

LGEA Presentation

NJ DEP – High Point State Park

July 18, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future



INTRODUCTIONS

- *NJ DEP - HPSP*

- Jeffery MacMullen
- Jess August
- Laura Franek
- Victoria Howell
- Neal Ferrari
- Christopher White
- Casey Shaw (BPU)
- Sara Bluhm Gibson (BPU)
- Alisia Quaccio (BPU)

- *NJ Clean Energy Program*

- Sarah Walters – LGEA Project Manager
- Moussa Traore – LGEA Technical Manager
- Juno Romanick – LGEA Project Auditor

- *Utility Energy Efficiency Programs*

- Tiffany Lewis – JCP&L

AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**asures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for High Point State Park

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:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Process Equipment
- Cooking & Refrigeration Equipment

Utility Consumption:

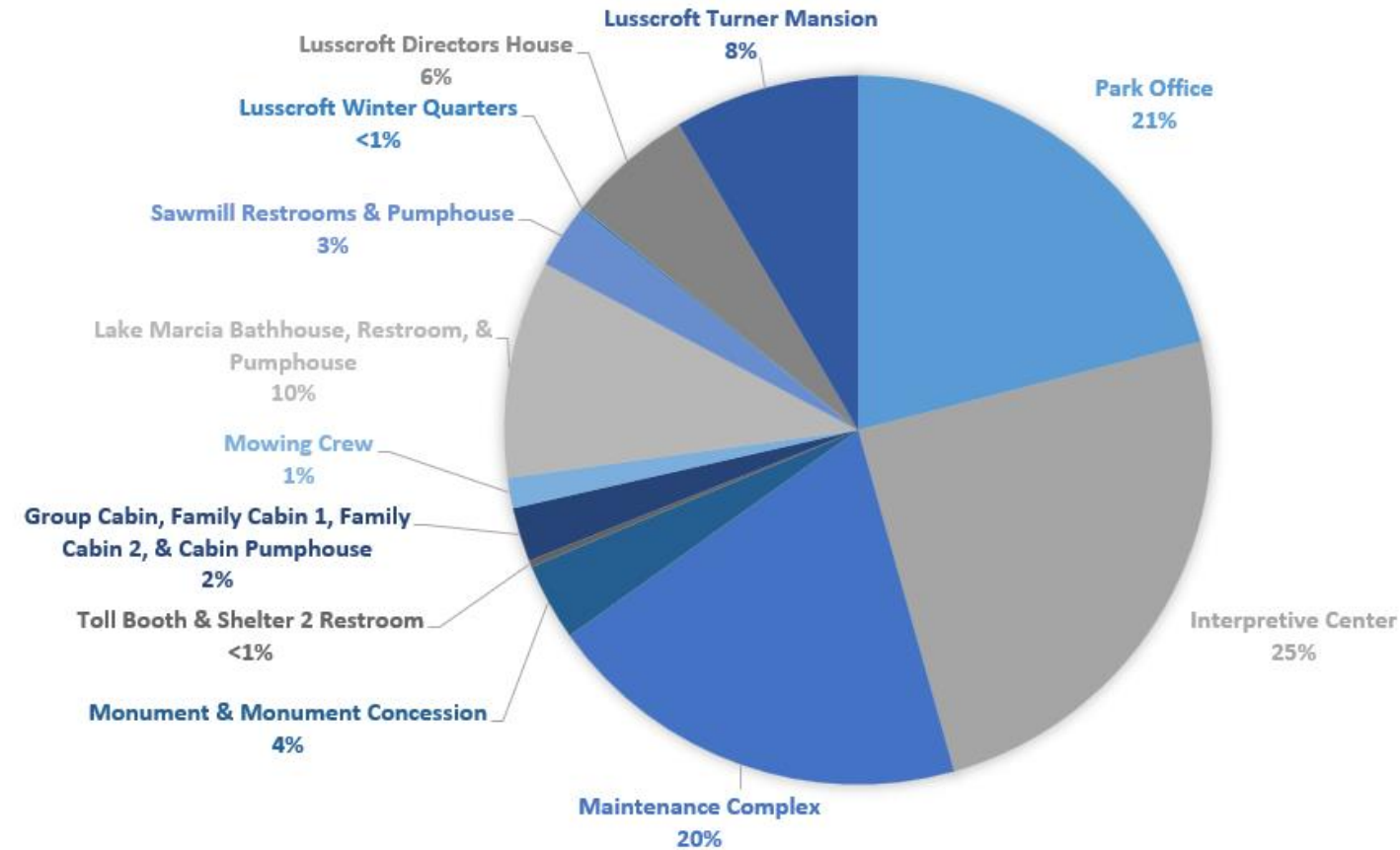
- Electric Consumption and Costs
- Fuel Oil #2 Consumption and Costs
- Propane Consumption and Costs

