

LGEA Presentation

City of Atlantic City

July 26, 2022



New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

City of Atlantic City

- Jim Rutala – Grants Coordinator
- Eric Forbey – Supervisor
- Steve Lilley – Engineering Aide
- Scott Evans – Fire Chief
- Thomas Culleney – Deputy Fire Chief

NJ Clean Energy Program

- Sarah Walters – LGEA Project Manager
- Moussa Traore – LGEA Lead Auditor
- Nick Nocco – LGEA Project Auditor
- Arif Welcher – Government/Business Manager (BPU)

Utility Energy Efficiency Programs

- Greg Reinert – Atlantic City Electric (TRC)
- Nicholas Jackson – Atlantic City Electric (TRC)
- Kimberly Byk – South Jersey Gas

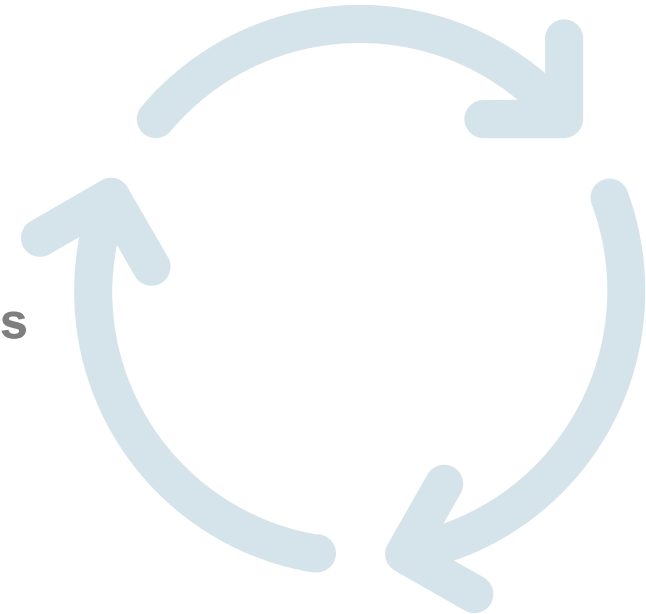


AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- C&I Transition of EE Programs
- Applicable NJCEP Programs
- Questions regarding the draft audit report
- Next steps for Atlantic City

LGEA PROCESS

- Application Approval
- Initial Call
- Facility Interviews
- Audit
- Benchmarking & Analysis
- Draft Reports
- LGEA Presentation
- Final Reports



SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Cooking and Refrigeration Equipment

Utility Consumption:

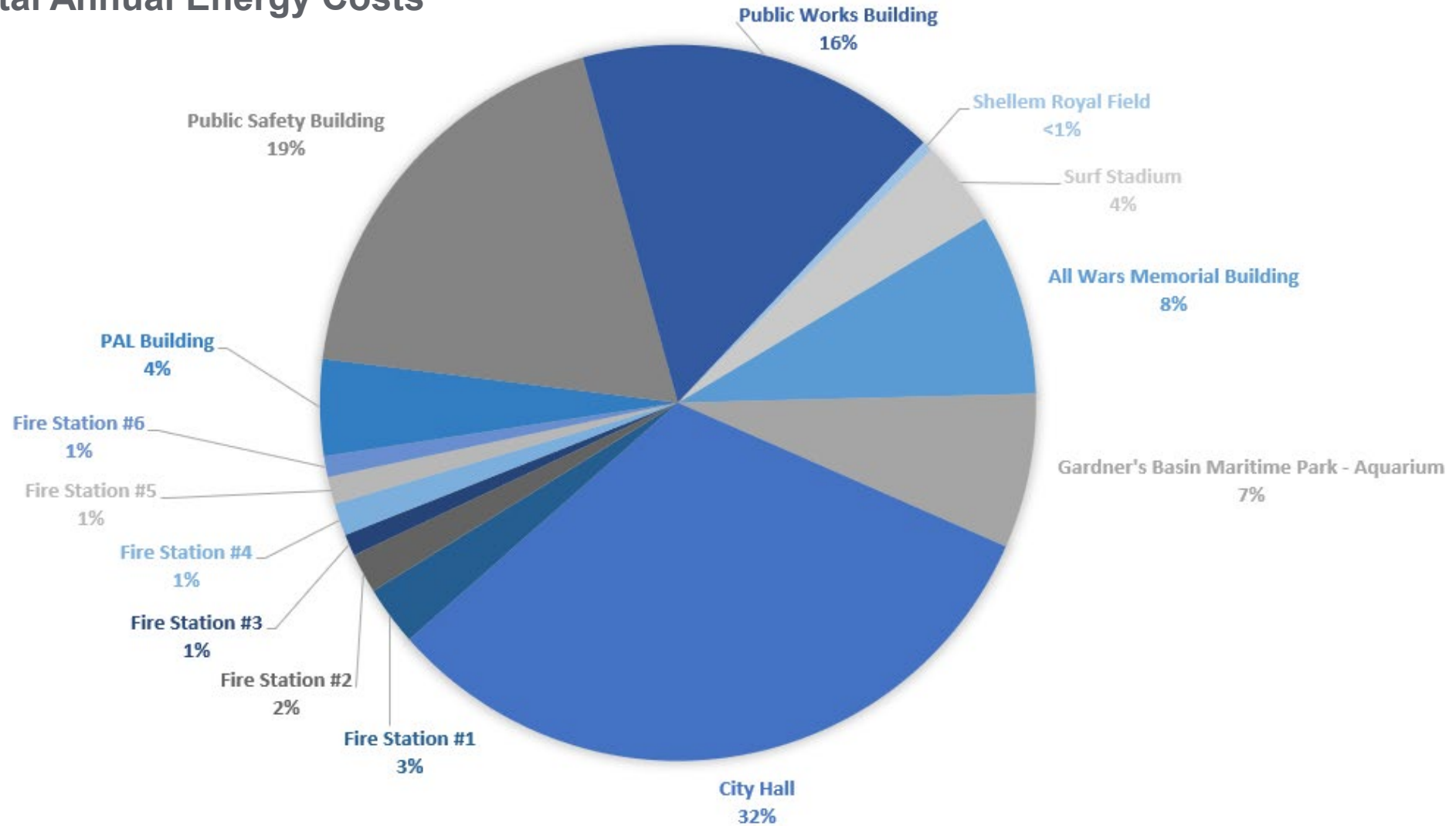
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Solar Consumption and Costs

Sites Visited/Analyzed

- All Wars Memorial Building
- Gardner's Basin Martime Park – Aquarium
- City Hall
- Fire Station #1
- Fire Station #2
- Fire Station #3
- Fire Station #4
- Fire Station #5
- Fire Station #6
- PAL Building
- Public Safety Building
- Public Works Building
- Shellem Royal Field
- Surf Stadium

