

Town of Wayland

Energy Saving Performance Contracting Program Review and Update



November 2013

Performance Contracting Overview

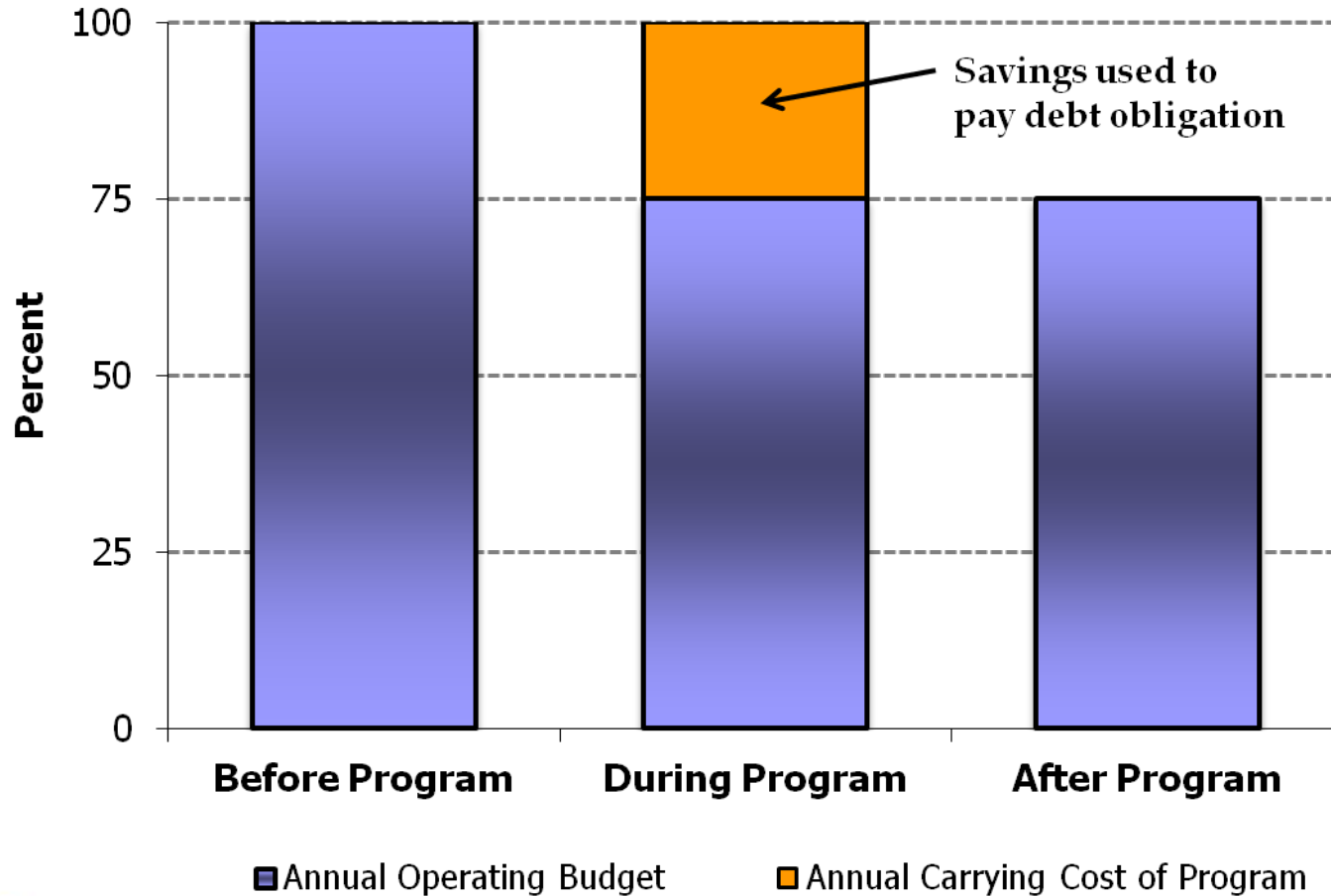
General Approach

- ❖ Design-build energy efficiency project that leverages existing operating and energy budgets to implement turnkey energy efficiency solutions, supported by annual savings guarantee :
 - ❑ Upgrade building infrastructure and increase building efficiency
 - ❑ Reduce operating and maintenance costs
 - ❑ Enhance operating staff productivity
 - ❑ Implement renewable energy strategies
 - ❑ Improve indoor air quality
 - ❑ Enhance core curriculum by integrating innovative technologies with educational objectives
- ❖ Full scope construction management



