



# Energy Management Performance Contract

March 18, 2013

## Agenda

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- Johnson Control Team
- Introduction to Performance Contracting
- Project Timeline
- Energy Baseline
- Energy Conservation Measures (ECM's)
  - Traditional Measures
  - Capital Improvements
  - Solar Photovoltaic
- Projected Cost and Energy Savings
- Questions

### Johnson Controls Team

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- Ned Raynolds– Account Executive
- Dana McGovern– Operations Manager
- Gary Reiff– Engineering Manager
- Andrew McIsaac – Performance Assurance Engineer
- Alan Houghton – Renewable Energy Manager
- Jim Cotton – General Manager

# Introduction to Performance Contracts

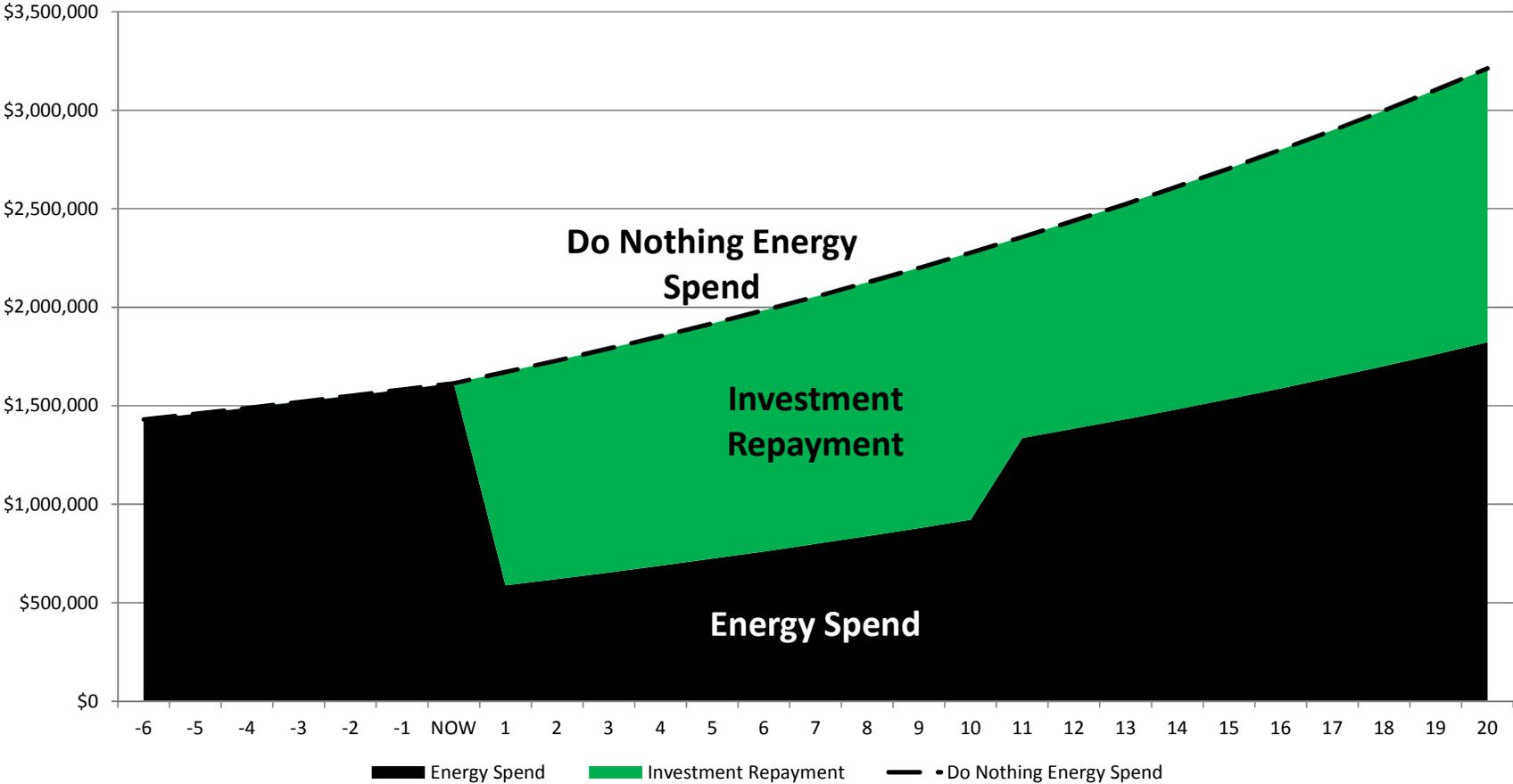
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- Enabled by MGL 25.A.11.I
- Design build general construction – energy efficiency project
- Upgrades funded within your existing \$1.62M annual utility budget
- 43% reduction with efficiency and added renewable generation
- A proven, budget-neutral approach by states, municipalities, school districts throughout MA and New England

In short, **Performance Contracting** is a way for you to get needed building improvements done by reinvesting the energy cost savings they generate.