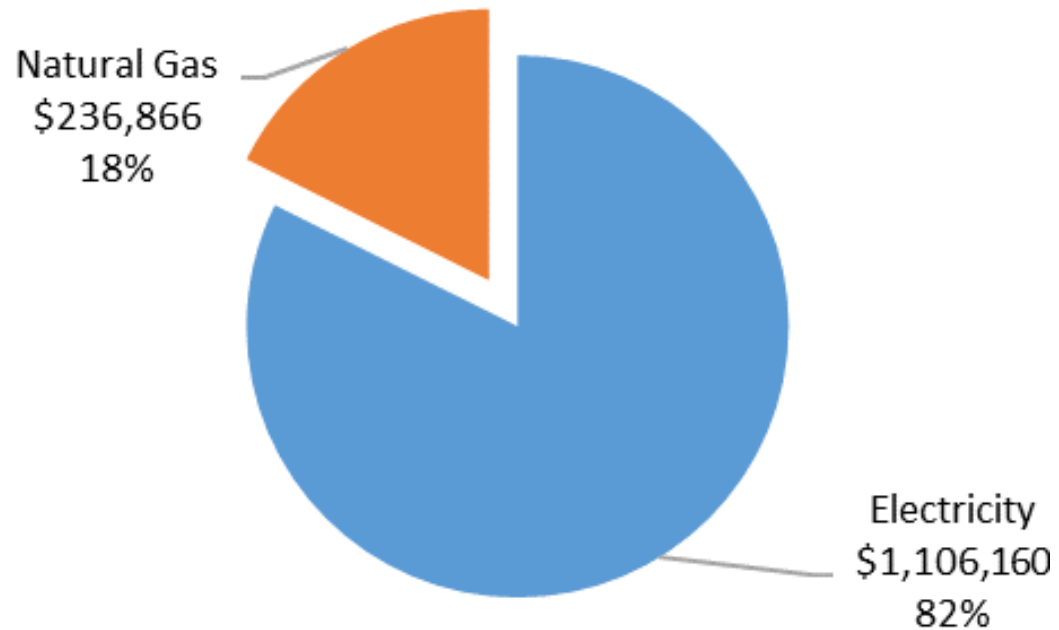
UTILITY BREAKOUT

Percent of Total Annual Energy Costs

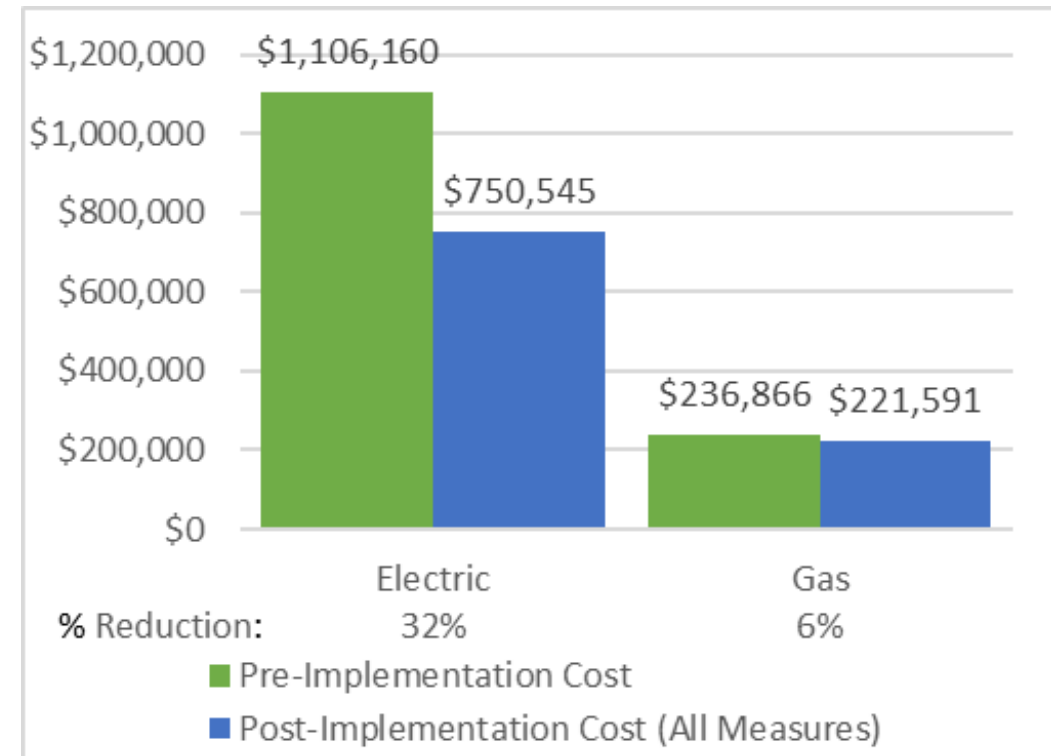


UTILITY BREAKOUT

Total Utility Costs



Pre & Post Implementation Cost



BENCHMARKING

ENERGY STAR® Statement of Energy Performance

N/A City of Atlantic City - Fire Station #4

Primary Property Type: Fire Station
Gross Floor Area (ft²): 15,134
Built: 1949

For Year Ending: August 31, 2021
Date Generated: March 29, 2022

ENERGY STAR® Score¹

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information		
Property Address City of Atlantic City - Fire Station #4 2700 Atlantic Ave. Atlantic City, New Jersey 08401	Property Owner Atlantic City 1301 Bacharach Blvd. Suite 703 Atlantic City, NJ 08401 609-347-5245	Primary Contact Anthony Swan 1301 Bacharach Boulevard Suite 703 Atlantic City, NJ 08401 609-347-5245 aswan@acnj.gov
Property ID: 19527840		
Energy Consumption and Energy Use Intensity (EUI)		
Site EUI 61.6 kBtu/ft²	Annual Energy by Fuel Natural Gas (kBtu) 739,466 (79%) Electric - Grid (kBtu) 193,023 (21%)	National Median Comparison National Median Site EUI (kBtu/ft²) 88.4 National Median Source EUI (kBtu/ft²) 124.9 % Diff from National Median Source EUI -30%
Source EUI 87 kBtu/ft²	Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year)	

Site EUI
61.6 kBtu/ft²

Source EUI
87 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²)	88.4
National Median Source EUI (kBtu/ft²)	124.9
% Diff from National Median Source EUI	-30%

Site Name	ENERGY STAR® Score
All Wars Memorial Building	N/A
Gardner's Basin Maritime Park – Aquarium	N/A
City Hall	28
Fire Station #1	N/A
Fire Station #2	N/A
Fire Station #3	N/A
Fire Station #4	N/A
Fire Station #5	N/A
Fire Station #6	N/A
PAL Building	N/A
Public Safety Building	N/A
Public Works Building	N/A
Shellem Royal Field	N/A
Surf Stadium	N/A

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

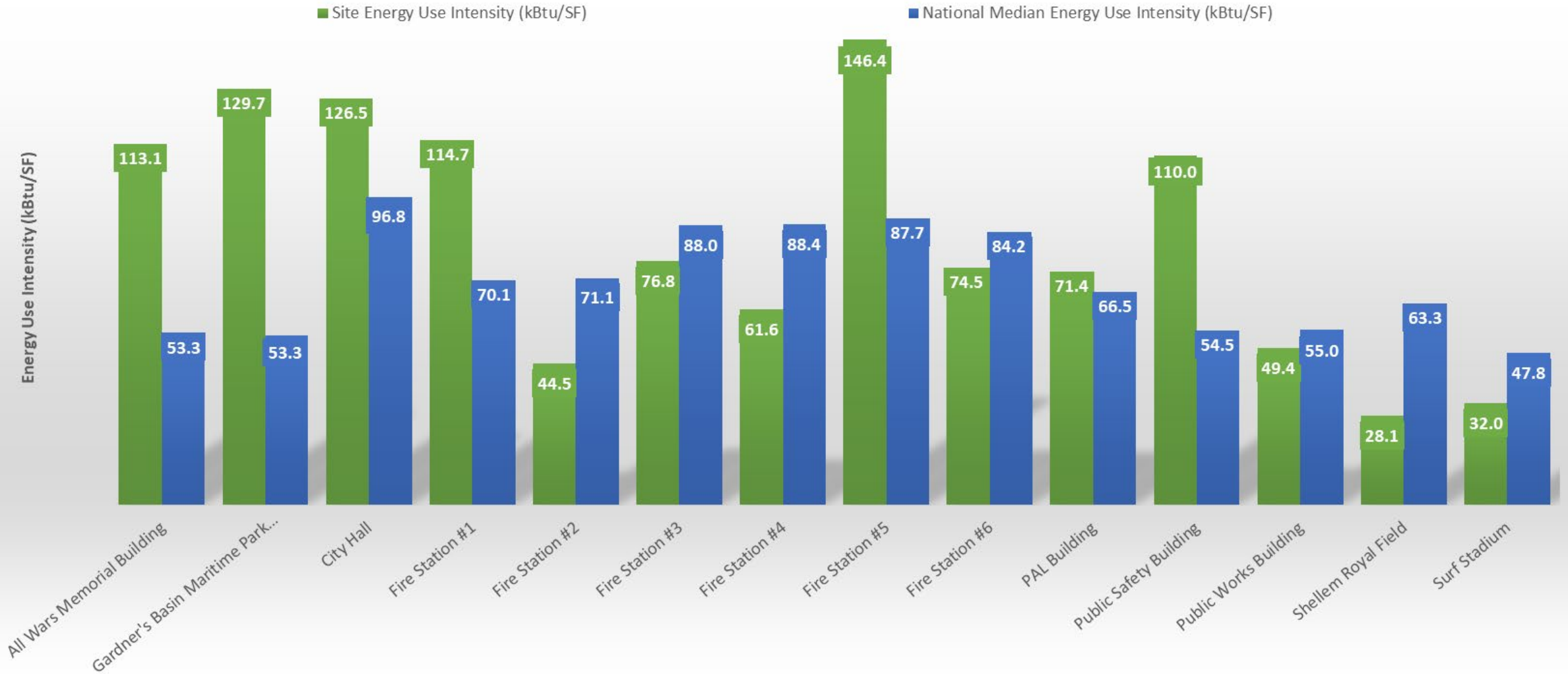
Licensed Professional

() _____

Professional Engineer or Registered Architect Stamp (if applicable)