Performance Contracting Overview

Illustrative Example – 25% Operating Cost Savings



Beacon's Client Success

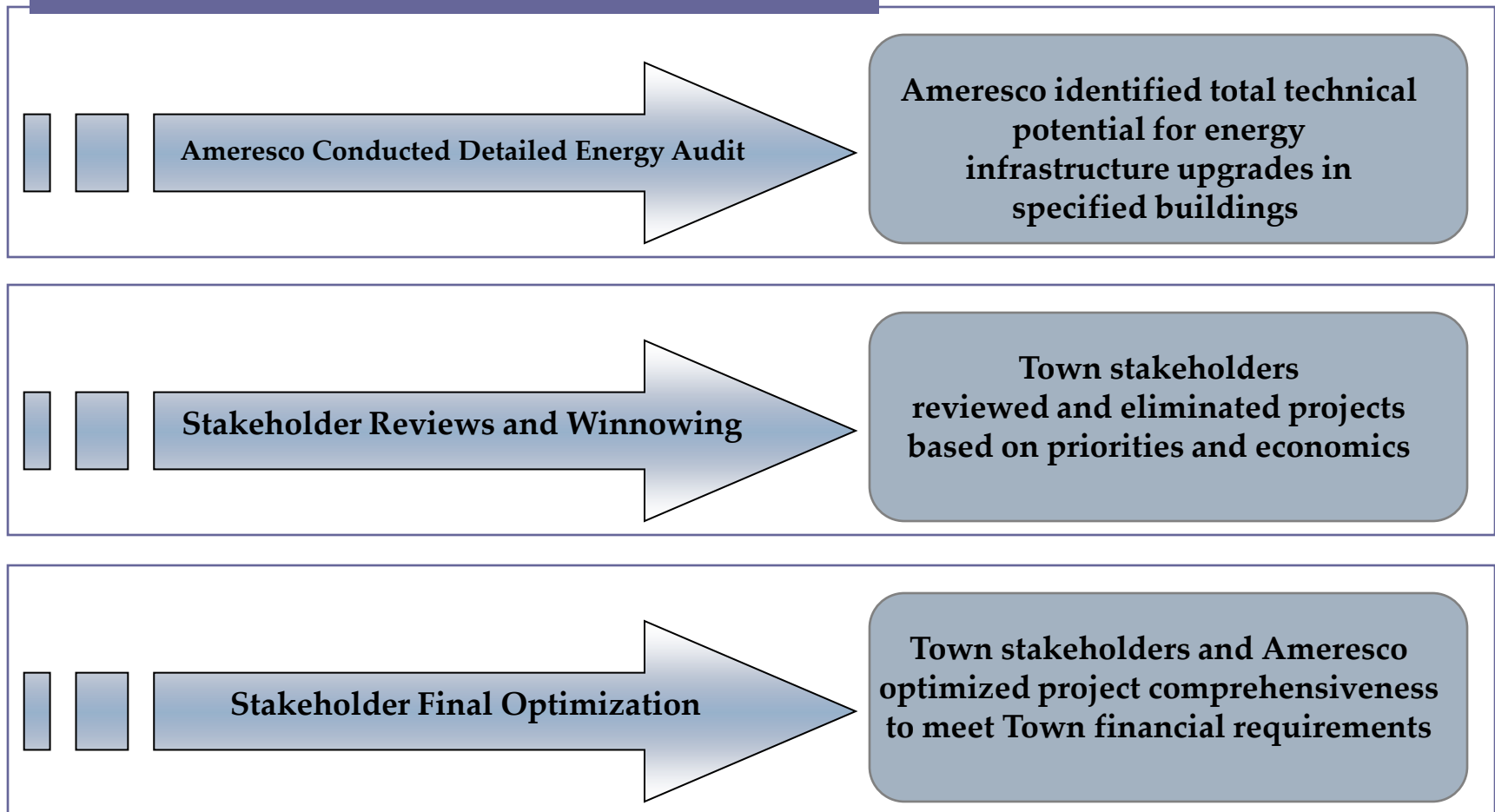
Recent Massachusetts Performance Contracts