Those savings are guaranteed.

# Introduction to Performance Contracts



# Project Timeline

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- RFQ Issued 7/11/12
- JCI Selection 9/24/12
- Detailed Energy Audit 10/23/12
- Energy Conservation Committee 2/26/13
- School Committee Presentation 3/12/13
- Board of Selectman Presentation 3/18/13
- Finance Committee Presentation 3/21/13
- Town Meeting 4/30/13
- Construction Begins 7/1/13



## Facilities Evaluated:

Building Name	Address	Area, sf
Adams Library	25 Boston Rd	30,182
Byam School	25 Maple Rd.	60,441
Central School Admin	230 North Rd.	10,192
Community Education School	170 Dalton Rd.	37,100
DPW Garage	54 Richardson Rd.	11,890
Fire East	115 Riverneck Rd.	4,226
Fire North	35 Princeton Blvd.	3,740
Fire South	295 Acton Rd.	2,640
Fire West	260 Old Westford Rd.	2,796
Harrington School	120 Richardson Rd.	60,441
High School	200 Richardson Rd.	285,882
Highway Maintenance	56 Richardson Rd.	3,300
McCarthy Middle School	250 North Rd.	147,957
McKay Library	43 Newfield St.	4,244
Parker Middle School	75 Graniteville Rd.	105,400
Police Garage	2A Olde North Rd.	4,850
Police Station	2 Olde North Rd.	26,906
Center School	84 Billerica Rd.	55,562
Senior Center	75 Groton Rd.	20,399
South Row School	250 Boston Rd.	42,500
Town Office	50 Billerica Rd.	30,912
<b>Totals</b>		<b>951,560</b>



## Baseline Energy Use

Town of Chelmsford , MA Energy Baseline								
Building Name	Address	Area, sf		Total Usage (kWh)	Total Cost \$		Total Usage (Therms)	Total Cost \$
Adams Library	25 Boston Rd	30,182		426,336	\$65,842		15,440	\$19,735
Byam School	25 Maple Rd.	60,441		260,240	\$39,906		30,995	\$37,136
Central School Admin	230 North Rd.	10,192		245,742	\$44,571		6,260	\$8,048
Community Education School	170 Dalton Rd.	37,100		212,240	\$32,604		27,325	\$32,739
DPW Garage	54 Richardson Rd.	11,890		67,090	\$11,720		6,144	\$9,830
Fire East	115 Riverneck Rd.	4,226		29,431	\$5,084		1,329	\$1,794
Fire North	35 Princeton Blvd.	3,740		26,151	\$4,491		2,306	\$3,027
Fire South	295 Acton Rd.	2,640		9,988	\$1,767		2,101	\$2,779
Fire West	260 Old Westford Rd.	2,796		19,002	\$3,251		2,845	\$3,705
Harrington School	120 Richardson Rd.	60,441		263,920	\$40,119		29,199	\$35,121
High School	200 Richardson Rd.	285,882		2,043,068	\$307,984		103,936	\$119,427
Highway Maintenance	56 Richardson Rd.	3,300		5,787	\$912		9,757	\$12,639
McCarthy Middle School	250 North Rd.	147,957		711,240	\$109,534		59,391	\$71,336
McKay Library	43 Newfield St.	4,244		8,990	\$1,612		1,484	\$1,993
Parker Middle School	75 Graniteville Rd.	105,400		721,440	\$112,408		59,480	\$71,764
Police Garage	2A Olde North Rd.	4,850		20,295	\$3,485		7,017	\$9,173
Police Station	2 Olde North Rd.	26,906		579,000	\$85,052		11,453	\$14,704
Center School	84 Billerica Rd.	55,562		538,350	\$83,709		44,985	\$53,868
Senior Center	75 Groton Rd.	20,399		168,200	\$28,313		6,321	\$8,079
South Row School	250 Boston Rd.	42,500		198,960	\$30,863		29,623	\$35,630
Town Office	50 Billerica Rd.	30,912		219,800	\$34,049		11,331	\$14,598
<b>Totals</b>		<b>951,560</b>		<b>6,775,268</b>	<b>\$1,047,274</b>		<b>468,716</b>	<b>\$567,125</b>