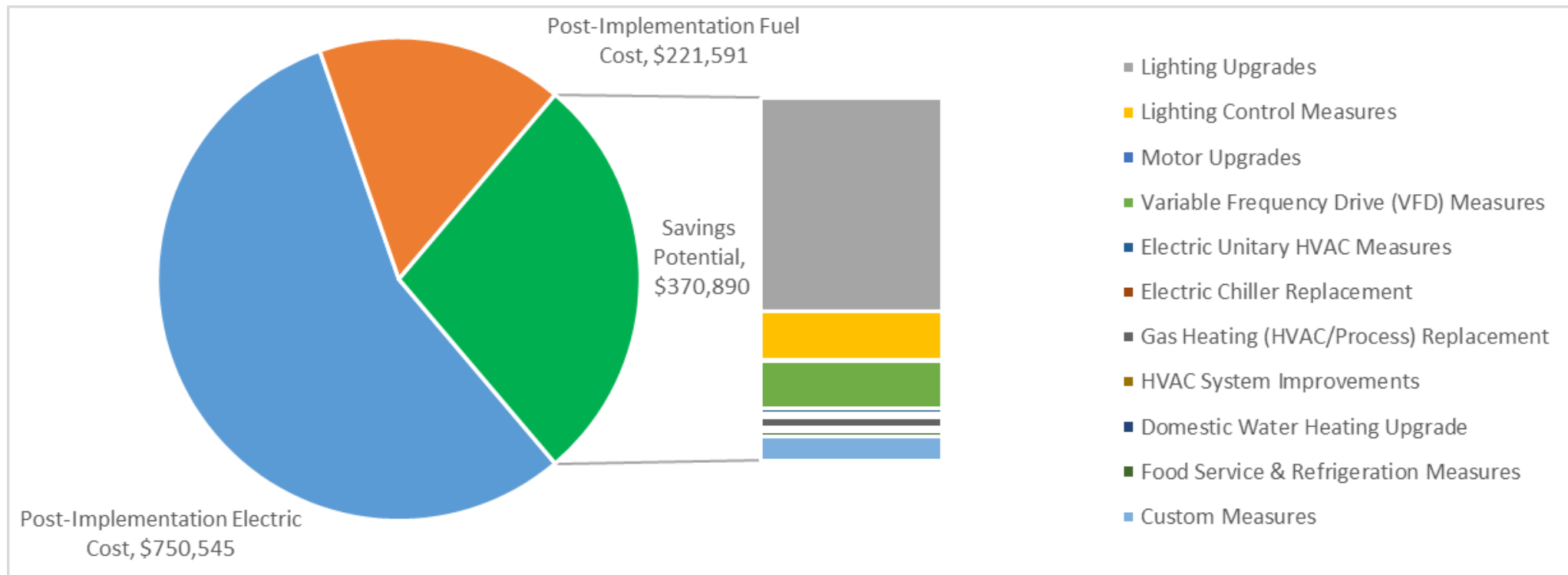
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

BENCHMARKING



ALL OPPORTUNITIES

Savings Potential



ALL OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		1,556,671	255.9	-290.0	\$218,023	\$493,731	\$96,147	\$397,584	1.8	1,533,604
ECM 1	Install LED Fixtures	440,076	53.6	-55.0	\$64,218	\$223,287	\$29,625	\$193,662	3.0	436,718
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	20,755	5.5	-4.4	\$2,971	\$8,325	\$1,251	\$7,074	2.4	20,382
ECM 3	Retrofit Fixtures with LED Lamps	1,095,840	196.9	-230.6	\$150,835	\$262,119	\$65,271	\$196,848	1.3	1,076,504
Lighting Control Measures		366,629	66.0	-76.3	\$50,816	\$265,206	\$62,460	\$202,746	4.0	360,263
ECM 4	Install Occupancy Sensor Lighting Controls	290,420	55.9	-61.5	\$40,241	\$219,456	\$29,595	\$189,861	4.7	285,250
ECM 5	Install Daylight Dimming/Photocell Controls	6,460	0.0	0.0	\$950	\$1,200	\$0	\$1,200	1.3	6,505
ECM 6	Install High/Low Lighting Controls	69,749	10.0	-14.8	\$9,625	\$44,550	\$32,865	\$11,685	1.2	68,508
Motor Upgrades		7,226	1.3	0.0	\$992	\$24,979	\$0	\$24,979	25.2	7,276
ECM 7	Premium Efficiency Motors	7,226	1.3	0.0	\$992	\$24,979	\$0	\$24,979	25.2	7,276
Variable Frequency Drive (VFD) Measures		329,905	72.8	77.5	\$47,867	\$211,480	\$32,375	\$179,105	3.7	341,289
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	49,906	7.3	0.0	\$6,751	\$12,237	\$2,300	\$9,937	1.5	50,255
ECM 9	Install VFDs on Constant Volume (CV) Fans	100,012	30.0	0.0	\$14,886	\$86,636	\$10,650	\$75,986	5.1	100,712
ECM 10	Install VFDs on Chilled Water Pumps	83,880	25.8	0.0	\$11,662	\$54,662	\$10,200	\$44,462	3.8	84,467
ECM 11	Install VFDs on Heating Water Pumps	87,483	9.6	0.0	\$12,221	\$48,154	\$9,000	\$39,154	3.2	88,095
ECM 12	Install VFDs on Kitchen Hood Fan Motors	8,623	0.1	77.5	\$2,348	\$9,791	\$225	\$9,566	4.1	17,761
Electric Unitary HVAC Measures		38,666	12.9	0.0	\$5,456	\$129,102	\$7,820	\$121,282	22.2	38,937
ECM 13	Install High Efficiency Air Conditioning Units	38,666	12.9	0.0	\$5,456	\$129,102	\$7,820	\$121,282	22.2	38,937
Electric Chiller Replacement		26,460	1.2	0.0	\$3,579	\$221,250	\$7,000	\$214,250	59.9	26,645
ECM 14	Install High Efficiency Chillers	26,460	1.2	0.0	\$3,579	\$221,250	\$7,000	\$214,250	59.9	26,645

ALL OPPORTUNITIES

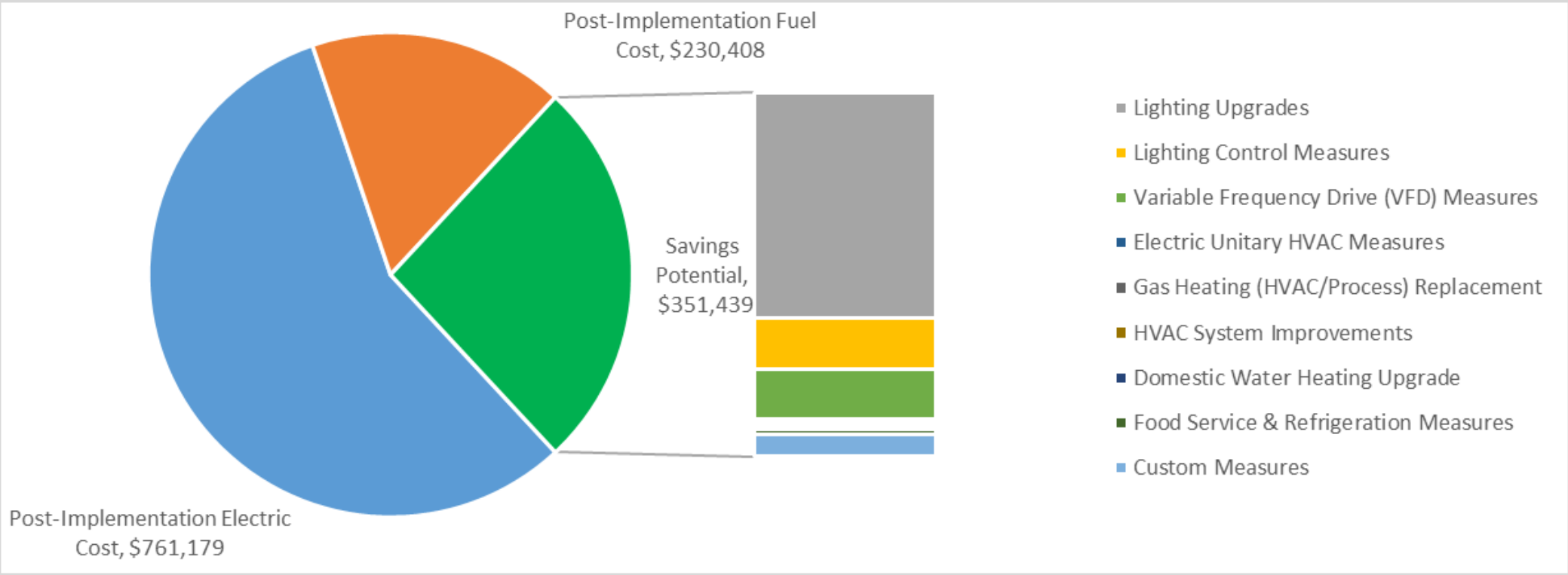
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement		0	0.0	760.3	\$10,230	\$289,178	\$22,112	\$267,066	26.1	89,027
ECM 15	Install High Efficiency Hot Water Boilers	0	0.0	706.5	\$9,468	\$263,490	\$20,612	\$242,878	25.7	82,717
ECM 16	Install High Efficiency Furnaces	0	0.0	53.9	\$762	\$25,688	\$1,500	\$24,188	31.7	6,310
HVAC System Improvements		8,750	0.0	168.0	\$3,628	\$17,180	\$230	\$16,950	4.7	28,478
ECM 17	Implement Demand Control Ventilation (DCV)	8,396	0.0	100.4	\$2,623	\$16,313	\$0	\$16,313	6.2	20,210
ECM 18	Install Pipe Insulation	354	0.0	67.6	\$1,005	\$867	\$230	\$637	0.6	8,267
Domestic Water Heating Upgrade		709	0.0	71.0	\$1,104	\$1,642	\$819	\$823	0.7	9,022
ECM 19	Install Low-Flow DHW Devices	709	0.0	71.0	\$1,104	\$1,642	\$819	\$823	0.7	9,022
Food Service & Refrigeration Measures		26,553	3.0	44.0	\$4,507	\$11,389	\$1,650	\$9,739	2.2	31,895
ECM 20	Food Service Equipment Replacement	0	0.0	44.0	\$627	\$4,839	\$1,000	\$3,839	6.1	5,157
ECM 21	Replace Refrigeration Equipment	3,201	0.4	0.0	\$434	\$1,950	\$0	\$1,950	4.5	3,223
ECM 22	Vending Machine Control	23,352	2.7	0.0	\$3,446	\$4,600	\$650	\$3,950	1.1	23,515
Custom Measures		143,055	0.0	369.8	\$24,687	\$152,818	\$0	\$152,818	6.2	187,359
ECM 23	Retro-Commissioning Study	127,165	0.0	335.5	\$21,799	\$72,054	\$0	\$72,054	3.3	167,336
ECM 24	Installation of an Energy Management System	12,654	0.0	34.4	\$2,330	\$69,414	\$0	\$69,414	29.8	16,765
ECM 25	Install Heat Pump Water Heater	3,236	0.0	0.0	\$558	\$11,350	\$0	\$11,350	20.3	3,259
TOTALS		2,504,624	413.1	1,124.4	\$370,890	\$1,817,954	\$230,614	\$1,587,341	4.3	2,653,794

