

LGEA Presentation City of Orange Township

October 29, 2021



New Jersey's Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

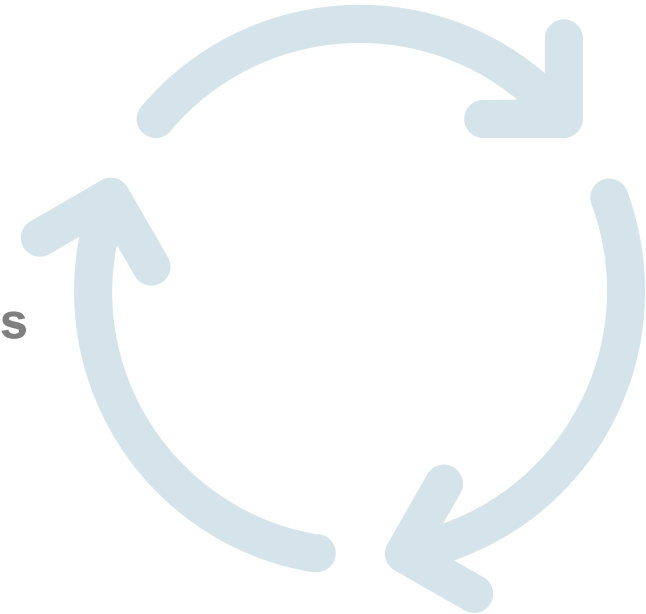
- *City of Orange Township*
 - Christopher Hartwyk – Business Administrator
 - Christopher Mobley – Assistant Director of Planning and Development
 - Raymond Wingfield – Deputy Director of Dept. of Public Works
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Andrea Derby – Project Auditor
 - Meredith Coley – LGEA Account Manager
 - Arif Welcher – Government/Business Manager (BPU)

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
- Questions regarding the draft audit report
- Next steps for City of Orange Township

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

Utility Consumption:

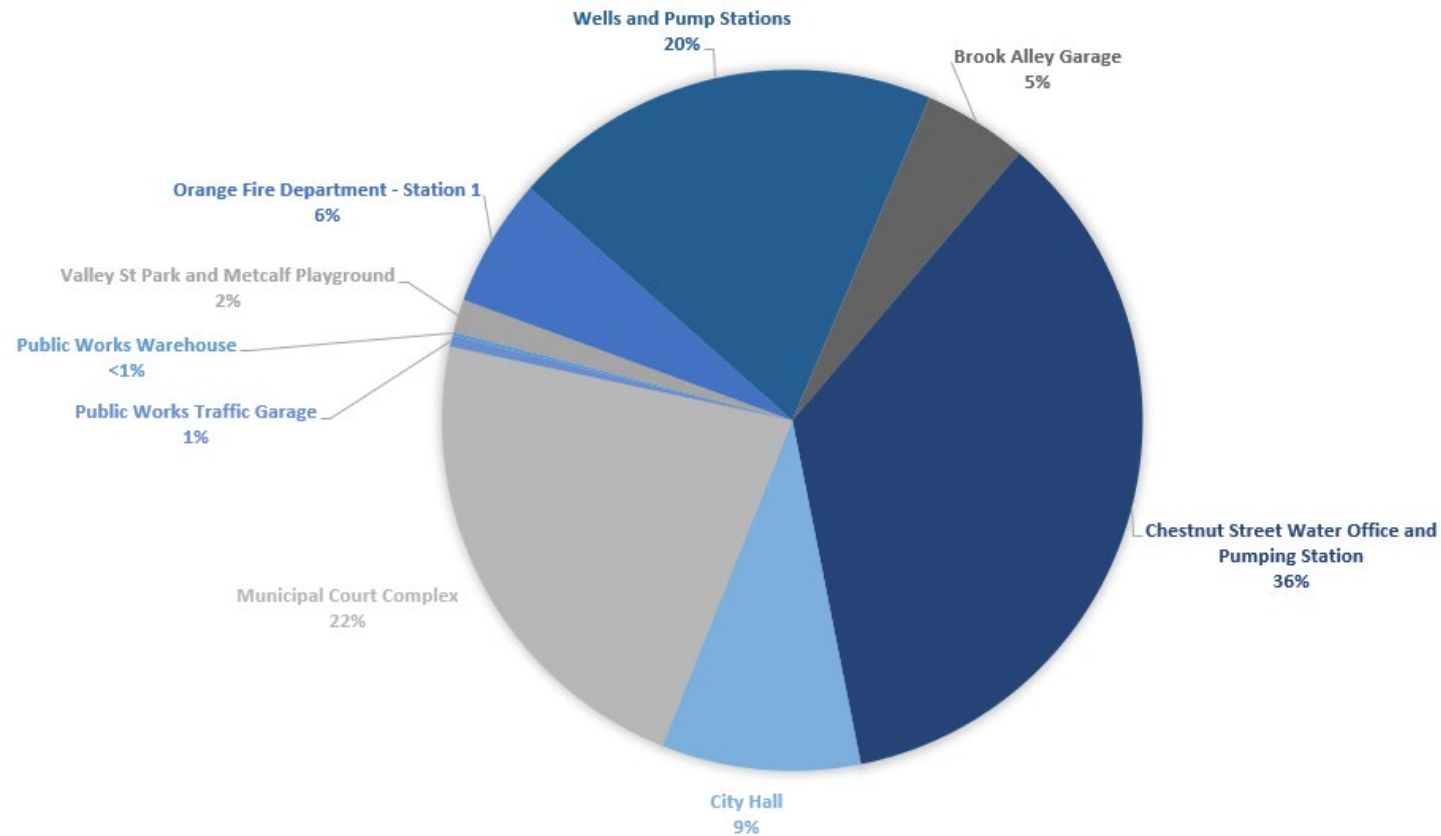
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

