

CITY OF NEWTON  
IN BOARD OF ALDERMEN  
PUBLIC FACILITIES COMMITTEE REPORT

WEDNESDAY, MARCH 5, 2014

Present: Ald. Crossley (Chairman), Lennon, Albright, Salvucci, Danberg, Laredo, and Lappin  
Absent: Ald. Gentile

City staff present: Robert Garrity (Director of Sustainability; Executive Department) and Bill Ferguson (Energy Project Manager; Public Buildings Department)

#65-14      PRESIDENT LENNON recommending Joseph Michelson, 94 Park Avenue, Newton be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

**ACTION:**      **APPROVED 5-0 (Albright, Lennon not voting)**

**NOTE:**      Mr. Michelson joined the Committee to discuss his reappointment to the Designer Selection Committee. Mr. Michelson has been serving on the Designer Selection Committee since its inception approximately forty years ago and served as Chair of the Designer Selection Committee for a great number of years. He would like to continue to give back to the City by sharing his expertise in building. Mr. Michelson is a retired building contractor.

Mr. Michelson stated that the Designer Selection Committee's process works very well. He added that the Designer Selection Committee's role in school construction that is funded through the Massachusetts School Building Authority (MSBA) has changed. The MSBA Designer Selection Panel chooses the architect for an MSBA project, with the participation of local officials associated with a project.

The Committee members thanked Mr. Michelson for all his years of service and were pleased that he wished to continue to serve. Ald. Lappin moved approval, which carried unanimously.

#63-14      PRESIDENT LENNON recommending Lawrence Bauer, 42 Eliot Memorial Road, Newton, be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

**ACTION:**      **APPROVED 5-0 (Albright, Lennon not voting)**

**NOTE:**      Although Mr. Bauer could not join the Committee for discussion of his reappointment, he is a long-time member of the Designer Selection Committee and known to most of the Committee. His resume was attached to the agenda for those unfamiliar with Mr. Bauer's career and background. Mr. Bauer currently serves as the Chair of the Designer Selection Committee. The Committee noted that the City is lucky to have Mr. Bauer's architectural expertise on the Committee. Ald. Danberg moved approval of the reappointment, which carried by a vote of five in favor and none opposed.

#64-14      PRESIDENT LENNON recommending Howard Goldberg, 27 Theodore Road, Newton Centre, be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

**ACTION:**      **APPROVED 5-0 (Albright, Lennon not voting)**

**NOTE:**      Mr. Goldberg was unable to join the Committee for discussion of his reappointment. Mr. Goldberg has served on the Designer Selection Committee for a number of years and is known to many of the Public Facilities Committee members. His resume was attached to the agenda to provide information on Mr. Goldberg's career and background. The Committee is grateful that Mr. Goldberg wishes to continue to provide his construction expertise to the Designer Selection Committee. Ald. Lappin moved approval of the reappointment, which carried unanimously.

#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]

**ACTION:**      **HELD 6-0 (Danberg not voting)**

**NOTE:**      Sustainability Director Rob Garrity and Project Manager Bill Ferguson provided the attached PowerPoint presentation on energy reduction and the City's obligation to reduce energy use 20% over a set five-year period. As part of acceptance to the State's Green Communities Program, the City submitted its plan to reduce municipal energy consumption 20% in a five-year period between Fiscal Year 2008 and 2013. The State measures reductions in gasoline, heating oil, electricity and natural gas by Millions of British Thermal Units (MMBTUs). The first PowerPoint slide represents the City's energy use by component (buildings, vehicles, street and traffic lights, water/sewer & plumbing, and open space) from Fiscal Year 2008 to 2013 in MMBTUs and by percentage of reduction for each year.

The energy use numbers reported to the Department of Energy and Resources (DOER) are not weather corrected, as the State does not require weather corrected numbers to determine if a community has met the 20% reduction goal. However, the State has weather corrected data for the heating season, which it provides to the City. The State does not appear to weather correct data for electricity used for cooling. Weather correction adjusts energy use data to factor out the differences in outside temperatures from year to year. Weather correction takes into account colder outside temperatures that require more energy to heat and warmer outside temperatures that require more energy to cool a building to a comfortable temperature. The Chairman pointed out from the city's report that the weather corrected data for Fiscal Year 2013 showed the City's energy reduction percentage at just under 10 % since FY 2008. In that five-year period, the City has built new air-conditioned space and added air-conditioning to existing spaces, which adds new energy demand to the municipal budget.