- ❖ Town/Schools of Watertown
- ❖ Town/Schools of Dedham
- ❖ Town of Georgetown
- ❖ Town/Schools of Medway
- ❖ City/Schools of Northampton
- ❖ Town/Schools of Reading
- ❖ City/Schools of Worcester
- ❖ Town of Charlemont
- ❖ Town/Schools of Orange
- ❖ Town/Schools of Sunderland
- ❖ Town/Schools of Belchertown
- ❖ Town/Schools of South Hadley
- ❖ Town/Schools of Greenfield
- ❖ Minuteman Regional School District
- ❖ Town/Schools of Leverett
- ❖ Town of Gill
- ❖ Town of Montague
- ❖ Gill-Montague Regional School District
- ❖ Town of Shirley
- ❖ Medway Public Schools



Program Optimization

Winnowing Process to Achieve Best Value



Program Optimization

Winnowing Process Results

- ❖ Base Program – Budget Neutral
 - ❑ 8 Town and School Buildings
 - ❑ 47 Energy Infrastructure Upgrade Projects
 - ❑ \$2,047,451 in Energy Infrastructure Investments from Ameresco
 - ❑ \$60,000 Exterior Lighting upgrade from NStar vendor

- ❖ Optimized Program – Capital Investment
 - ❑ 8 Town and School Buildings
 - ❑ 49 Energy Infrastructure Upgrade Projects
 - Omit VAV at Town Building and add 3 additional measures
 - ❑ \$2,755,117 in Energy Infrastructure Investments from Ameresco
 - ❑ \$60,000 Exterior Lighting upgrade from NStar vendor



Program Summary

Budget Neutral Program

❖ Town Costs:

- ❑ Total Program Costs: \$2,107,451
- ❑ Total Offsets:
 - \$119,460 Utility Incentives
 - \$60,000 Balance Green Communities Grant-Round 1
- ❑ Net Cost to Finance after Incentives: \$1,927,991
- ❑ 20-year Town Debt Service and Measurement & Verification Obligations: \$2,868,591

❖ Town Benefits Used to Pay Obligations:

- ❑ 20-year Ameresco Guaranteed Savings: \$3,443,587
- ❑ 20-year Additional Savings from Exterior Lighting: \$222,811

❖ Net Benefits over 20 Years:

- ❑ Additional Cashflow to Town : \$797,807
- ❑ Additional Benefit to Town from anticipated Green Communities Grant - Round 2 funds, estimated at \$135,000 in Spring 2014



Program Summary

Optimized Program

❖ Town Costs:

- ❑ Total Program Costs: \$2,815,117
- ❑ Total Offsets:
 - \$140,160 Utility Incentives
 - \$60,000 Balance Green Communities Grant-Round 1
 - \$500,000 Town Capital Contribution (\$365,000 additional revenues needed plus \$135,000 from anticipated Green Communities Grant - Round 2)
- ❑ Net Cost to Finance after Incentives and Contribution: \$2,114,957
- ❑ 20-year Town Debt Service and M&V Obligations: \$3,119,931

❖ Town Benefits Used to Pay Obligations:

- ❑ 20-year Ameresco Guaranteed Savings: \$3,774,019
- ❑ 20-year Additional Savings from Exterior Lighting: \$222,811

❖ Net Benefits over 20 Years:

- ❑ Additional Cashflow to Town : \$876,899



Proposed Budget Neutral Program

Energy Conservation Measures by Building

Town of Wayland Energy Conservation Measures (ECMs)	Lighting System Improvements	Lighting Controls	Exterior Lighting Improvements	Water Improvements	Energy Efficient Motors	Controls for Kitchen Fridge/Freezer Fans	VFD's for Pumps	Weatherization	Boiler Improvements	Oil to Gas Conversion	VAV Conversion	Replace Transformers	RTU Replacement	Boiler Replacement - One Boiler	Demand Control Ventilation
Town Building	X		X	X	X			X			X		X	X	
Public Safety Building	X	X	X	X				X							
Library	X	X	X	X				X		X					
Fire Station #2	X	X	X	X				X							
Highway Department Building			X												
High School			X												
Middle School	X	X	X	X		X		X				X			X
Claypit Hill Elementary	X	X	X	X			X	X						X	
Happy Hollow Elementary	X	X	X	X		X	X	X						X	
Loker Elementary	X	X	X	X				X	X						

Proposed Budget Neutral Program

Economics by Building

	Measure Costs	Energy and Operational Savings	Rebates	Measure Cost After Rebate	Simple Payback (years)	Baseline	Percent Saved
Town Building	\$ 536,885	\$ 19,388	\$ 20,550	\$ 516,335	26.63	\$ 139,335	13.9%
Public Safety Building	\$ 41,301	\$ 5,648	\$ 5,195	\$ 36,106	6.39	\$ 63,964	8.8%
Library	\$ 119,055	\$ 11,767	\$ 9,880	\$ 109,175	9.28	\$ 29,970	39.3%
Fire Station #2	\$ 15,278	\$ 838	\$ 1,615	\$ 13,663	16.29	\$ 14,379	5.8%
Middle School	\$ 446,620	\$ 52,724	\$ 40,295	\$ 406,325	7.71	\$ 235,389	22.4%
Claypit Hill Elementary	\$ 356,666	\$ 15,135	\$ 28,240	\$ 328,426	21.70	\$ 100,597	15.0%
Happy Hollow Elementary	\$ 317,069	\$ 12,358	\$ 11,155	\$ 305,914	24.76	\$ 79,292	15.6%
Loker Elementary	\$ 134,579	\$ 12,680	\$ 2,530	\$ 132,049	10.41	\$ 81,622	15.5%
Contingency - All Buildings	\$ 80,000	\$ -		\$ 80,000			
Exterior Lighting - All Bldgs	\$ 60,000	\$ 8,292	\$ 60,000	\$ -	-		
Totals	\$ 2,107,451	\$ 138,831	\$ 179,460	\$ 1,927,991	13.89	\$ 744,549	18.6%



Proposed Budget Neutral Program

Cashflow Analysis

YEAR	PRINCIPAL OUTSTANDING	COST			SAVINGS			CASHFLOW
		ANNUAL DEBT SERVICE	ANNUAL COSTS	TOTAL ANNUAL COST	ENERGY SAVINGS	O&M SAVINGS	TOTAL ANNUAL SAVINGS	
1	\$1,927,991	\$129,591	\$10,300	\$139,891	\$128,829	\$10,002	\$138,831	(\$1,060)
2	\$1,856,240	\$129,591	\$10,609	\$140,200	\$132,694	\$10,302	\$142,996	\$2,796
3	\$1,782,336	\$129,591	\$10,927	\$140,519	\$136,674	\$10,611	\$147,286	\$6,767
4	\$1,706,214	\$129,591	\$11,255	\$140,846	\$140,775	\$10,930	\$151,704	\$10,858
5	\$1,627,809	\$129,591	\$11,593	\$141,184	\$144,998	\$11,258	\$156,255	\$15,071
6	\$1,547,052	\$129,591	\$11,941	\$141,532	\$149,348	\$11,595	\$160,943	\$19,411
7	\$1,463,873	\$129,591	\$12,299	\$141,890	\$153,828	\$11,943	\$165,771	\$23,881
8	\$1,378,198	\$129,591	\$12,668	\$142,259	\$158,443	\$8,201	\$166,644	\$24,385
9	\$1,289,952	\$129,591	\$13,048	\$142,639	\$163,196	\$8,447	\$171,643	\$29,004
10	\$1,199,060	\$129,591	\$13,439	\$143,030	\$168,092	\$8,700	\$176,793	\$33,762
11	\$1,105,440	\$129,591	\$13,842	\$143,434	\$173,135	\$8,961	\$182,096	\$38,663
12	\$1,009,012	\$129,591	\$14,258	\$143,849	\$178,329	\$9,230	\$187,559	\$43,710
13	\$909,691	\$129,591	\$14,685	\$144,277	\$183,679	\$9,507	\$193,186	\$48,909
14	\$807,390	\$129,591	\$15,126	\$144,717	\$189,189	\$9,792	\$198,982	\$54,264
15	\$702,021	\$129,591	\$15,580	\$145,171	\$194,865	\$10,086	\$204,951	\$59,780
16	\$593,490	\$129,591	\$16,047	\$145,638	\$200,711	\$10,389	\$211,100	\$65,461
17	\$481,704	\$129,591	\$16,528	\$146,120	\$206,732	\$10,700	\$217,433	\$71,313
18	\$366,563	\$129,591	\$17,024	\$146,616	\$212,934	\$11,021	\$223,956	\$77,340
19	\$247,969	\$129,591	\$17,535	\$147,126	\$219,322	\$11,352	\$230,674	\$83,548
20	\$125,817	\$129,591	\$18,061	\$147,652	\$225,902	\$11,693	\$237,595	\$89,942
TOTAL		\$2,591,826	\$276,765	\$2,868,591	\$3,461,676	\$204,722	\$3,666,398	\$797,807