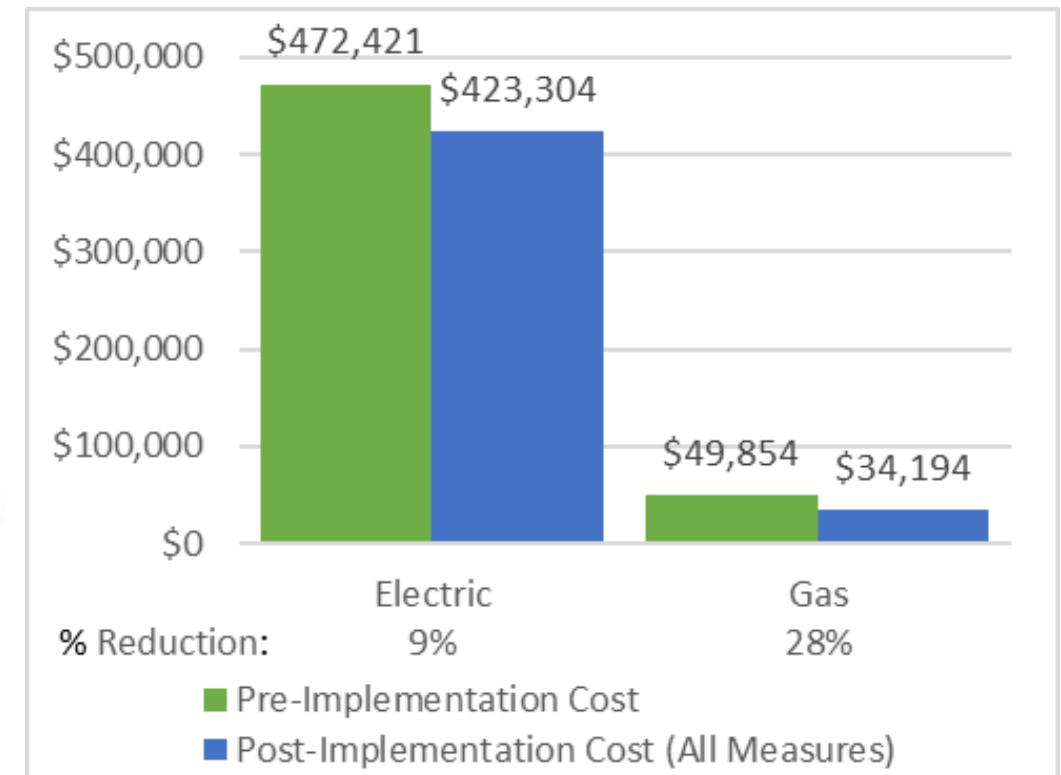
- Chestnut Street Water Office & Pumping Station
- Municipal Court Complex
- City Hall
- Orange Fire Department Station 1
- Public Works Office
- Public Works Warehouse
- Wells 2, 3, 4 & 6
- Walker Road Holding Tank
- Valley Street Park & Metcalf Playground
- Brook Alley Garage

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

 **ENERGY STAR® Statement of Energy Performance**
LEARN MORE AT energystar.gov

68
ENERGY STAR® Score¹


City of Orange Township Municipal Building (City Hall)
Primary Property Type: Office
Gross Floor Area (ft²): 28,000
Built: 1882
For Year Ending: December 31, 2019
Date Generated: May 28, 2021

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 Orange Township Municipal Building (City Hall) 28 North Day Street City of Orange Township, New Jersey 07050	Property Owner Orange Township City Municipality 28 North Day Street Orange Township, City of, NJ 07050 862-438-0047	Primary Contact Christina Nease 28 North Day Street Orange Township, City of, NJ 07050 862-438-0047 knease@orangenj.gov
Property ID: 11882040		

Energy Consumption and Energy Use Intensity (EUI)		
Site EUI 71 kBtu/ft²	Annual Energy Use Electric - City (kBtu) 809,086 (41%) Natural Gas (kBtu) 1,178,342 (59%)	National Median Comparison National Median Site EUI (kBtu/ft²) 91.2 National Median Source EUI (kBtu/ft²) 160.8 % Diff from National Median Source EUI -22%
Source EUI 125.1 kBtu/ft²	Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year) 140	

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)

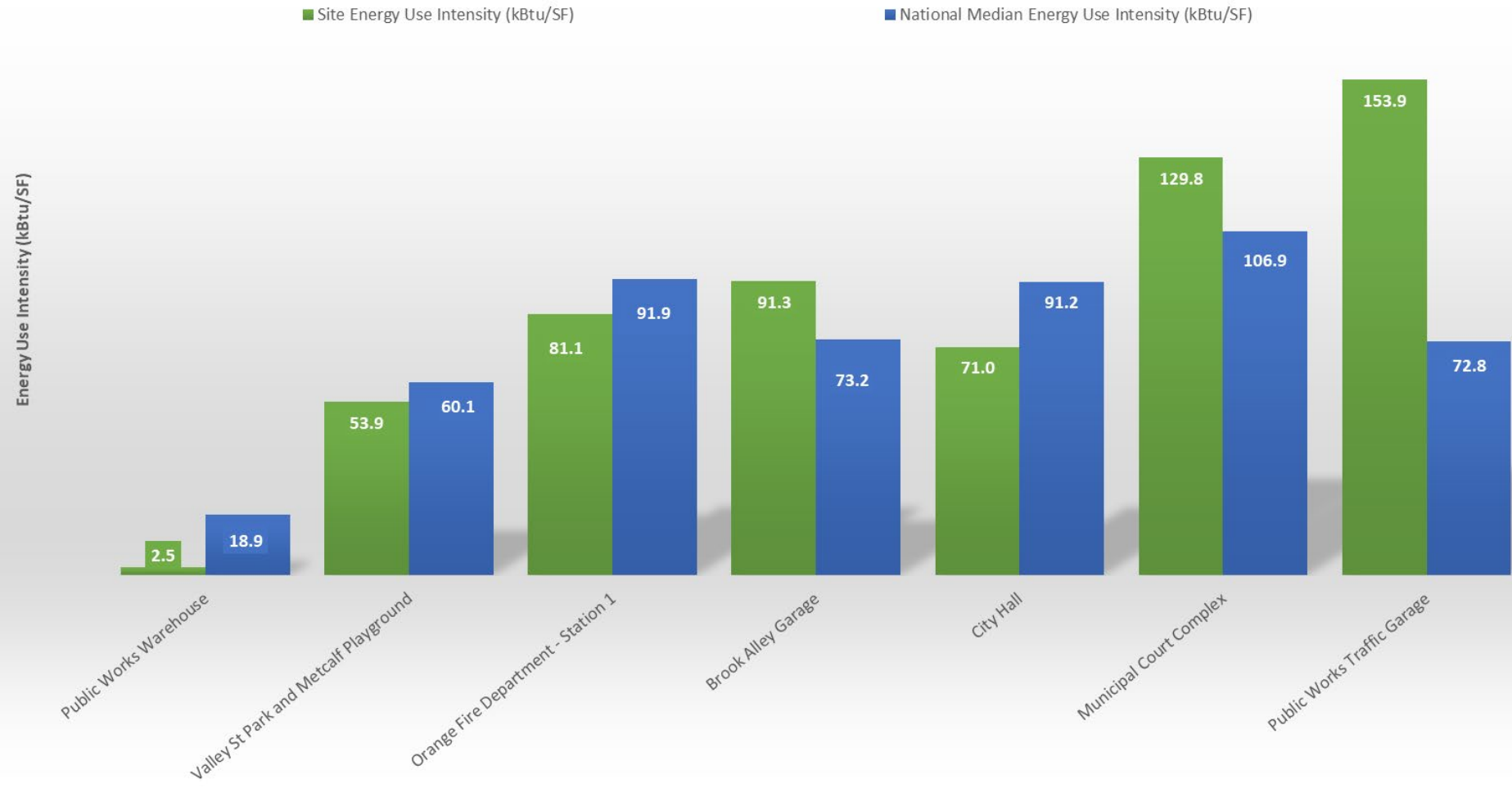
Site EUI
71 kBtu/ft²
Source EUI
125.1 kBtu/ft²