Although the City only reduced its energy consumption by 16.9% by the end of Fiscal Year 2013, the DOER will not be measuring Newton's total energy reduction until Fiscal Year 2014 concludes. The City has a number of ongoing Fiscal Year 2013 energy reduction projects that will be completed in Fiscal Year 2014, which will further reduce energy consumption. The Department of Energy and Resources is aware that the City is trying to meet the goal. If the City does not meet the 20% goal in Fiscal Year 2014, it will not lose its Green Community designation. However, the City will lose points if it applies for grant funding, particularly if another community applying for a grant has met the 20% reduction.

As a designated Green Community, the City received a \$179,500 grant to complete a deep energy retrofit of for the Lower Falls Community Center and was awarded a \$250,000 grant for the upcoming streetlight replacement project. There was some concern that the City was expending a lot of effort for little reward. Mr. Garrity explained that whether or not the City participated in the Green Community Program, it would still have a goal to reduce energy use to the lowest point possible. The Green Community Grant application process is not onerous or time consuming, as most of the required reporting information is already tracked as part of the City's monitoring of energy projects using the Mass Insight Software provided by the State.

In the comparison graph displaying components that use municipal energy, buildings are by far the largest consumers of energy. Mr. Garrity noted that the City had reduced municipal greenhouse gas emissions by 33% by Fiscal Year 2012, which can be attributed to the switch to natural gas for heating for a number of buildings as well as energy efficiency projects. Fiscal Year 2013 is not included in the graph of greenhouse gas emission but the City began purchasing renewable energy certificates (RECs) in Fiscal Year 2013 for 100% green electricity generated by wind farms that equal municipal demand for electricity. Because of the purchase of green electricity, there are no longer emissions associated with the City's electricity use and the greenhouse gas emissions drop to a 70% reduction compared to the 2008 base year. Unfortunately, the Department of Energy and Resources does not take reduction in greenhouse emissions into consideration but the reduction is important to the Environmental Protection Agency.

Mr. Garrity explained that the City goes beyond a 20% energy reduction goal to a goal of reducing energy as much as possible. The Administration has a number of energy projects planned for the near future. Building efficiency projects, the replacement of three schools (built to higher efficiency standards), solar energy generation projects, LED streetlights, and purchase of energy efficient vehicles, which, if implemented, are projected to reduce energy consumption to 32% below the 2008 base year.

#### Building Energy Reduction Plan

The original municipal energy 20% reduction plan included completing energy conservation and efficiency projects on municipal buildings within the five-year period, using an energy service company to guide the work. However, about two years ago the city re-evaluated the cost and quality of this program, and decided to move to the preferred vendor program. This delayed the work necessary to meet the reduction goal.

Mr. Ferguson, Energy Project Manager in the Public Buildings Department, presented the department's revised plan for the building efficiency projects that he projects would result in another 12% reduction in energy use. The attached presentation includes a list of 32 buildings selected to be part of the preferred vendor program, as these buildings have the highest energy use per square foot and represent 50% of the municipal building energy use. Buildings selected are not scheduled for rebuilding or substantial renovation in the near future.

The Green Communities Act of 2008 allows the city to contract for energy projects that are less than \$100,000 directly through the gas and electric utility companies without any further solicitation. The utility companies administer the program, provide oversight, and solicit bids from pre-qualified vendors. This program allows communities to expedite building energy projects. The preferred vendor program also allows the City to access the incentives offered by the utility companies. About a year ago, the City used the preferred vendor program for energy projects at both the main library and Cabot Elementary School. The projects at Cabot Elementary School were quick payback and essential repair items, as the school is scheduled for renovation or replacement in the near future.

The City intends to issue bid packages that combine both small and large buildings to encourage the preferred vendors to include the smaller buildings. The utilities and preferred vendors favor larger buildings as they believe that the most energy savings can be found there, which is not necessarily true. Mr. Ferguson stated that if preferred vendor projects were completed in all 32 buildings, there would be a total energy reduction of 28,564 MMBTU or approximately \$550,000 in savings. By completing this work, the City would also be reducing the backlog of maintenance and repair needs at the 32 buildings.

There was some concern that all of buildings on the list below the Mason-Rice Elementary School were part of the City's NORESKO projects in 2010. The Public Buildings Department is in the process of determining why these buildings still have a high-energy use and will provide that information.