Sites Visited/Analyzed

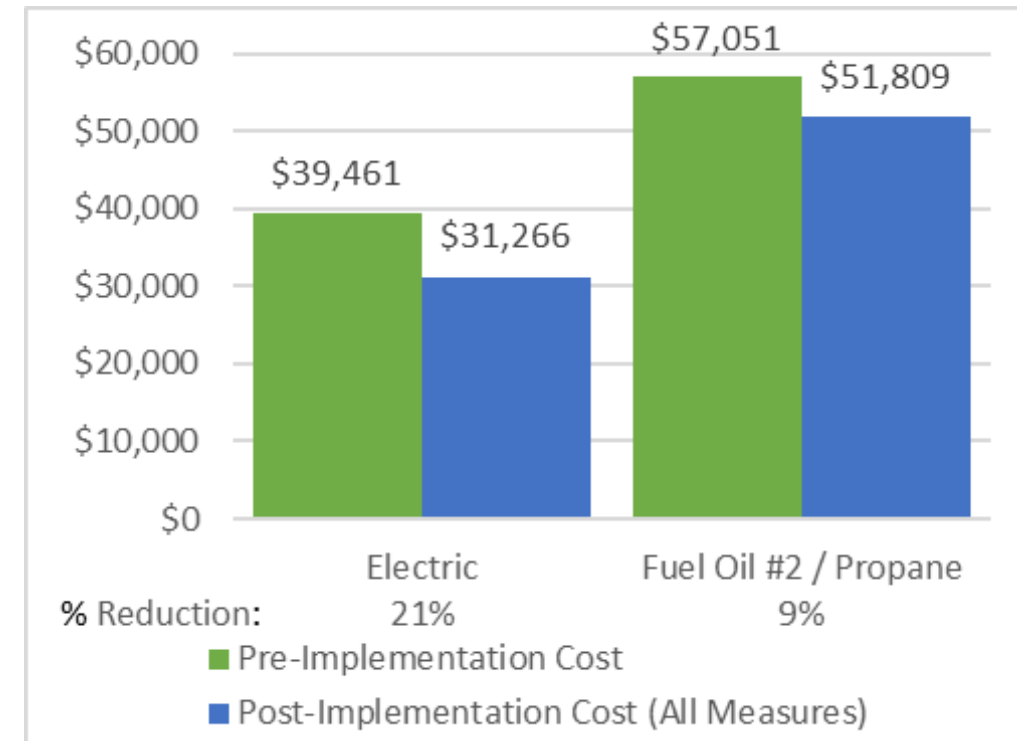
- Park Office
- Interpretive Center
- Maintenance Complex
- Monument & Monument Concessions
- Toll Booth
- Shelter 2 Restroom
- Group Cabin, Family Cabins 1 & 2, Cabin Pumphouse
- Mowing Crew (Sign Shop)
- Lake Marcia Bathhouse, Restroom, Pump House
- Sawmill Restrooms & Pumphouse
- Lusscroft Winter Quarters
- Lusscroft Director's House
- Lusscroft Turner Mansion

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

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

N/A
ENERGY STAR® Score¹

DEP - High Point State Park (HPSP Campus)
Primary Property Type: Other - Public Services
Gross Floor Area (ft²): 44,105
Built: 1940
For Year Ending: February 28, 2023
Date Generated: April 29, 2024

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 DEP - High Point State Park (HPSP Campus) 1480 State Route 23 Wantage, New Jersey 07461	Property Owner State of New Jersey 428 East State Street Trenton, NJ 08625 (609) 940-4129	Primary Contact New Jersey Board of Public Utilities State Energy Services 44 South Clinton Ave Trenton, NJ 08625 6096339666 BPU.EnergyServices@bpu.nj.gov
Property ID: 28480750		

Energy Consumption and Energy Use Intensity (EUI)		
Site EUI 68.7 kBtu/ft²	Annual Energy by Fuel Electric - Grid (kBtu) 790,514 (26%) Propane (kBtu) 1,225,164 (41%) Fuel Oil (No. 2) (kBtu) 1,014,203 (34%)	National Median Comparison National Median Site EUI (kBtu/ft²) 60.4 National Median Source EUI (kBtu/ft²) 89.3 % Diff from National Median Source EUI 14%
Source EUI 101.5 kBtu/ft²	Annual Emissions Total (Location-based) GHG Emissions (Metric Tons CO2e/year) 225	

Site EUI
68.7 kBtu/ft²

Source EUI
101.5 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²)	60.4
National Median Source EUI (kBtu/ft²)	89.3
% Diff from National Median Source EUI	14%

Site Name	ENERGY STAR®
High Point State Park Campus	N/A
Park Office	10
Interpretive Center	N/A
Maintenance Complex	N/A
Mowing Crew (Sign Shop)	N/A
Luscroft Winter Quarters	N/A
Luscroft Directors House	N/A
Luscroft Turner Mansion	N/A