National Median Comparison
National Median Site EUI (kBtu/ft²) 91.2
National Median Source EUI (kBtu/ft²) 160.8
% Diff from National Median Source EUI -22%

Site Name	ENERGY STAR® Score
City Hall	68
Chestnut St Water Office & Pumping Station	N/A
Municipal Court Complex	N/A
Orange Fire Department Station 1	N/A
Public Works Office	N/A
Public Works Warehouse	N/A
Wells 2, 3, 4 & 6	N/A
Walker Road Holding Tank	N/A
Valley Street Park & Metcalf Playground	N/A
Brook Alley Garage	N/A

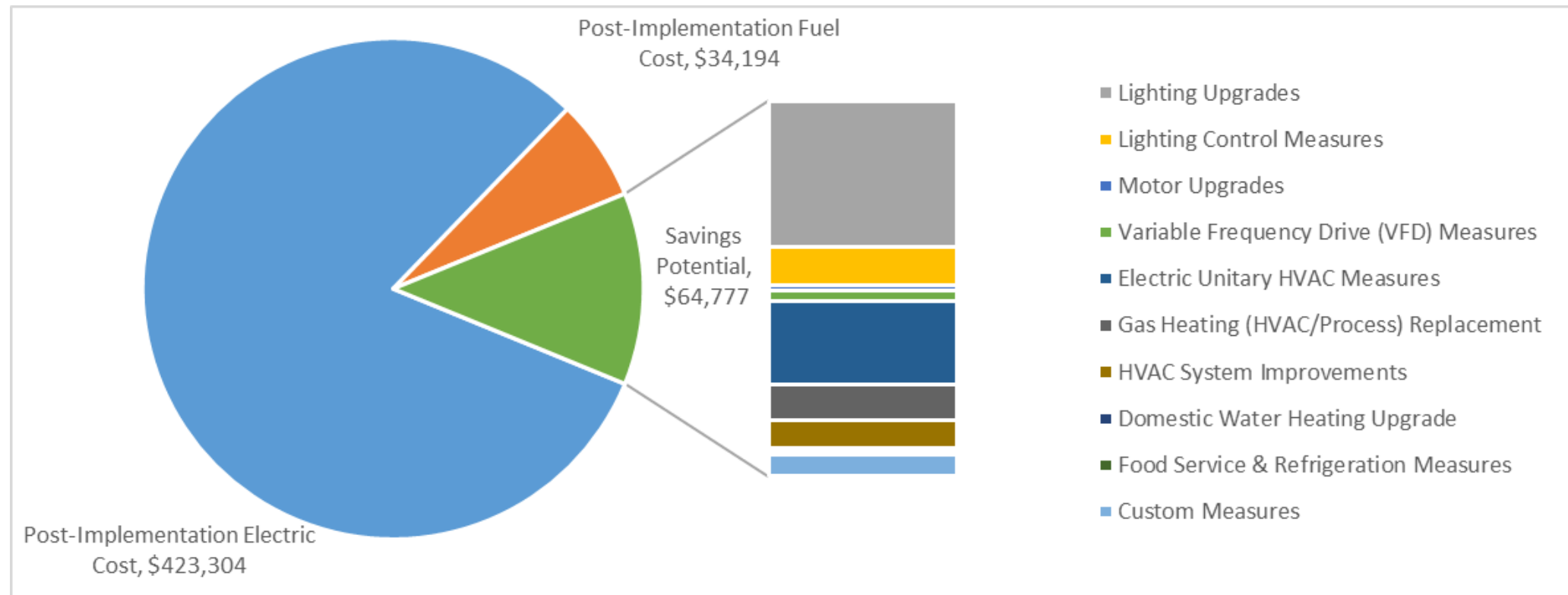
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

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		192,214	28.8	-27.9	\$25,186	\$78,735	\$8,366	\$70,369	2.8	190,286
ECM 1	Install LED Fixtures	73,131	5.1	-4.7	\$9,118	\$23,606	\$465	\$23,141	2.5	73,089
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	3,382	0.5	-0.7	\$424	\$1,099	\$154	\$945	2.2	3,321
ECM 3	Retrofit Fixtures with LED Lamps	114,270	23.1	-22.2	\$15,454	\$52,437	\$7,747	\$44,690	2.9	112,471
ECM 4	Install LED Exit Signs	1,431	0.1	-0.3	\$191	\$1,593	\$0	\$1,593	8.3	1,405
Lighting Control Measures		48,994	9.4	-9.4	\$6,592	\$55,865	\$13,770	\$42,095	6.4	48,238
ECM 5	Install Occupancy Sensor Lighting Controls	43,427	8.8	-8.5	\$5,829	\$48,240	\$9,710	\$38,530	6.6	42,738
ECM 6	Install Daylight Dimming/Photocell Controls	1,314	0.0	0.0	\$166	\$200	\$0	\$200	1.2	1,323
ECM 7	Install High/Low Lighting Controls	4,253	0.6	-0.9	\$596	\$7,425	\$4,060	\$3,365	5.6	4,177
Motor Upgrades		7,335	0.8	0.0	\$951	\$9,161	\$0	\$9,161	9.6	7,386
ECM 8	Premium Efficiency Motors	7,335	0.8	0.0	\$951	\$9,161	\$0	\$9,161	9.6	7,386
Variable Frequency Drive (VFD) Measures		8,234	3.5	0.0	\$1,781	\$9,036	\$4,000	\$5,036	2.8	8,292
ECM 9	Install VFDs on Constant Volume (CV) Fans	4,627	3.0	0.0	\$607	\$5,049	\$2,200	\$2,849	4.7	4,660
ECM 10	Install VFDs on Process Pumps	3,607	0.5	0.0	\$1,174	\$3,987	\$1,800	\$2,187	1.9	3,632
Electric Unitary HVAC Measures		91,276	49.1	34.6	\$14,423	\$240,029	\$30,203	\$209,826	14.5	95,961
ECM 11	Install High Efficiency Air Conditioning Units	40,776	25.6	34.6	\$5,771	\$157,754	\$28,250	\$129,504	22.4	45,108
ECM 12	Install High Efficiency PTAC/PTHP	50,500	23.5	0.0	\$8,652	\$82,275	\$1,953	\$80,321	9.3	50,853