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

COST EFFECTIVE OPPORTUNITIES

Savings Potential



COST EFFECTIVE OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		1,556,671	255.9	-290.0	\$218,023	\$493,731	\$96,147	\$397,584	1.8	1,533,604
ECM 1	Install LED Fixtures	440,076	53.6	-55.0	\$64,218	\$223,287	\$29,625	\$193,662	3.0	436,718
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	20,755	5.5	-4.4	\$2,971	\$8,325	\$1,251	\$7,074	2.4	20,382
ECM 3	Retrofit Fixtures with LED Lamps	1,095,840	196.9	-230.6	\$150,835	\$262,119	\$65,271	\$196,848	1.3	1,076,504
Lighting Control Measures		359,735	60.5	-74.8	\$49,656	\$244,022	\$59,655	\$184,367	3.7	353,492
ECM 4	Install Occupancy Sensor Lighting Controls	283,536	50.5	-60.0	\$39,083	\$198,722	\$26,930	\$171,792	4.4	278,490
ECM 5	Install Daylight Dimming/Photocell Controls	6,460	0.0	0.0	\$950	\$1,200	\$0	\$1,200	1.3	6,505
ECM 6	Install High/Low Lighting Controls	69,739	10.0	-14.8	\$9,623	\$44,100	\$32,725	\$11,375	1.2	68,497
Variable Frequency Drive (VFD) Measures		324,957	71.3	77.5	\$47,166	\$196,430	\$32,000	\$164,430	3.5	336,306
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	49,906	7.3	0.0	\$6,751	\$12,237	\$2,300	\$9,937	1.5	50,255
ECM 9	Install VFDs on Constant Volume (CV) Fans	95,064	28.4	0.0	\$14,184	\$71,585	\$10,275	\$61,310	4.3	95,729
ECM 10	Install VFDs on Chilled Water Pumps	83,880	25.8	0.0	\$11,662	\$54,662	\$10,200	\$44,462	3.8	84,467
ECM 11	Install VFDs on Heating Water Pumps	87,483	9.6	0.0	\$12,221	\$48,154	\$9,000	\$39,154	3.2	88,095
ECM 12	Install VFDs on Kitchen Hood Fan Motors	8,623	0.1	77.5	\$2,348	\$9,791	\$225	\$9,566	4.1	17,761
Electric Unitary HVAC Measures		27,044	5.3	0.0	\$3,658	\$47,438	\$2,745	\$44,693	12.2	27,233
ECM 13	Install High Efficiency Air Conditioning Units	27,044	5.3	0.0	\$3,658	\$47,438	\$2,745	\$44,693	12.2	27,233
Gas Heating (HVAC/Process) Replacement		0	0.0	144.5	\$1,897	\$7,572	\$591	\$6,981	3.7	16,923
ECM 15	Install High Efficiency Hot Water Boilers	0	0.0	144.5	\$1,897	\$7,572	\$591	\$6,981	3.7	16,923
HVAC System Improvements		8,750	0.0	168.0	\$3,628	\$17,180	\$230	\$16,950	4.7	28,478
ECM 17	Implement Demand Control Ventilation (DCV)	8,396	0.0	100.4	\$2,623	\$16,313	\$0	\$16,313	6.2	20,210
ECM 18	Install Pipe Insulation	354	0.0	67.6	\$1,005	\$867	\$230	\$637	0.6	8,267
Domestic Water Heating Upgrade		709	0.0	71.0	\$1,104	\$1,642	\$819	\$823	0.7	9,022
ECM 19	Install Low-Flow DHW Devices	709	0.0	71.0	\$1,104	\$1,642	\$819	\$823	0.7	9,022
Food Service & Refrigeration Measures		26,553	3.0	44.0	\$4,507	\$11,389	\$1,650	\$9,739	2.2	31,895
ECM 20	Food Service Equipment Replacement	0	0.0	44.0	\$627	\$4,839	\$1,000	\$3,839	6.1	5,157
ECM 21	Replace Refrigeration Equipment	3,201	0.4	0.0	\$434	\$1,950	\$0	\$1,950	4.5	3,223
ECM 22	Vending Machine Control	23,352	2.7	0.0	\$3,446	\$4,600	\$650	\$3,950	1.1	23,515
Custom Measures		127,165	0.0	335.5	\$21,799	\$72,054	\$0	\$72,054	3.3	167,336
ECM 23	Retro-Commissioning Study	127,165	0.0	335.5	\$21,799	\$72,054	\$0	\$72,054	3.3	167,336
TOTALS		2,431,585	396.0	475.7	\$351,439	\$1,091,456	\$193,837	\$897,619	2.6	2,504,290

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

ALL WARS MEMORIAL BUILDING

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			67,465	12.0	-12	\$10,106	\$20,300	\$3,520	\$16,780	1.7	66,488
ECM 1	Install LED Fixtures	Yes	9,075	0.0	0	\$1,382	\$5,771	\$1,400	\$4,371	3.2	9,139
ECM 2	Retrofit Fixtures with LED Lamps	Yes	58,390	12.0	-12	\$8,724	\$14,530	\$2,120	\$12,410	1.4	57,349
Lighting Control Measures			27,447	5.4	-6	\$4,100	\$18,201	\$4,925	\$13,276	3.2	26,955
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	21,513	4.2	-5	\$3,214	\$12,576	\$1,460	\$11,116	3.5	21,127
ECM 4	Install High/Low Lighting Controls	Yes	5,934	1.1	-1	\$886	\$5,625	\$3,465	\$2,160	2.4	5,827
Variable Frequency Drive (VFD) Measures			97,427	25.8	55	\$15,577	\$67,947	\$11,225	\$56,722	3.6	104,560
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	64,372	19.7	0	\$9,802	\$40,560	\$6,675	\$33,885	3.5	64,822
ECM 6	Install VFDs on Chilled Water Pumps	Yes	11,901	3.9	0	\$1,812	\$10,303	\$2,200	\$8,103	4.5	11,985
ECM 7	Install VFDs on Heating Water Pumps	Yes	14,282	2.1	0	\$2,175	\$10,303	\$2,200	\$8,103	3.7	14,382
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	6,871	0.0	55	\$1,789	\$6,781	\$150	\$6,631	3.7	13,371
HVAC System Improvements			7,224	0.0	45	\$1,704	\$8,157	\$0	\$8,157	4.8	12,518
ECM 9	Implement Demand Control Ventilation (DCV)	Yes	7,224	0.0	45	\$1,704	\$8,157	\$0	\$8,157	4.8	12,518
Domestic Water Heating Upgrade			0	0.0	9	\$128	\$244	\$122	\$122	1.0	1,111
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	9	\$128	\$244	\$122	\$122	1.0	1,111
TOTALS (COST EFFECTIVE MEASURES)			199,563	43.2	91	\$31,615	\$114,848	\$19,792	\$95,056	3.0	211,632
TOTALS (ALL MEASURES)			199,563	43.2	91	\$31,615	\$114,848	\$19,792	\$95,056	3.0	211,632

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GARDNER'S BASIN MARTIME PARK - AQUARIUM

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			26,053	5.8	-5	\$3,744	\$8,303	\$848	\$7,455	2.0	25,639
ECM 1	Install LED Fixtures	Yes	11,095	2.7	-2	\$1,592	\$2,674	\$45	\$2,629	1.7	10,896
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	19	0.0	0	\$3	\$49	\$3	\$46	16.3	19
ECM 3	Retrofit Fixtures with LED Lamps	Yes	14,939	3.1	-3	\$2,150	\$5,580	\$800	\$4,780	2.2	14,724
Lighting Control Measures			7,967	1.9	-2	\$1,143	\$9,002	\$4,585	\$4,417	3.9	7,824
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	3,163	0.8	-1	\$454	\$4,052	\$560	\$3,492	7.7	3,106
ECM 5	Install High/Low Lighting Controls	Yes	4,805	1.1	-1	\$689	\$4,950	\$4,025	\$925	1.3	4,718
Variable Frequency Drive (VFD) Measures			20,871	4.8	0	\$3,056	\$24,390	\$2,700	\$21,690	7.1	21,017
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	5,981	1.5	0	\$876	\$7,145	\$300	\$6,845	7.8	6,022
ECM 7	Install VFDs on Chilled Water Pumps	Yes	10,099	2.8	0	\$1,479	\$9,476	\$2,000	\$7,476	5.1	10,169
ECM 8	Install VFDs on Heating Water Pumps	Yes	4,792	0.6	0	\$702	\$7,768	\$400	\$7,368	10.5	4,825
Unitary HVAC Measures			2,700	1.4	0	\$395	\$12,572	\$630	\$11,942	30.2	2,719
ECM 9	Install High Efficiency Air Conditioning Units	No	2,700	1.4	0	\$395	\$12,572	\$630	\$11,942	30.2	2,719
Gas Heating (HVAC/Process) Replacement			0	0.0	63	\$871	\$23,333	\$1,820	\$21,513	24.7	7,342
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	63	\$871	\$23,333	\$1,820	\$21,513	24.7	7,342
Domestic Water Heating Upgrade			0	0.0	1	\$13	\$14	\$7	\$7	0.5	111
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$13	\$14	\$7	\$7	0.5	111
Food Service & Refrigeration Measures			1,954	0.2	0	\$286	\$460	\$50	\$410	1.4	1,968
ECM 12	Vending Machine Control	Yes	1,954	0.2	0	\$286	\$460	\$50	\$410	1.4	1,968
Custom Measures			12,654	0.0	34	\$2,330	\$69,414	\$0	\$69,414	29.8	16,765
ECM 13	Installation of an Energy Management System	No	12,654	0.0	34	\$2,330	\$69,414	\$0	\$69,414	29.8	16,765
TOTALS (COST EFFECTIVE MEASURES)			56,846	12.7	-6	\$8,243	\$42,169	\$8,190	\$33,978	4.1	56,560
TOTALS (ALL MEASURES)			72,199	14.1	91	\$11,839	\$147,487	\$10,640	\$136,847	11.6	83,385