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

LP Signature: _____ Date: _____

Licensed Professional

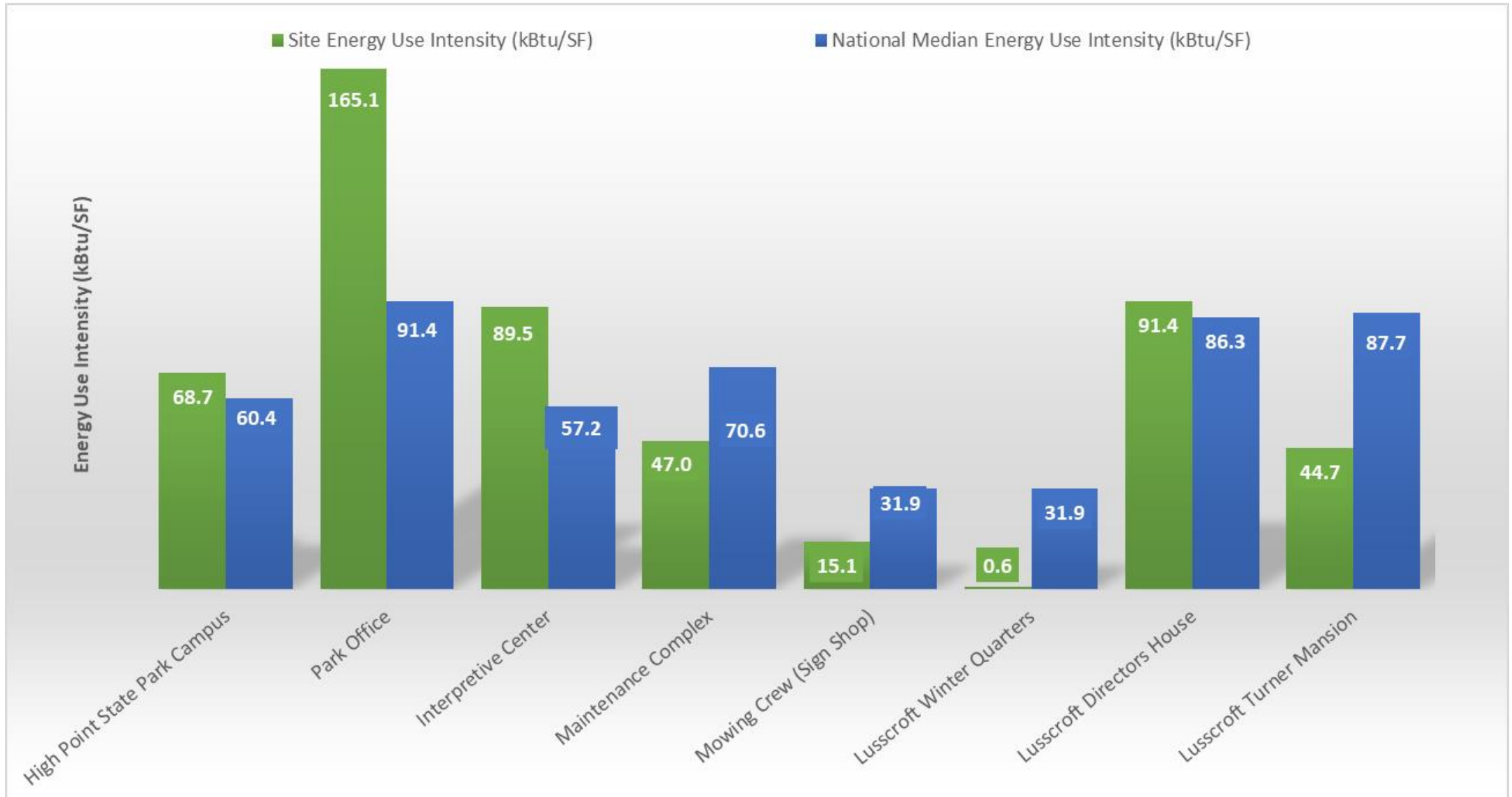
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Professional Engineer or Registered Architect Stamp (if applicable)

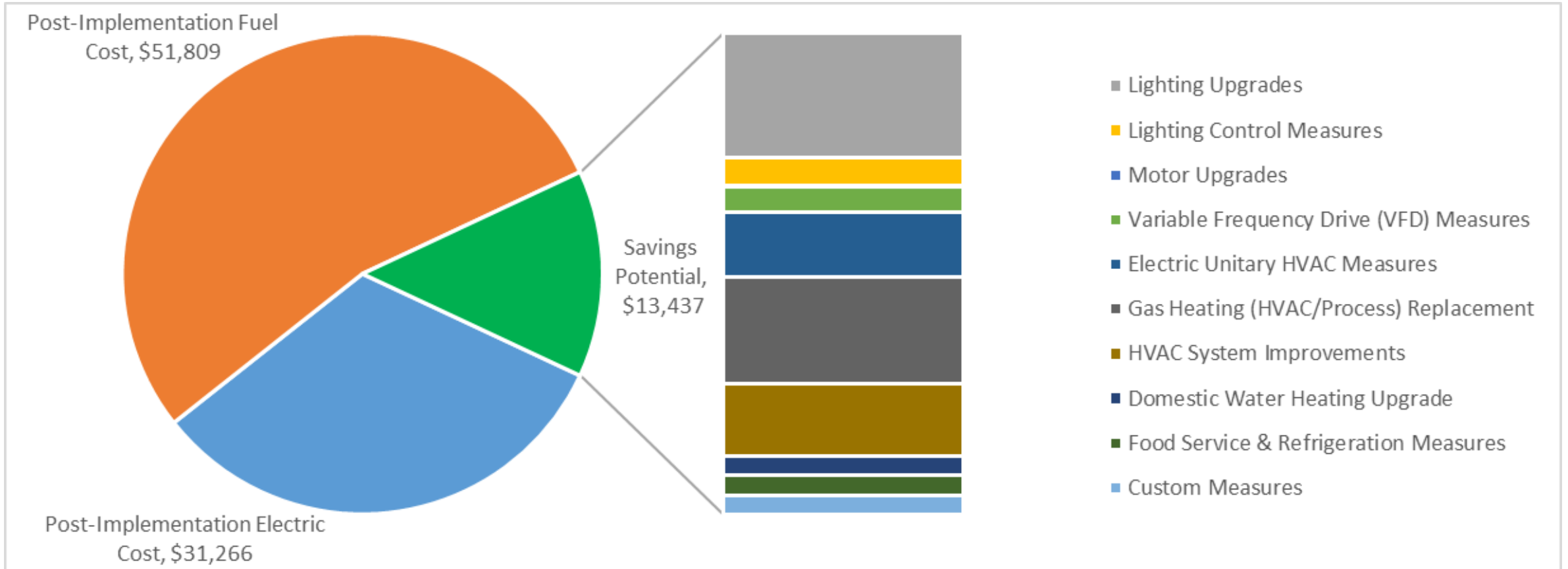
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