The next step in implementing the plan is to solicit proposals for the first nine buildings from preferred vendors through the City's utility providers. Proposals must include an updated building energy audit and the actual costs for the project. Once the City receives the proposals, they are evaluated for estimated energy savings, cost, payback period, other benefits, and how a project may impact the capital plan. Once a project is evaluated, there will be a determination whether to move forward with a project, add to its scope, or eliminate it. The Administration will also need to determine how to fund the projects and if they are bonded, how best to package them together.

The energy projects (referred to as MEASURES') in the buildings may include lighting, weatherization, boiler controls, equipment controls, temperature controls, scheduling, and repair to vacuum return systems. When projects are implemented, the Public Buildings Department will require much more detail on every control procedure that is included in the proposals. Mr. Ferguson will ensure that all controls are working on each project before it is accepted by the City. Mr. Ferguson will provide visual verification that the measures are in place and work. It is important to monitor the projects and make sure everything is working as it should. Mr. Ferguson is also coordinating with Dave Stickney of the School Department on all of the school

projects. There was some concern that Mr. Ferguson could become overwhelmed if the City takes on too many energy projects at once. Mr. Ferguson assured the Committee that he would not take on more than he can do. He expects that he can manage 12 energy projects over a three to four month time span.

The Executive Department is evaluating the projects, looking at the funding options and will provide that information to the Committee on May 1, 2014 during the Public Buildings Department's budget discussion. The costs need to be refined but it is somewhere over \$3 million but under \$5.5 million. The Executive Department has been positive regarding the plan but have financial policy questions. The Committee members felt strongly that they know the proposed scope of work and costs before any project is eliminated or deferred.

#### Solar Roofs Power Purchase Agreement Update

Mr. Garrity reviewed the solar projects that are already on four of the City's schools. These projects are projected provide to \$2 million dollars in electricity savings over twenty years. The City entered into a Power Purchase Agreement with Ameresco, which allows the City to purchase electricity at a reduced rate, with Ameresco bearing all of the upfront costs. Further details on the solar panels and savings can be found in the attached presentation.

#### Proposed Solar PV on City Hall

The Administration is proposing that the City install solar panels on the roof of City Hall. By purchasing the solar panels instead of entering into a Power Purchase Agreement, the City will realize a faster return on investment. The cost of the solar panels is approximately \$220,000 and would be a cash positive bond project. There are no maintenance costs associated with the solar panels. The City Hall slate roof was installed in 1932. Therefore, the request for proposals for the solar panels will require an analysis of the condition of the roof. The proposed project has been before the Historical Commission, which was excited about the project.

#### Proposed Streetlight Conversion

The presentation included an update on the LED streetlight conversion project that is expected to generate \$196,000 in annual electricity savings. The bid for the light installation came in at just under \$400,000, which is \$200,000 below the estimated costs. The bids for the LED lights with an alternate for remote control will be opened on March 6, 2014. The expected install date is May 1, 2014 and should be completed within three months. The project is being funded through an incentive from NStar and a Green Community Grant.

#### City Fleet

The City will also be purchasing a number of energy efficient vehicles. The Police Department will be receiving seven new vehicles that have higher mileage per gallon. There are usually ten to twelve City cars available for use at any given time at City Hall. As there appears to be a number of vehicles available at all times, the Administration may want to implement a properly managed car pool for the City Hall vehicle fleet. The City could reduce the number of City vehicles and have a newer more efficient fleet of vehicles. The Public Buildings

Department will be using a compressed natural gas truck and the City is purchasing an additional electric vehicle. The City is receiving a \$7,500 grant for the purchase of the electric car.

Requested Information

USEFUL BUILDING DATA

- Detail on the hours of operations for all or portions of the 32 buildings
- Identify what buildings have new work (additional spaces air-conditioned or expansions)

QUALITY CONTROL

- Follow up information on completed preferred vendor projects and results
- Provide references for the pre-qualified vendors

SCOPE/PRIORITIZING THE WORK

- Define the scope quality, and cost of the work the City ought to be doing
- What is the payback that the City is targeting

COSTS-INVESTMENT-ROI

- Provide a specific costs and scope for the first nine buildings
- Estimate the total cost of all projects
- Provide a cost benefit analysis associated with each of the 32 building projects
- Do the energy projects need to provide a positive cash flow during the length of the bonds
- What happens if a preferred vendor does not meet the target savings

MANAGING THE WORK

- If the projects are not revenue neutral, what other projects will not get done if the City proceeds with the energy projects
- Timeline to complete all 32 buildings
- Provide the preferred vendor proposals
- How many energy projects can the Public Buildings Department oversee at once
- Provide a management plan

CITY HALL SOLAR

- What is the return on investment for the proposed City Hall solar panels

Mr. Garrity and Mr. Ferguson stated that they would provide some or all of the requested information for the May 1, 2014 Public Facilities Committee meeting. Ald. Laredo moved hold for additional discussion, which carried unanimously.