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** - Simple Payback Period is based on net measure costs (i.e. after incentives).

CITY HALL

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		481,150	78.4	-98	\$63,773	\$105,209	\$27,438	\$77,771	1.2	473,029
ECM 1	Install LED Fixtures	12,023	0.0	0	\$1,626	\$4,296	\$450	\$3,846	2.4	12,107
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	3,872	1.8	-1	\$513	\$2,175	\$328	\$1,847	3.6	3,805
ECM 3	Retrofit Fixtures with LED Lamps	465,255	76.6	-97	\$61,634	\$98,738	\$26,660	\$72,078	1.2	457,117
Lighting Control Measures		134,350	22.2	-28	\$17,798	\$61,445	\$15,190	\$46,255	2.6	132,000
ECM 4	Install Occupancy Sensor Lighting Controls	111,203	19.3	-23	\$14,731	\$50,420	\$6,160	\$44,260	3.0	109,258
ECM 5	Install High/Low Lighting Controls	23,147	2.9	-5	\$3,066	\$11,025	\$9,030	\$1,995	0.7	22,742
Variable Frequency Drive (VFD) Measures		143,859	30.0	0	\$19,461	\$61,307	\$10,700	\$50,607	2.6	144,865
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	49,906	7.3	0	\$6,751	\$12,237	\$2,300	\$9,937	1.5	50,255
ECM 8	Install VFDs on Constant Volume (CV) Fans	6,420	0.9	0	\$868	\$3,884	\$200	\$3,684	4.2	6,464
ECM 9	Install VFDs on Chilled Water Pumps	61,880	19.1	0	\$8,371	\$34,883	\$6,000	\$28,883	3.5	62,313
ECM 10	Install VFDs on Heating Water Pumps	25,654	2.7	0	\$3,470	\$10,303	\$2,200	\$8,103	2.3	25,833
Unitary HVAC Measures		27,044	5.3	0	\$3,658	\$47,438	\$2,745	\$44,693	12.2	27,233
ECM 11	Install High Efficiency Air Conditioning Units	27,044	5.3	0	\$3,658	\$47,438	\$2,745	\$44,693	12.2	27,233
Domestic Water Heating Upgrade		0	0.0	12	\$161	\$308	\$154	\$154	1.0	1,405
ECM 14	Install Low-Flow DHW Devices	0	0.0	12	\$161	\$308	\$154	\$154	1.0	1,405
Food Service & Refrigeration Measures		3,909	0.4	0	\$529	\$920	\$100	\$820	1.6	3,936
ECM 15	Vending Machine Control	3,909	0.4	0	\$529	\$920	\$100	\$820	1.6	3,936
Custom Measures		79,091	0.0	233	\$13,824	\$44,000	\$0	\$44,000	3.2	106,924
ECM 16	Retro-Commissioning Study	79,091	0.0	233	\$13,824	\$44,000	\$0	\$44,000	3.2	106,924
TOTALS		869,403	136.3	119	\$119,204	\$320,627	\$56,327	\$264,300	2.2	889,392

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #1

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			38,106	5.4	-7	\$5,074	\$11,592	\$2,656	\$8,936	1.8	37,576
ECM 1	Install LED Fixtures	Yes	5,795	0.0	0	\$786	\$3,511	\$750	\$2,761	3.5	5,835
ECM 2	Retrofit Fixtures with LED Lamps	Yes	32,311	5.4	-7	\$4,288	\$8,082	\$1,906	\$6,176	1.4	31,740
Lighting Control Measures			9,621	1.5	-2	\$1,277	\$6,915	\$1,435	\$5,480	4.3	9,448
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	8,750	1.3	-2	\$1,161	\$5,790	\$805	\$4,985	4.3	8,593
ECM 4	Install High/Low Lighting Controls	Yes	871	0.2	0	\$116	\$1,125	\$630	\$495	4.3	855
HVAC System Improvements			0	0.0	4	\$60	\$58	\$20	\$38	0.6	514
ECM 5	Install Pipe Insulation	Yes	0	0.0	4	\$60	\$58	\$20	\$38	0.6	514
Domestic Water Heating Upgrade			0	0.0	3	\$39	\$43	\$22	\$22	0.6	333
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$39	\$43	\$22	\$22	0.6	333
Food Service & Refrigeration Measures			4,813	0.5	0	\$653	\$2,180	\$50	\$2,130	3.3	4,847
ECM 7	Replace Refrigeration Equipment	Yes	3,201	0.4	0	\$434	\$1,950	\$0	\$1,950	4.5	3,223
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$219	\$230	\$50	\$180	0.8	1,623
TOTALS (COST EFFECTIVE MEASURES)			52,539	7.5	-2	\$7,102	\$20,788	\$4,183	\$16,606	2.3	52,718
TOTALS (ALL MEASURES)			52,539	7.5	-2	\$7,102	\$20,788	\$4,183	\$16,606	2.3	52,718

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #2

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			22,036	4.5	-3	\$3,695	\$16,921	\$2,608	\$14,313	3.9	21,789
ECM 1	Install LED Fixtures	Yes	8,411	0.4	-1	\$1,421	\$11,843	\$1,300	\$10,543	7.4	8,409
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	384	0.1	0	\$64	\$253	\$30	\$223	3.5	377
ECM 3	Retrofit Fixtures with LED Lamps	Yes	13,240	3.9	-3	\$2,209	\$4,824	\$1,278	\$3,546	1.6	13,003
Lighting Control Measures			4,464	1.1	-1	\$745	\$7,881	\$1,280	\$6,601	8.9	4,388
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	3,780	1.0	-1	\$631	\$7,006	\$1,000	\$6,006	9.5	3,713
ECM 5	Install Photocell Controls	Yes	152	0.0	0	\$26	\$200	\$0	\$200	7.7	154
ECM 6	Install High/Low Lighting Controls	Yes	531	0.1	0	\$89	\$675	\$280	\$395	4.5	522
Unitary HVAC Measures			75	0.0	0	\$13	\$492	\$0	\$492	38.7	75
ECM 7	Install High Efficiency Air Conditioning Units	No	75	0.0	0	\$13	\$492	\$0	\$492	38.7	75
Domestic Water Heating Upgrade			0	0.0	5	\$67	\$72	\$36	\$36	0.5	556
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	5	\$67	\$72	\$36	\$36	0.5	556
Food Service & Refrigeration Measures			1,612	0.2	0	\$274	\$230	\$50	\$180	0.7	1,623
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$274	\$230	\$50	\$180	0.7	1,623
TOTALS (COST EFFECTIVE MEASURES)			28,112	5.8	0	\$4,780	\$25,103	\$3,974	\$21,129	4.4	28,355
TOTALS (ALL MEASURES)			28,187	5.8	0	\$4,793	\$25,595	\$3,974	\$21,621	4.5	28,431

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #3

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			10,458	1.2	-2	\$1,792	\$2,857	\$720	\$2,137	1.2	10,273
ECM 1	Install LED Fixtures	Yes	874	0.0	0	\$152	\$761	\$150	\$611	4.0	880
ECM 2	Retrofit Fixtures with LED Lamps	Yes	9,584	1.2	-2	\$1,640	\$2,097	\$570	\$1,527	0.9	9,393
Lighting Control Measures			2,424	0.3	-1	\$415	\$2,347	\$390	\$1,957	4.7	2,375
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,289	0.3	-1	\$392	\$2,122	\$285	\$1,837	4.7	2,243
ECM 4	Install High/Low Lighting Controls	Yes	135	0.0	0	\$23	\$225	\$105	\$120	5.2	132
Unitary HVAC Measures			199	0.1	0	\$35	\$5,392	\$105	\$5,287	152.4	200
ECM 5	Install High Efficiency Air Conditioning Units	No	199	0.1	0	\$35	\$5,392	\$105	\$5,287	152.4	200
Domestic Water Heating Upgrade			0	0.0	2	\$33	\$36	\$18	\$18	0.5	278
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	\$33	\$36	\$18	\$18	0.5	278
TOTALS (COST EFFECTIVE MEASURES)			12,881	1.5	0	\$2,240	\$5,240	\$1,128	\$4,112	1.8	12,926
TOTALS (ALL MEASURES)			13,080	1.6	0	\$2,275	\$10,633	\$1,233	\$9,400	4.1	13,126

