CITY OF NEWTON

IN BOARD OF ALDERMEN

PUBLIC FACILITIES COMMITTEE AGENDA

WEDNESDAY, APRIL 22, 2015

7 PM
Room 204

ITEMS SCHEDULED FOR DISCUSSION:
Public hearing assigned for May 4, 2015
REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#375-14(3) HIS HONOR THE MAYOR submitting recommended FY2016 Water, Sewer Storm Water Rates for implementation on July 1, 2015, as follows:

Fiscal Year 2016 Tiers & Rates for Water and Sewer

HCF Per Quarter	Water Rate Per HCF	Sewer Rate Per HCF
0-10	$6.30	$9.50
11-25	$7.00	$10.00
26-60	$8.40	$12.00
>60	$10.00	$14.00
Irrigation	$10.00	

Storm Water Flat Fees

	Fiscal Year 2015	Fiscal Year 2016
Residential	$25.00	$75.00
Commercial	$150.00	$200.00

[04/14/15 @ 1:04 PM]

#358-14 FINANCE COMMITTEE requesting that the Public Facilities Committee receive updates on the clean-up of the Rumford Avenue Landfill every three months. [09/11/14 @ 12:01 PM]

#83-15 ALD. CROSSLEY, GENTILE, & ALBRIGHT requesting a discussion and update from the Administration on the following energy related items: status of municipal power purchasing contracts for gas and electricity; status of the Power Purchase Agreement including solar PV rooftop installations, power offset (cost benefit) to date and review of potential future projects; and an update on municipal energy consumption including the recent Green Communities report filed with the Department of Energy Resources. [03/26/15 @ 9:19 AM]

The location of this meeting is handicap accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a special accommodation, please contact John Lojek, at least two days in advance of the meeting: jlojek@newtonma.gov, or 617-796-1064. For Telecommunications Relay Service dial 711.

#100-15 ALD. NORTON, SANGIOLO, LEARY, AND ALBRIGHT requesting that the Administration pursue municipal aggregation of energy purchasing with the goals of reducing and/or stabilizing electricity costs for resident, businesses and the City; and requiring the purchase of Class 1 RECs at some percentage above the level required by the Massachusetts Renewable Portfolio Standard. [04/06/15 @ 9:12 AM]

#153-13 PUBLIC FACILITIES COMMITTEE requesting periodic updates on the progress of the citywide storm water system assessment needed to define the scope of repairs to the system, as well as methods of financing the assessment and an accounting of the storm water enterprise fund. [04/02/13 @ 11:02 AM]

ITEMS NOT SCHEDULED FOR DISCUSSION:

Public hearing assigned for May 6, 2015

#99-15 NATIONAL GRID petitioning for a grant of location to install and maintain 125' ± of 6" gas main in HARDING STREET from the existing 6" gas main at 119 Harding Street northerly to 131 Harding Street to provide gas service to 127 and 131 Harding Street. (Ward 3) [04/08/15 @ 8:32 AM]

Public hearing assigned for May 6, 2015

#98-15 NATIONAL GRID petitioning for a grant of location to install and maintain 70' ± of 4" gas main in OAK AVENUE from the existing 4" gas main at 34 Oak Avenue northerly to 25 Oak Avenue for a new gas service. (Ward 3) [03/31/15 @ 12:15 PM]

REFERRED TO PS&T, PUBLIC FACILITIES AND FINANCE COMMITTEES

#85-15 ALD. SANGIOLO requesting discussion with the Director of Transportation and the Transportation Coordinator to determine whether a fee could be imposed on all residents who own automobiles in the City. Such fee to be placed into a transportation fund to pay for roadway and sidewalk improvements. Residents would get a parking sticker in return for each automobile they have registered with the City that would enable them to bypass parking restrictions in the City except for Tow Zones and Fire Hydrants and any other emergency zones determined by the Police and Fire Departments.

#82-15 ALD. SANGIOLO requesting the Public Works Department and the administration determine the cost if the City were to undertake complete sidewalk shoveling throughout the City, such costs might be charged back to residents with a fee. [03/12/15 @ 10:38 AM]

#72-15 PUBLIC FACILITIES COMMITTEE requesting a discussion with the Administration and Department of Public Works about the extent of damage to the City resulting from the recent extreme winter conditions including roadways, sidewalks, infrastructure, buildings and how the City is preparing to cope with the needed repairs. [03/09/15 @ 4:22 PM]

#48-15 ALD. JOHNSON, SANGIOLO & YATES requesting a discussion with the Commissioner of Public Works regarding: (1) short and long term snow clearing of streets and sidewalks, (2) proactive planning relative to potential issues resulting from melting snow, (3) short term plans for addressing potholes, and (4) how the Department of Public Works will use the data gathered from where potholes need to be filled to guide planning for street repairs. [02/23/15 @ 9:31 AM]

#47-15 ALD. RICE AND YATES requesting establishment of a pilot storm water treatment program for the streets in Waban between Quinobequin Road and Chestnut Street including but not limited to Amherst Road, Radcliffe Road and Tamworth Road. [02/11/15 @ 9:13 AM]

REFERRED TO PUB FACIL, PROG & SERV, AND PS&T COMMITTEES

#46-15 ALD. JOHNSON & CICCONE, requesting a discussion with the Commissioner of Department of Public Works and the School Department to determine and discuss parking options including use of school properties based on the current municipal parking lot programs including the issuance of permits. [02/11/15 @ 1:35 PM]

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#455-14 HIS HONOR THE MAYOR recommending amendment to Chapter 29, Section 80 **Sewer/Stormwater use charge.** of the City of Newton Ordinances to create a storm water rate fee structure based upon square footage of impervious surface area.

REFERRED TO FINANCE AND APPROPRIATE COMMITTEES

#375-14 HIS HONOR THE MAYOR submitting the FY16-FY20 Capital Improvement Plan pursuant to section 5-3 of the Newton City Charter. [10/15/14 @ 3:01 PM]

#328-14 ALD. ALBRIGHT, DANBERG, & LAREDO requesting a review of double poles in Newton including a random sampling of ten double on the north side and ten double poles on the south side of Newton to determine which utility is holding up the removal of double poles. [08/19/14 @ 9:16 AM]

#189-14 PUBLIC FACILITIES COMMITTEE requesting periodic updates on the Zervas Elementary School Project. [04/17/14 @ 10:48 PM]

#188-14 PUBLIC FACILITIES COMMITTEE requesting periodic updates on the Cabot Elementary School Project. [04/17/14 @ 10:48 PM]

REFERRED TO PROGRAMS & SERVICES AND PUBLIC FACILTIES COMMITTEES

#119-14 ALD. ALBRIGHT AND CROSSLEY requesting discussion with the Inspectional Services Department to explain the development of short and long term plans to identify and correct buildings, sidewalks, playgrounds, etc…that do not conform

to American Disability Act (ADA) standards. The discussion should include information on how improvements will be incorporated into the Capital Improvement Plan or if less than $75,000 into a comprehensive budget plan to correct ADA deficiencies. [03/12/14 @ 4:18 PM]

#62-14 ALD. CROSSLEY, HESS-MAHAN, ALBRIGHT AND SALVUCCI requesting a report from the administration on the status of the City strategy to meet its obligations as a Department of Energy Resources Green Community, to reduce municipal energy consumption by 20% over five years, particularly regarding advancing the implementation of the building energy audits program recommending energy efficiency measures in existing buildings, and how that strategy is incorporated into the capital improvement plan. [02/24/14 @ 6:35 PM]

#417-13 PUBLIC FACILITIES COMMITTEE requesting that the Administration provide updates on the progress of the Angier Elementary School project. [11/21/13 @ 9:16 AM]

#131-13 ALD. CROSSLEY, FULLER, SALVUCCI, JOHNSON, CICCONE requesting periodic updates and discussion, at the discretion of the members of the Public Facilities Committee or the Commissioner of Public Works, on the condition functioning, operations and management of all elements of the City sewer, water and storm water systems including the following:

- Water meters
- Implementation of the ten project area strategic plan to remove infiltration in the City sewer system
- Implementation of the long range strategic plan to repair and replace City water mains, especially to correct for fire flow
- Status of the City's Private Inflow Removal Program to resolve and disconnect illegal storm water connections to the City sewer system
- Current billing practices
- Rates analyses needed to facilitate an informed comparison of billing options to include the following options either alone or in combination: seasonal rates, second meters, tiered rates, frequency of billing, low income credits. [03/23/13 @ 11:13 AM]

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#41-13 ALD. CROSSLEY, FULLER AND SALVUCCI requesting a discussion with the administration to review how the city inventories, plans for, budgets and accounts for needed smaller capital expenditures (currently set at under $75,000), which are excluded from the Capital Improvement Plan (CIP); how to make these non-CIP capital maintenance items visible, and how to integrate them with the overall planning, CIP, and budgeting processes. [01/14/13 @ 5:02 PM]

REFERRED TO PS&T, PUBLIC FACILITIES AND FINANCE COMMITTEES

#310-10(2) (#409-12) ALD. DANBERG, BLAZAR, KALIS, SCHWARTZ, ALBRIGHT, HESS-MAHAN, RICE, COTE, LEARY, AND NORTON requesting amendments to Sec. 26-8D of the City of Newton Ordinances to modify and make permanent the trial program for removal of snow and ice from sidewalks and to provide for enforcements and fines for violations. [09/10/14 @ 2:12 PM]

#246-12 RECODIFICATION COMMITTEE recommending Sec. 25-1, which requires a permit to create a trench, be reviewed to determine if a new section relative to excavation should be established to regulate unsafe excavation beyond the regulation of trenches, as the City Engineer has advised that all trenches are excavations, but not all excavations are trenches, which amendment would replace **Sec. 20-53. Excavations; protection; erection of barriers.**, which was deleted as part of recodification because it conflicted with Sec. 25-1.

#245-12 RECODIFICATION COMMITTEE recommending that Chapter 11, RECYCLING AND TRASH as most recently amended by Ordinance Z-68 and Z-87, dated 6/21/10 and 5/16/11, respectively, be reviewed and be amended as necessary.

REFERRED TO PS&T AND PUBLIC FACILITIES COMMITTEES

#413-11 ALD. CICCONE, SALVUCCI, GENTILE & LENNON updating the Public Facilities and Public Safety & Transportation Committees on the progress of renovations to the city's fire stations. [11-17-11 @11:07 AM]

REFERRED TO PROG. & SERV AND PUBLIC FACILITIES COMMITTEES

#36-12 ALD. CROSSLEY & FULLER requesting Home Rule legislation or an ordinance to require inspections of private sewer lines and storm water drainage connections prior to settling a change in property ownership, to assure that private sewer lines are functioning properly and that there are no illegal storm water connections to the city sewer mains.