# Energy Conservation Measures

ECM#	ECM Name
1	Lighting - Fixture Retrofit
2	Lighting - Fixture Controls
3	Building Envelope - Weatherization
4	Building Envelope - Roof/Wall/Attic Insulation
5	Building Envelope - Window Replacement
6	Building Controls - Energy Management System Upgrades
7	Building Controls - Install VFD on Fans
8	Heating System - Furnace/DX Cooling Unit Replacement
9	Heating System - Air Handler Replacement
10	Heating System - Boiler Replacement
12	Heating System - Pipe and Valve Insulation
13	Heating System - Install New Unit Ventilators, DDC Inclusion
14	Cooling System - Install New Unit Ventilators w/DX Cooling, DDC Inclusion
15	Cooling System - Ductless Split System
17	Cooling System - Chiller Replacement
18	Pumping System - VFD on Hot Water Pumps
19	Pumping System - Condensing DHW Unit
20	Renewable Energy- Photovoltaic Generation
21	Motors - Energy Efficient Motor Replacement
24	Water Conservation
25	Vending Machine Controllers
26	Walk-in Coolers / Walk-in Freezers
27	Steam to Hot Water Conversion
28	Energy Efficient Transformers
29	Street Lights



# Town of Chelmsford

## Energy Conservation Measures Included (Town)

ECM #	Description of Measure	Adams Library	Mckay Library	East Fire	North Fire Station	South Fire Station	West Fire Station	DPW Garage	DPW Maintenance	Police Station	Town Hall	Police Garage	Schools Central Administration	Senior Center	Ice Forum	Chelmsford Country Club	Street Lights Town Wide	New DPW Building
1	Lighting - Fixture Retrofit	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	Lighting - Fixture Controls	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3	Building Envelope - Weatherization	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
4	Building Envelope - Roof/Wall/Attic Insulation	✓	✓			✓												
5	Building Envelope - Window Replacement					✓							✓					
6	Building Controls - Energy Management System Upgrades	✓									✓		✓					
7	Building Controls - Install VFD on Fans																	
8	Heating System - Furnace/DX Cooling Unit Replacement													✓				
9	Heating System - Air Handler Replacement										✓							
10	Heating System - Boiler Replacement										✓							
12	Heating System - Pipe and Valve Insulation				✓	✓					✓							
13	Heating System - Install New Unit Ventilators, DDC Inclusion										✓							
14	Cooling System - Install New Unit Ventilators w/DX Cooling, DDC Inclusion										✓							
15	Cooling System - Ductless Split System										✓							
17	Cooling System - Chiller Replacement																	
18	Pumping System - VFD on Hot Water Pumps																	
19	Pumping System - Condensing DHW Unit										✓							
20	Renewable Energy - Photovoltaic Generation																	✓
21	Motors - Energy Efficient Motor Replacement																	
24	Water Conservation													✓				
25	Vending Machine Controllers										✓				✓			
26	Walk-in Coolers / Walk-in Freezers													✓				
27	Steam to Hot Water Conversion																	
28	Energy Efficient Transformers														✓			
29	Street Lights																✓	



# Town of Chelmsford

## Energy Conservation Measures Included (Schools)

ECM #	Description of Measure	Chelmsford High School	Byam Elementary School	Center Elementary School	Harrington Elementary School	McCarthy Middle School	Parker Middle School	South Row Elementary School	Community Education School
1	Lighting - Fixture Retrofit	✓	✓	✓	✓	✓	✓	✓	✓
2	Lighting - Fixture Controls	✓				✓		✓	
3	Building Envelope - Weatherization	✓	✓	✓	✓	✓	✓	✓	✓
4	Building Envelope - Roof/Wall/Attic Insulation		✓	✓	✓			✓	✓
5	Building Envelope - Window Replacement								
6	Building Controls - Energy Management System Upgrades	✓	✓	✓	✓	✓	✓	✓	✓
7	Building Controls - Install VFD on Fans	✓				✓	✓		
8	Heating System - Furnace/DX Cooling Unit Replacement								
9	Heating System - Air Handler Replacement								
10	Heating System - Boiler Replacement								
12	Heating System - Pipe and Valve Insulation		✓	✓				✓	
13	Heating System - Install New Unit Ventilators, DDC Inclusion	✓	✓		✓		✓		✓
14	Cooling System - Install New Unit Ventilators w/DX Cooling, DDC Inclusion	✓							
15	Cooling System - Ductless Split System								
17	Cooling System - Chiller Replacement			✓					
18	Pumping System - VFD on Hot Water Pumps			✓					
19	Pumping System - Condensing DHW Unit								
20	Renewable Energy- Photovoltaic Generation	✓	✓	✓	✓	✓	✓	✓	✓
21	Motors - Energy Efficient Motor Replacement				✓				✓
24	Water Conservation	✓			✓				
25	Vending Machine Controllers	✓	✓	✓	✓	✓	✓	✓	✓
26	Walk-in Coolers / Walk-in Freezers	✓	✓	✓	✓	✓	✓	✓	✓
27	Steam to Hot Water Conversion						✓		
28	Energy Efficient Transformers	✓					✓		
29	Street Lights								