ALL OPPORTUNITIES

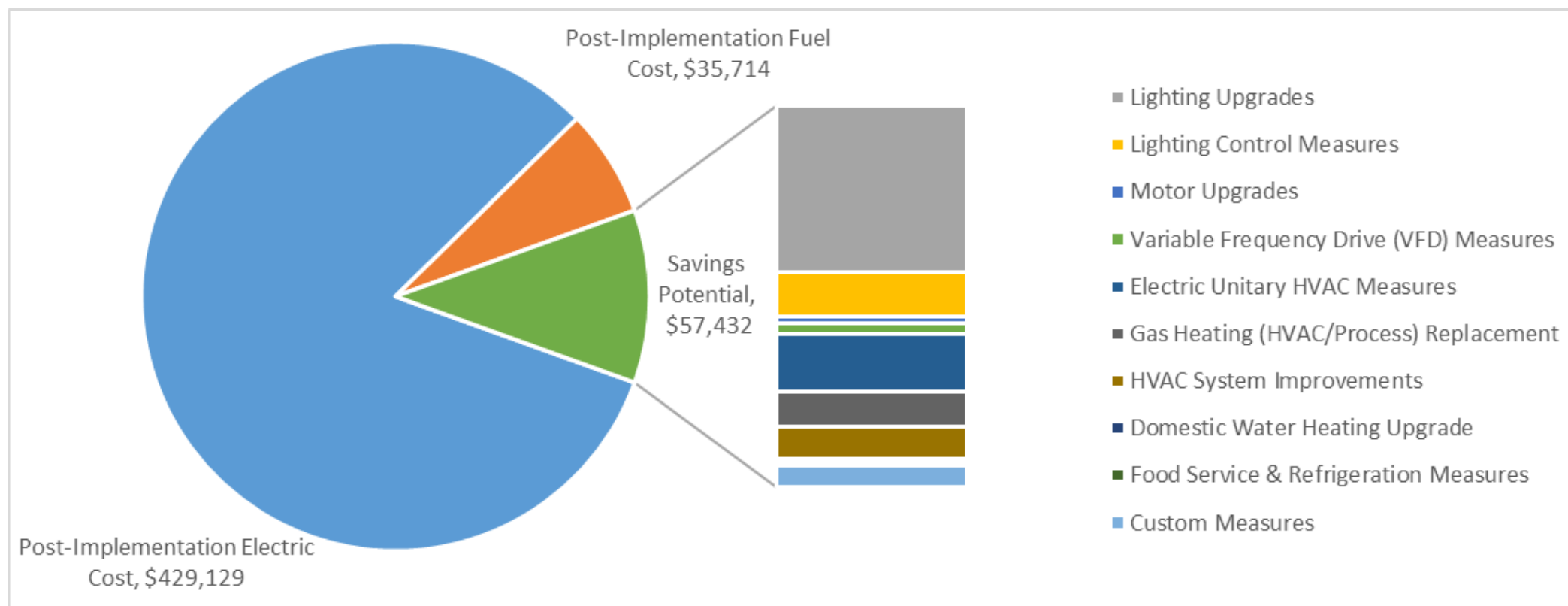
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement		0	0.0	715.7	\$6,099	\$68,337	\$11,937	\$56,401	9.2	83,800
ECM 13	Install High Efficiency Hot Water Boilers	0	0.0	27.5	\$326	\$18,823	\$2,937	\$15,887	48.7	3,218
ECM 14	Install High Efficiency Furnaces	0	0.0	61.4	\$540	\$24,456	\$4,000	\$20,456	37.9	7,184
ECM 15	Install Infrared Heaters	0	0.0	626.9	\$5,233	\$25,058	\$5,000	\$20,058	3.8	73,398
HVAC System Improvements		6,402	0.0	442.9	\$4,922	\$14,312	\$4,650	\$9,662	2.0	58,305
ECM 16	Install Programmable Thermostats	1,852	0.0	0.0	\$235	\$2,639	\$0	\$2,639	11.2	1,865
ECM 17	Install Occupancy-Controlled Thermostats	0	0.0	195.7	\$1,640	\$1,670	\$1,050	\$620	0.4	22,916
ECM 18	Install Pipe Insulation	4,550	0.0	247.2	\$3,047	\$10,003	\$3,600	\$6,403	2.1	33,524
Domestic Water Heating Upgrade		1,243	0.0	29.2	\$464	\$5,193	\$1,499	\$3,694	8.0	4,674
ECM 19	Install Tankless Water Heater	0	0.0	23.8	\$209	\$4,628	\$1,200	\$3,428	16.4	2,784
ECM 20	Install Low-Flow DHW Devices	1,243	0.0	5.4	\$254	\$565	\$299	\$266	1.0	1,890
Food Service & Refrigeration Measures		3,566	0.4	0.0	\$538	\$690	\$200	\$490	0.9	3,591
ECM 21	Vending Machine Control	3,566	0.4	0.0	\$538	\$690	\$200	\$490	0.9	3,591
Custom Measures		2,012	0.0	413.0	\$3,821	\$73,429	\$0	\$73,429	19.2	50,383
ECM 22	Building Envelope Improvements	2,012	0.0	413.0	\$3,821	\$73,429	\$0	\$73,429	19.2	50,383
TOTALS		361,278	92.0	1,598.1	\$64,777	\$554,787	\$74,625	\$480,161	7.4	550,918