A) Sewer lines found to be compromised or of inferior construction would have to be repaired or replaced as a condition of sale;
B) Illegal connections would have to be removed, corrected, and re-inspected in accordance with current city ordinances and codes, as a condition of sale. [01/24/12 @ 8:07 AM]

#367-09 PUBLIC FACILITIES COMMITTEE requesting discussion with the Law Department on how to resolve the dispute with NStar regarding whose responsibility it is to repair the streetlight connection between the manhole and the base of the streetlight. [10/21/09 @ 9:00 PM]

#253-07 ALD. LINSKY ALBRIGHT, JOHNSON, HARNEY, SANGIOLO, SALVUCCI, MANSFIELD, BURG, SCHNIPPER requesting (1) a review as to how provisions of applicable ordinances, specifically 5-58, were implemented during the course of the Newton North project, and (2) consider proposed revisions of 5-58 including, but not limited to:

(a) timely provision of documentation by the public building department to the Board of Aldermen and Design Review Committee;
(b) establishment of liaison committees to facilitate communications and input from neighborhoods affected by projects subject to this ordinance;
(c) approval of final design plans by the Board of Aldermen of projects subject to this ordinance;
(d) oversight during the construction phase of projects subject to this ordinance by appropriate Board committee(s) both in respect to approval of change orders as well as design changes; and
(e) generation of a required record detailing the entire construction process by the public building department to guide present and future oversight of projects subject to this ordinance.
(f) establishment of a committee to provide oversight for public building construction and renovation during all phases of planning, design and construction. [08/07/07 @ 3:12 PM]

Respectfully submitted,

Deborah Crossley, Chairman

#375-14(3)

SETTI D. WARREN
MAYOR

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April 13, 2015

Honorable Board of Aldermen
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459

Ladies and Gentlemen:

In accordance with Newton Revised Ordinances, I write to request that your Honorable Board docket for consideration the revision of the water, sewer and stormwater rates effective July 1, 2015 as follows:

FY2015 Tiers & Rates:

HCF Per Quarter	Water Rate per HCF	Sewer Rate per HCF
0 – 20	$6.07	$ 8.94
21 – 70	$7.27	$10.73
>70	$8.74	$12.88

FY2016 Tiers & Rates:

HCF Per Quarter	Water Rate per HCF	Sewer Rate per HCF
0 – 10	$ 6.30	$ 9.50
11 – 25	$ 7.00	$10.00
26 - 60	$ 8.40	$12.00
>60	$10.00	$14.00
Irrigation	$10.00	

Stormwater Flat Fees:	Fiscal Year2015	Fiscal Year 2016
Residential	$ 25.00	$ 75.00
Commercial	$150.00	$200.00

Thank you for your consideration of this matter.

Very truly yours,

Setti D. Warren
Mayor

PORTION OF THE SEPTEMBER 8, 2014 FINANCE REPORT
RUMFORD AVENUE LANDFILL

#331-14 HIS HONOR THE MAYOR requesting authorization to settle a legal claim and expend the sum of twelve thousand dollars ($12,000) from the Law Department's Legal Claims & Settlements, as full and final settlement for violations of Department of Environmental Protection regulations at the Rumford Avenue Landfill. [08/25/14 @ 4:52 PM]

ACTION: APPROVED 7-0

NOTE: Assistant City Solicitor Maura O'Keefe presented the request to authorize settlement of a fine for violations of the Department of Environmental Protection (DEP) regulations at the Rumford Avenue Landfill. The original fine that was imposed totaled $34,500 but the Law Department and the Department of Environmental Protection have agreed to a $12,000 fine at this time and to suspend the balance of the fine. If the City complies with all of the DEP's conditions contained in the DEP's Administrative Consent Order with Penalty and Notice of Noncompliance that was attached to the Committee agenda, the suspended balance will be forgiven. The City is working to meet all of the negotiated deadlines contained in the order.

In the 1990s, the City entered into an agreement with the DEP regarding what and where things could be stored on the Rumford Avenue Landfill site. A neighbor to the landfill filed a complaint with the DEP in April 2014 regarding excavate and concrete at the landfill impacting a cove adjacent to the northern side of the landfill. DEP staff inspected the landfill and found excavate stored on the northern side of the landfill that exceeded the area approved by the DEP, excavate that had slid down the northern side slope of the landfill and blocked 150' of drainage swale, and excavate that had slid and partially blocked Wabasso Road, which is located at the base of the northern slope. As soon as the Department of Public Works became aware of the violations, it immediately began action to begin remedying the violations. The DEP was pleased that the City was immediately responsive.

Commissioner of Public Works David Turocy was not contacted by any of the neighbors of the landfill regarding any problems before receiving notification of a violation from the DEP. The Commissioner explained that the Public Works Department recently began stockpiling excavate on the northern side of landfill, which is an unfamiliar area which resulted in the violations. The excavate is ultimately crushed for reuse in other paving projects but since the override the City has been generating more excavate than it can reuse. Therefore, the City will enter into a contract to haul excavate and other debris like street sweeping debris from the landfill. The removal of excavate and other materials should have a big impact and bring the landfill into compliance with the DEP. Funding for the hauling will be included in next year's Public Works Department budget.

A working group has been formed to help implement a clean-up plan for the Rumford Avenue landfill. The plan will include the addition of some physical barriers around dumping areas and training to ensure that employees are aware of the boundaries of dumping areas.

Environmental Affairs Director Elaine Gentile is responsible for monitoring of the site. The Committee members emphasized that regular monitoring was key to ensuring that the DEP deadlines are met and future fines avoided.

The Committee felt that it was appropriate to docket an item to be referred to the Public Facilities Committee requesting updates on the progress of the clean-up of the Rumford Avenue Landfill. Ald. Rice moved approval, which carried unanimously.

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, annual reports must be submitted ***no later than December 5, 2014 for the reporting period July 1, 2013 – June 30, 2014***. Late reports will deem a community ineligible.

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, please 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) Print, fill out completely, and submit a signed copy of this page of the completed annual report as a PDF via the online system.

6) Submit your community's full Excel file electronically as Excel via the online system with any other supporting files. ***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

7) 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 will prohibit the municipality from being eligible for any funds in the next available Green Communities funding opportunity.

8) For Green Communities that have filed previous Annual Reports, new or changed information is highlighted in blue

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

10) Fields highlighted in green should be pre-populated by the Regional Coordinators

Date Designated:	**May-10**	**PLEASE NOTE:** For a municipality designated December 2012, the reporting period is 18 months, Jan 1 2013 - June 30 2014
Date of Annual Report Submission	5-Dec-14	
Name of Preparer of Annual Report	Rob Garrity	
Title	Director of Sustainability	
Municipality Name	**Newton**	

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: R&D/Manufacturing

Type of expedited permitting approval received: Local

REGULATIONS (zoning & permitting):

1) 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, attach a letter from municipal counsel that describes the changes, outlines 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, as well as a revised zoning map.
Please select YES or NO in the dropdown on the right. If YES, attach letter from municipal counsel.

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.
Please select YES or NO in the dropdown on the right. If YES, attach letter from municipal counsel.

NO

3) Has the space designated for "as-of right" development for which the community received Green Communities designation been reduced? Please select YES or NO in the dropdown on the right. If YES, explain what has happened since the community applied for, and received, Green Communities designation and describe any plans the community may have to make such development feasible again

NO

NARRATIVE:

PERMITTING:

Have any clean energy projects applied for approval **under the zoning for which the community received Green Community Designation**?

NO

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

Table 1
Expedited Permitting Projects (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	Permit(s) (use as many rows as required)	Status	Date Submitted	Decision Date	Other Pertinent Information
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	Permit(s) (use as many rows as required)	Status	Date Submitted	Decision Date	Other Pertinent Information
Hilltop Wind	*Renewable Energy (wind) 9 MW*	*landfill*	*Peak Performance, LLC.*	*Six 1.5 MW wind turbines on 16 acres of land*	*Site Plan Review*	*Approved*	*11/1/2010*	*1/21/2011*	*Modest design changes to conform to as-of-right bylaw*
					Wetlands (access road is in buffer zone)	*Approved*	*10/16/2010*	*12/2/2010*	

Criterion 3 Instructions: Complete Steps 1-7 Below

1. Read and complete all questions below.

2. Complete Table 2: Progress

Please complete Table 2 below. 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.

For MassEnergyInsight Users: the easiest way to populate this table is to look at the ERP Guidance Table 3b (MMBTU) for each year. Enter the category totals and the grand total. Any null energy use should be assigned to the proper category or at least be consistent across the years. Please note if baseline numbers have changed due to any adjustments made in MEI, and, if so, what those adjustments were. **Please verify that Table 2 matches the information in Table 3 (or MassEnergyInsight if using it to report).**

To include a percentage of the energy use of a Regional School district, please include 3 versions of Table 2: one for the combined and final totals, one for the municipality alone, and one for the RSD (in its entirety, noting the applicable percentage).

3. Complete Table 3: Energy Use

REMEMBER to load all diesel, gasoline, heating oil and propane energy usage, as well as renewable energy usage that is NOT 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 3, 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: 12/1/2014

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

Update your ECMs in Table 4 by: 1) changing the status and status date for any ECMs already included, 2) adding any new ECMs, 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: 12/2/14

5. Complete Table 5: Renewable Energy Projects

Update your RE projects in Table 5 by: 1) changing any status dates, 2) adding, in bold, any new RE projects, and 3) drawing a line through any RE projects that have been abandoned.

Does your Green Community use any energy produced by renewable energy produced within your community? For example, solar PV systems installed on school or municipal buildings, RE PPAs in which the town buys the electricity, or renewable thermal. Please Reply NO or YES. (Delete the appropriate word in the box to the right) If YES, complete Table 5.

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.

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.

NARRATIVE: According to the data provided by MEI, in Fiscal Year 2014 we saw an 8% increase in building energy use, as well as a slight increase in streetlight usage. We believe the streetlight increase is due to some irregularities in our data collection (some bills which should have been included in FY13 were instead included in FY14 -- there seems to be an issue with utility reporting for these accounts). As far as building energy is concerned, the increase in use is clearly connected to the significant increase in heating costs during a very cold year. When weather normalization is factored in, the city saw a 16% decrease in natural gas use over the year before, and when normalize the city's overall energy use is 19.5% below base year. In FY15 we are completing efficiency projects (LED Streetlights, lighting and heating improvements in 16 buildings) that should result in a 10% reduction in electricity use and a 5% reduction in heating.

7. Building Stock Changes

Please describe any building stock changes that have occurred since your GC baseline year. Include the year any whether any changes are a replacement, addition, removal or renovation. Include any changes in square footage for additions. Link to Appendix A in the ERP Guidance.

Since the initial date entry into MEI the city has added 41,021 square feet of new buildings and additions. All of this space is fully air conditioned. In addition, the initial size entered for the Cabot school was wrong, as has been updated to reflect the additional 8,030 feet that was not included in the original number.