# Traditional Energy Conservation Measures

- ECM #1 – Lighting Fixture Retrofit
- ECM #2 – Lighting Controls
- ECM #3 – Weatherization
- ECM #4 – Attic Insulation
- ECM #5 – Window Replacement
- ECM #7, 18 – Variable Frequency Drives
- ECM #12 – Pipe Insulation
- ECM #21 – Motor Replacement
- ECM #24 – Water Conservation
- ECM #25 – Vending Machine Controllers
- ECM #26 – Walk in Cooler Controls
- ECM #28 – Transformer Replacement

## **Capital Improvements (School Facilities)**

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- ECM #6 – Energy Management Systems
  - All Nine (9) School Buildings
- ECM #13, 14 – Replace Unit Ventilators, (207) Total
  - Chelmsford High School
  - Byam Elementary School
  - Harrington Elementary school
  - Parker Middle School
  - Community Education School
- ECM #17 Chiller Replacement
  - Center Elementary School
- ECM #27 Steam to Hot Water Conversion
  - Parker Middle School

### **Capital Improvements (Town Facilities)**

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- ECM #6 Energy Management Systems – Town Hall
- ECM #8 Furnace / DX Cooling – Senior Center
- ECM #9 Air Handler – Town Hall
- ECM #10 Boiler Replacement - Town Hall
- ECM #15 Ductless Split System – Town Hall
- ECM #19 Domestic Hot Water – Town Hall
- ECM #29 LED Street Lights – Town Wide

# Renewable Energy

- ECM #20 – Renewable Energy – Solar Photovoltaic

ECM #20 Renewable Energy - Photovoltaic generation		
Facility Name	System Size kW	Annual Output kWh
Chelmsford High School	269.75	288,604
Byam Elementary School	253.50	269,741
Center Elementary School	52.00	55,129
Harrington Elementary School	471.00	490,570
McCarthy Middle School	360.75	384,212
Parker Middle School	224.25	241,885
South Row Elementary School	230.75	237,847
Community Education School	120.25	124,098
New DPW Building	346.50	354,893
<b>Total</b>	<b>2,328.75</b>	<b>2,446,979</b>

## Renewable Energy

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Chelmsford High School

Byam Elementary School

Center Elementary School

Community Education School

Harrington Elementary School

McCarthy Middle School

Parker Middle School

South Row Elementary School

New DPW Building

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# Project Financials: Summary

Financial Summary	
Project Construction Cost	\$18,146,890
First Year Energy / Water / O&M Savings	\$357,711
First Year Electric Generation from Solar PV	\$333,522
First Year SREC Value	\$391,517
First Year Measurement and Verification Cost	\$18,446
Estimated Utility Rebates	\$4,200
Net Savings	\$22,283,792
Total Debt Service	\$21,957,737
Cumulative Cash Flow	\$24,276

## Project Financials: Town Facilities

Total Town Facilities Cost and Savings		Total Cost	Total Annual Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
ECM #	ECM Name				
1	Lighting - Fixture Retrofit	\$417,430	\$26,572		
2	Lighting - Fixture Controls	\$41,354	\$2,153		
3	Building Envelope - Weatherization	\$144,687	\$6,628		
4	Building Envelope - Roof/Wall/Attic Insulation	\$21,995	\$838		
5	Building Envelope - Window Replacement	\$4,461	\$117		
6	Building Controls - Energy Management System Upgrades	\$319,269	\$2,139		
8	Heating System - Furnace/DX Cooling Unit Replacement	\$121,267	\$1,251		
9	Heating System - Air Handler Replacement	\$41,948	\$686		
10	Heating System - Boiler Replacement	\$187,718	\$1,480		
12	Heating System - Pipe and Valve Insulation	\$2,288	\$496		
15	Cooling System - Ductless Split System	\$660,092	\$1,155		
19	Pumping System - Condensing DHW Unit	\$40,448	\$112		
20	Renewable Energy- Photovoltaic Generation	\$970,200	\$0	\$48,137	\$56,783
25	Vending Machine Controllers	\$1,519	\$801		
26	Walk-in Coolers / Walk-in Freezers	\$11,463	\$1,269		
28	Energy Efficient Transformers	\$5,165	\$483		
29	Street Lights	\$1,230,851	\$114,961		
	<b>Total Town Facilities</b>	<b>\$4,234,049</b>	<b>\$161,770</b>	<b>\$48,137</b>	<b>\$56,783</b>