Project Financial Assumptions



Escalator Assumptions		Project Offsets	
Energy Savings	3.0%	Exterior Ltg	\$ 8,292
M&V Costs	3.0%	Capital from Town	\$ -
O&M Savings	3.0%	Utility Rebates	\$ 119,460
Other Assumptions		Green Comm.	\$ 60,000
Borrowing Rate	3.00%	Total	\$ 187,752
Borrowing Term	20		

Proposed Optimized Program

Energy Conservation Measures by Building

Town of Wayland Energy Conservation Measures (ECMs)	Lighting System Improvements	Lighting Controls	Exterior Lighting Improvements	Integrated and New Energy Management System Option A	Water Improvements	Energy Efficient Motors	Controls for Kitchen Fridge/Freezer Fans	VFD's for Pumps	Weatherization	Boiler Improvements	Oil to Gas Conversion	Replace Transformers	RTU Replacement	Boiler Replacement - One Boiler	Demand Control Ventilation
Town Building	X		X	X	X	X			X				X	X	
Public Safety Building	X	X	X		X				X						
Library	X	X	X		X				X		X				
Fire Station #2	X	X	X		X				X						
Highway Department Building			X												
High School			X												
Middle School	X	X	X	X	X		X		X			X			X
Claypit Hill Elementary	X	X	X		X			X	X					X	
Happy Hollow Elementary	X	X	X	X	X		X	X	X					X	X
Loker Elementary	X	X	X		X				X	X					

Proposed Optimized Program

Economics by Building

	Measure Costs	Energy and Operational Savings	Rebates	Measure Cost After Rebate	Simple Payback (years)	Baseline	Percent Saved
Town Building	\$ 880,640	\$ 21,390	\$ 25,950	\$ 854,690	39.96	\$ 139,335	15.4%
Public Safety Building	\$ 41,301	\$ 5,648	\$ 5,195	\$ 36,106	6.39	\$ 63,964	8.8%
Library	\$ 119,055	\$ 11,767	\$ 9,880	\$ 109,175	9.28	\$ 29,970	39.3%
Fire Station #2	\$ 15,278	\$ 838	\$ 1,615	\$ 13,663	16.29	\$ 14,379	5.8%
Middle School	\$ 446,620	\$ 52,724	\$ 40,295	\$ 406,325	7.71	\$ 235,389	22.4%
Claypit Hill Elementary	\$ 356,666	\$ 15,135	\$ 28,240	\$ 328,426	21.70	\$ 100,597	15.0%
Happy Hollow Elementary	\$ 700,979	\$ 22,653	\$ 26,455	\$ 674,524	29.78	\$ 79,292	28.6%
Loker Elementary	\$ 134,579	\$ 12,680	\$ 2,530	\$ 132,049	10.41	\$ 81,622	15.5%
Contingency - All Buildings	\$ 60,000	\$ -		\$ 60,000			
Exterior Lighting-All Bldgs	\$ 60,000	\$ 8,292	\$ 60,000	\$ -	-		
Totals	\$ 2,815,117	\$ 151,128	\$ 200,160	\$ 2,614,957	17.30	\$ 744,549	20.3%