Criterion 3 Step 2: Complete Table 2 - Progress

Table 2: Timeline of Annual Municipal Energy Use									
	Baseline MMBtu	Year 1 MMBtu	Year 2 MMBtu	Year 3 MMBtu	Year 4 MMBtu	Year 5 MMBtu	Year 6 MMBtu	Year 7 MMBtu	For Most Recent Year: Change vs. Baseline (%)
Note Fiscal or Calendar Year	FY 2008	2009	2010	2011	2012	2013	2014		
Buildings	245,902	232,631	217,809	231,912	188,583	206,904	223,250		91%
Water/Sewer & Pumping	3,469	3,731	3,639	3,306	3,523	3,104	2,861		82%
Open Space (optional)	528	499	496	451	462	482	511		97%
Vehicles	34,753	36,483	34,077	35,527	30,728	33,712	34,015		98%
Street and Traffic Lights	15,192	2,281	11,305	11,174	11,163	10,535	11,747		77%
TOTAL ENERGY CONSUMPTION	299,844	275,625	267,326	282,370	234,459	254,737	272,384		9%

Project Type	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: Complete Table 4 - ECMs

Click here to view a sample version of this table

Energy Conservation Measures Data																		
ECMs			Status		Energy Data						Financial Data						Reference Data	
Building/Site Name	Energy Conservation Measure Name	ECM Type (select one from drop-down)	Status (select one from drop-down)	Status Date (Completed with month/year 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
To insert additional rows, select this row, right-click, and select "Insert."																	
Jackson Homestead	Complete Renovation of 35% of the Building Including Insulation, New HVAC	Comprehensive	Complete	Q1 2014								$ 750,000.00			$ 750,000.00	City Bond	
Fire Station #4 adjusted for sq ft	Complete Renovation of existing fire station buiding - New HVAC system, BMS, New Windows, envelope improvements	Comprehensive	Complete	2009											$ -	City Bond	
Fire Station #7 adjusted for sq ft	Comprehensive Renovation - New HVAC system - Oil to NG Conversion, Complete Envelop Improvements, BMS,	Comprehensive	Complete	Sept. 2012											$ -	City Bond	
Lincoln Elliot ES	Energy Efficiency Project	Comprehensive	complete	July 2014							$ 25,000.00	$ 200,000.00		$ 20,000.00	$ 180,000.00	City Bond	Projection - 8y pay back
Franklin ES	Energy Efficiency Project	Comprehensive	complete	July 2014	22,668	20,586					$ 27,913.00	$ 241,967.00		$ 28,776.00	$ 213,191.00	City Bond	ESCO
Underwood ES	Energy Efficiency Project:	Comprehensive	complete	July 2014							$ 31,250.00	$ 250,000.00		$ 25,000.00	$ 225,000.00	City Bond	Projection - 8y pay back
Zervas ES	Energy Efficiency Project: Lighting, Steam Traps, Weatherization	Comprehensive	complete	March 2012	22,240	903					$ 14,036.00	$ 63,739.00		$ 14,078.00	$ 49,661.00	City Bond	ESCO
Newton Free Library	Energy Efficiency Project: Lighting, Weatherization, VFDs, EMS	Comprehensive	complete	Dec-12	206,776	16,901					$ 48,429.00	$ 300,956.00		$ 47,910.00	$ 253,046.00	City Bond	ESCO
Cabot ES	Energy Efficiency Project: Lighting, Weatherization,Steam Traps	Comprehensive	Complete	Dec 2012	103,879	11,156					$ 29,328.00	$ 161,009.00		$ 41,501.00	$ 119,508.00	City Bond	ESCO
Eight Buildings - Phase 2 Perf. Contract	Lighting/Control Improvements, Water Conservation, Steam Trap Replacement, Weatherization, Envelope	Comprehensive	Complete	July 2011	1,023,811	91,602					$ 364,602.00	$ 3,647,456.00		$ 116,650.00	$ 3,530,806.00	City Bond	ESCO
Day Middle School - Phase 1 Perf. Contract	New EMS, RTUs w/VFDs, Weatherization, Lighting Controls, Water Conservation Measures, Pneumatic	Comprehensive	Complete	October 2009	366,879	31,111					$ 120,976.00	$ 1,960,000.00		$ 147,000.00	$ 1,813,000.00	City Bond	ESCO
Newton North High School adjusted for sq ft	Total Replacement of Building	Comprehensive	Complete	2010											$ -	City Bond	
Main Library	ATC Replacement	HVAC	Complete	March 2011	225,000	8,000						$ 68,150.00			$ 68,150.00	ARRA	Internal

Mason Rice ES	Boiler Replacement	HVAC	Complete	2013								$ 225,000.00			$ 225,000.00	City Bond	
Lincoln Elliot ES	Boiler Replacement	HVAC	Complete	2013								$ 225,000.00			$ 225,000.00	City Bond	
Bowen Elementary School	Boiler Replacement	HVAC	Complete	May 2012			5,619								$ -	City Bond	
Countryside Elementary School	Boiler Replacement and oil to natural gas conversion	HVAC	Complete	May 2012		-10,000	15,000								$ -	City Bond	Internal
Zervas Elementary School	Heating Replacement	HVAC	Complete	July 2010		13,500						$ 167,600.40			$ 167,600.40	ARRA	Internal
Emmerson Community Center	Heating Replacement, NG Conversion	HVAC	Complete	Feb 2010	-5,000	-6,000	7,250					$ 123,624.41			$ 123,624.41	ARRA	Internal
Cabot Elementary School adjusted for sq ft	Heating Replacement, NG Conversion	HVAC	Complete	July 2010	1,000	-20,000	22,500					$ 166,795.45			$ 166,795.45	ARRA	Internal
Eliot Street DPW	HVAC Replacement	HVAC	Complete	April 2011								$ 104,127.02			$ 104,127.02	ARRA	
Craft Street DPW	HVAC Replacement	HVAC	Complete	April 2012			500					$ 7,169.33			$ 7,169.33	ARRA	Internal
Lower Falls Community Center	HVAC Replacement, New roof and insulation, New Windows	HVAC	Complete	Sept. 2012	14,748	8,011					$ 14,229.00	$ 825,000.00	$ 179,500.00		$ 825,000.00	City Bond	Consultant
Lincoln Elliot ES	Mechanical Upgrades	HVAC	Complete	Q2 2013								$ 250,000.00			$ 250,000.00	City Bond	
Burr ES	Mechanical Upgrades	HVAC	Complete	Q2 2013								$ 250,000.00			$ 250,000.00	City Bond	
Memorial Spaulding Elementary School	Re-glaze windows, New Dual Fuel Boilers	HVAC	Complete	June 2011		-40,000	35,000								$ -	City Bond	Internal
Williams Elementary School	Re-glaze windows, New Dual Fuel Boilers	HVAC	Complete	June 2011		-35,000	30,000								$ -	City Bond	Internal
Bowen Elementary School	Energy Efficiency Project: Lighting	Interior Lighting	Complete	May 2012	20,447	-100					$ 2,658.21	$ 16,239.97		$ 5,111.00	$ 11,128.97	City Bond	Consultant
Parks and Rec HQ Shutdown	Consolidate P&R Operations - Close HQ	Other	Complete	March 2012	57,232		1,750				$ 14,272.30				$ -	City Bond	MassEI

Burr Elementary School	Comprehensive Window Replacement	Weatherization	Complete	Sept. 2011		5,000									$ -	City Bond	Internal
Bowen Elementary School	New Roof including addition of R38 insulation	Weatherization	Complete	Dec 2011			2,500								$ -	City Bond	Internal
Countryside Elementary School	New Roof including addition of R38 insulation	Weatherization	Complete	August 2012		1,000									$ -	City Bond	Internal
Parks and Rec building winterization	Drain and close 4 P&R buildings: Albermarle, Nahanton, Cabot, Auburndale Fieldhouses	Other		Annually Nov - April	10,000	1,000	1,000								$ -	City Bond	Internal
Street Lights	City Wide LED installation	Exterior Lighting	Complete	FY2014	1,785,000						$ 250,000.00	$ 1,550,000.00	$ 250,000.00	$ 550,000.00	$ 750,000.00	Transfer of existing unused project funds	Utility
Traffic Lights	City Wide re-lamping of 8400 street lights	Exterior Lighting	Complete	Dec 2007	5,500,000						$ 750,000.00	$ 1,500,000.00		$ 338,000.00	$ 1,162,000.00	Town Operating Budget FY2008	Study
Carr School	*complete building renovation*	Comprehensive	Complete	*completed Dec. 2014*	42,373	27,613					$ 42,105.25	$ 320,845.00		$ 30,111.00	$ 290,734.00	*City Bond*	*utility*
Newton Senior Center	*LED lighting and lighting controls*	Interior Lighting	Complete	*completed Dec. 2014*	21,038						$ 3,050.51	$ 26,269.00	$ -	$ 6,311.00	$ 19,958.00	*City Bond*	*utility*
Lincoln-Elliot ES	*LED exterior lighting*	Exterior Lighting	Complete	*completed Dec. 2014*	15,194						$ 2,203.13	$ 6,656.00	$ -	$ 4,558.00	$ 2,098.00	*City Bond*	*utility*
52 Elliot St. Dept. of Public Blds	*LED lighting and motion controls*	Interior Lighting	Active	*completed by Aug 2015*	12,536						$ 1,817.72	$ 29,997.00	$ -	$ 3,761.00	$ 26,236.00	*City Bond*	*utility*
52 Elliot St. Dept. of Public Blds	*HVAC system replacment and conversion from oil to gas*	HVAC	Active	*completed by Aug 2015*		TBD	3,600				$ 11,772.00	$ 61,000.00	$ -	$ 2,400.00	$ 58,600.00	*City Bond*	*utility*
74 Elliot St. DPW Ops Center	*LED lighting and lighting controls, mini splits to replace window AC units in 3 offices, install high efficiency condensing*	Comprehensive	Active	*completed Aug. 2015*	51,458	-4,000	6,137				$ 22,645.81	$ 137,978.00	$ -	$ 17,837.00	$ 120,141.00	*City Bond*	*utility*