## Project Financials: Town Facilities

Facility Name		Total Cost	Total Annual Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
x	Adams Library	\$220,624	\$8,839		
x	McKay Library	\$20,062	\$628		
x	East Fire	\$21,153	\$2,747		
x	North Fire Station	\$13,020	\$1,365		
x	South Fire Station	\$34,029	\$830		
x	West Fire Station	\$25,125	\$680		
x	DPW Garage	\$31,384	\$2,545		
x	DPW Maintenance	\$20,030	\$1,366		
x	Police Station	\$96,393	\$4,932		
x	Town Hall	\$1,251,420	\$9,344		
x	Police Garage	\$52,809	\$4,181		
x	Senior Center	\$194,545	\$5,931		
x	Ice Forum	\$35,385	\$2,530		
x	Clelmsford Country Club	\$17,020	\$891		
x	Street Lights Town Wide	\$1,230,851	\$114,961		
x	New DPW Building	\$970,200	\$0	\$48,137	\$56,783
	<b>Total Town Facilities</b>	<b>\$4,234,049</b>	<b>\$161,770</b>	<b>\$48,137</b>	<b>\$56,783</b>

## Project Financials: School Facilities

Total School Facilities Cost and Savings		Total Cost	Total Annual Energy and O&M Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
ECM #	ECM Name				
1	Lighting - Fixture Retrofit	\$557,129	\$27,014		
2	Lighting - Fixture Controls	\$199,471	\$8,577		
3	Building Envelope - Weatherization	\$215,392	\$14,404		
4	Building Envelope - Roof/Wall/Attic Insulation	\$359,455	\$14,370		
5	Building Envelope - Window Replacement	\$5,502	\$173		
6	Building Controls - Energy Management System Upgrades	\$3,032,583	\$56,679		
7	Building Controls - Install VFD on Fans	\$165,190	\$14,913		
12	Heating System - Pipe and Valve Insulation	\$2,362	\$927		
13	Heating System - Install New Unit Ventilators, DDC Inclusion	\$2,497,261	\$8,911		
14	Cooling System - Install New Unit Ventilators w/DX Cooling,	\$189,270	\$1,408		
17	Cooling System - Chiller Replacement	\$134,353	\$901		
18	Pumping System - VFD on Hot Water Pumps	\$17,714	\$2,242		
20	Renewable Energy- Photovoltaic Generation	\$5,613,936	\$0	\$285,385	\$334,734
21	Motors - Energy Efficient Motor Replacement	\$13,286	\$205		
24	Water Conservation	\$132,341	\$6,336		
25	Vending Machine Controllers	\$6,048	\$3,066		
26	Walk-in Coolers / Walk-in Freezers	\$66,761	\$7,947		
27	Steam to Hot Water Conversion	\$530,890	\$7,277		
28	Energy Efficient Transformers	\$173,896	\$20,591		
	<b>Total Education Facilities</b>	<b>\$13,912,841</b>	<b>\$195,941</b>	<b>\$285,385</b>	<b>\$334,734</b>