All other items before the Committee were held without discussion and the meeting adjourned at 9 PM.

Respectfully submitted,

Deborah Crossley, Chairman

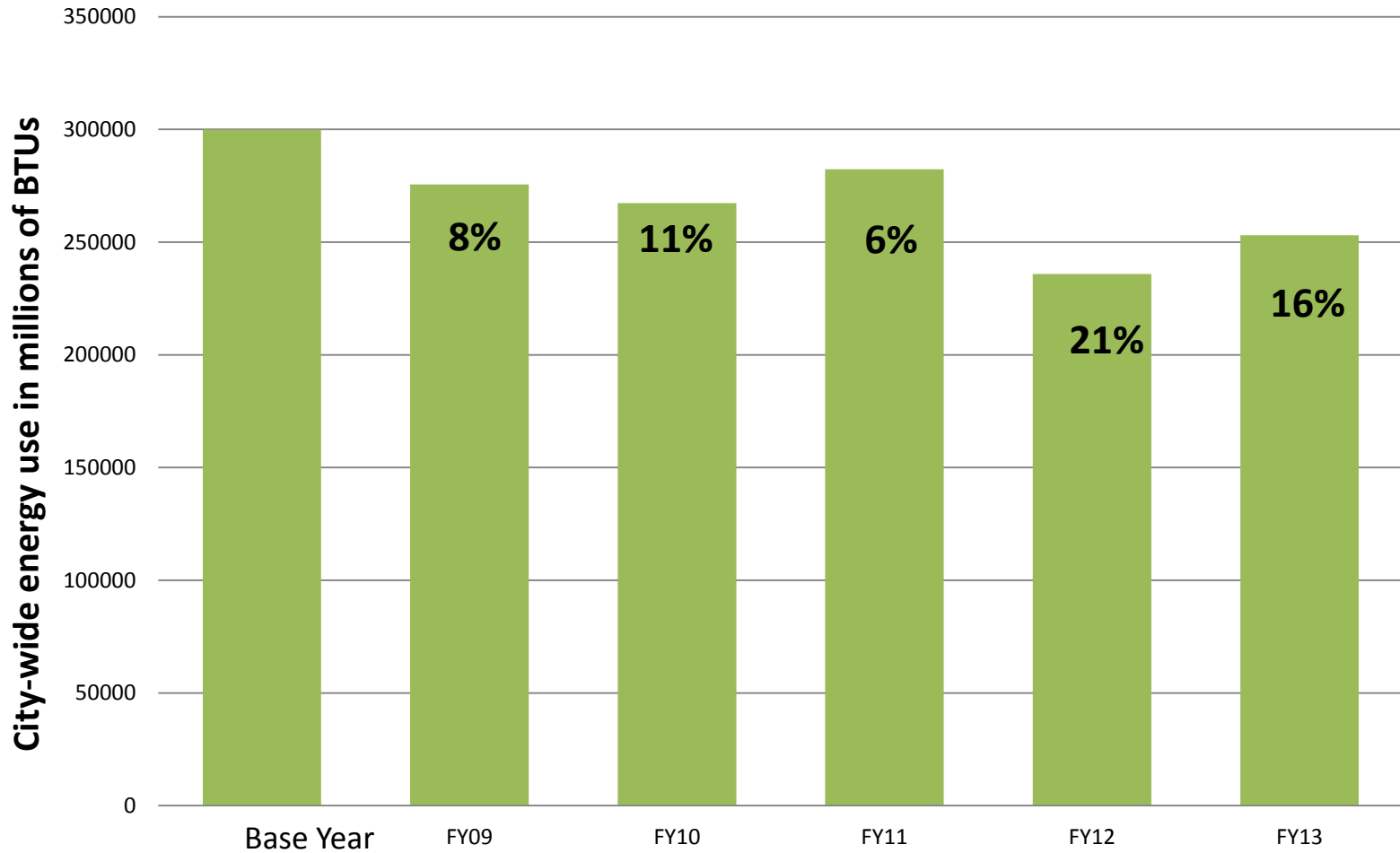
# Presentation to Public Facilities Committee

Green Communities Report  
and next steps.