Click here to return to Table 4

Table 4
SAMPLE Energy Conservation Measures Data

ECMs			Status		Energy Data						Financial Data					Reference Data	
Category/Building Name	Energy Conservation Measure Name	ECM Type (select one from drop-down)	Status (select one from drop-down)	Status Date (Completed with month/year or planned Qtr/year)	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
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 Plan FY2011	http://www.energystar.gov/ia/business/downloads/BP_Checklist.pdf
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
Town Hall	New Boiler	HVAC	Planned	Q3 2015	0	17,122	0	0	0	0	$5,000	$50,000	$35,000	$15,000	$0	N/A	Boilers-to-Go Quote, 2009
			BUILDINGS SUBTOTAL		**95,252**	**17,352**	**0**			**0**	**$14,100**	**$78,500**	**$36,750**	**$29,250**	**$12,500**		
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 Operating Budget FY2011	LED Signals Today Quote, 2009
		STREET AND TRAFFIC LIGHTS SUBTOTAL			**6,000**	**0**	**0**	**0**	**0**	**0**	**$2,500**	**$5,000**	**$0**	**$2,500**	**$2,500**		
Drinking Water Treatment Plant	2 Variable Speed Drives	Pump/Motor/Drive	Complete	Q3 2012	500,000	0	0	0	0	0	$40,000	$200,000	$0	$100,000	$100,000	Town Bond FY2012	Energy Masters Technical Study, 2010
		WATER/SEWER/PUMPING SUBTOTAL			**500,000**	**0**	**0**	**0**	**0**	**0**	**$40,000**	**$200,000**	**$0**	**$100,000**	**$100,000**		
Vehicles	Anti-idling retrofit for 2 police cruisers	Vehicles	Complete	Q2 2014	0	0	400	400	400	400	$4,500	$6,000	$0	$0	$6,000	Town Operating Budget FY2012	green.autoblog.com
Vehicles	Purchase of 2010 Hybrid Civic Hybrid to replace 2001 Toyota Camry (incremental cost)	Vehicles	Planned	Q3 2015	0	0	260	260	260	260	$900	$6,000	$2,000	$0	$4,000	Town Capital Plan FY2011	www.fueleconomy.gov
			VEHICLES SUBTOTAL		**0**	**0**	**660**	**660**	**660**	**660**	**$5,400**	**$12,000**	**$2,000**	**$0**	**$10,000**		
TOTAL Projected Savings					**601,252**	**17,352**	**660**	**660**	**660**	**660**	**$62,000**	**$295,500**	**$38,750**	**$131,750**	**$125,000**		
TOTAL MMBtu SAVINGS			**4,791**		**2,051**	**2,412**	**82**	**82**	**82**	**82**							

Criterion 3 Step 5: Complete Table 5 - Renewable Energy

Measure				Status		Energy Data					Financial Data					Reference Data	
Location	Site Type	Renewable Energy Project Name	Renewable Energy Project Type	Status (select one from drop-down)	Status Timeline (Completed with month/year or planned Qtr/year)	Size of System (kW or MMBtu)	Projected Annual Electricity Generation (kWh)	Thermal Fuel(s) Displaced	Projected Annual Thermal Fuel Savings	Projected Annual Gasoline Thermal Fuel Units	Projected Annual Cost Savings ($)	Total Installed Cost ($)	Green Community Grant ($)	Other Grant ($)	Net Cost ($)	Funding Source(s) for Net Costs	Source for Projected Savings
Newton North High School	rooftop		*Solar PV*	complete	*Completed 2010*	60kW	61,956				$5,500					*Capital*	*PVWatts*
Newton South High School	rooftop		*Solar PV*	Complete	*Completed 2006*	40kW	41,304				$4,543					*Capital*	*PVWatts*
Brown Middle School - PPA	rooftop		*Solar PV*	Complete	*Completed FY14*	253kW	294,756				$26,528					*PPA*	*Developer*
Countryside Elementary School	rooftop		*Solar PV*	Complete	*Completed FY14*	62kW	72,888				$6,560					*PPA*	*Developer*
Memorial Spaulding ES	rooftop		*Solar PV*	Complete	*Completed FY14*	109kW	137,354				$12,362					*PPA*	*Developer*
Newton North High School - PPA	rooftop		*Solar PV*	Complete	*Completed FY14*	260kW	305,969				$27,537					*PPA*	*Developer*
Newton City Hall	rooftop		*Solar PV*	Complete	*In Planning Stage*	48.6kW	60,443				$5,440					*PPA*	*Developer*
Phase 2 PPA - several locations	rooftop and parking lot		Solar PV	Planned	In Planning Stage	685kW	1,200,000				$84,000					PPA	Developer
Rumford Street Landfill	landfill		Solar PV	Planned	In Planning Stage	3360kW	4,300,000				$516,000					PPA	Developer
To insert additional rows, select this row, right-click, and select "Insert."																	
		TOTAL Projected Savings					**6,474,670**	**0**	**0**	**0**	**688,470**	**0**	**0**	**0**	**0**		
TOTAL RENEWABLE ENERGY PRODUCTION (MMBtu)					**22091.57404**		**22091.57404**										

Criterion 4 - Purchase Fuel Efficient Vehicles

1) Municipalities must have a fuel efficient vehicle policy that reflects the most recent guidance provided by the Green Communities Division (see http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/gc-grant-program/criterion-4.html for most recent guidance).

Newton's policy is up to date

2) Did you update your vehicle policy this year? <Select YES or NO>

3) Did you install electric vehicle charging stations? <Select YES or NO>

4) Did you implement anti-idling technology and/or campaigns? <Select YES or NO>

5) Did you implement a driving monitoring system that records miles driven and/or fuel consumption? <Select YES or NO>

6) Did you implement a fuel use reporting system for operators on fuel efficiency? <Select YES or NO>

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

NARRATIVE:

8) 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:

8b) **For communities that met Criterion 4 through alternative compliance**, provide as a status regarding the success of these programs and policies.

NARRATIVE:

4) Have there been any changes to your vehicle inventory since the last annual report? YES

5) Please provide the most current vehicle inventory that includes ALL vehicles (Both exempt and non-exempt) for ALL departments, including schools. Please do not report any exempt off-road vehicles, trailers, etc. The inventory submitted with either your most recent Annual Report filing or, if filing for the first time, submitted with your designation application, is either contained in the next worksheet, "Crit 4 - Table 6 Vehicle Inv.," or provided as separate file. In the inventory, 1) note in column L if a vehicle has been acquired since the last annual report, 2) if yes, note what the newly acquired vehicle replaced in the inventory in column M, and 3) note in column N if the vehicle has been retired. NOTE: For the purposes of the program, municipalities must use the EPA combined fuel economy estimate listed at FuelEconomy.gov and ensure that the rating greater than or equal to the requirement for the relevant vehicle type.

PLEASE NOTE: THE INVENTORY ON THE NEXT PAGE IS LACKING VEHICLES FROM POLICE AND FIRE DEPTS -- MAKE SURE TO INCLUDE THESE VEHICLES IN 2014 REPORT.

Table 6: Vehicle Inventory

Click here to view a sample version of this table

Plate number	VIN#	Model	Make	Model Year	Month/Year Purchased	Drive System: 2WD, 4 WD, or 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?	If new acquisition, what vehicle did it replace?	Removed from inventory?
To insert additional rows, select this row, right-click, and													
M57943	1FAFP52281G170378	Ford	Taurus	2001	July 1, 2001	D, 4 WD, or AV	N	NE	15.1	Assessing			
M58198	1FALP52U0SG318173	Ford	Taurus	1995	May 2,2003	FW	N	NE	16.5	Assessing			
M76809	1FAHP34N18W229016	Ford	Focus	2008	Feb 12,2009	FW	N	NE	14.5	Assessing			
M76811	1FAHP35N68W204918	Ford	Focus	2008	July 18,2007	FW	N	NE	16.6	Assessing			
M83623	2HGFA16329H341120	Honda	Civic	2009	March 11,2011	FW	N	NE	16.4	Assessing			
M79085	1FAFP34N87W344377	Ford	Focus	2007	July 18,2007	FW	N	NE	15.4	Assessing			
M64519	1FAFP55U02G184323	Ford	Taurus	2002	Nov. 15,2002	FW	N	NE	18.9	Building			
M57950	1MELM65L8TK603907	Mercury	Mistique	1996	Nov. 18,1987	FW	N	NE	14.7	Building			
M70609	1FTYR14V3YTA61955	Ford	Ranger	2000	July 21,2003	FW	N	NE	22.2	Building			
M72251	1FTSE34L83HA23600	Ford	350 Super Duty	2003	Sept. 1,2004	RW	Y	E	Exempt	Building			
M62566	1FTSE34L63HA36846	Ford	E350	2003	Nov. 8,2003	RW	Y	E	Exempt	Building			
M62567	1FTNE24L93HA38808	Ford	E250	2003	Nov, 18,2002	RW	Y	E	Exempt	Building			
M81009	1FTNE24L46HB03309	Ford	E250	2006	May 16,2007	RW	Y	E	Exempt	Building			
M65389	1FTNE24L11HB57756	Ford	E250	2001	July 16,2001	RW	Y	E	Exempt	Building			
M87708	1FTNE2EW2ADA40008	Ford	E250	2010	Sept 13,2011	RW	Y	E	Exempt	Building			
M69275	1FTSE34LX3HA36848	Ford	E350	2003	Jan. 15,2003	RW	Y	E	Exempt	Building			
M84248	1FTNE2EW2BDA09262	FORD	E250	2011	Aug-11	RW	Y	E	Exempt	Building			
M62565	1FTSE34L83HA36847	Ford	E350	2003	Nov. 8,2002	RW	Y	E	Exempt	Building			
M62568	1FTNE24L73HA38807	Ford	E250	2003	Nov. 18,2002	RW	Y	E	Exempt	Building			
M81019	1FTNE24L47DB40529	Ford	E250	2007	Sept. 7,2007	RW	Y	E	Exempt	Building			
M81020	1FTNE24L27DB40531	Ford	E250	2007	Sept. 7,2007	RW	Y	E	Exempt	Building			
M81018	1FTNE24L07DB40530	Ford	E250	2007	Sept. 7,2007	RW	Y	E	Exempt	Building			