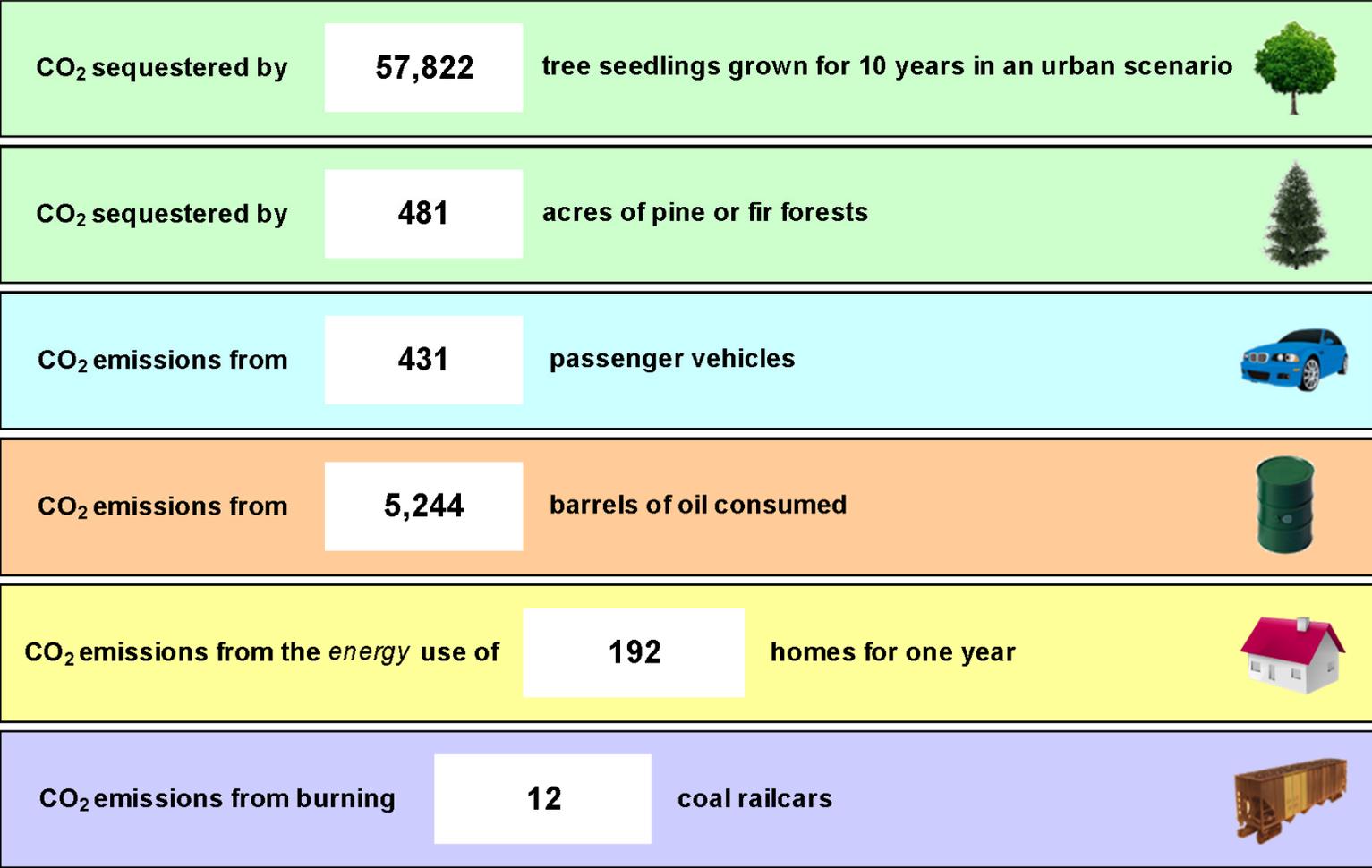
## Project Financials: School Facilities

Facility Name		Total Cost	Total Annual Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
x	Chelmsford High School	\$3,532,906	\$77,776	\$39,915	\$46,177
x	Byam Elementary School	\$1,604,368	\$10,354	\$36,491	\$43,159
x	Center Elementary School	\$672,044	\$27,695	\$7,442	\$8,821
x	Harrington Elementary School	\$2,294,610	\$11,193	\$66,344	\$78,491
x	McCarthy Middle School	\$1,317,590	\$10,435	\$54,102	\$61,474
x	Parker Middle School	\$2,494,395	\$32,734	\$32,577	\$38,702
x	South Row Elementary School	\$897,116	\$11,193	\$32,262	\$38,056
x	Community Education School	\$995,992	\$11,185	\$16,250	\$19,856
x	Schools Central Administration	\$103,820	\$3,376	-	-
	<b>Total Education Facilities</b>	<b>\$13,912,841</b>	<b>\$195,941</b>	<b>\$285,385</b>	<b>\$334,734</b>

