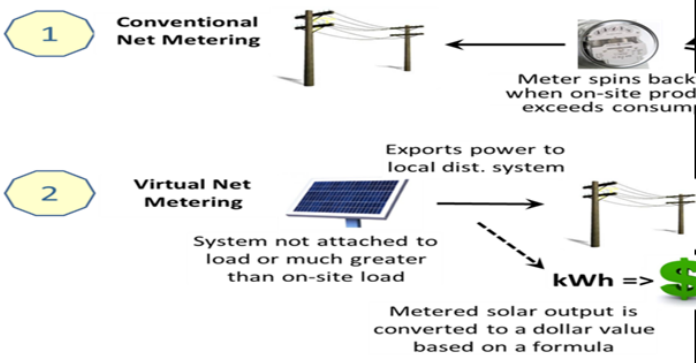
GUIDANCE FOR REPORTING RENEWABLE ENERGY GENERATION AS ENERGY CONSUMPTION

The following scenarios apply to renewable energy systems that are interconnected to the electric grid. It

1) Do you have Conventional Net Metering?
If yes, see RE Scenario 1 and RE Scenario 2



2) Do you have Virtual Net Metering?
If yes, see RE Scenario 3



3) Do you live in an MLP?
If yes, see RE Scenario 4

RE Scenario 1: Conventional Net Metering, System Generation < Building Use = Importing Power

If the building uses more electricity than the RE system generates, your electric meter registers postitive.

For example:
Total Grid Electricity on electric bill (kWh): 3,000
Total Net Metering Credits on electric bill (kWh): 0
Total generated by the RE system (kWh): +7,000
Total building use (kWh): 10,000

Find and Calculate: Find the kWh generated each month from your RE system. Contact your Regional

Action: Load the building renewable energy usage into MassEnergyInsight. Create a separate account for

RE Scenario 2: Conventional Net Metering, System Generation > Building Use = Exporting Power

The RE system is exporting power to the electric company. Then a Green Community should not add in the amount of generation over and above what the building used. This means the total building energy use = kWh generated by RE – kWh credited to electric bill for net metering.
** Contact your Regional Coordinator if you have **negative use** on your electric bill **

For example:
Total Grid Electricity on electric bill (kWh): 0

Total Net Metering Credits on electric bill (kWh): -1,000
Total generated by the RE system (kWh): +7,000
Total building use (kWh): 6,000

For help locating net metering credits on your electric bill go to:
https://www.nationalgridus.com/non_html/MA_DG_First_Bill.pdf
metering/net-metering-faq

Find and Calculate: Find the total kWh generated each month from your RE system. Find the net metering

Action: Load the **NET** building renewable energy usage into MassEnergyInsight. Create a separate account

RE Scenario 3: Virtual Net Metering

credits are applied to a different building, then the actual amount of electricity use of the building will be on its electric bill. For example, a municipality may have built a solar PV array on a closed landfill. The PV system has a meter but does not link to any buildings that consume a substantial amount of energy. (The PV system will be linked to its inverter and perhaps to a small shed or security lights.) The financial value of the electricity that is generated by the landfill solar PV system is applied to an account for electric use at the town hall and to an account for electric use at the library. The electric bills for the town hall and library thus will show the amount of electricity that is actually used by those buildings, but only charge for the amount of electricity above and beyond what was generated by the solar PV system on the landfill. See

Information Needed: Written confirmation of virtual net metering documenting there is a separate meter

Action: Generation does not impact baseline and should NOT be loaded into MassEnergyInsight. Provide

RE Scenario 4: RE Generation to Control Rates (for MLPs)

If an MLP uses its RE generation to control its system-wide rates and does not use the RE for a specific

Information Needed: Written confirmation of RE generation for system-wide benefit with no virtual net

Action: Generation does not impact baseline and should NOT be loaded into MassEnergyInsight. Provide

Please refer to Guidance on Reporting Renewable Energy Generation and Only Include Projects with Conventional Net Metering (scenario 1 and scenario 2) in Table 5

Criterion 3 Step 5: Complete Table 5 - Renewable Energy

Project Description				Status and Timing		Electricity Data		Thermal Energy Data (representing consumption)			Financial Data					Reference Info	
Project Name	Resource Type (select from drop down)	Site Type (select from drop down)	Town Procuring Energy Output? (select from drop down)	Project Status (select from drop down)	Year Completed (i.e., 2016)	Size of System (kW, DC)	Annual Electricity Generation (kWh)	Annual Natural Gas (therms)	Annual Wood (cords)	Annual Wood (pellets)	Annual Cost Savings ($)	Total Installed Cost ($)	Green Community Grant ($)	Other Grant ($)	Net Cost ($)	Funding Source(s) for Net Costs	Source for Projected Savings
Wastewater Treatment Plant	*Solar PV, Ground*	*Municipal Building*	*Y - conventional net*	*Complete*	2015	281	265,280					$431,800	*$0*	$180,000	$251,800	Town Bond	
Public Safety Building	*Solar PV, Roof*	*Municipal Building*	*Y - conventional net*	*Complete*	2016	60	53,559						*$0*				
To insert additional rows, select																	
TOTALS							318,839		0	0							
TOTAL RENEWABLE ENERGY PRODUCTION (MMBtu)					1087.878668		1087.878668		0	0	0	431,800	0	180,000	251,800		

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? YES

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

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 provde 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? NO

4) Installed idle-reduction technology on any vehicles? NO

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

6) Implemented a driving monitoring system that records miles driven and/or fuel consumption? NO

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

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/or 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, streetsweepers, etc. NOTE: For the purposes of the program, municipalities must use the EPA combined fuel economy estimate listed at FuelEconomy.gov for vehicles with a GVWR < 8,500 pounds. If the vehicle is not listed on FuelEconomy.gov then list N/A for MPG rating.