M82412	3FAHP07159R107237	Ford	Fusion	2009	Nov. 3,2009	FW	N	NE	15.4	Engineering			
M73460	1FALP52UXTG288455	Ford	Taurus	1996	July 21,2000	FW	N	NE	18.5	Engineering			
M72252	1FAFP53U84A100239	Ford	Taurus	2004	Sept, 10,2004	FW	N	NE	13	Engineering			
M79684	1FAFP34N37W296710	Ford	Focus	2007	Sept 4,2008	FW	N	NE	22.4	Engineering			
M68262	1FTZR15V9YTB15391	Ford	Ranger	2000	Jun. 13,2002	4X4	N	NE	22.2	Engineering			
M79227	3FAHP07767R258767	Ford	Taurus	2007	Jun. 25,2009	FW	N	NE	19.5	Engineering			
M67850	1FAFP54U91A163231	Ford	Taurus	2000	Nov. 26,2001	FW	N	NE	14	Engineering			
M70613	1FTRE14212HA97885	Ford	E150	2002	July3,2003	RW	N	E		Engineering			
M780	JT2BK12U420067849	Toyota	Prius	2002	Sept. 9,2002	FW	N	NE	27.7	Health			
M79084	1FAFP34N27W344374	Ford	Focus	2007	July 18,2007	FW	N	NE	20.9	Health			
M84653	1FAHP3FN9AW135307	FORD	FOCUS	2010	Mar-12	FW	N	NE	29.5	Health			
M79082	1FAFP34NX7W344378	Ford	Focus	2007	July 19,2007	FW	N	NE	18.8	Health			
M57957	2FALP52U3TA165387	FORD	TAURUS	1996	Jul-96	FW	N	NE	12	Insp Serv.			
M76817	1MEHM40W58G620363	Mercury	Sable	2008	Jan. 21,2009	FW	N	NE	15.9	Inspectional Services			
M76820	3FAHP08Z78R276193	Ford	Fusion	2008	Jan. 21,2009	FW	N	NE	16.4	Inspectional Services			
M79081	1FAFP34N47W344375	Ford	Fusion	2007	July 19,2007	FW	N	NE	19.9	Inspectional Services			
M76821	3FAHP08Z68R276167	Ford	Fusion	2008	Jan. 21,2009	FW	N	NE	14.6	Inspectional Services			
M76816	3FAHP08Z28R260953	Ford	Fusion	2008	Jan. 21,2009	FW	N	NE	17.3	Inspectional Services			
M79228	3FAHP08127R241571	Ford	Fusion	2007	Jun. 8,2009	FW	N	NE	13.1	Inspectional Services			
M79231	1FAHP35NX8W270520	Ford	Focus	2008	Jun. 8,2009	FW	N	NE	19.8	Inspectional Services			
M79703	JTDKB20U177686309	Toyota	Prius	2007	Sept. 20,2007	FW	N	NE	38.9	Inspectional Services			
M76815	3FAHP071X8R159963	Ford	Fusion	2008	Jan. 21,2009	FW	N	NE	15.5	Inspectional Services			
M79080	1FAFP34N67W344376	Ford	Focus	2007	July 19,2007	FW		E	20.7	Inspectional Services			
M75826	1FALP52UHTG128166	Ford	Crown Vic	1996	July 2,1999	RW	N	NE	10.7	Library			
M79689	1FTNE14W28DB25100	Ford	E150	2008	May 30,2008	FW		E	Exempt	Library			
M67840	1FAFP55U52A125044	Ford	Taurus	2002	Oct. 7,2002	FW	N	NE	15	Parks			
M72266	2FMZA50462BB60272	Ford	Windstar	2002	Jun. 22,2005	FW	N	NE		Parks			
M54098	1FBJS31H3SHB88798	Ford	E350	1995	Feb. 8,1996	RW	N	E	Exempt	Parks			
M81012	1FBNE31L06DA81878	Ford	Econo Wagon	2006	Aug 15,2007	RW	N	E	Exempt	Parks			
M79723	1FACP5OU8MA230495	Ford	F150	2008	Jan. 11,2008	RW	N	NE	16.9	Parks			

M79833	1FTRF12W28KC27218	Ford	F150	2008	Nov. 29,2007	RW	N	NE	16.9	Parks			
M62242	1FBSS31L61HB22527	Ford	Econo Wagon	2001	Sept 4,2002	RW	N	E	Exempt	Parks			
M79381	FTRF14W78KC52029	Ford	F150	2008	Jan. 2, 2008	4 X 4	N	NE	16.9	Parks			
M54100	2FTHF26HBSCA43300	Ford	F250	1996	Feb. 8,2006	4 X 4	Y	E	Exempt	Parks			
M51292	1FBJS31H7SHA43182	Ford	Club	1995	Dec. 12,1994	RW	Y	E	Exempt	Parks			
M79017	1FTWX31559EA61071	Ford	F350	2009	July 21,2009	4 X 4	Y	E	Exempt	Parks			
M69268	1GCHK29U02E233039	Chvy	2500	2002	Jan. 24,2003	RW	Y	E	Exempt	Parks			
M79707	1FAFP27197G118409	Ford	500	2007	Jun 20,2008	FW	N	NE	20.6	Public Works			
M79234	3FAHP08169R100957	Ford	Fusion	2009	Apr. 30,2009	FW	N	NE	22.5	Public Works			
M74199	1FAFP53265A142845	Ford	Taurus	2005	Sept. 2,2005	FW	N	NE	20.4	Public Works			
M87565	1FAFP5326YG157198	FORD	TAURUS	2000	Apr-08	FW	N	NE	17.5	Public Works			
M74194	1FAFP56285A229030	Ford	Taurus	2005	Sept 15,2005	FW	N	NE	15.9	Public Works			
M79685	3FAHP06Z97R269344	Ford	Fusion	2007	Sept.4,2008	FW	N	NE	17.2	Public Works			
M77412	1FAFP34N57W254166	Ford	Focus	2007	July 10,2008	FW	N	NE	18.9	Public Works			
M75150	1FTRX14W45FA57832	Ford	F150	2005	Apr 20,2006	4 X 4	N	NE	15.3	Public Works			
M75840	1FAFP53U86A100583	Ford	Taurus	2006	July 24,2006	FW	N	NE	19.2	Public Works			
M76825	3FAHP02167R151672	Ford	Fusion	2007	Dec. 31,2008	AW	N	NE	14.8	Public Works			
M79237	3FAHP07Z58R186638	Ford	Fusion	2008	Apr. 30,2009	FW	N	NE	14.7	Public Works			
M79677	1FAFP34N37W227094	Ford	Focus	2007	Sept. 26,2008	FW	N	NE	25	Public Works			
M81003	1FAFP53U07A153294	Ford	Taurus	2007	July 30,2007	FW	N	NE	24.4	Public Works			
M68262	1FTZR15V9YTB15391	Ford	F150	2000	Oct 27,2003	4 X 4	N	NE	15.7	Public Works			
M72269	1FTRF172X3NA25241	Ford	F150	2003	Jun 22,2005	4 X 4	N	NE	15.7	Public Works			
M79827	1FTPX14545FB58156	Ford	F150	2005	Sept. 14,2007	4 X 4	N	NE	15.3	Public Works			
M81013	1FTRX14W06FA53875	Ford	F150	2006	July 6,2007	4 X 4	N	NE	14.3	Public Works			
M88491	1D7HU16N43J542450	DODGE	RAM	2003	Feb-03	RW	N	NE	8.7	Public Works			
M70625	2FTRX18L3YCA46501	Ford	F150	2005	May 19,2003	4 X 4	N	NE	15.3	Public Works			
M70621	1FTPX17L51NB47371	Ford	F150	2001	Jun. 4,2003	4 X 4	N	NE	16.3	Public Works			
M74186	1FTWF31565EA10529	Ford	F150	2005	July 1,1995	4 X 4	N	NE	15.3	Public Works			
M69262	1FTNE2427YHA24498	Ford	Econo	2000	Feb. 24,2003	RW	N	E	Exempt	Public Works			
M70624	1FTSF31L22EC21185	Ford	F350	2002	May 19,2003	4 X 4	Y	E	Exempt	Public Works			

M75130	1FTNF21L74ED82965	Ford	F250	2004	Jan. 27,2006	4 X 4	Y	E	Exempt	Public Works			
M67487	1FTDWF37S72EA45794	Ford	F350	2002	July 1,2002	4 X 4	Y	E	Exempt	Public Works			
M76118	1FTWF31545EC61078	Ford	F350	2005	Mar. 13,2007	4 X 4	Y	E	Exempt	Public Works			
M71613	1FDWF37S44EA70896	FORD	F250	2004	May-04	RW	Y	E	Exempt	Public Works			
M79099	1FTWX31575EB08014	Ford	F250	2005	Apr. 3,2007	4 X 4			Exempt	Public Works			
M81866	1FDWE35L99DA92937	FORD	E250	2009	Aug-06	FW	N	NE	6.8	Schools			
M71610	1GCGG25VX41119734	CHEVY	EXPRESS	2004	Oct-09	RW	N	NE	7.9	Schools			
M75846	1FAFP53UX6A205819	Ford	Taurus	2006	Aug 28,2006	FW	N	NE	16.2	Schools			
M50369	1FAFP52U0YA205378	Ford	Taurus	2000	July 22,2002	FW	N	NE	12.2	Schools			
M72726	1FTRX18L13NA68225	Ford	F150	2003	Jan 19,2005	4 X 4	N	NE	15.7	Sewer Utilities			
M71168	2FTRF182X3CA03521	Ford	Ranger	2003	Aug. 27,2003	4 X 4	N	NE	16.7	Sewer Utilities			
M64485	1FDXE45S02HB65130	Ford	E550	2002	Jan. 14,2003	RW	Y	E	Exempt	Sewer Utilities			
M53416	1FTJE34H8SHB88830	Ford	E250	1995	Jan. 25,1996	RW	Y	E	Exempt	Sewer Utilities			
M43297	1GTGK24K1LE524586	GMC	2500	1990	July 1,1990	4 X 4	Y	E	Exempt	Sewer Utilities			
M79698	1FAHP24W18G104479	Ford	Taurus	2008	Apr. 25, 2008	FW	N	NE	17.5	Utilities			
M79013	3FAHP08118R269184	Ford	Fusion	2008	Aug, 3,2009	FW	N	NE	19.7	Utilities			
M79242	3FAHP08178R111979	Ford	Fusion	2008	Oct 15,2008	FW	N	NE	13.1	Utilities			
M79683	1FMZU73E25UA99461	Ford	Explorer	2005	Nov. 10,2005	4 X 4	N	NE	11.5	Utilities			
M79098	1FTRX14W65FA47299	Ford	F150	2005	Apr. 3,2007	4 X 4	N	NE	14.3	Utilities			
M71620	2FTRF08L11CA69228	Ford	F150	2001	Jan. 26,2004	4 X 4	N	NE	15.7	Utilities			
M72253	1FTRE14273HB26808	Ford	E150	2003	Sept. 13,2004	RW	N	E	15.7	Utilities			
M78129	1FDWF21579EA10749	Ford	F350	2009	Jan. 14,2009	4 X 4	Y	E	Exempt	Utilities			
M79083	1FTWF31578EB72769	Ford	F350	2008	July 18,2007	4 X 4	Y	E	Exempt	Utilities			
M83609	1FDRF3B66BEA52923	Ford	F350	2011	Sept 2,2010	4 X 4	Y	E	Exempt	Utilities			
M83662	1FDRF3H64BEA15277	Ford	F350	2011	July 12,2010	4 X 4	Y	E	Exempt	Utilities			
M69269	1FDSF31L13EA62737	Ford	F350	2003	Jan. 24,2003	4 X 4	Y	E	Exempt	Utilities			
M71168	2FTRF182X3CA03521	FORD	F150	2003	Aug-03	RW	N	NE	10.2	Water			
M68244	1FTZR15U81TA26327	Ford	Ranger	2001	Aug. 26,2002	4 X 4	N	NE	16.3	Weights and Measures			

Table 6: *SAMPLE* Vehicle Inventory

Click here to return to Table 6

Model	Make	Model Year	Month/Year Purchased	Drive System: 2WD, 4 WD, or 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?	If new acquisition, what vehicle did it replace?	Removed from inventory?
Honda	Civic Hybrid	2013	July, 2013	2WD	N	NE	43	Inspector/Assessor shared car	YES	see vehicle on line 8 now deleted	
Ford	Crown Victoria	2011	April, 2011	2WD	NA	E	14	Police CRUISER			
Ford	Crown Victoria	1999		2WD	N	NE	13	Assesor			YES

Criterion 5 - Stretch Code Adoption

Date Stretch Code Concurrency Period Began: 1/1/2010

Date Stretch Code Became Sole Effective Code: 7/1/2010

Have there been any new building permits since the Strech Code became sole effective code? <Select YES or NO>

If filing for the first time, please fill out the table below and add rows as as needed. Please list in Table below all residential and commercial projects that were affected by the Stretch Code and for which building permits have been issued since the Stretch Code became the sole effective code, along with accompanying information noted below. If a previous Annual Report was filed, your table from the previous report is provided below for updating. **For notes on Certificate of Occupancy: if New Residential (NR), provide final HERS Rating; If Residential Retrofit (RR) provide HERS rating OR "P" for Prescriptive; If Commercial and > 100K sq ft, note percent energy savings relative to ASHRAE 90.1-2007.**

Table 7
Stretch Code Projects (Add more rows as necessary)

Address of Building	New Residential (NR), Residential Retrofit (RR) or Commercial (C)	Date Building Permit Issued	Dated Certificate of Occupancy Issued (if not issued, please note NA)	Notes on Cert of Occupancy
To insert additional rows, select this row, right-click, and select "Insert."				