* - 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		192,214	28.8	-27.9	\$25,186	\$78,735	\$8,366	\$70,369	2.8	190,286
ECM 1	Install LED Fixtures	73,131	5.1	-4.7	\$9,118	\$23,606	\$465	\$23,141	2.5	73,089
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	3,382	0.5	-0.7	\$424	\$1,099	\$154	\$945	2.2	3,321
ECM 3	Retrofit Fixtures with LED Lamps	114,270	23.1	-22.2	\$15,454	\$52,437	\$7,747	\$44,690	2.9	112,471
ECM 4	Install LED Exit Signs	1,431	0.1	-0.3	\$191	\$1,593	\$0	\$1,593	8.3	1,405
Lighting Control Measures		48,921	9.3	-9.4	\$6,582	\$54,620	\$13,630	\$40,990	6.2	48,165
ECM 5	Install Occupancy Sensor Lighting Controls	43,355	8.7	-8.5	\$5,820	\$46,995	\$9,570	\$37,425	6.4	42,664
ECM 6	Install Daylight Dimming/Photocell Controls	1,314	0.0	0.0	\$166	\$200	\$0	\$200	1.2	1,323
ECM 7	Install High/Low Lighting Controls	4,253	0.6	-0.9	\$596	\$7,425	\$4,060	\$3,365	5.6	4,177
Motor Upgrades		7,010	0.6	0.0	\$908	\$8,285	\$0	\$8,285	9.1	7,059
ECM 8	Premium Efficiency Motors	7,010	0.6	0.0	\$908	\$8,285	\$0	\$8,285	9.1	7,059
Variable Frequency Drive (VFD) Measures		8,234	3.5	0.0	\$1,781	\$9,036	\$4,000	\$5,036	2.8	8,292
ECM 9	Install VFDs on Constant Volume (CV) Fans	4,627	3.0	0.0	\$607	\$5,049	\$2,200	\$2,849	4.7	4,660
ECM 10	Install VFDs on Process Pumps	3,607	0.5	0.0	\$1,174	\$3,987	\$1,800	\$2,187	1.9	3,632
Electric Unitary HVAC Measures		50,500	23.5	0.0	\$8,652	\$82,275	\$1,953	\$80,321	9.3	50,853
ECM 12	Install High Efficiency PTAC/PTHP	50,500	23.5	0.0	\$8,652	\$82,275	\$1,953	\$80,321	9.3	50,853

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)
Gas Heating (HVAC/Process) Replacement		0	0.0	626.9	\$5,233	\$25,058	\$5,000	\$20,058	3.8	73,398
ECM 15	Install Infrared Heaters	0	0.0	626.9	\$5,233	\$25,058	\$5,000	\$20,058	3.8	73,398
HVAC System Improvements		6,402	0.0	442.9	\$4,922	\$14,312	\$4,650	\$9,662	2.0	58,305
ECM 16	Install Programmable Thermostats	1,852	0.0	0.0	\$235	\$2,639	\$0	\$2,639	11.2	1,865
ECM 17	Install Occupancy-Controlled Thermostats	0	0.0	195.7	\$1,640	\$1,670	\$1,050	\$620	0.4	22,916
ECM 18	Install Pipe Insulation	4,550	0.0	247.2	\$3,047	\$10,003	\$3,600	\$6,403	2.1	33,524
Domestic Water Heating Upgrade		1,243	0.0	27.0	\$439	\$2,941	\$899	\$2,041	4.6	4,413
ECM 19	Install Tankless Water Heater	0	0.0	21.6	\$185	\$2,376	\$600	\$1,776	9.6	2,524
ECM 20	Install Low-Flow DHW Devices	1,243	0.0	5.4	\$254	\$565	\$299	\$266	1.0	1,890
Food Service & Refrigeration Measures		3,566	0.4	0.0	\$538	\$690	\$200	\$490	0.9	3,591
ECM 21	Vending Machine Control	3,566	0.4	0.0	\$538	\$690	\$200	\$490	0.9	3,591
Custom Measures		0	0.0	382.0	\$3,189	\$33,408	\$0	\$33,408	10.5	44,727
ECM 22	Building Envelope Improvements	0	0.0	382.0	\$3,189	\$33,408	\$0	\$33,408	10.5	44,727
TOTALS		318,091	66.2	1,441.4	\$57,432	\$309,359	\$38,699	\$270,660	4.7	489,090

* - 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).

CHESTNUT ST WATER OFFICE & PUMPING STATION

#	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			10,351	2.5	-2	\$1,070	\$5,382	\$1,256	\$4,126	3.9	10,240
ECM 1	Install LED Fixtures	Yes	3,005	0.0	0	\$315	\$1,838	\$350	\$1,488	4.7	3,026
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,195	2.5	-2	\$740	\$3,398	\$906	\$2,492	3.4	7,066
ECM 3	Install LED Exit Signs	Yes	151	0.0	0	\$16	\$145	\$0	\$145	9.3	149
Lighting Control Measures			468	0.2	0	\$48	\$926	\$125	\$801	16.6	459
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	468	0.2	0	\$48	\$926	\$125	\$801	16.6	459
Gas Heating (HVAC/Process) Replacement			0	0.0	61	\$540	\$24,456	\$4,000	\$20,456	37.9	7,184
ECM 5	Install High Efficiency Furnaces	No	0	0.0	61	\$540	\$24,456	\$4,000	\$20,456	37.9	7,184
Domestic Water Heating Upgrade			311	0.0	0	\$33	\$29	\$26	\$3	0.1	313
ECM 6	Install Low-Flow DHW Devices	Yes	311	0.0	0	\$33	\$29	\$26	\$3	0.1	313
TOTALS (COST EFFECTIVE MEASURES)			11,129	2.7	-2	\$1,151	\$6,336	\$1,407	\$4,930	4.3	11,012
TOTALS (ALL MEASURES)			11,129	2.7	60	\$1,691	\$30,792	\$5,407	\$25,386	15.0	18,196

* - 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).

MUNICIPAL COURT COMPLEX

#	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			164,932	22.2	-24	\$20,547	\$49,392	\$5,154	\$44,238	2.2	163,245
ECM 1	Install LED Fixtures	Yes	69,024	5.1	-5	\$8,663	\$19,294	\$85	\$19,209	2.2	68,953
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	3,277	0.4	-1	\$406	\$915	\$128	\$787	1.9	3,218
ECM 3	Retrofit Fixtures with LED Lamps	Yes	91,572	16.6	-19	\$11,347	\$28,169	\$4,941	\$23,228	2.0	90,034
ECM 4	Install LED Exit Signs	Yes	1,060	0.1	0	\$131	\$1,014	\$0	\$1,014	7.7	1,041
Lighting Control Measures			37,339	5.8	-7	\$4,634	\$29,518	\$8,285	\$21,233	4.6	36,783
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	34,084	5.6	-7	\$4,228	\$27,293	\$7,060	\$20,233	4.8	33,554
ECM 6	Install Photocell Controls	Yes	1,314	0.0	0	\$166	\$200	\$0	\$200	1.2	1,323
ECM 7	Install High/Low Lighting Controls	Yes	1,942	0.2	0	\$240	\$2,025	\$1,225	\$800	3.3	1,907
Motor Upgrades			6,895	0.6	0	\$871	\$7,933	\$0	\$7,933	9.1	6,943
ECM 8	Premium Efficiency Motors	Yes	6,895	0.6	0	\$871	\$7,933	\$0	\$7,933	9.1	6,943
Unitary HVAC Measures			39,045	24.4	30	\$5,287	\$148,421	\$27,200	\$121,221	22.9	42,815
ECM 9	Install High Efficiency Air Conditioning Units	No	39,045	24.4	30	\$5,287	\$148,421	\$27,200	\$121,221	22.9	42,815
Gas Heating (HVAC/Process) Replacement			0	0.0	27	\$326	\$18,823	\$2,937	\$15,887	48.7	3,218
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	27	\$326	\$18,823	\$2,937	\$15,887	48.7	3,218
HVAC System Improvements			0	0.0	25	\$300	\$176	\$80	\$96	0.3	2,958
ECM 11	Install Pipe Insulation	Yes	0	0.0	25	\$300	\$176	\$80	\$96	0.3	2,958
Domestic Water Heating Upgrade			0	0.0	1	\$12	\$22	\$18	\$3	0.3	114
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$12	\$22	\$18	\$3	0.3	114
Food Service & Refrigeration Measures			1,612	0.2	0	\$204	\$230	\$100	\$130	0.6	1,623
ECM 13	Vending Machine Control	Yes	1,612	0.2	0	\$204	\$230	\$100	\$130	0.6	1,623
TOTALS			249,822	53.1	52	\$32,181	\$254,515	\$43,774	\$210,741	6.5	257,701

* - 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).