BENCHMARKING



ALL OPPORTUNITIES

Savings Potential



ALL OPPORTUNITIES (1 OF 2)

#	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		20,962	6.8	-3.1	\$3,493	\$29,050	\$3,140	\$25,910	7.4	20,664
ECM 1	Install LED Fixtures	14,975	2.0	-1.3	\$2,520	\$19,370	\$2,050	\$17,320	6.9	14,890
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	549	0.6	-0.1	\$97	\$1,500	\$180	\$1,320	13.6	544
ECM 3	Retrofit Fixtures with LED Lamps	5,438	4.2	-1.7	\$877	\$8,000	\$910	\$7,090	8.1	5,230
ECM 4	Install LED Exit Signs	0	0.1	0.0	\$0	\$180	\$0	\$180	0.0	0
Lighting Control Measures		4,626	2.1	-1.6	\$771	\$18,500	\$5,220	\$13,280	17.2	4,418
ECM 5	Install Occupancy Sensor Lighting Controls	2,944	1.2	-0.9	\$518	\$11,760	\$1,420	\$10,340	20.0	2,822
ECM 6	Install High/Low Lighting Controls	1,682	0.9	-0.7	\$253	\$6,740	\$3,800	\$2,940	11.6	1,595
Motor Upgrades		250	0.1	0.0	\$46	\$2,400	\$0	\$2,400	52.5	251
ECM 7	Premium Efficiency Motors	250	0.1	0.0	\$46	\$2,400	\$0	\$2,400	52.5	251
Variable Frequency Drive (VFD) Measures		4,127	1.5	0.0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
ECM 8	Install VFDs on Constant Volume (CV) Fans	4,127	1.5	0.0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
Unitary HVAC Measures		9,190	5.2	12.4	\$1,812	\$62,300	\$2,700	\$59,600	32.9	11,014
ECM 9	Install High Efficiency Air Conditioning Units	9,190	5.2	12.4	\$1,812	\$62,300	\$2,700	\$59,600	32.9	11,014

ALL OPPORTUNITIES (2 OF 2)