## Project Financials: Cash Flow

General Obligation Bond Financing											
Year	Annual Energy and O&M Savings	Estimated Annual Solar Savings	Estimated SREC Value	Annual M&V Cost	Net Savings	End of Year Principle Balance	Principle Payment	Interest Payment	Total Debt Service	Annual Cash Flow	Cumulative Cash Flow
1	\$357,711	\$333,522	\$391,517	\$18,446	\$1,064,303	\$17,239,546	\$907,345	\$362,938	\$1,270,282	(\$205,979)	(\$205,979)
2	\$370,231	\$343,124	\$389,168	\$18,999	\$1,083,523	\$16,332,201	\$907,345	\$344,791	\$1,252,135	(\$168,613)	(\$374,592)
3	\$383,189	\$353,002	\$386,833	\$19,569	\$1,103,454	\$15,424,857	\$907,345	\$326,644	\$1,233,989	(\$130,534)	(\$505,126)
4	\$396,601	\$363,165	\$384,512	\$20,156	\$1,124,121	\$14,517,512	\$907,345	\$308,497	\$1,215,842	(\$91,721)	(\$596,847)
5	\$410,482	\$373,621	\$382,204	\$20,761	\$1,145,546	\$13,610,168	\$907,345	\$290,350	\$1,197,695	(\$52,149)	(\$648,996)
6	\$424,848	\$384,377	\$379,911	\$21,384	\$1,167,753	\$12,702,823	\$907,345	\$272,203	\$1,179,548	(\$11,795)	(\$660,791)
7	\$439,718	\$395,443	\$377,632	\$22,025	\$1,190,768	\$11,795,479	\$907,345	\$254,056	\$1,161,401	\$29,367	(\$631,424)
8	\$455,108	\$406,828	\$375,366	\$22,686	\$1,214,616	\$10,888,134	\$907,345	\$235,910	\$1,143,254	\$71,362	(\$560,062)
9	\$471,037	\$418,541	\$373,114	\$23,367	\$1,239,325	\$9,980,790	\$907,345	\$217,763	\$1,125,107	\$114,218	(\$445,844)
10	\$487,523	\$430,591	\$370,875	\$24,068	\$1,264,921	\$9,073,445	\$907,345	\$199,616	\$1,106,960	\$157,961	(\$287,883)
11	\$504,587	\$442,987		\$24,790	\$922,784	\$8,166,101	\$907,345	\$181,469	\$1,088,813	(\$166,029)	(\$453,912)
12	\$522,247	\$455,741		\$25,534	\$952,455	\$7,258,756	\$907,345	\$163,322	\$1,070,667	(\$118,212)	(\$572,124)
13	\$540,526	\$468,862		\$26,300	\$983,088	\$6,351,412	\$907,345	\$145,175	\$1,052,520	(\$69,432)	(\$641,556)
14	\$559,444	\$482,360		\$27,089	\$1,014,716	\$5,444,067	\$907,345	\$127,028	\$1,034,373	(\$19,657)	(\$661,212)
15	\$579,025	\$496,247		\$27,901	\$1,047,371	\$4,536,723	\$907,345	\$108,881	\$1,016,226	\$31,145	(\$630,067)
16	\$599,291	\$510,534		\$28,738	\$1,081,087	\$3,629,378	\$907,345	\$90,734	\$998,079	\$83,008	(\$547,059)
17	\$620,266	\$525,233		\$29,600	\$1,115,898	\$2,722,034	\$907,345	\$72,588	\$979,932	\$135,966	(\$411,093)
18	\$641,975	\$540,354		\$30,488	\$1,151,841	\$1,814,689	\$907,345	\$54,441	\$961,785	\$190,056	(\$221,037)
19	\$664,444	\$555,911		\$31,403	\$1,188,952	\$907,345	\$907,345	\$36,294	\$943,638	\$245,314	\$24,276
20	\$687,700	\$571,916		\$32,345	\$1,227,270	\$0	\$907,345	\$18,147	\$925,491	\$301,779	\$326,055
	\$10,115,953	\$8,852,359	\$3,811,131	\$495,651	\$22,283,792		\$18,146,890	\$3,810,847	\$21,957,737		\$24,276

# ANNUAL CARBON FOOTPRINT REDUCTION



Questions

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# Capital Improvements

Capital Improvement Program Summary 2014-2023 Reduction with ESCO			
School Buildings		13,912,841	
Town Buildings		4,234,049	
	Total	18,146,890	
Removed from existing Capital Plan		-3,916,889	
	Sub Total	14,230,001	
Total PV cost from ESCO		<u>-6,570,907</u>	
Total Capital improvements not on Plan		7,659,094	
Removed from existing Capital Plan		3,916,889	
Capital Improvements not on Plan		<u>7,659,094</u>	
	Total Capital Improvements	11,575,983	