CITY HALL

#	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			374	0.2	0	\$63	\$352	\$30	\$322	5.1	367
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	76	0.0	0	\$13	\$65	\$6	\$59	4.6	74
ECM 2	Retrofit Fixtures with LED Lamps	Yes	221	0.1	0	\$37	\$142	\$24	\$118	3.2	218
ECM 3	Install LED Exit Signs	Yes	77	0.0	0	\$13	\$145	\$0	\$145	11.1	76
Lighting Control Measures			5,748	1.9	-1	\$971	\$13,336	\$3,230	\$10,106	10.4	5,647
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	4,318	1.6	-1	\$730	\$10,186	\$1,375	\$8,811	12.1	4,242
ECM 5	Install High/Low Lighting Controls	Yes	1,430	0.3	0	\$242	\$3,150	\$1,855	\$1,295	5.4	1,405
Unitary HVAC Measures			48,939	22.4	0	\$8,367	\$78,405	\$1,873	\$76,532	9.1	49,281
ECM 6	Install High Efficiency PTAC/PTHP	Yes	48,939	22.4	0	\$8,367	\$78,405	\$1,873	\$76,532	9.1	49,281
HVAC System Improvements			4,242	0.0	82	\$1,488	\$1,154	\$480	\$674	0.5	13,929
ECM 7	Install Pipe Insulation	Yes	4,242	0.0	82	\$1,488	\$1,154	\$480	\$674	0.5	13,929
Domestic Water Heating Upgrade			646	0.0	0	\$110	\$57	\$48	\$10	0.1	651
ECM 8	Install Low-Flow DHW Devices	Yes	646	0.0	0	\$110	\$57	\$48	\$10	0.1	651
Food Service & Refrigeration Measures			1,954	0.2	0	\$334	\$460	\$100	\$360	1.1	1,968
ECM 9	Vending Machine Control	Yes	1,954	0.2	0	\$334	\$460	\$100	\$360	1.1	1,968
Custom Measures			2,012	0.0	31	\$632	\$40,021	\$0	\$40,021	63.3	5,656
ECM 10	Building Envelope Improvements	No	2,012	0.0	31	\$632	\$40,021	\$0	\$40,021	63.3	5,656
TOTALS (COST EFFECTIVE MEASURES)			61,903	24.7	81	\$11,334	\$93,764	\$5,761	\$88,003	7.8	71,843
TOTALS (ALL MEASURES)			63,915	24.7	112	\$11,966	\$133,785	\$5,761	\$128,024	10.7	77,499

* - 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).

FIRE DEPARTMENT 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 Control Measures			2,075	0.4	0	\$268	\$4,372	\$1,265	\$3,107	11.6	2,038
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	1,193	0.3	0	\$154	\$2,122	\$285	\$1,837	11.9	1,172
ECM 2	Install High/Low Lighting Controls	Yes	882	0.1	0	\$114	\$2,250	\$980	\$1,270	11.1	866
Motor Upgrades			325	0.2	0	\$43	\$876	\$0	\$876	20.5	327
ECM 3	Premium Efficiency Motors	No	325	0.2	0	\$43	\$876	\$0	\$876	20.5	327
Variable Frequency Drive (VFD) Measures			4,627	3.0	0	\$607	\$5,049	\$2,200	\$2,849	4.7	4,660
ECM 4	Install VFDs on Constant Volume (CV) Fans	Yes	4,627	3.0	0	\$607	\$5,049	\$2,200	\$2,849	4.7	4,660
Unitary HVAC Measures			466	0.2	0	\$61	\$884	\$0	\$884	14.5	469
ECM 5	Install High Efficiency Air Conditioning Units	No	466	0.2	0	\$61	\$884	\$0	\$884	14.5	469
HVAC System Improvements			0	0.0	139	\$1,192	\$8,500	\$2,940	\$5,560	4.7	16,256
ECM 6	Install Pipe Insulation	Yes	0	0.0	139	\$1,192	\$8,500	\$2,940	\$5,560	4.7	16,256
Domestic Water Heating Upgrade			0	0.0	25	\$214	\$2,790	\$768	\$2,022	9.5	2,913
ECM 7	Install Tankless Water Heater	Yes	0	0.0	22	\$185	\$2,376	\$600	\$1,776	9.6	2,524
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$29	\$415	\$168	\$247	8.6	390
TOTALS (COST EFFECTIVE MEASURES)			6,702	3.4	163	\$2,281	\$20,711	\$7,173	\$13,538	5.9	25,867
TOTALS (ALL MEASURES)			7,493	3.8	163	\$2,385	\$22,472	\$7,173	\$15,299	6.4	26,663

* - 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).

PUBLIC WORKS OFFICE

#	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			1,527	0.3	0	\$359	\$1,094	\$44	\$1,050	2.9	1,514
ECM 1	Install LED Fixtures	Yes	0	0.0	0	\$0	\$594	\$10	\$584	0.0	0
ECM 2	Retrofit Fixtures with LED Lamps	Yes	1,527	0.3	0	\$359	\$500	\$34	\$466	1.3	1,514
Lighting Control Measures			105	0.0	0	\$25	\$486	\$70	\$416	16.9	103
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	105	0.0	0	\$25	\$486	\$70	\$416	16.9	103
HVAC System Improvements			88	0.0	5	\$71	\$535	\$320	\$215	3.0	707
ECM 4	Install Occupancy-Controlled Thermostats	Yes	0	0.0	5	\$51	\$477	\$300	\$177	3.5	618
ECM 5	Install Pipe Insulation	Yes	88	0.0	0	\$21	\$58	\$20	\$38	1.8	89
Domestic Water Heating Upgrade			123	0.0	0	\$29	\$7	\$7	\$0	0.0	124
ECM 6	Install Low-Flow DHW Devices	Yes	123	0.0	0	\$29	\$7	\$7	\$0	0.0	124
TOTALS (COST EFFECTIVE MEASURES)			1,843	0.3	5	\$484	\$2,122	\$441	\$1,681	3.5	2,447
TOTALS (ALL MEASURES)			1,843	0.3	5	\$484	\$2,122	\$441	\$1,681	3.5	2,447

* - 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).