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** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #4

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			10,010	2.0	-2	\$1,675	\$5,108	\$1,057	\$4,051	2.4	9,849
ECM 1	Install LED Fixtures	Yes	1,456	0.0	0	\$248	\$1,268	\$250	\$1,018	4.1	1,467
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,072	0.4	0	\$179	\$790	\$120	\$670	3.7	1,050
ECM 3	Retrofit Fixtures with LED Lamps	Yes	7,482	1.6	-2	\$1,249	\$3,050	\$687	\$2,363	1.9	7,333
Lighting Control Measures			2,286	0.5	-1	\$382	\$3,344	\$535	\$2,809	7.4	2,240
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,084	0.5	0	\$348	\$2,894	\$395	\$2,499	7.2	2,042
ECM 5	Install High/Low Lighting Controls	Yes	202	0.0	0	\$34	\$450	\$140	\$310	9.2	198
Gas Heating (HVAC/Process) Replacement			0	0.0	24	\$330	\$24,679	\$1,925	\$22,754	68.9	2,810
ECM 6	Install High Efficiency Hot Water Boilers	No	0	0.0	24	\$330	\$24,679	\$1,925	\$22,754	68.9	2,810
HVAC System Improvements			0	0.0	3	\$40	\$87	\$30	\$57	1.4	344
ECM 7	Install Pipe Insulation	Yes	0	0.0	3	\$40	\$87	\$30	\$57	1.4	344
Domestic Water Heating Upgrade			0	0.0	1	\$9	\$14	\$6	\$9	1.0	78
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$9	\$14	\$6	\$9	1.0	78
Food Service & Refrigeration Measures			3,224	0.4	0	\$548	\$460	\$100	\$360	0.7	3,246
ECM 9	Vending Machine Control	Yes	3,224	0.4	0	\$548	\$460	\$100	\$360	0.7	3,246
TOTALS (COST EFFECTIVE MEASURES)			15,519	2.8	1	\$2,655	\$9,013	\$1,728	\$7,285	2.7	15,759
TOTALS (ALL MEASURES)			15,519	2.8	25	\$2,985	\$33,692	\$3,653	\$30,039	10.1	18,569

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #5

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			13,868	2.1	-2	\$2,375	\$5,988	\$1,302	\$4,686	2.0	13,739
ECM 1	Install LED Fixtures	Yes	4,809	0.0	0	\$833	\$2,826	\$550	\$2,276	2.7	4,843
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	198	0.1	0	\$34	\$148	\$20	\$128	3.8	194
ECM 3	Retrofit Fixtures with LED Lamps	Yes	8,862	2.0	-2	\$1,509	\$3,014	\$732	\$2,282	1.5	8,703
Lighting Control Measures			2,433	0.5	-1	\$414	\$1,878	\$410	\$1,468	3.5	2,389
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,142	0.5	0	\$365	\$1,428	\$200	\$1,228	3.4	2,104
ECM 5	Install High/Low Lighting Controls	Yes	290	0.1	0	\$49	\$450	\$210	\$240	4.9	285
Motor Upgrades			48	0.0	0	\$8	\$400	\$0	\$400	48.3	48
ECM 6	Premium Efficiency Motors	No	48	0.0	0	\$8	\$400	\$0	\$400	48.3	48
Unitary HVAC Measures			1,645	0.9	0	\$285	\$11,964	\$473	\$11,491	40.3	1,657
ECM 7	Install High Efficiency Air Conditioning Units	No	1,645	0.9	0	\$285	\$11,964	\$473	\$11,491	40.3	1,657
Gas Heating (HVAC/Process) Replacement			0	0.0	145	\$1,897	\$7,572	\$591	\$6,981	3.7	16,923
ECM 8	Install High Efficiency Hot Water Boilers	Yes	0	0.0	145	\$1,897	\$7,572	\$591	\$6,981	3.7	16,923
HVAC System Improvements			220	0.0	0	\$38	\$115	\$40	\$75	2.0	221
ECM 9	Install Pipe Insulation	Yes	220	0.0	0	\$38	\$115	\$40	\$75	2.0	221
Domestic Water Heating Upgrade			417	0.0	0	\$72	\$22	\$11	\$11	0.1	420
ECM 10	Install Low-Flow DHW Devices	Yes	417	0.0	0	\$72	\$22	\$11	\$11	0.1	420
TOTALS (COST EFFECTIVE MEASURES)			16,938	2.6	142	\$4,797	\$15,575	\$2,353	\$13,221	2.8	33,692
TOTALS (ALL MEASURES)			18,631	3.5	142	\$5,090	\$27,938	\$2,826	\$25,112	4.9	35,397

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FIRE STATION #6

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			9,333	1.6	-2	\$1,604	\$2,649	\$554	\$2,095	1.3	9,165
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,960	0.4	0	\$337	\$481	\$70	\$411	1.2	1,925
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,373	1.3	-2	\$1,267	\$2,167	\$484	\$1,683	1.3	7,241
Lighting Control Measures			3,178	0.5	-1	\$546	\$3,048	\$410	\$2,638	4.8	3,121
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,178	0.5	-1	\$546	\$3,048	\$410	\$2,638	4.8	3,121
Unitary HVAC Measures			1,227	0.5	0	\$215	\$6,286	\$315	\$5,971	27.8	1,236
ECM 4	Install High Efficiency Air Conditioning Units	No	1,227	0.5	0	\$215	\$6,286	\$315	\$5,971	27.8	1,236
HVAC System Improvements			0	0.0	41	\$578	\$366	\$80	\$286	0.5	4,759
ECM 5	Install Pipe Insulation	Yes	0	0.0	41	\$578	\$366	\$80	\$286	0.5	4,759
Domestic Water Heating Upgrade			0	0.0	1	\$20	\$22	\$11	\$11	0.5	167
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$20	\$22	\$11	\$11	0.5	167
Food Service & Refrigeration Measures			0	0.0	44	\$627	\$4,839	\$1,000	\$3,839	6.1	5,157
ECM 7	Food Service Equipment Replacement	Yes	0	0.0	44	\$627	\$4,839	\$1,000	\$3,839	6.1	5,157
TOTALS (COST EFFECTIVE MEASURES)			12,511	2.2	83	\$3,376	\$10,923	\$2,055	\$8,869	2.6	22,369
TOTALS (ALL MEASURES)			13,738	2.7	83	\$3,591	\$17,209	\$2,370	\$14,840	4.1	23,605

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

PAL BUILDING

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			53,527	12.2	-10	\$7,714	\$22,635	\$4,965	\$17,670	2.3	52,770
ECM 1	Install LED Fixtures	Yes	5,011	0.0	0	\$734	\$2,767	\$400	\$2,367	3.2	5,046
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	364	0.2	0	\$52	\$206	\$30	\$176	3.4	358
ECM 3	Retrofit Fixtures with LED Lamps	Yes	48,152	12.0	-10	\$6,928	\$19,662	\$4,535	\$15,127	2.2	47,366
Lighting Control Measures			15,789	4.2	-3	\$2,269	\$12,441	\$3,775	\$8,666	3.8	15,505
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	12,292	3.8	-3	\$1,766	\$9,966	\$1,780	\$8,186	4.6	12,071
ECM 5	Install High/Low Lighting Controls	Yes	3,497	0.4	-1	\$502	\$2,475	\$1,995	\$480	1.0	3,434
Variable Frequency Drive (VFD) Measures			15,480	4.8	22	\$2,570	\$18,931	\$2,275	\$16,656	6.5	18,213
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	13,727	4.8	0	\$2,012	\$15,920	\$2,200	\$13,720	6.8	13,823
ECM 7	Install VFDs on Kitchen Hood Fan Motors	Yes	1,752	0.0	22	\$558	\$3,010	\$75	\$2,935	5.3	4,390
Unitary HVAC Measures			5,505	3.9	0	\$807	\$38,672	\$3,238	\$35,435	43.9	5,544
ECM 8	Install High Efficiency Air Conditioning Units	No	5,505	3.9	0	\$807	\$38,672	\$3,238	\$35,435	43.9	5,544
Gas Heating (HVAC/Process) Replacement			0	0.0	81	\$1,083	\$22,749	\$1,775	\$20,975	19.4	9,428
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	81	\$1,083	\$22,749	\$1,775	\$20,975	19.4	9,428
HVAC System Improvements			1,172	0.0	75	\$1,183	\$8,368	\$50	\$8,318	7.0	9,985
ECM 10	Implement Demand Control Ventilation (DCV)	Yes	1,172	0.0	56	\$920	\$8,157	\$0	\$8,157	8.9	7,692
ECM 11	Install Pipe Insulation	Yes	0	0.0	20	\$263	\$212	\$50	\$162	0.6	2,294
Domestic Water Heating Upgrade			0	0.0	3	\$45	\$86	\$43	\$43	1.0	392
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$45	\$86	\$43	\$43	1.0	392
Food Service & Refrigeration Measures			7,132	0.8	0	\$1,045	\$1,380	\$200	\$1,180	1.1	7,182
ECM 13	Vending Machine Control	Yes	7,132	0.8	0	\$1,045	\$1,380	\$200	\$1,180	1.1	7,182
TOTALS (COST EFFECTIVE MEASURES)			93,100	22.0	88	\$14,826	\$63,841	\$11,308	\$52,533	3.5	104,048
TOTALS (ALL MEASURES)			98,605	25.9	168	\$16,716	\$125,262	\$16,320	\$108,942	6.5	119,020