March 5, 2014

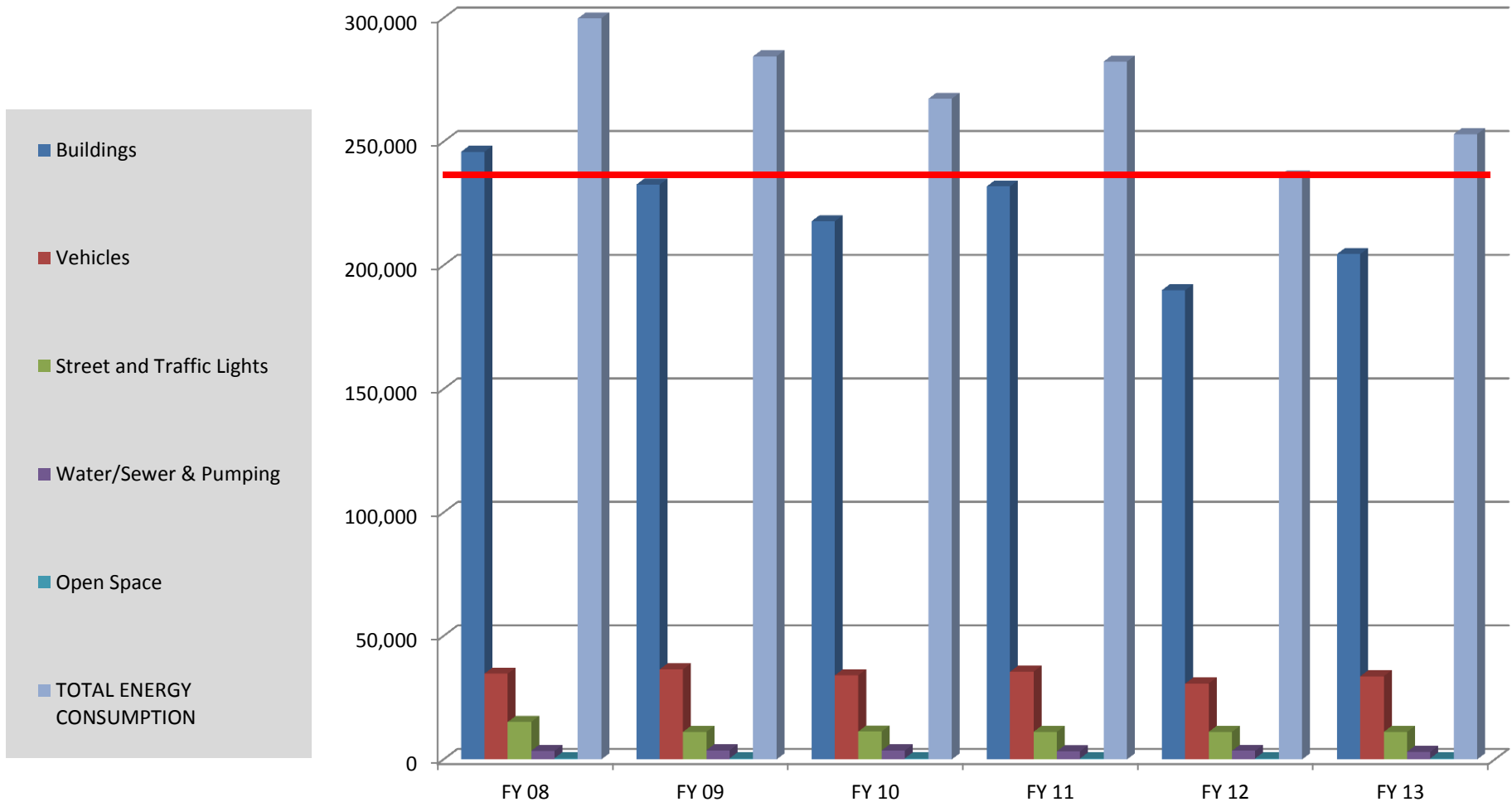
# Green Communities Report

## Energy Use, 2008-2013 (with percentage reduction)

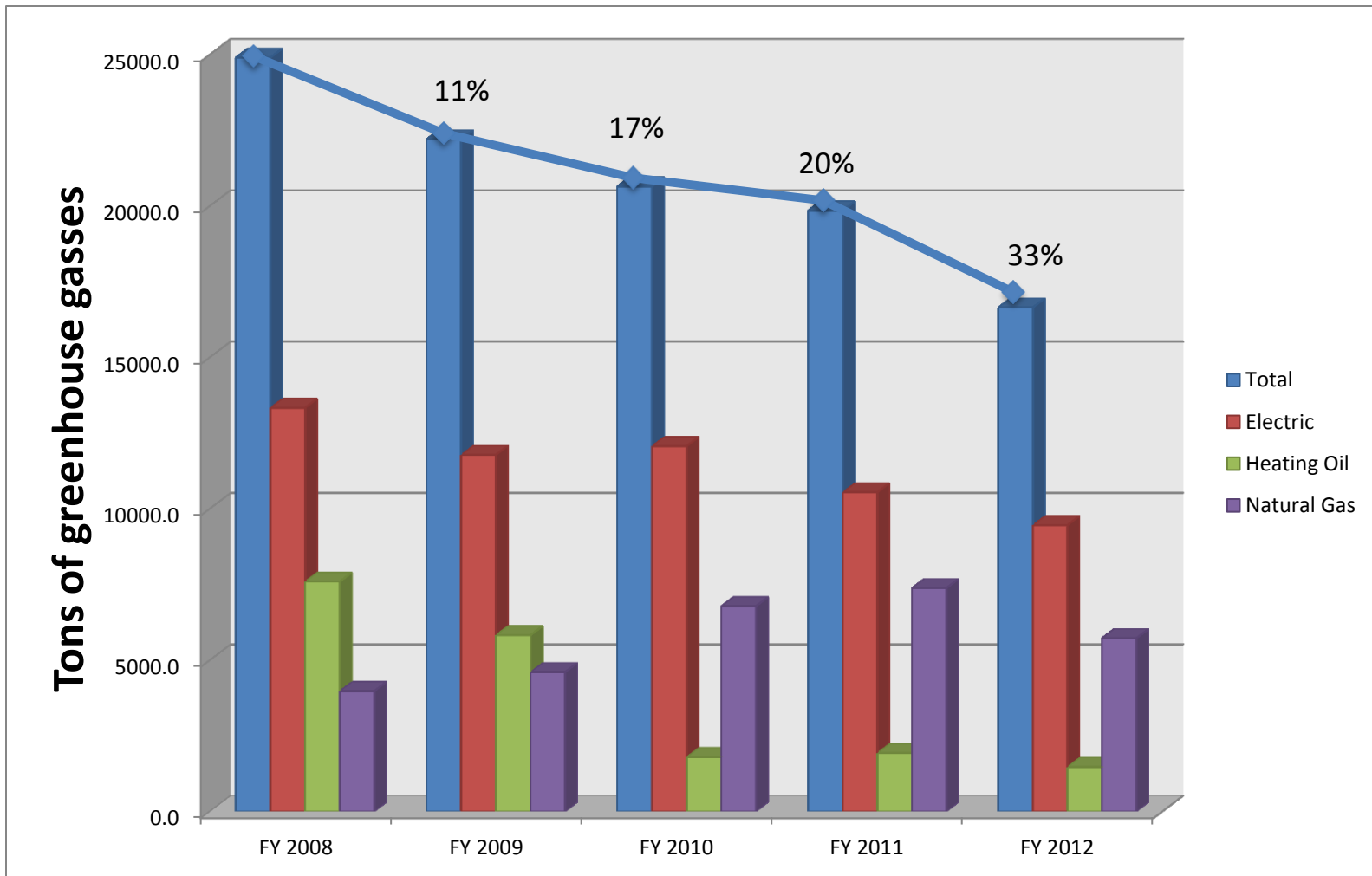




# Energy Use by Component



# Greenhouse Gas Emission Reductions



# Near and Longer Term Projects

Areas	% Reduction	Projected million BTU reductions
Building Efficiency	12%	28,500
New schools	40%	6,700
Solar projects underway		2,743
Next round of solar		600
LED streetlights	57%	6,100
New vehicles	10%	3,000
TOTAL		<b>47,643</b>



**32%**

# Buildings: Large Improvements Possible – changes since 2008

	Million BTU reductions	Heat	Electric
Newton North	-12582	-8445	-4139
Newton City Hall	-6511	-6230	-281
Newton South HS	-4181	-4031	-358
Lincoln-Eliot ES	-3151	-3284	133
Oak Hills MS	-2996	-2328	-668
Bigelow MS	-2117	-1718	-399
FA Day MS	-1801	-908	-896
Charles Brown MS	-1732	-1543	-189
Franklin ES	-1228	-1057	-171
Cabot ES	-1142	-875	-267