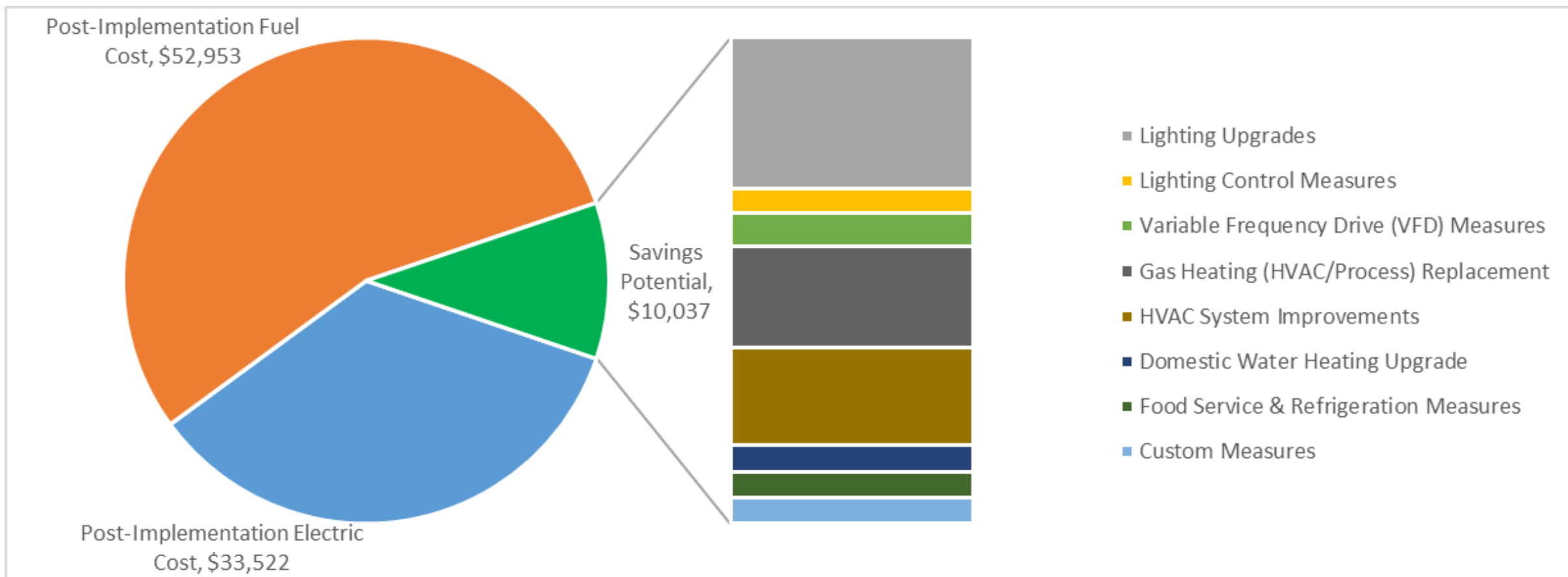
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement		0	0.0	116.0	\$2,995	\$41,100	\$2,000	\$39,100	13.1	17,907
ECM 10	Install High Efficiency Hot Water Boilers	0	0.0	67.0	\$1,729	\$26,100	\$1,000	\$25,100	14.5	10,957
ECM 11	Install High Efficiency Furnaces	0	0.0	31.8	\$819	\$6,900	\$1,000	\$5,900	7.2	4,508
ECM 12	Install High Efficiency Unit Heaters	0	0.0	17.2	\$447	\$8,100	\$0	\$8,100	18.1	2,442
HVAC System Improvements		286	0.0	76.8	\$2,026	\$2,630	\$340	\$2,290	1.1	12,855
ECM 13	Install Pipe Insulation	286	0.0	76.8	\$2,026	\$2,630	\$340	\$2,290	1.1	12,855
Domestic Water Heating Upgrade		2,617	0.0	4.0	\$543	\$440	\$160	\$280	0.5	3,196
ECM 14	Install Low-Flow DHW Devices	2,617	0.0	4.0	\$543	\$440	\$160	\$280	0.5	3,196
Food Service & Refrigeration Measures		2,710	0.6	0.0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
ECM 15	Replace Refrigeration Equipment	2,710	0.6	0.0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
Custom Measures		3,262	0.0	0.0	\$534	\$5,400	\$0	\$5,400	10.1	3,285
ECM 16	Replace Electric Water Heater with Heat Pump Water Heater	3,262	0.0	0.0	\$534	\$5,400	\$0	\$5,400	10.1	3,285
TOTALS (ALL MEASURES)		48,031	16.4	204.5	\$13,437	\$171,820	\$14,460	\$157,360	11.7	80,476

* - 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).

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		18,612	3.7	-2.3	\$3,125	\$13,230	\$1,790	\$11,440	3.7	18,412
ECM 1	Install LED Fixtures	12,834	0.5	-0.6	\$2,190	\$6,450	\$900	\$5,550	2.5	12,842
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	484	0.1	-0.1	\$85	\$240	\$30	\$210	2.5	479
ECM 3	Retrofit Fixtures with LED Lamps	5,294	3.1	-1.7	\$850	\$6,360	\$860	\$5,500	6.5	5,090
ECM 4	Install LED Exit Signs	0	0.1	0.0	\$0	\$180	\$0	\$180	0.0	0
Lighting Control Measures		3,040	1.2	-1.2	\$497	\$8,890	\$3,690	\$5,200	10.5	2,884
ECM 5	Install Occupancy Sensor Lighting Controls	1,456	0.5	-0.5	\$259	\$3,270	\$380	\$2,890	11.2	1,384
ECM 6	Install High/Low Lighting Controls	1,584	0.7	-0.7	\$237	\$5,620	\$3,310	\$2,310	9.7	1,500
Variable Frequency Drive (VFD) Measures		4,127	1.5	0.0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
ECM 8	Install VFDs on Constant Volume (CV) Fans	4,127	1.5	0.0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
Gas Heating (HVAC/Process) Replacement		0	0.0	81.6	\$2,104	\$22,000	\$1,600	\$20,400	9.7	12,657
ECM 10	Install High Efficiency Hot Water Boilers	0	0.0	49.8	\$1,285	\$15,100	\$600	\$14,500	11.3	8,149
ECM 11	Install High Efficiency Furnaces	0	0.0	31.8	\$819	\$6,900	\$1,000	\$5,900	7.2	4,508
HVAC System Improvements		236	0.0	76.8	\$2,017	\$1,540	\$180	\$1,360	0.7	12,804
ECM 13	Install Pipe Insulation	236	0.0	76.8	\$2,017	\$1,540	\$180	\$1,360	0.7	12,804
Domestic Water Heating Upgrade		2,617	0.0	4.0	\$543	\$440	\$160	\$280	0.5	3,196
ECM 14	Install Low-Flow DHW Devices	2,617	0.0	4.0	\$543	\$440	\$160	\$280	0.5	3,196
Food Service & Refrigeration Measures		2,710	0.6	0.0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
ECM 15	Replace Refrigeration Equipment	2,710	0.6	0.0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
Custom Measures		3,262	0.0	0.0	\$534	\$5,400	\$0	\$5,400	10.1	3,285
ECM 16	Replace Electric Water Heater with Heat Pump Water Heater	3,262	0.0	0.0	\$534	\$5,400	\$0	\$5,400	10.1	3,285
TOTALS		34,604	7.1	158.9	\$10,037	\$61,500	\$8,320	\$53,180	5.3	60,124