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

PUBLIC SAFETY BUILDING

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			307,602	37.8	-60	\$41,461	\$58,517	\$13,540	\$44,977	1.1	302,723
ECM 1	Install LED Fixtures	Yes	25,544	0.0	0	\$3,510	\$13,843	\$1,800	\$12,043	3.4	25,723
ECM 2	Retrofit Fixtures with LED Lamps	Yes	282,058	37.8	-60	\$37,951	\$44,674	\$11,740	\$32,934	0.9	277,000
Lighting Control Measures			76,489	10.0	-16	\$10,292	\$40,722	\$10,510	\$30,212	2.9	75,117
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	54,722	8.0	-12	\$7,363	\$31,722	\$4,210	\$27,512	3.7	53,740
ECM 4	Install High/Low Lighting Controls	Yes	21,768	2.0	-5	\$2,929	\$9,000	\$6,300	\$2,700	0.9	21,377
Motor Upgrades			42	0.0	0	\$6	\$837	\$0	\$837	144.9	42
ECM 5	Premium Efficiency Motors	No	42	0.0	0	\$6	\$837	\$0	\$837	144.9	42
Variable Frequency Drive (VFD) Measures			47,321	5.8	0	\$6,502	\$23,856	\$5,100	\$18,756	2.9	47,651
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	4,565	1.5	0	\$627	\$4,076	\$900	\$3,176	5.1	4,596
ECM 7	Install VFDs on Heating Water Pumps	Yes	42,756	4.3	0	\$5,874	\$19,779	\$4,200	\$15,579	2.7	43,055
Gas Heating (HVAC/Process) Replacement			0	0.0	121	\$1,611	\$71,406	\$6,000	\$65,406	40.6	14,119
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	121	\$1,611	\$71,406	\$6,000	\$65,406	40.6	14,119
Domestic Water Heating Upgrade			0	0.0	12	\$159	\$201	\$100	\$100	0.6	1,395
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	12	\$159	\$201	\$100	\$100	0.6	1,395
Food Service & Refrigeration Measures			1,954	0.2	0	\$269	\$460	\$50	\$410	1.5	1,968
ECM 10	Vending Machine Control	Yes	1,954	0.2	0	\$269	\$460	\$50	\$410	1.5	1,968
Custom Measures			48,075	0.0	103	\$7,975	\$28,054	\$0	\$28,054	3.5	60,412
ECM 11	Retro-Commissioning Study	Yes	48,075	0.0	103	\$7,975	\$28,054	\$0	\$28,054	3.5	60,412
TOTALS (COST EFFECTIVE MEASURES)			481,441	53.9	38	\$66,657	\$151,809	\$29,300	\$122,509	1.8	489,267
TOTALS (ALL MEASURES)			481,483	53.9	159	\$68,274	\$224,053	\$35,300	\$188,752	2.8	503,428

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

PUBLIC WORKS BUILDING

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			418,811	61.7	-78	\$58,308	\$152,682	\$23,028	\$129,654	2.2	412,599
ECM 1	Install LED Fixtures	Yes	281,699	38.1	-49	\$39,267	\$117,252	\$14,430	\$102,822	2.6	277,947
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	12,886	2.5	-3	\$1,789	\$4,222	\$650	\$3,572	2.0	12,655
ECM 3	Retrofit Fixtures with LED Lamps	Yes	124,227	21.1	-26	\$17,251	\$31,208	\$7,948	\$23,260	1.3	121,998
Lighting Control Measures			70,492	11.0	-14	\$9,804	\$71,873	\$12,430	\$59,443	6.1	69,358
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	58,420	10.3	-12	\$8,113	\$67,698	\$9,665	\$58,033	7.2	57,372
ECM 5	Install Photocell Controls	Yes	5,256	0.0	0	\$745	\$800	\$0	\$800	1.1	5,293
ECM 6	Install High/Low Lighting Controls	Yes	6,816	0.6	-1	\$947	\$3,375	\$2,765	\$610	0.6	6,694
Motor Upgrades			667	0.2	0	\$95	\$3,103	\$0	\$3,103	32.8	672
ECM 7	Premium Efficiency Motors	No	667	0.2	0	\$95	\$3,103	\$0	\$3,103	32.8	672
Variable Frequency Drive (VFD) Measures			4,948	1.6	0	\$701	\$15,051	\$375	\$14,676	20.9	4,983
ECM 8	Install VFDs on Constant Volume (CV) Fans	No	4,948	1.6	0	\$701	\$15,051	\$375	\$14,676	20.9	4,983
Gas Heating (HVAC/Process) Replacement			0	0.0	33	\$439	\$14,027	\$500	\$13,527	30.8	3,848
ECM 9	Install High Efficiency Furnaces	No	0	0.0	33	\$439	\$14,027	\$500	\$13,527	30.8	3,848
Domestic Water Heating Upgrade			0	0.0	8	\$104	\$201	\$100	\$100	1.0	915
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$104	\$201	\$100	\$100	1.0	915
Food Service & Refrigeration Measures			1,954	0.2	0	\$277	\$460	\$50	\$410	1.5	1,968
ECM 11	Vending Machine Control	Yes	1,954	0.2	0	\$277	\$460	\$50	\$410	1.5	1,968
TOTALS (COST EFFECTIVE MEASURES)			491,258	72.9	-84	\$68,493	\$225,216	\$35,608	\$189,608	2.8	484,840
TOTALS (ALL MEASURES)			496,873	74.7	-51	\$69,728	\$257,397	\$36,483	\$220,914	3.2	494,342

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

SHELLEM ROYAL FIELD

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			3,543	1.5	0	\$627	\$2,940	\$808	\$2,132	3.4	3,523
ECM 1	Install LED Fixtures	Yes	1,748	0.0	0	\$312	\$1,159	\$350	\$809	2.6	1,760
ECM 2	Retrofit Fixtures with LED Lamps	Yes	1,795	1.5	0	\$315	\$1,781	\$458	\$1,323	4.2	1,763
Lighting Control Measures			401	0.3	0	\$70	\$2,110	\$380	\$1,730	24.6	394
ECM 3	Install Occupancy Sensor Lighting Controls	No	390	0.3	0	\$68	\$1,660	\$240	\$1,420	20.8	383
ECM 4	Install High/Low Lighting Controls	No	11	0.0	0	\$2	\$450	\$140	\$310	166.6	10
Unitary HVAC Measures			270	0.7	0	\$48	\$6,286	\$315	\$5,971	123.9	272
ECM 5	Install High Efficiency Air Conditioning Units	No	270	0.7	0	\$48	\$6,286	\$315	\$5,971	123.9	272
Gas Heating (HVAC/Process) Replacement			0	0.0	21	\$323	\$11,661	\$1,000	\$10,661	33.0	2,462
ECM 6	Install High Efficiency Furnaces	No	0	0.0	21	\$323	\$11,661	\$1,000	\$10,661	33.0	2,462
HVAC System Improvements			135	0.0	0	\$24	\$29	\$10	\$19	0.8	136
ECM 7	Install Pipe Insulation	Yes	135	0.0	0	\$24	\$29	\$10	\$19	0.8	136
Domestic Water Heating Upgrade			209	0.0	0	\$37	\$36	\$18	\$18	0.5	210
ECM 8	Install Low-Flow DHW Devices	Yes	209	0.0	0	\$37	\$36	\$18	\$18	0.5	210
Custom Measures			809	0.0	0	\$144	\$2,289	\$0	\$2,289	15.9	815
ECM 9	Install Heat Pump Water Heater	No	809	0.0	0	\$144	\$2,289	\$0	\$2,289	15.9	815
TOTALS (COST EFFECTIVE MEASURES)			3,886	1.5	0	\$688	\$3,005	\$836	\$2,169	3.2	3,868
TOTALS (ALL MEASURES)			5,366	2.5	21	\$1,273	\$25,351	\$2,531	\$22,820	17.9	7,811