**-24,859 – 8% of entire city use in these 10 buildings**



# CITY OF NEWTON PUBLIC BUILDINGS

**ENERGY EFFICIENCY PROGRAM**  
**FOR CITY OWNED BUILDINGS**

# PROGRAM OVERVIEW

## THE PLAN

MMBTU use, sum of buildings on this list (2013 MEI data)	100,909	50%
Total SF of buildings on this list	1,084,151	40%
Total number of buildings on this List	32	
Total number of City Buildings and Schools	76	
Total MMBTU savings from buildings on this list	28,564	

# PROGRAM SAVINGS

<u>TOTAL 2008 MMBTU USE FOR ALL BLDGS FROM MEI</u>	<u>245,503</u>	<u>MMBTU</u>
(Savings reduction is relative to MEI 2008 base year for buildings sector)	MMBTU Savings	%
Total buildings savings already achieved through FY13	41,870	17%
Total MMBTU savings from this EE Program (all phases)	28,564	12%
Total estimated savings from new schools (Ang, Zervas, Cabot)	6,700	3%
Total savings in buildings sector, MMBTU	77,134	31%

# Select The Buildings

- 32 buildings selected out of 76
- Eui is the primary criteria (mbtu/sf)
- When is building slated for replacement or major renovation?
- Mix of sizes



<b>32 BUILDINGS IN Energy Efficiency PLAN</b>	<b>Square Feet</b>	<b>MBTU/SF</b>	<b>MMBTU</b>	<b>Proposal Due</b>	<b>Coordination with Capital Plan</b>
Franklin Elementary School	56,764	115	6,525	2/10/2014	Renovations planned for FY26/27.
DPW 110 Crafts St Garage	23,474	122	2,861	2/24/2014	
Underwood Elementary School	43,300	119	5,134	3/5/2014	No plans for replacement or renovation.
Sr Center	11,298	114	1,293	3/12/2014	
Williams Elementary School	41,700	98	4,086	3/24/2014	Renovations planned for FY18/19.
Lincoln-Eliot Elementary School	51,074	108	5,507	3/28/2014	New replacement school planned for FY20/21.
Public Bldgs Dept	7,100	60	424	3/28/2014	
Elliot Street DPW Stable/DPW OPs Center	15,858	136	2,150	4/21/2014	
Fire Station #2	14,378	121	1,733	4/21/2013	
Abermarle Fld Hse	2,072	149	308		
Peirce Elementary School	36,050	119	4,285		Renovations planned for FY 19/20.
Hawthorne Fld Hse	5,608	109	614		
Cabot Park Field House	1,264	101	128		
DPW 60 Elliot Street	15,000	98	1,477		
Fire Station #1	14,808	97	1,443		
Countryside Elementary School	65,000	94	6,117		Renovations planned for FY24/25.
Auburndale PlyGrnd-Fld Hse	1,329	93	123		
John Ward Elementary School	38,000	90	3,412		New School planned for FY22/23.
Burr Park Field House	3,000	87	260		
Memorial-Spaulling Elementary School	68,775	82	5,657		Renovations planned for FY29/30.
Auburndale Library	4,830	73	353		
Upper Falls Com Center	13,418	69	920		
Horace Mann Elementary School	40,600	65	2,647		No plans for replacement or renovation.
Craft Street Stable/DPW Ops Center	19,533	61	1,201		
Mason-Rice Elementary School	42,400	62	2,635		Renovations planned for FY25/26.
Education Center	70,000	127	8,911		
Police Annex	5,470	121	662		
Charles Brown Middle School	146,000	94	13,653		No plans for replacement or renovation.
Police Dept. HQ	30,000	77	2,322		
Bigelow Middle School	92,500	77	7,139		No plans for replacement or renovation.
Police HQ-Garage	7,548	73	550		
Oak Hill Middle School	96,000	66	6,379		No plans for replacement or renovation.
<b>total for this program</b>	<b>1,003,913</b>		<b>91,523</b>		<b>from MEI 2013 data</b>
<b>total for all city buildings</b>	<b>2,705,439</b>		<b>203,633</b>		<b>from MEI 2013 data</b>