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PARK 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			1,899	0.2	0	\$285	\$1,450	\$140	\$1,310	4.6	1,889
ECM 1	Install LED Fixtures	Yes	1,378	0.0	0	\$210	\$970	\$100	\$870	4.1	1,387
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	130	0.1	0	\$18	\$90	\$10	\$80	4.4	123
ECM 3	Retrofit Fixtures with LED Lamps	Yes	392	0.1	0	\$57	\$390	\$30	\$360	6.3	379
Lighting Control Measures			1,123	0.3	0	\$159	\$2,310	\$570	\$1,740	11.0	1,065
ECM 4	Install Occupancy Sensor Lighting Controls	No	266	0.1	0	\$38	\$1,470	\$180	\$1,290	34.3	252
ECM 5	Install High/Low Lighting Controls	Yes	857	0.2	0	\$121	\$840	\$390	\$450	3.7	812
Unitary HVAC Measures			625	0.3	0	\$95	\$5,100	\$300	\$4,800	50.4	629
ECM 6	Install High Efficiency Air Conditioning Units	No	625	0.3	0	\$95	\$5,100	\$300	\$4,800	50.4	629
Gas Heating (HVAC/Process) Replacement			0	0.0	31	\$814	\$11,400	\$500	\$10,900	13.4	4,453
ECM 7	Install High Efficiency Furnaces	Yes	0	0.0	14	\$368	\$3,300	\$500	\$2,800	7.6	2,011
ECM 8	Install High Efficiency Unit Heaters	No	0	0.0	17	\$447	\$8,100	\$0	\$8,100	18.1	2,442
Domestic Water Heating Upgrade			515	0.0	0	\$78	\$50	\$20	\$30	0.4	519
ECM 9	Install Low-Flow DHW Devices	Yes	515	0.0	0	\$78	\$50	\$20	\$30	0.4	519
TOTALS (COST EFFECTIVE MEASURES)			3,272	0.4	14	\$852	\$5,640	\$1,050	\$4,590	5.4	5,231
TOTALS (ALL MEASURES)			4,163	0.8	31	\$1,432	\$20,310	\$1,530	\$18,780	13.1	8,555

* - 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).

INTERPRETIVE CENTER

#	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			5,365	4.0	-2	\$818	\$14,480	\$1,660	\$12,820	15.7	5,092
ECM 1	Install LED Fixtures	No	1,895	1.4	-1	\$290	\$10,170	\$950	\$9,220	31.8	1,806
ECM 2	Retrofit Fixtures with LED Lamps	Yes	3,470	2.6	-1	\$528	\$4,310	\$710	\$3,600	6.8	3,286
Lighting Control Measures			783	0.5	0	\$119	\$5,740	\$2,580	\$3,160	26.5	741
ECM 3	Install Occupancy Sensor Lighting Controls	No	215	0.2	0	\$33	\$1,800	\$220	\$1,580	48.3	203
ECM 4	Install High/Low Lighting Controls	Yes	568	0.4	0	\$86	\$3,940	\$2,360	\$1,580	18.3	538
Unitary HVAC Measures			8,011	4.5	12	\$1,619	\$52,000	\$2,400	\$49,600	30.6	9,827
ECM 5	Install High Efficiency Air Conditioning Units	No	8,011	4.5	12	\$1,619	\$52,000	\$2,400	\$49,600	30.6	9,827
Domestic Water Heating Upgrade			687	0.0	0	\$112	\$70	\$20	\$50	0.4	692
ECM 6	Install Low-Flow DHW Devices	Yes	687	0.0	0	\$112	\$70	\$20	\$50	0.4	692
Custom Measures			1,846	0.0	0	\$301	\$2,500	\$0	\$2,500	8.3	1,859
ECM 7	Replace Electric Water Heater with Heat Pump Water Heater	Yes	1,846	0.0	0	\$301	\$2,500	\$0	\$2,500	8.3	1,859
TOTALS (COST EFFECTIVE MEASURES)			6,571	2.9	-2	\$1,027	\$10,820	\$3,090	\$7,730	7.5	6,375
TOTALS (ALL MEASURES)			16,692	8.9	10	\$2,969	\$74,790	\$6,660	\$68,130	22.9	18,210