Other Notes

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.).

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)?

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 is possible that more than one scenario applies to the same renewable energy system; for example, a solar PV system may produce more energy than its building uses (scenario 2) in the summer, but less energy than its building uses in the winter (scenario 1). Ideally, calculations should be

RE Scenario 1: Net Metering, System Generation < Building Use

If the building uses more electricity than the net metered RE system produces, then a Green Community should add in the amount of generation. This means the total building energy use = kWh

Information Needed: The actual amount of RE generation in kWh for each month.

Find and Calculate: Find the kWh generated each month from your RE system. Contact your Regional Coordinator if you are having trouble finding the KWh generated each month.

Action: Load the building renewable energy usage into MassEnergyInsight (MEI). Create a separate account for RE for each building. Load the RE generation for each month by going to "Upload a Spreadsheet." Choose "solar electric" or "wind power." Upload your usage data. Or, report to DOER in

RE Scenario 2: Net Metering, System Generation > Building Use

If the net metered RE system produces more electricity than the connected building uses (ie., the utility bill shows a negative kWh amount of usage), 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

Information Needed: The actual amount of RE generation in kWh and the actual amount of RE generation in kWh credited as net metering for each month.

Find and Calculate: Find the total kWh generated each month from your RE system. Find the kWh credited to you from net metering to the grid for each month. Subtract the net metering amount from the total generation. This is your building's NET use of renewable energy. Contact your Regional

Action: Load the **NET** building renewable energy usage into MassEnergyInsight (MEI). Create a separate account for RE for each building. Load the RE generation for each month by going to "Upload a Spreadsheet." Choose "solar electric" or "wind power." Upload your usage data. Or, report to DOER in

RE Scenario 3: Virtual Net Metering

If a building is virtually net metered, in which the RE system has its own separate meter but the financial 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

Information Needed: Written confirmation of virtual net metering documenting there is a separate meter used for the RE system with only a small load-side usage. The load-side usage should be

Action: Generation does not impact baseline and should NOT be loaded into MEI. Provide information needed as noted above. Report load-side usage under Scenario 2 above.

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 municipal building, either directly or through virtual net metering, then the amount of RE generation

To confirm: Written confirmation of RE generation for system-wide benefit with no virtual net metering. The load-side usage should be reported to MassEnergyInsight under Scenario 2 above.

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

Criterion 3 Step 5: Complete Table 5 - Renewable Energy

Measure				Status		Energy Data					Financial Data					Reference Data	
Location	Site Type	Renewable Energy Project Name	Renewable Energy Project Type	Status (select one from drop-down)	Status Timeline (Completed with month/year or planned Qtr/year)	Size of System (kW or MMBtu)	Projected Annual Electricity Generation (kWh)	Thermal Fuel(s) Displaced	Projected Annual Thermal Fuel Savings	Projected Annual Gasoline Thermal Fuel Units	Projected Annual Cost Savings ($)	Total Installed Cost ($)	Green Community Grant ($)	Other Grant ($)	Net Cost ($)	Funding Source(s) for Net Costs	Source for Projected Savings
Newton North High School	rooftop		*Solar PV*	complete	*Completed 2010*	60kW	61,956				$5,500					*Capital*	*PVWatts*
Newton South High School	rooftop		*Solar PV*	Complete	*Completed 2006*	40kW	41,304				$4,543					*Capital*	*PVWatts*
Brown Middle School - PPA	rooftop		*Solar PV*	Complete	*Completed FY14*	253kW	294,756				$26,528					*PPA*	*Developer*
Countryside Elementary School	rooftop		*Solar PV*	Complete	*Completed FY14*	62kW	72,888				$6,560					*PPA*	*Developer*
Memorial Spaulding ES	rooftop		*Solar PV*	Complete	*Completed FY14*	109kW	137,354				$12,362					*PPA*	*Developer*
Newton North High School - PPA	rooftop		*Solar PV*	Complete	*Completed FY14*	260kW	305,969				$27,537					*PPA*	*Developer*
Newton City Hall	rooftop		*Solar PV*	Complete	*In Planning Stage*	48.6kW	60,443				$5,440					*PPA*	*Developer*
Phase 2 PPA - several locations	rooftop and parking lot		Solar PV	Planned	In Planning Stage	685kW	1,200,000				$84,000					PPA	Developer
Rumford Street Landfill	landfill		Solar PV	Planned	In Planning Stage	3360kW	4,300,000				$516,000					PPA	Developer
To insert additional rows, select this row, right-click, and select "Insert."																	
TOTAL Projected Savings							**6,474,670**	**0**	**0**	**0**	**688,470**	**0**	**0**	**0**	**0**		
TOTAL RENEWABLE ENERGY PRODUCTION (MMBtu)					**22091.57404**		**22091.57404**										

#83-15

N

ROAD

PURGATORY COVE

50.0

MW-3 COUPLET

POND

RUMFORD AVENUE

PROPOSED
OPERATIONS
AREA
165,000 SF±

DETENTION BASIN #1

DPW STORAGE
AREA

MISCELANEOUS
RECYCLING
AREA

DPW DROP-OFF FACILITY

YARD WASTE COLLECTION
AREA
38,000 SF±

PROPOSED
SOLAR
FARM
220,000 SF±

MW-5 TRIPLET

VENT

APPROXIMATE PROPERTY LINE

APPROVED POST- CLOSURE USE OPERATION AREA
(AREA B)

LIMIT OF LANDFILL LINER

50 0 50 100

SCALE 1" = 100'

CITY OF NEWTON

MASSACHUSETTS

PROPOSED SOLAR FARM AND
DPW OPERATIONS AREA
@
RUMFORD AVENUE RESOURCE RECOVERY
CENTER

SCALE: AS NOTED

DATE: 4/17/2015

FILE PATH: F:\engineering\GSwan\Rumford Avenue Landfill\Design\ DWG NAME: Existing Conditions Plan.dwg DATE: 10/16/2014 TIME: 9:31 AM

Creating A Cleaner Energy Future For the Commonwealth

Solar Canopies at State and Municipal Facilities in MA

Webinar

April 15, 2015

12:00 pm

Leading by Example Team – Dept. of Energy Resources
Taylor Leyden & Francois Attal –*Business Development,* Solaire Generation
Brian Tracey, *Program Development,* PowerOptions

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the Commonwealth or DOER.

Agenda

Welcome and Introduction	Andrea Hessenius, LBE, DOER
Introduction to Solar Canopies	Francois Attal & Taylor Leyden, Solaire Generation
Solar Canopy Financing	Jillian DiMedio, LBE
Grant Opportunities	Andrea Hessenius, LBE
Canopy Case Study: Bristol Community College	Brian Tracey, PowerOptions
Next Steps	Jillian DiMedio, LBE
Q&A	

Creating A Cleaner Energy Future For the Commonwealth

Recording and Presentation

- This webinar is being recorded and will be available on our website in approximately 48 hours at: http://www.mass.gov/eea/energy-utilities-clean-tech/webinars.html
- 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
- The slide presentation will also be posted

Creating A Cleaner Energy Future For the Commonwealth

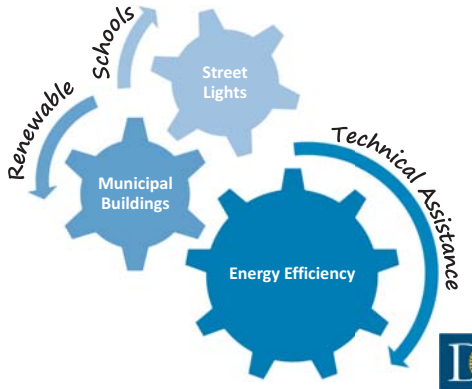
Poll Question 1

- Who is In the audience today?
  a) State agency
  b) College/University Campus
  c) Municipality
  d) Solar industry/Utility
  e) Other

Creating A Cleaner Energy Future For the Commonwealth

Green Communities Division

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



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Massachusetts Department of Energy Resources

Green Communities Division: Programs & Resources for Municipalities

- Green Communities Designation and Grant Program
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Efficiency Program
- Energy Management Services Technical Assistance
- Clean Energy Results Program (CERP)
- Mass Municipal Energy Group (MMEG)
- Website filled with tools & resources: www.mass.gov/energy/greencommunities

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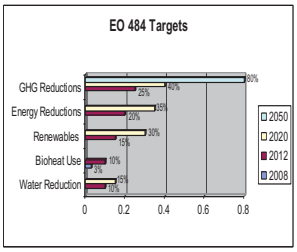
Massachusetts Department of Energy Resources

Executive Order No. 484:

Leading by Example: Clean Energy and Efficient Buildings

Issued April 2007

- Sets short, medium, and long-term goals for state agencies:
  - GHG emission reductions
  - Energy reductions
  - Renewable energy
  - Water conservation
- Requires all new construction to meet Mass. LEED Plus Standard
- Targets large and small facilities, on-going operations, and innovation
- MA State Govt. includes 80 million sq.ft. of buildings, 3,000 light-duty vehicles, 50,000 computers and thousands of gas and electric accounts



- Consume over 1 billion kWh
- Emit over 1 million tons of greenhouse gas emissions

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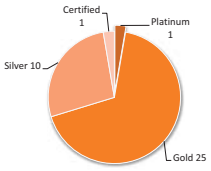
Leading By Example Progress

LBE Progress report released Fall 2014

- ➢ Met 25% GHG emission reduction target
- ➢ 72% heating oil reduction
- ➢ 37 LEED certified buildings

LEED Buildings



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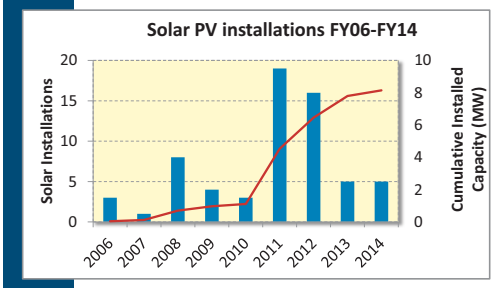
Solar Progress at State Facilities

Over 8 MW of solar PV installed at state facilities with an additional 3MW to be online by the end of FY2015



Massasoit Community College

Dept. of Correction - Framingham

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Massachusetts Department of Energy Resources

Why Solar Canopies in MA?