List new acquistions 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	Explorer	2016		4WD	N	NE	22	Building Dept.		
Ford	F350	1999		4WD	Y	E	13	DPW Dept.		
Ford	F350	2003		4WD	Y	E	14	DPW Dept.		
Mack	RD690P	2004		2WD	Y	E		DPW Dept.		
Ford	F250	2019		2WD	N	NE	15	DPW Dept.		
Pierce	Lance/Fire Truck	1989		2WD	Y	E		Fire Dept.		
Mack	GU712	2016		2WD	Y	E		Highway Dept.		
Mack	CHU613	2018		2WD	Y	E		Highway Dept.		
Ford	F350	2016		4WD	Y	E	13	Park & Rec Dept.		
Ford	Transit	2017		2WD	Y	E		Park & Rec Dept.		
Ford	F250	2016		2WD	N	NE	16	Park & Rec Dept.		
International	Truck	1983		2WD	Y	E		Police Dept.		
Ford	Explorer	2015		4WD	N	E	25	Police Dept. Police Cruiser		Replaced Crown Victoria
Ford	Explorer	2017		4WD	N	E	22	Police Dept. Police Cruiser		Replaced Crown Victoria
Ford	Explorer	2017		4WD	N	E	22	Police Dept. Police Cruiser		Replaced Crown Victoria
Ford	Explorer	2018		4WD	N	E	22	Police Dept. Police Cruiser		Replaced Crown Victoria
Ford	F250	2001		2WD	N	NE	13	School Dept.		
Ford	Cutvan	2003		2WD	N	E		School Dept.		
Ford	Expedition	2006		4WD	N	NE	14	School Dept.		
Ford	E350	2015		4WD	Y	E		School Dept.		
Ford	F350	2017		4WD	Y	E	12	Sewer Dept.		
Ford	F350	1994		4WD	Y	E	12	Transfer Station		
Ford	F650	2019		4WD	Y	E	7	Park & Rec Dept.		

Criterion 5 - Minimize Life-Cycle Costs in New Construction

Is the stretch code still in effect?	YES
Were any residential occupancy permits issued since your last Annual Report or Designation Application (if first Annual Report)?	YES
How many occupancy permits were issued for new commericial construction over 100,000 sq.ft.?	0

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 or alternative energy generation, R&D, or Manufacturing facilities).

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? How much of this is through the purchase of Renewable Energy Certificates (RECs)?

<Select One>	3	blank	blank	blank	<Select YI	<Select Y	<Select Dı	<Select Oı	<Select Oı	<Select Oı	<Select One>	<Select One>	<Select One>	<Select NR or C:	<Select One>
Buildings	May-10	R&D	43D	Yes per designation ap	YES	FY2008	2WD	Y	E	NR	Behav & Training	Null	Complete	NR	1
Open Space	Dec-10	MFR	Local	Yes per AR 2011	NO	FY2009	4WD	N	NE	RR	Building Control	Buildings	Active	C	2
Street & Traffic Lights	Jul-11	R&D and MFR		No per designation app	Transferre	FY2010	AWD	NA		C	Exterior Lighting	Open Space	Planned		3
Vehicles	Dec-11	R&D & MFR & Solar				FY2011					Interior Lighting	Street & Traffic Lig	Abandoned		4
Water/Sewer	Jul-12	Generation; Solar				FY2012					Fuel Conversion	Vehicles			5
	Dec-12	Generation; Wind				FY2013					Hot Water	Water/Sewer			6
	Dec-13	Generation; Solar & Wind				FY2014					HVAC				7
	Dec-14					FY2015					Pump/Motor/Drive				8
	Dec-15			<Select one>		FY2016					Refrigeration				9
	Feb-17			Application under reviev		FY2017					Retrocommission				10
	Dec-17			Project approvec		FY2018					Vehicles				11
			<select on	Project denied		FY2019					Weatherization				12
				0		CY2007					Comprehensive				
				1		CY2008					Other				
				2		CY2009									
				3		CY2010									
Building stock change pw = DOEF				4		CY2011									
Calculator Worksheet pw = DOER				5		CY2012									
				6		CY2013									
Table 6 pw= DOER				7		CY2014									
				8		CY2015									
Other tabs pw = GC				9		CY2016									
				10		CY2017									
				11		CY2018									
				12											

Resource.Type	Site.Type	Own.Generation/Site	Procuring.Energy.Output	Project.Status
Solar PV, Roof	Municipal Building	Y	Y - conventional net metere	Complete
Solar PV, Ground	School	N	Y - virtually net metere	Active
Solar PV, Canopy	Private Building			Planned
Solar Therma	Water/Wastewater Plan	Other	N	Abandoned
Wind	Brownfield - Landfil		Other	
Wood, Boiler/Furnac	Brownfield - Not landfil			
CHP, Gas	Greenfield			
CHP, Wood	Parking Lot			
Hydro	Other			
Other				