PUBLIC WORKS WAREHOUSE

#	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			2,859	0.5	0	\$445	\$1,072	\$286	\$786	1.8	2,879
ECM 1	Retrofit Fixtures with LED Lamps	Yes	2,859	0.5	0	\$445	\$1,072	\$286	\$786	1.8	2,879
Lighting Control Measures			380	0.1	0	\$59	\$888	\$70	\$818	13.9	382
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	380	0.1	0	\$59	\$888	\$70	\$818	13.9	382
TOTALS (COST EFFECTIVE MEASURES)			3,238	0.7	0	\$504	\$1,960	\$356	\$1,604	3.2	3,261
TOTALS (ALL MEASURES)			3,238	0.7	0	\$504	\$1,960	\$356	\$1,604	3.2	3,261

* - 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).

WELLS AND PUMP STATIONS

#	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			1,508	0.5	0	\$191	\$1,834	\$175	\$1,659	8.7	1,519
ECM 1	Install LED Fixtures	Yes	1,103	0.0	0	\$140	\$1,200	\$20	\$1,180	8.4	1,111
ECM 2	Retrofit Fixtures with LED Lamps	Yes	405	0.5	0	\$51	\$634	\$155	\$479	9.3	408
Lighting Control Measures			73	0.1	0	\$9	\$1,245	\$140	\$1,105	119.7	73
ECM 3	Install Occupancy Sensor Lighting Controls	No	73	0.1	0	\$9	\$1,245	\$140	\$1,105	119.7	73
HVAC System Improvements			1,852	0.0	0	\$235	\$2,639	\$0	\$2,639	11.2	1,865
ECM 4	Install Programmable Thermostats	Yes	1,852	0.0	0	\$235	\$2,639	\$0	\$2,639	11.2	1,865
TOTALS (COST EFFECTIVE MEASURES)			3,361	0.5	0	\$426	\$4,473	\$175	\$4,298	10.1	3,384
TOTALS (ALL MEASURES)			3,434	0.6	0	\$435	\$5,718	\$315	\$5,403	12.4	3,458

* - 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).

VALLEY STREET PARK & METCALF PLAYGROUND

#	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			4,041	1.2	0	\$1,312	\$15,036	\$438	\$14,598	11.1	4,031
ECM 1	Retrofit Fixtures with LED Lamps	Yes	4,003	1.2	0	\$1,300	\$14,963	\$438	\$14,525	11.2	3,994
ECM 2	Install LED Exit Signs	Yes	38	0.0	0	\$12	\$72	\$0	\$72	5.9	37
Lighting Control Measures			480	0.4	0	\$155	\$2,084	\$210	\$1,874	12.1	472
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	480	0.4	0	\$155	\$2,084	\$210	\$1,874	12.1	472
Motor Upgrades			115	0.0	0	\$37	\$352	\$0	\$352	9.4	116
ECM 4	Premium Efficiency Motors	Yes	115	0.0	0	\$37	\$352	\$0	\$352	9.4	116
Variable Frequency Drive (VFD) Measures			3,607	0.5	0	\$1,174	\$3,987	\$1,800	\$2,187	1.9	3,632
ECM 5	Install VFDs on Process Pumps	Yes	3,607	0.5	0	\$1,174	\$3,987	\$1,800	\$2,187	1.9	3,632
Unitary HVAC Measures			984	0.8	5	\$371	\$6,521	\$1,050	\$5,471	14.7	1,540
ECM 6	Install High Efficiency Air Conditioning Units	No	984	0.8	5	\$371	\$6,521	\$1,050	\$5,471	14.7	1,540
HVAC System Improvements			0	0.0	1	\$7	\$87	\$60	\$27	4.1	71
ECM 7	Install Pipe Insulation	Yes	0	0.0	1	\$7	\$87	\$60	\$27	4.1	71
Domestic Water Heating Upgrade			0	0.0	3	\$36	\$2,274	\$618	\$1,655	45.4	395
ECM 8	Install Tankless Water Heater	No	0	0.0	2	\$24	\$2,252	\$600	\$1,652	68.6	261
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$12	\$22	\$18	\$3	0.3	134
TOTALS (COST EFFECTIVE MEASURES)			8,243	2.1	1	\$2,698	\$21,567	\$2,526	\$19,041	7.1	8,456
TOTALS (ALL MEASURES)			9,227	3.0	8	\$3,093	\$30,340	\$4,176	\$26,163	8.5	10,257

* - 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).

BROOK ALLEY GARAGE

#	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			6,623	1.5	-2	\$1,199	\$4,573	\$983	\$3,590	3.0	6,491
ECM 1	Install LED Fixtures	Yes	0	0.0	0	\$0	\$680	\$0	\$680	0.0	0
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	30	0.0	0	\$5	\$118	\$20	\$98	18.1	29
ECM 3	Retrofit Fixtures with LED Lamps	Yes	6,488	1.4	-1	\$1,175	\$3,557	\$963	\$2,594	2.2	6,358
ECM 4	Install LED Exit Signs	Yes	105	0.0	0	\$19	\$217	\$0	\$217	11.4	103
Lighting Control Measures			2,326	0.5	-1	\$421	\$3,010	\$375	\$2,635	6.3	2,280
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	2,326	0.5	-1	\$421	\$3,010	\$375	\$2,635	6.3	2,280
Unitary HVAC Measures			1,843	1.2	0	\$337	\$5,797	\$80	\$5,717	17.0	1,856
ECM 6	Install High Efficiency Air Conditioning Units	No	282	0.2	0	\$52	\$1,928	\$0	\$1,928	37.4	284
ECM 7	Install High Efficiency PTAC/PTHP	Yes	1,561	1.0	0	\$286	\$3,869	\$80	\$3,789	13.3	1,572
Gas Heating (HVAC/Process) Replacement			0	0.0	627	\$5,233	\$25,058	\$5,000	\$20,058	3.8	73,398
ECM 8	Install Infrared Heaters	Yes	0	0.0	627	\$5,233	\$25,058	\$5,000	\$20,058	3.8	73,398
HVAC System Improvements			220	0.0	190	\$1,630	\$1,222	\$770	\$452	0.3	22,519
ECM 9	Install Occupancy-Controlled Thermostats	Yes	0	0.0	190	\$1,590	\$1,193	\$750	\$443	0.3	22,298
ECM 10	Install Pipe Insulation	Yes	220	0.0	0	\$40	\$29	\$20	\$9	0.2	221
Domestic Water Heating Upgrade			164	0.0	0	\$30	\$14	\$14	\$0	0.0	165
ECM 11	Install Low-Flow DHW Devices	Yes	164	0.0	0	\$30	\$14	\$14	\$0	0.0	165
Custom Measures			0	0.0	382	\$3,189	\$33,408	\$0	\$33,408	10.5	44,727
ECM 12	Building Envelope Improvements	Yes	0	0.0	382	\$3,189	\$33,408	\$0	\$33,408	10.5	44,727
TOTALS (COST EFFECTIVE MEASURES)			10,893	3.0	1,197	\$11,987	\$71,154	\$7,222	\$63,932	5.3	151,152
TOTALS (ALL MEASURES)			11,175	3.2	1,197	\$12,039	\$73,082	\$7,222	\$65,860	5.5	151,436