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MAINTENANCE 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			481	0.2	0	\$76	\$3,010	\$230	\$2,780	36.7	463
ECM 1	Install LED Fixtures	No	245	0.1	0	\$40	\$2,750	\$200	\$2,550	64.6	242
ECM 2	Retrofit Fixtures with LED Lamps	Yes	236	0.1	0	\$36	\$260	\$30	\$230	6.4	221
Lighting Control Measures			1,232	0.4	-1	\$189	\$2,740	\$350	\$2,390	12.7	1,155
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,181	0.4	-1	\$181	\$2,460	\$280	\$2,180	12.0	1,107
ECM 4	Install High/Low Lighting Controls	No	51	0.0	0	\$8	\$280	\$70	\$210	27.0	48
Variable Frequency Drive (VFD) Measures			4,127	1.5	0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	4,127	1.5	0	\$678	\$5,600	\$900	\$4,700	6.9	4,156
Unitary HVAC Measures			309	0.3	0	\$51	\$2,700	\$0	\$2,700	53.2	311
ECM 6	Install High Efficiency Air Conditioning Units	No	309	0.3	0	\$51	\$2,700	\$0	\$2,700	53.2	311
HVAC System Improvements			236	0.0	63	\$1,664	\$1,080	\$120	\$960	0.6	10,571
ECM 7	Install Pipe Insulation	Yes	236	0.0	63	\$1,664	\$1,080	\$120	\$960	0.6	10,571
Domestic Water Heating Upgrade			548	0.0	0	\$90	\$60	\$30	\$30	0.3	552
ECM 8	Install Low-Flow DHW Devices	Yes	548	0.0	0	\$90	\$60	\$30	\$30	0.3	552
Custom Measures			1,416	0.0	0	\$233	\$2,900	\$0	\$2,900	12.4	1,426
ECM 9	Replace Electric Water Heater with Heat Pump Water Heater	Yes	1,416	0.0	0	\$233	\$2,900	\$0	\$2,900	12.4	1,426
TOTALS (COST EFFECTIVE MEASURES)			7,745	2.1	63	\$2,882	\$12,360	\$1,360	\$11,000	3.8	18,033
TOTALS (ALL MEASURES)			8,350	2.6	63	\$2,981	\$18,090	\$1,630	\$16,460	5.5	18,634

* - 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).

MONUMENT & CONCESSIONS

#	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			10,145	0.5	0	\$1,725	\$4,570	\$340	\$4,230	2.5	10,216
ECM 1	Install LED Fixtures	Yes	10,032	0.0	0	\$1,706	\$2,920	\$200	\$2,720	1.6	10,102
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	No	48	0.3	0	\$8	\$990	\$120	\$870	107.2	48
ECM 3	Retrofit Fixtures with LED Lamps	No	65	0.2	0	\$11	\$660	\$20	\$640	57.7	66
Lighting Control Measures			59	0.2	0	\$10	\$1,320	\$480	\$840	83.0	60
ECM 4	Install Occupancy Sensor Lighting Controls	No	12	0.1	0	\$2	\$480	\$60	\$420	199.4	12
ECM 5	Install High/Low Lighting Controls	No	47	0.1	0	\$8	\$840	\$420	\$420	52.4	47
HVAC System Improvements			34	0.0	0	\$6	\$410	\$60	\$350	61.1	34
ECM 6	Install Pipe Insulation	No	34	0.0	0	\$6	\$410	\$60	\$350	61.1	34
Domestic Water Heating Upgrade			49	0.0	0	\$8	\$20	\$0	\$20	2.4	49
ECM 7	Install Low-Flow DHW Devices	Yes	49	0.0	0	\$8	\$20	\$0	\$20	2.4	49
TOTALS (COST EFFECTIVE MEASURES)			10,081	0.0	0	\$1,714	\$2,940	\$200	\$2,740	1.6	10,152
TOTALS (ALL MEASURES)			10,287	0.7	0	\$1,749	\$6,320	\$880	\$5,440	3.1	10,359

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TOLL BOOTH & SHELTER 2 RESTROOM

#	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			0	0.0	0	\$0	\$30	\$0	\$30	302.0	0
ECM 1	Retrofit Fixtures with LED Lamps	No	0	0.0	0	\$0	\$30	\$0	\$30	302.0	0
Lighting Control Measures			275	0.0	0	\$78	\$810	\$100	\$710	9.1	277
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	275	0.0	0	\$78	\$810	\$100	\$710	9.1	277
Unitary HVAC Measures			14	0.0	0	\$4	\$800	\$0	\$800	206.9	14
ECM 3	Install High Efficiency Air Conditioning Units	No	14	0.0	0	\$4	\$800	\$0	\$800	206.9	14
Domestic Water Upgrade			0	0.0	1	\$0	\$40	\$20	\$20	0.0	0
ECM 4	Install Low-Flow Faucet Devices	Yes	0	0.0	1	\$0	\$40	\$20	\$20	0.0	0
TOTALS (COST EFFECTIVE MEASURES)			275	0.0	1	\$78	\$850	\$120	\$730	9.3	277
TOTALS (ALL MEASURES)			289	0.1	1	\$82	\$1,680	\$120	\$1,560	19.0	291

* - 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).