- Many of the best roof/ground sites have been exhausted
  - In general, 40% of pavement is parking lots
  - Greater potential for large scale systems
- Substantial potential for canopies across portfolio of government-owned parking lots
  - State lots: 4 MW installed at handful of sites
  - Municipal lots: minimal installations
  - Rough estimates suggest > 50 MW possible
- Keep green spaces open for public enjoyment
- Additional Benefits

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Poll Question 2

- For public entities on the call, have you previously considered installation of a solar canopy?
  a) Yes
  b) No
  c) Not Sure

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Introduction to Solar Carports

SOLAIRE GENERATION®
DESIGN DEVELOP FABRICATE INSTALL

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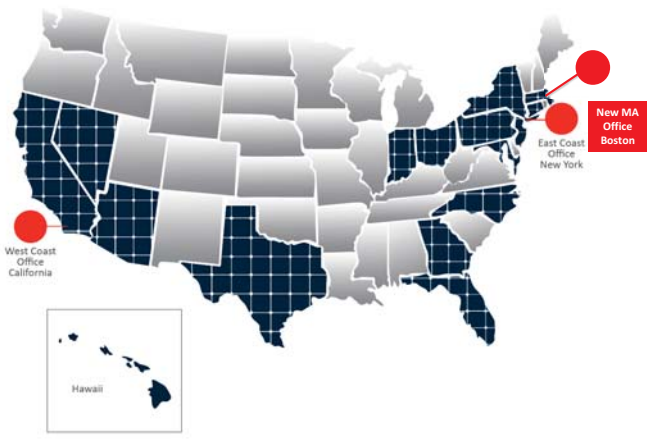
Massachusetts Department of Energy Resources

Introduction to Solar Carports

- SOLAIRE GENERATION
- SOLAR CARPORT INTRODUCTION
- CANOPY TYPES
- SNOW & WATER MANAGEMENT
- CANOPY FEATURES & ENHANCEMENTS

55 MWp of Aggregate Systems



Nationwide Presence
New 2015 Office in MA

Solaire Massachusetts Experience

Built canopies

- Cronig's Market – Martha's Vineyard
- Staples HQ – Framingham
- Oracle Offices – Burlington
- Wyman Properties – Waltham
- Boston Properties – Waltham
- Danversport Marina – Danversport

In contract

- Retail Mall – West Boston
- Woburn Garages
- U Mass Amherst – "Leading by example" recipient

SOLAR CARPORT INTRODUCTION

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Pros of Solar Carports

1.Receive preferential treatment from MA DOER SREC program

2.Transform unused assets into productive power plants

3.Are close to point of consumption versus solar farms which require high interconnection upgrade costs

4.Provide an ideal alternative when roof installations are not feasible due to roof age and load limitations

5.Usually size up to ideal production of buildings nearby – 40 to 50% of electricity consumption

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Pros of Solar Carports cont'd

6. Provide secondary benefits
   - Reduce heat island effect
   - Protect individuals from the elements – rain, snow, sun
   - Reduce vehicle consumption during summer time
   - Capture water for gray water reuse (optional)
   - Replace lights with LED fixtures with lower electricity consumption and substantially less light pollution

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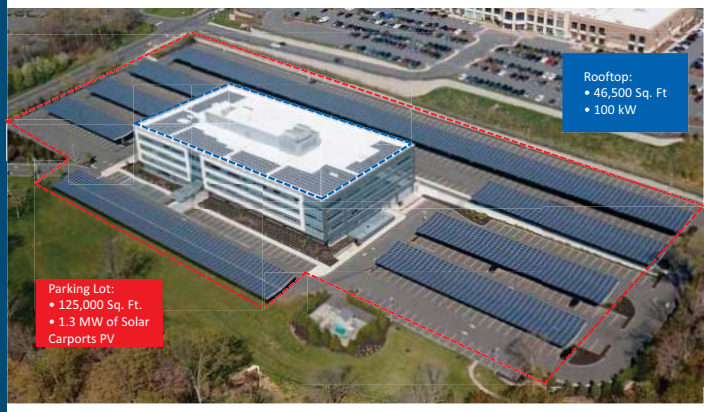

Huge Onsite Generation Potential

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Good Carport Site

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Good Carport Site

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Bad Carport Site 1

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Bad Carport Site 2

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Cons of Solar Carports

1.Real construction projects

2.Require experienced partners who understand construction logistics / phasing / minimal impact and precise coordination between all trades involved in a carport installation: Architects, Electricians, Structural Engineers, Electrical Engineers, Civil Engineers, AHJs, Utility companies….

3.Higher cost of installation versus roof or ground, though mitigated by DOER incentive structures

Must Have Features

1. High Clearance – minimum 11’ and preferably 13’ 6”
2. Concrete piers to protect from vehicle impact
3. Snow Protection – Dual Tilt / Snow Guards
4. Integration of lighting for safety and security
5. Minimum exposures of wires and electrical equipment
6. Engineered by qualified structural engineers and designed by architects who understand the integration of these structures into public spaces
7. Canopy finish that will last for a period of 25 years minimum

Important Optional Features:

- Water Management / Decking / EV Charger Integration / LED Lights

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CANOPY TYPES

Solaire 360D – Dual Tilt

Cronig’s Market – Martha’s Vineyard, MA

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Solaire 360S – Single Tilt

Konterra Realty – Laurel, MD

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Long Span 360

Danversport Yacht Club – Danvers, MA

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Garage Long Span

Staples HQ – Framingham, MA

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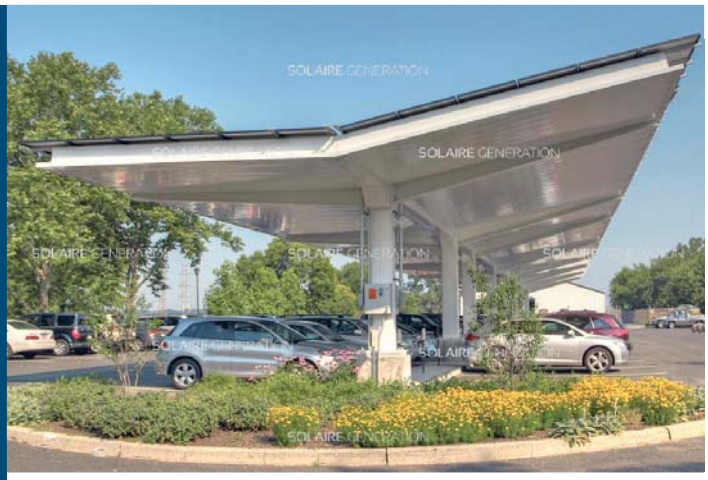

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Solaire Premium Canopy

NJ Meadowlands Commission

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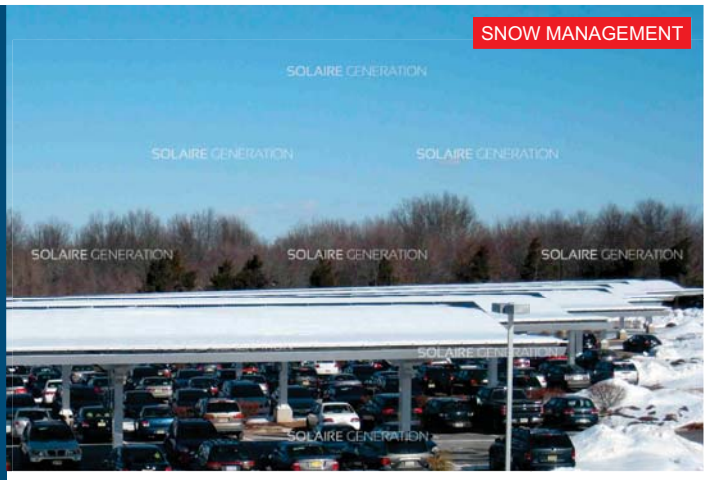

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Snow Management
Dual Incline

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WATER MANAGEMENT

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CANOPY FEATURES & ENHANCEMENTS

EV Charging

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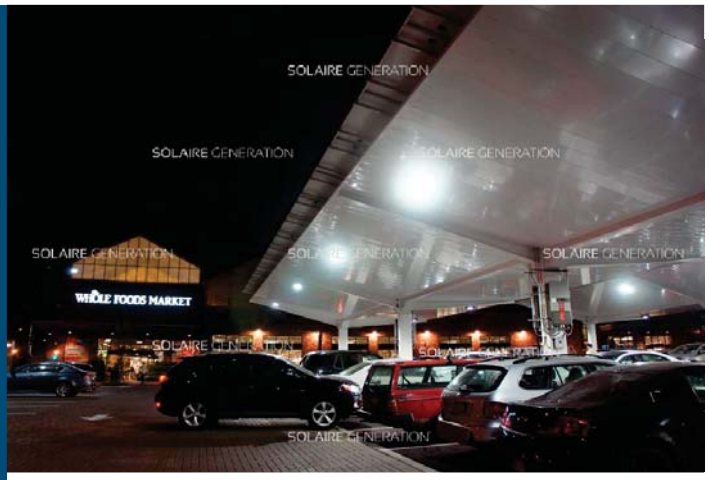

Integrated LED Lighting

SOLAIRE GENERATION®

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Battery Storage
Microgrid Creation

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Solar Canopy Financing

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Methods for Financing

1. Entity Builds and Owns, Self-finances
2. Entity Builds and Owns, Secures Financing Elsewhere
3. Third Party Ownership: Power Purchase Agreement (PPA)

Method Chosen Depends on:

- Capital funds available
- Appetite for operation and maintenance
- Status of Investment Tax Credit (ITC)
- Timeline

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1. Build to Own and Self-Finance

- Finance through own capital budget
- Pay for system up front
- Revenue contributing to project payback comes from:
  - Electricity cost savings
  - Generation of SRECs
    - Each MW generated = 1 SREC (2015-2024)
    - SRECs generate revenue through sale in market
    - 2025+: SRECs expire, entity earns Class I RECs
- Entity responsible for:
  - Routine maintenance
  - Repairs as needed
  - Inverter replacement

SREC Revenue Schedule	
2015	$285
2016	$285
2017	$271
2018	$257
2019	$244
2020	$232
2021	$221
2022	$210
2023	$199
2024	$189
2025+	$40

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2. Build to Own and Utilize Outside Financing: CREBs

Clean Renewable Energy Bonds (CREBs)

A form of tax credit bond for qualified renewable energy projects in which some or all of the interest is paid in the form of federal tax credit by U.S. govt., thus reducing interest for the issuer.