# Capital Improvements

Capital Improvement Program Summary 2014-2023 Reduction with ESCO			
Univent Air Handling Replacemant	(5 Schools)		2,993,109
DDC Controls System	(all Schools)		168,477
Parking Lot Lights	(all Schools, some Town & Street lights)		412,266
Sensor Lighting Project	(all buildings)		80,000
CHS Stadium field upgrade			146,717
Senior Center HVAC upgrade			60,320
Town Hall Gym HVAC Upgrade			30,000
Country Club HVAC upgrade			<u>26,000</u>
		Total from Capital Plan	3,916,889

**10 Year Plan vs. ESCO**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
PLAN	1,493,545	2,983,477	3,644,485	2,39,840	2,367,651	2,434,254	1,019,411	1,921,940	368,528	198,950	<b>18,830,722</b>
ESCO	1,493,545	714,621	2,454,059	2,251,763	2,367,651	2,244,924	928,021	1,891,700	368,528	198,950	<b>14,913,833</b>
											<b>3,916,889</b>

## Project Financials: Town Facilities

Total Town Facilities Cost and Savings		Total Cost	Total Annual Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
ECM #	ECM Name				
1	Lighting - Fixture Retrofit	\$417,430	\$26,572		
2	Lighting - Fixture Controls	\$41,354	\$2,153		
3	Building Envelope - Weatherization	\$144,687	\$6,628		
4	Building Envelope - Roof/Wall/Attic Insulation	\$21,995	\$838		
5	Building Envelope - Window Replacement	\$4,461	\$117		
6	Building Controls - Energy Management System Upgrades	\$319,269	\$2,139		
8	Heating System - Furnace/DX Cooling Unit Replacement	\$121,267	\$1,251		
9	Heating System - Air Handler Replacement	\$41,948	\$686		
10	Heating System - Boiler Replacement	\$187,718	\$1,480		
12	Heating System - Pipe and Valve Insulation	\$2,288	\$496		
15	Cooling System - Ductless Split System	\$660,092	\$1,155		
19	Pumping System - Condensing DHW Unit	\$40,448	\$112		
20	Renewable Energy- Photovoltaic Generation	\$970,200	\$0	\$48,137	\$56,783
25	Vending Machine Controllers	\$1,519	\$801		
26	Walk-in Coolers / Walk-in Freezers	\$11,463	\$1,269		
28	Energy Efficient Transformers	\$5,165	\$483		
29	Street Lights	\$1,230,851	\$114,961		
	<b>Total Town Facilities</b>	<b>\$4,234,049</b>	<b>\$161,770</b>	<b>\$48,137</b>	<b>\$56,783</b>

Project Financials: School Facilities

Total School Facilities Cost and Savings		Total Cost	Total Annual Energy and O&M Saving	Estimated Annual kWh Production \$	Estimated Annual SREC Value \$
ECM #	ECM Name				
1	Lighting - Fixture Retrofit	\$557,129	\$27,014		
2	Lighting - Fixture Controls	\$199,471	\$8,577		
3	Building Envelope - Weatherization	\$215,392	\$14,404		
4	Building Envelope - Roof/Wall/Attic Insulation	\$359,455	\$14,370		
5	Building Envelope - Window Replacement	\$5,502	\$173		
6	Building Controls - Energy Management System Upgrades	\$3,032,583	\$56,679		
7	Building Controls - Install VFD on Fans	\$165,190	\$14,913		
12	Heating System - Pipe and Valve Insulation	\$2,362	\$927		
13	Heating System - Install New Unit Ventilators, DDC Inclusion	\$2,497,261	\$8,911		
14	Cooling System - Install New Unit Ventilators w/DX Cooling,	\$189,270	\$1,408		
17	Cooling System - Chiller Replacement	\$134,353	\$901		
18	Pumping System - VFD on Hot Water Pumps	\$17,714	\$2,242		
20	Renewable Energy- Photovoltaic Generation	\$5,613,936	\$0	\$285,385	\$334,734
21	Motors - Energy Efficient Motor Replacement	\$13,286	\$205		
24	Water Conservation	\$132,341	\$6,336		
25	Vending Machine Controllers	\$6,048	\$3,066		
26	Walk-in Coolers / Walk-in Freezers	\$66,761	\$7,947		
27	Steam to Hot Water Conversion	\$530,890	\$7,277		
28	Energy Efficient Transformers	\$173,896	\$20,591		
	Total Education Facilities	\$13,912,841	\$195,941	\$285,385	\$334,734