* - 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).

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

- Retro-Commissioning Study
- Upgrade/Replace Energy Management System
- Thermostatic Radiator Valve Installations
- High Speed Insulated Overhead Doors
- Upgrade to a Heat Pump System
- Window Replacements
- Retire Gas Meter

SOLAR ENERGY GENERATION POTENTIAL

	Municipal Court Complex
<i>Potential:</i>	HIGH
<i>System Potential: (kW)</i>	110
<i>Electric Generation: (kWh per year)</i>	131,000
<i>Displaced Cost: (per year)</i>	\$16,600

Successor Solar Incentive Program

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

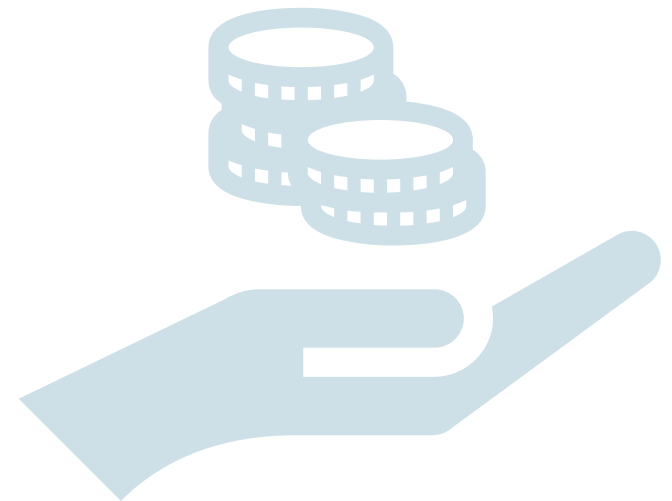
Community Solar Energy Pilot Program

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

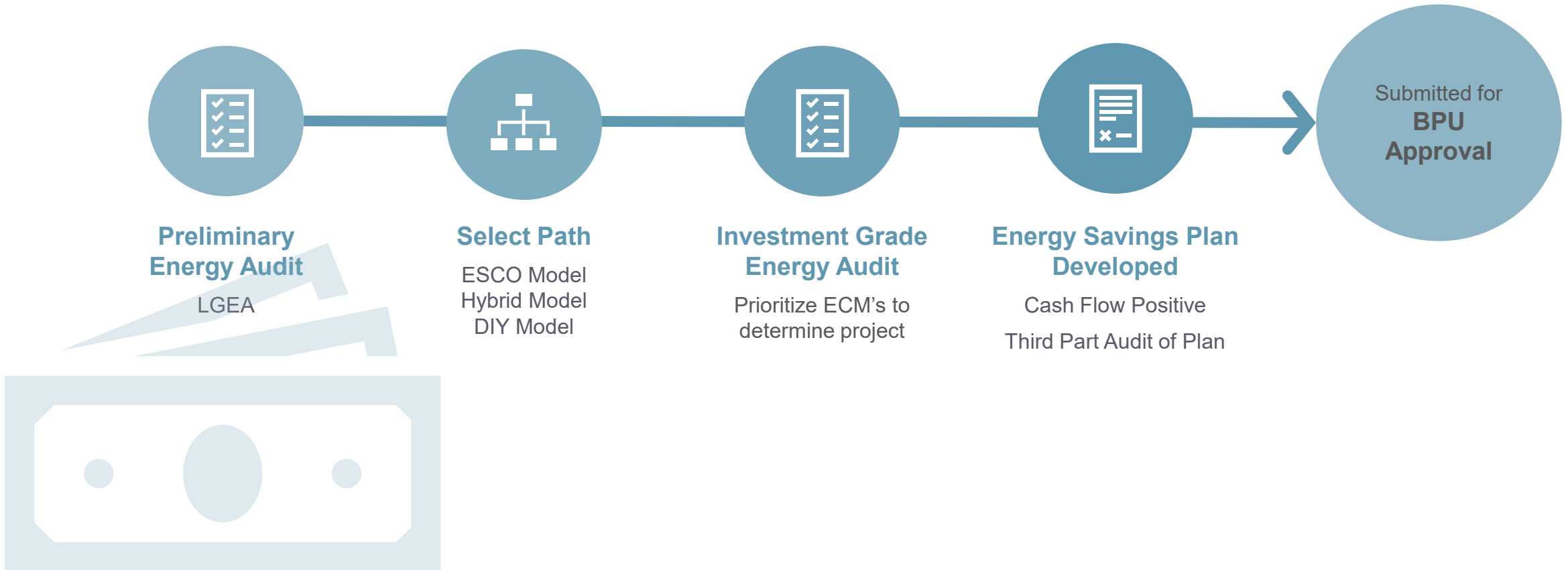
FINANCING MECHANISM: ESIP

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
- Project is paid for with the value of its own energy savings
- 15 or 20 year self-funding loan
- Recent Energy Efficiency Transition
 - NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Pandemic Relief Funds
- No upfront capital expenses
- No referendum or impact to tax payers



FINANCING MECHANISM: ESIP



Energy SAVINGS Improvement Program

FOR MORE INFORMATION

Michelle Rossi

ESIP Coordinator

ESIP@bpu.nj.gov

o: 609.633.9641

c: 609.915.0903

NJCEP COMMERCIAL & INDUSTRIAL 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



Key:

Programs run by NJCEP



Programs run by investor-owned utility companies



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



FOR MORE INFORMATION

Sarah Walters – LGEA Project Manager

SWalters@trccompanies.com

(732) 589-7372

Meredith Coley – LGEA Account Manager

mcoley@trccompanies.com

(252) 459-4664

Andrea Derby– LGEA Energy Auditor

aderby@trccompanies.com

(518) 728-1750

THANK YOU