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

SURF STADIUM

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			94,709	29.8	-8	\$16,075	\$78,029	\$13,103	\$64,926	4.0	94,443
ECM 1	Install LED Fixtures	Yes	72,536	12.3	-3	\$12,355	\$55,318	\$7,750	\$47,568	3.9	72,668
ECM 2	Retrofit Fixtures with LED Lamps	Yes	22,173	17.5	-5	\$3,720	\$22,711	\$5,353	\$17,358	4.7	21,775
Lighting Control Measures			9,288	6.6	-2	\$1,562	\$23,999	\$6,205	\$17,794	11.4	9,147
ECM 3	Install Occupancy Sensor Lighting Controls	No	6,493	5.1	-1	\$1,089	\$19,074	\$2,425	\$16,649	15.3	6,377
ECM 4	Install Photocell Controls	Yes	1,051	0.0	0	\$180	\$200	\$0	\$200	1.1	1,059
ECM 5	Install High/Low Lighting Controls	Yes	1,743	1.4	0	\$292	\$4,725	\$3,780	\$945	3.2	1,712
Motor Upgrades			247	0.1	0	\$42	\$2,464	\$0	\$2,464	58.3	249
ECM 6	Premium Efficiency Motors	No	247	0.1	0	\$42	\$2,464	\$0	\$2,464	58.3	249
Domestic Water Heating Upgrade			83	0.0	13	\$215	\$344	\$172	\$172	0.8	1,651
ECM 7	Install Low-Flow DHW Devices	Yes	83	0.0	13	\$215	\$344	\$172	\$172	0.8	1,651
Custom Measures			2,427	0.0	0	\$414	\$9,060	\$0	\$9,060	21.9	2,444
ECM 8	Install Heat Pump Water Heater	No	2,427	0.0	0	\$414	\$9,060	\$0	\$9,060	21.9	2,444
TOTALS (COST EFFECTIVE MEASURES)			97,587	31.2	5	\$16,763	\$83,298	\$17,055	\$66,243	4.0	98,864
TOTALS (ALL MEASURES)			106,755	36.4	4	\$18,308	\$113,897	\$19,480	\$94,417	5.2	107,934

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

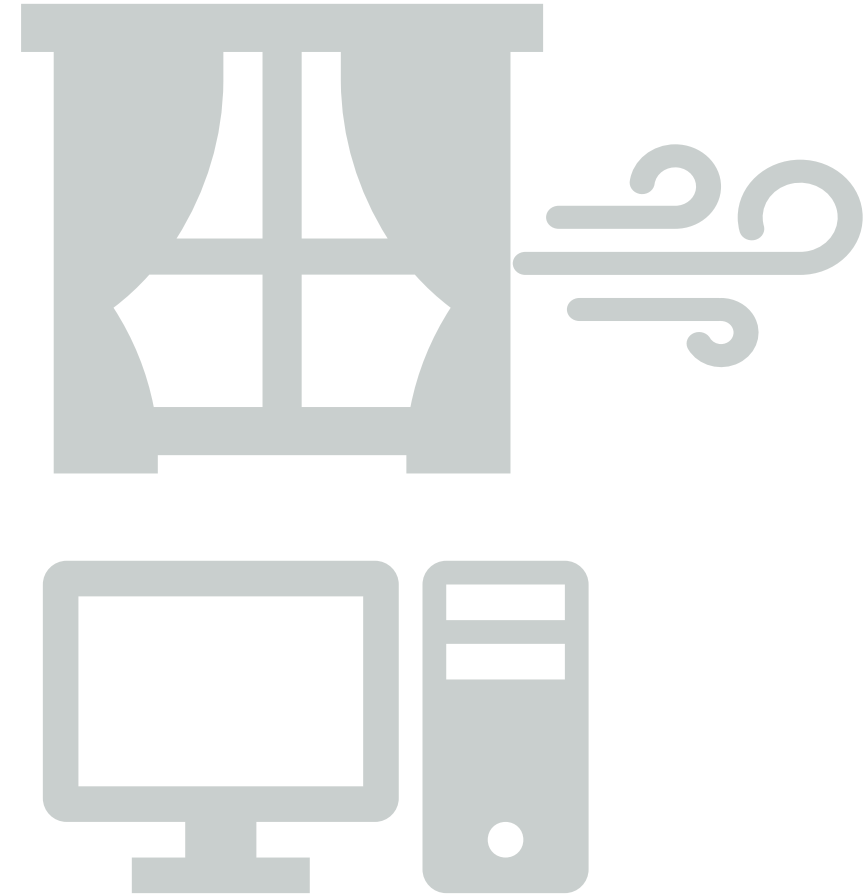
ENERGY EFFICIENT BEST PRACTICES

- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Use Window Treatments/Coverings
- Clean and/or Replace HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

See individual reports for specific EE practices by building

MEASURES FOR FUTURE CONSIDERATION

- Upgrade/Replace Energy Management System
- Installation of an Energy Management System
- Implement Data Center Energy Efficiency Measures
- Heating System Conversion from Steam to Hot Water
- Window Replacements



SOLAR ENERGY GENERATION POTENTIAL

	All Wars Bldg	Aquarium	City Hall	PAL Bldg	Public Safety Bldg	Public Works Bldg	Surf Stadium
<i>Potential:</i>	HIGH	HIGH	Medium	HIGH	HIGH	HIGH	Medium
<i>System Potential: (kW)</i>	129	126	322	59	247	191	71
<i>Electric Generation: (kWh per year)</i>	153,687	150,112	242,287	70,291	294,268	227,552	84,587
<i>Displaced Cost: (per year)</i>	\$23,400	\$21,980	\$32,780	\$10,300	\$40,430	\$32,250	\$14,460

Successor Solar Incentive Program

<https://www.njcleanenergy.com/renewable-energy/programs/susi-program>

Community Solar Energy Pilot Program

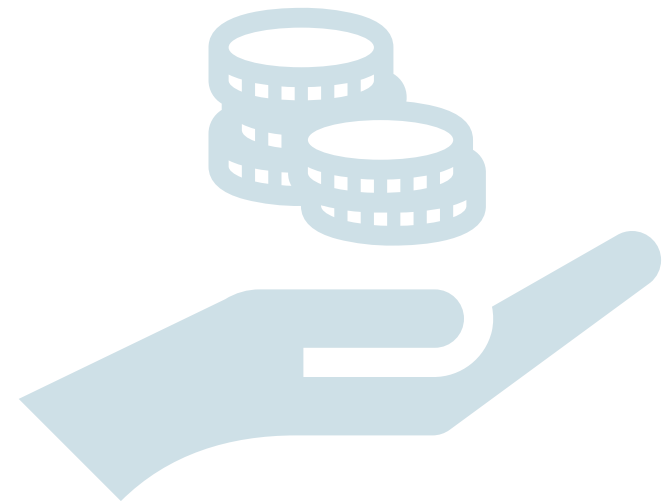
<http://www.NJCleanEnergy.com/CommunitySolar>



FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting – NJ ESIP
- Financing Mechanism that allows state entities to make energy efficiency improvements without impacting their budgets
- Administered by the NJBPU
- NJBPU Approved EE Incentive Programs: NJCEP or Utility
- Project is paid for with the value of its own energy savings
- 15 or 20 year self-funding loan
- Can be combined with Federal/State Pandemic Relief Funds
- No upfront capital expenses
- No referendum is required
- No impact to taxpayers



FINANCING MECHANISM: ESIP



ENERGY SAVINGS IMPROVEMENT PROGRAM

FOR MORE INFORMATION

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C&I TRANSITION OF ENERGY EFFICIENCY PROGRAMS

<https://www.njcleanenergy.com/transition>

LOCAL
GOVERNMENT
CUSTOMERS

COMMERCIAL &
INSTITUTIONAL
CUSTOMERS

LARGE
ENERGY
CUSTOMERS

EXISTING BUILDINGS

MEASUREMENT & AUDITS

FREE Energy Audits



RETROFITS

Prescriptive &
Custom Rebates

Direct Install

Engineered Solutions

And more from
your local utility!



Incentives up
to \$4 million
for eligible projects



NEW CONSTRUCTION

Prescriptive & Custom
Rebates for New
Construction and
Gut Rehabs

Pay for Performance
incentives for
buildings over
50,000 sq. ft.



DISTRIBUTED ENERGY RESOURCES

Combined Heat & Power
and Fuel Cell Installation
Incentives

Microgrid Development

Battery Storage

Muni EV Fleets



UTILITY RUN ENERGY EFFICIENCY PROGRAMS

PRESCRIPTIVE & CUSTOM REBATES:

- Individual high efficiency equipment rebates for renovation, remodeling, and equipment replacement
- Flexibility to do a little or a lot
- No size requirement

DIRECT INSTALL:

- Turn-key retrofit program to replace outdated and inefficient equipment including, lighting, HVAC, refrigeration, etc.
- The facility must have an average electric peak demand <200kW in the previous year to qualify

ENGINEERED SOLUTIONS:

- Comprehensive, whole-building approach to saving energy
- The facility must have an average electric peak demand >200kW in the previous year to qualify



UTILITY RUN ENERGY EFFICIENCY PROGRAMS

Atlantic City Electric

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Greg Reinert - GReinert@trccompanies.com

Nicholas Jackson – NJackson@trccompanies.com

South Jersey Gas

Kim Byk - KByk@appliedenergygroup.com

Kim Bodine - KBodine@sjindustries.com

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CLEAN FLEET ELECTRIC VEHICLE INCENTIVE PROGRAM

www.NJCleanEnergy.com/EV

- Electric vehicles are now included on the State Purchasing Contract under Award T0099
- Clean Fleet Electric Vehicle Incentive Program
 - Designed to encourage local and state governments to add EVs to their fleet
 - \$4,000 per battery electric vehicle (maximum of 2); and
 - \$1,500 for one Level-Two EV charging station
 - Grants awarded on rolling basis until June 2021, or until funding expended
- Questions? EV.programs@bpu.nj.gov



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THANK YOU