- IRS issued new round of allocations in Feb. 2015
- Applications opened March 5; funds allocated on rolling basis
- $600 million (1/3 of total) available to state and municipal governments nationwide
- Estimated 1.5% interest rate
- Bond term varies, but approx. 15-25 years
- Bonds issued by MassDevelopment

- Available to state agencies and municipalities

MassDevelopment

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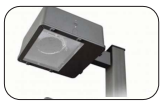
Build to Own and Utilize Outside Financing: NEEIP

Non-Building EE Investment Program (NEEIP) (for state agencies only)

A MA general obligation bond, termed a "green bond", created to finance clean energy projects whereby annual savings and/or revenue generated by the project is used to make bond payments.

- Because savings cover payments, debt doesn't affect state's bond rating
- $15 million allocated over 2 years, originally for "non-building" efficiency
- Estimated 3.5% interest rate
- 10, 15, 20 year bond terms
- Annual savings/revenue must be at least 10% > debt service payment
- Some upfront cost may be required


Outdoor Lighting


Tunnel Ventilation


Dam Operations


Subway Operations

Solar Canopy Financing: Third Party Ownership

Power Purchase Agreement (PPA)

Contract whereby one party, the project owner, agrees to install, operate and maintain a RE system and the other party, the buyer, agrees to purchase the electricity generated.

- Fixed price per kWh, with or without agreed upon escalator
- Usually 20 year contract
- No O&M responsibilities
- System owner retains SREC revenue

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Financing Method Pros & Cons

	Pros	Cons
1. Entity Builds and Owns, Self-finances	• Most cost-effective • 100% of SRECs retained • Minimal cost of borrowing	• Large upfront cost • O&M Responsibilities • Higher risk
2. Entity Builds and Owns, secures financing	• Little to no upfront cost • 100% of SRECs retained	• Debt service payments • O&M responsibilities • Administrative burden • Higher risk
3. Third Party Ownership	• No upfront cost • No O&M responsibilities • Low Risk • Reliable electricity price	• Least cost-effective • No SREC revenue

UPFRONT COST

EARNINGS

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Hypothetical Project: Cash Flow Scenarios

Project Assumptions	
Total Project Size	500 kW
Total Project Cost	$1.75 M
Cost per Watt	$3.50
Electricity Rate	$.16/kWh
Electricity Escalation	*2.0%*
PPA Rate	$0.115/kWh

Project Benefits				
	Build to Own			Third Party Ownership
	Self Finance	CREBs	NEEIP	PPA
Upfront Cost to Entity	$1.75 M	$350K (20%)	$350K (20%)	$0
Bond Financing	-	$1.4 M	$1.4 M	-
Bond Rate	-	1.5%	3.5%	-
Net Benefit - Year 1	$257,281	$152,359	$135,726	$26,017
Avg. Net Benefit (20 yrs)	$179,002	$100,310	$87,835	$43,425
20 Year Earnings	**$1.83 M**	**$1.65 M**	**$1.41 M**	**$869K**

Procurement

- For state agencies:
  - Build to own: Competitive procurement
  - 3rd Party Ownership through energy cooperative authorized to act on behalf of public entities
- For municipalities:
  - Build to Own: Competitive procurement
  - 3rd Party Ownership: Competitive procurement or through energy cooperative authorized to act on behalf of public entities

Solar Canopy Grant Opportunities: State Facilities

LBE Solar Canopy Grant

$1.5 million grant opportunity for solar PV at parking lots, garage roofs, and pedestrian walkways on state owned land

- $0.75/watt for state-owned projects (up to $600K/site)
- $0.50/watt for third-party owned projects (up to $500K per site)
- Eligibility:
  - Projects over 200 kW
  - Some onsite consumption
  - Include min. # of EV charging stations
  - All procurement options eligible

http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/doer-procurements.html

Solar Canopy Grant Opportunities: Municipalities

Owner's Agent Technical Assistance (OATA) Grant

Funding for independent 3rd parties to help municipalities negotiate, develop and manage projects or to perform studies to support the development of clean energy projects

- $12,500 maximum award available
- First come, first served basis
- **Look for PON in May; accepting applications in July**

http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/doer/doer-procurements.html

PowerOptions
MA Solar Parking Canopy Case Study: Lessons Learned

PowerOptions

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PowerOptions Overview

- Largest Energy Buying Consortium in Massachusetts
- Serve MA nonprofit customers - 500 members
  - All Massachusetts nonprofits and public entities are eligible
- $200 million annual sales of energy supply
  - 1 billion kwh of electricity
    - 220 MW demand
  - 13 million dekatherms of gas
  - 60+ MWs of solar projects under contract
    - 10 MW behind the meter projects
    - 50 MW virtual net metering projects

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Our energy solutions

- PowerOptions Electricity -
  - Supplied by Direct Energy Business
  - through 2019
- PowerOptions Natural Gas
  - Supplied by Direct Energy Marketing
  - through 2019
- PowerOptions Solar
  - Supplied by SunEdison
  - On site PPA, serving load behind the meter
  - Offsite PPA for Net metering credits
  - Solar Program PPA for smaller projects, 25-300kW
    - RFQ proposals due May 7, 2015

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PowerOptions Competitive solicitation

- All PowerOptions supply programs begin with a competitive procurement process.
- PO Programs are offered on behalf of MA Clean Energy Center, provides procurement exemption for members.
- Leverage of aggregation yields low prices.
- Pre-negotiated best-in-industry contract terms and conditions unique to our aggregation.
- Price methodology locked with Suppliers/Developer for program term – assures on-going competitive pricing.
- Allows members to avoid cost of solicitation and contract negotiation and benefit from PO expertise.

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Bristol Community College (BCC) Project Site

Opportunity: Transform a 800 space / 6 acre parking lot into a Solar PV generator

BCC Canopy Project Timeline

- Key Milestone Dates:
  - Initial PPA Proposal submitted to BCC --- 2012
    - Various designs considered, from 1 to 3 to 5 parking lots
  - PPA Contract & Site License Execution --- 2013
  - NM Cap Allocation Application filed at DPU --- 2014
    - Cap space important due to final project size
    - Initially Waitlisted until legislation passed in July '14
  - Interconnection Approval Granted by NGrid --- 2014
    - 9-12 month process includes NGrid System Impact Studies, Local Network Upgrades
  - Notice to Proceed (NTP) on Construction --- 2014
    - Equipment Procurement, Site Preparation, Contractor mobilization, Material Deliveries, etc.
  - Commercial Operation Date --- Spring 2015

BCC Project Under Construction – Fall 2014

Under Construction – Feb. 2015

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Under Construction – March 2015

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April 2015 --- almost complete

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20 year Projected Annual Electricity Savings

	Solar PV kWh	Projected Cost without Solar PV	Projected Cost with Solar PV	Projected Savings
2015	3,935,213	$ 584,352	$ 564,676	$ 19,676
2016	3,915,537	$ 593,117	$ 566,492	$ 26,626
2017	3,895,959	$ 602,014	$ 568,404	$ 33,610
2018	3,876,479	$ 611,044	$ 570,413	$ 40,631
2019	3,857,097	$ 620,210	$ 572,522	$ 47,688
2020	3,837,811	$ 629,513	$ 574,732	$ 54,781
2021	3,818,622	$ 638,956	$ 577,044	$ 61,912
2022	3,799,529	$ 648,540	$ 579,459	$ 69,081
2023	3,780,532	$ 658,268	$ 581,980	$ 76,288
2024	3,761,629	$ 668,142	$ 584,608	$ 83,534
2025	3,742,821	$ 678,164	$ 587,345	$ 90,819
2026	3,724,107	$ 688,337	$ 590,192	$ 98,145
2027	3,705,486	$ 698,662	$ 593,151	$ 105,511
2028	3,686,959	$ 709,142	$ 596,224	$ 112,918
2029	3,668,524	$ 719,779	$ 599,412	$ 120,367
2030	3,650,181	$ 730,576	$ 602,718	$ 127,858
2031	3,631,930	$ 741,534	$ 606,142	$ 135,392
2032	3,613,771	$ 752,657	$ 609,688	$ 142,970
2033	3,595,702	$ 763,947	$ 613,356	$ 150,591
2034	3,577,723	$ 775,406	$ 617,149	$ 158,257
				$ 1,756,654
Note: 1.5% utilty rate escalation assumed				

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BCC Project Equipment Overview

- Rigid Global provided canopy structures:
  - 8 canopy buildings installed on-site including 4 long span buildings (64' wing)
  - Structure height -- 11' to 17'
- System Size – 3.2 MWdc or 2.0 MWac
- 9,676 MEMC modules
- MEMC Modules M330s include:
  - 10 year material warranty/25 year power warranty
  - Module efficiency – 16.9%
- Inverters – 4 x Advanced Energy (AE) 500kw
  - 10 year nationwide warranty

BCC Power Purchase Agreement (PPA) overview

- SunEdison is responsible for project design, financing, construction, and O&M for contract term
- SunEdison owns the project, not BCC
- BCC purchases the electricity generated from the project
- No Upfront Costs with Third-Party PPA structure
- 20 year contract term, industry standard
- BCC used the PO pre-negotiated PPA Contract
  - Guaranteed Performance Provision
  - Fixed PPA price (no escalation) for contract term, valuable price hedge
  - Note PV System reduces Utility demand charges
  - Provider/SunEdison retains Environmental Attributes, SRECs and Federal/State tax incentives
  - Project buy-out options available

Things to know…and Some Advice

- This is heavy construction
  - Schedule shifts are common
  - Various contractors mobilizing/demobilizing on-site
  - Disruptions (noise, parking, traffic)
  - Sun Edison has the risk of change orders etc.
- Put your needs in writing – clearly articulate schedule requirements & water management needs
- Have frequent, weekly meetings with operations team
- Take the long view

In the end…

- 3,500,000+ kWh/year generated
- $1.75 Million in Projected Savings over contract term
- 1,500+ tons/C02/year avoided
- Diversified electricity supply
- Great PR for customer & Educational opportunity

Photo: © BlueWave Capital

We are always here to assist you

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Poll Question 3

- Given what you've learned in this webinar, how likely are you to consider a solar canopy at your facility?
  a) Definitely
  b) Very Likely
  c) Somewhat Likely
  d) Not Sure

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Next Steps

For State Facilities:
- Complete LBE Solar Canopy Survey - (over 75 potential lots already)
- Fatal Flaw analysis to narrow sites down to 25
- End of Month: RFQ for DOER-funded feasibility study

For Municipalities:
- Complete similar preliminary analysis to determine best sites
  - Size, shape, shading
- Consider applying for OATA grant to perform more in-depth feasibility study

For Both:
- If decide to move forward - determine which financing method is best
  - For CREBs: Bundle projects for statewide CREBs application through LBE (agencies) or MassDevelopment (munis)
  - Utilize NEEIP when CREBs not available
  - For 3rd Party: Authorized energy cooperative

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Resources & Contact Information

Massachusetts Dept. of Energy Resources
www.mass.gov/doer
Leading by Example Program
http://www.mass.gov/eea/leadingbyexample
Green Communities Division
http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/

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