Proposed Optimized Program

Cashflow Analysis

YEAR	PRINCIPAL OUTSTANDING	COST			SAVINGS			CASHFLOW
		ANNUAL DEBT SERVICE	ANNUAL COSTS	TOTAL ANNUAL COST	ENERGY SAVINGS	O&M SAVINGS	TOTAL ANNUAL SAVINGS	
1	\$2,114,957	\$142,158	\$10,300	\$152,458	\$141,126	\$10,002	\$151,128	(\$1,330)
2	\$2,036,247	\$142,158	\$10,609	\$152,767	\$145,360	\$10,302	\$155,662	\$2,895
3	\$1,955,176	\$142,158	\$10,927	\$153,086	\$149,721	\$10,611	\$160,332	\$7,246
4	\$1,871,673	\$142,158	\$11,255	\$153,413	\$154,212	\$10,930	\$165,142	\$11,728
5	\$1,785,665	\$142,158	\$11,593	\$153,751	\$158,839	\$11,258	\$170,096	\$16,345
6	\$1,697,077	\$142,158	\$11,941	\$154,099	\$163,604	\$11,595	\$175,199	\$21,100
7	\$1,605,831	\$142,158	\$12,299	\$154,457	\$168,512	\$11,943	\$180,455	\$25,998
8	\$1,511,847	\$142,158	\$12,668	\$154,826	\$173,567	\$8,201	\$181,768	\$26,942
9	\$1,415,044	\$142,158	\$13,048	\$155,206	\$178,774	\$8,447	\$187,221	\$32,015
10	\$1,315,337	\$142,158	\$13,439	\$155,597	\$184,137	\$8,700	\$192,838	\$37,240
11	\$1,212,639	\$142,158	\$13,842	\$156,001	\$189,662	\$8,961	\$198,623	\$42,622
12	\$1,106,860	\$142,158	\$14,258	\$156,416	\$195,351	\$9,230	\$204,582	\$48,166
13	\$997,908	\$142,158	\$14,685	\$156,844	\$201,212	\$9,507	\$210,719	\$53,875
14	\$885,686	\$142,158	\$15,126	\$157,284	\$207,248	\$9,792	\$217,041	\$59,756
15	\$770,099	\$142,158	\$15,580	\$157,738	\$213,466	\$10,086	\$223,552	\$65,814
16	\$651,043	\$142,158	\$16,047	\$158,205	\$219,870	\$10,389	\$230,258	\$72,053
17	\$528,416	\$142,158	\$16,528	\$158,687	\$226,466	\$10,700	\$237,166	\$78,479
18	\$402,111	\$142,158	\$17,024	\$159,183	\$233,260	\$11,021	\$244,281	\$85,098
19	\$272,016	\$142,158	\$17,535	\$159,693	\$240,258	\$11,352	\$251,610	\$91,916
20	\$138,018	\$142,158	\$18,061	\$160,219	\$247,465	\$11,693	\$259,158	\$98,938
TOTAL		\$2,843,166	\$276,765	\$3,119,931	\$3,792,108	\$204,722	\$3,996,830	\$876,899

Project Financial Assumptions

Escalator Assumptions		Project Offsets	
Energy Savings	3.0%	Exterior Ltg	\$ 8,292
M&V Costs	3.0%	Capital from Town	\$ 500,000
O&M Savings	3.0%	Utility Rebates	\$ 140,160
Other Assumptions		Green Comm.	\$ 60,000
Borrowing Rate	3.00%	Total	\$ 708,452
Borrowing Term	20		



Next Steps

- ❖ Finalize program selection
- ❖ Ameresco to finalize and deliver Investment Grade Audit Report
 - ❑ Measurement and Verification program
 - ❑ Commissioning program
 - ❑ Training program
- ❖ Stakeholder Meetings
 - ❑ Town Committees
 - ❑ Public forums



Questions

Thank You

Wayland Energy Committee
John Moynihan, Public Buildings Director
Owner's Agent, Beacon Integrated Solutions