# Solicit Proposals

- Preferred vendor program
- Section 44 of the green communities act of 2008
- Utilities solicit competitive prices from qualified vendors
- Utilities list of preferred vendors
- Nstar has a list of 12
- Ngrid has a list of 18

# Select The Projects

- Obtain proposals from preferred vendors
- Evaluate estimated energy savings
- Evaluate payback period
- Evaluate relative to other benefits
- Evaluate relative to capital plan
- Eliminate or add projects to scope

# Energy Conservation Measures (ECMs)

- Lighting
- Weatherization
- Boiler controls
- Equipment controls
- Temperature controls
- Scheduling
- Repair vacuum return systems

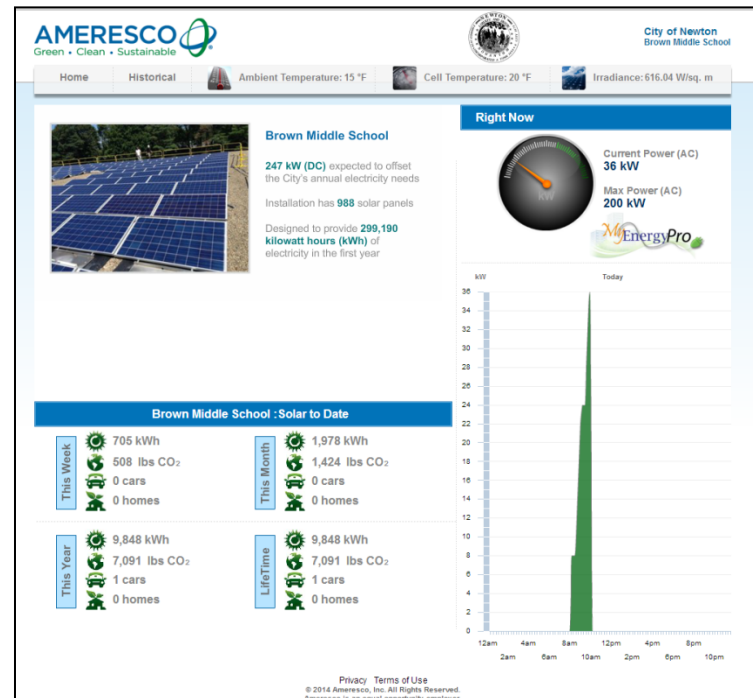
# Solar on schools - Underway

685 kW on four schools, Newton North, Oak Hill, Brown, and Memorial Spaulding.

Will produce 804,000 kwh annually.

- As much power as 100 average houses will use in a year.
- \$2 million over 20 years in electricity savings.
- Reduces emissions equal to 60 cars worth of co2 per year.
- 286 metric ton reduction in emissions.

Live in December-February.



You can track online at:

<http://solar.myenergypro.com/CityofNewton>



# Proposal: City Hall Solar

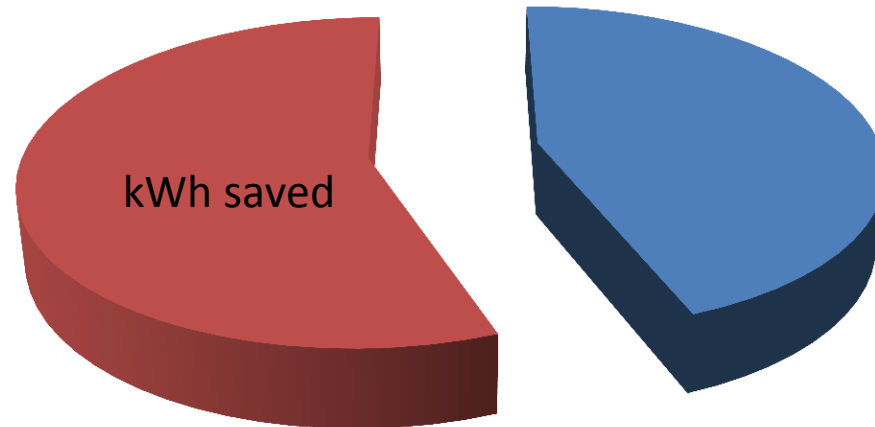


Perkins School For The Blind, Watertown, MA  
33KW



# LED Streetlights - Underway

1.8 million kWh reduction –



**\$196,000** annual electricity savings



# VEHICLES



- New Police Vehicles
- Administrative Fleet
- CNG demonstration
- Total EV



Thank You