HPSP CABINS

#	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			287	0.0	0	\$54	\$300	\$30	\$270	5.0	289
ECM 1	Retrofit Fixtures with LED Lamps	Yes	287	0.0	0	\$54	\$300	\$30	\$270	5.0	289
Lighting Control Measures			473	0.1	0	\$89	\$2,310	\$280	\$2,030	22.9	477
ECM 2	Install Occupancy Sensor Lighting Controls	No	473	0.1	0	\$89	\$2,310	\$280	\$2,030	22.9	477
Motor Upgrades			44	0.0	0	\$8	\$700	\$0	\$700	84.9	44
ECM 3	Premium Efficiency Motors	No	44	0.0	0	\$8	\$700	\$0	\$700	84.9	44
Domestic Water Heating Upgrade			818	0.0	0	\$153	\$90	\$20	\$70	0.5	823
ECM 4	Install Low-Flow DHW Devices	Yes	818	0.0	0	\$153	\$90	\$20	\$70	0.5	823
TOTALS (COST EFFECTIVE MEASURES)			1,105	0.0	0	\$207	\$390	\$50	\$340	1.6	1,113
TOTALS (ALL MEASURES)			1,622	0.2	0	\$304	\$3,400	\$330	\$3,070	10.1	1,634

* - 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).

MOWING CREW (SIGN SHOP)

#	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			672	0.1	0	\$127	\$330	\$50	\$280	2.2	677
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	354	0.1	0	\$67	\$150	\$20	\$130	2.0	356
ECM 2	Retrofit Fixtures with LED Lamps	Yes	318	0.1	0	\$60	\$180	\$30	\$150	2.5	320
Unitary HVAC Measures			231	0.1	0	\$44	\$1,700	\$0	\$1,700	39.0	233
ECM 3	Install High Efficiency Air Conditioning Units	No	231	0.1	0	\$44	\$1,700	\$0	\$1,700	39.0	233
HVAC System Improvements			17	0.0	0	\$3	\$680	\$100	\$580	182.8	17
ECM 4	Install Pipe Insulation	No	17	0.0	0	\$3	\$680	\$100	\$580	182.8	17
TOTALS (COST EFFECTIVE MEASURES)			672	0.1	0	\$127	\$330	\$50	\$280	2.2	677
TOTALS (ALL MEASURES)			920	0.2	0	\$173	\$2,710	\$150	\$2,560	14.8	927

* - 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).

LAKE MARCIA

#	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			1,862	0.7	-1	\$355	\$3,400	\$600	\$2,800	7.9	1,792
ECM 1	Install LED Fixtures	Yes	1,353	0.4	-1	\$254	\$2,360	\$550	\$1,810	7.1	1,281
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	No	13	0.1	0	\$2	\$180	\$20	\$160	66.8	12
ECM 3	Retrofit Fixtures with LED Lamps	Yes	496	0.1	0	\$99	\$860	\$30	\$830	8.4	499
Lighting Control Measures			680	0.4	0	\$128	\$3,270	\$860	\$2,410	18.9	644
ECM 4	Install Occupancy Sensor Lighting Controls	No	522	0.3	0	\$98	\$2,430	\$300	\$2,130	21.7	494
ECM 5	Install High/Low Lighting Controls	Yes	159	0.1	0	\$30	\$840	\$560	\$280	9.4	150
Gas Heating (HVAC/Process) Replacement			0	0.0	18	\$451	\$3,600	\$500	\$3,100	6.9	2,497
ECM 6	Install High Efficiency Furnaces	Yes	0	0.0	18	\$451	\$3,600	\$500	\$3,100	6.9	2,497
Domestic Water Heating Upgrade			0	0.0	4	\$101	\$110	\$50	\$60	0.6	561
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$101	\$110	\$50	\$60	0.6	561
Food Service & Refrigeration Measures			2,710	0.6	0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
ECM 8	Replace Refrigeration Equipment	Yes	2,710	0.6	0	\$539	\$4,400	\$0	\$4,400	8.2	2,729
TOTALS (COST EFFECTIVE MEASURES)			4,718	1.3	21	\$1,474	\$12,170	\$1,690	\$10,480	7.1	7,718
TOTALS (ALL MEASURES)			5,253	1.7	21	\$1,575	\$14,780	\$2,010	\$12,770	8.1	8,224

* - 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).

SAWMILL RESTROOM & PUMPHOUSE

#	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	0.0	0	\$17	\$60	\$0	\$60	3.5	94
ECM 1	Retrofit Fixtures with LED Lamps	Yes	94	0.0	0	\$17	\$60	\$0	\$60	3.5	94
Motor Upgrades			205	0.1	0	\$37	\$700	\$0	\$700	18.8	207
ECM 2	Premium Efficiency Motors	No	205	0.1	0	\$37	\$700	\$0	\$700	18.8	207
TOTALS (COST EFFECTIVE MEASURES)			94	0.0	0	\$17	\$60	\$0	\$60	3.5	94
TOTALS (ALL MEASURES)			299	0.1	0	\$54	\$760	\$0	\$760	14.0	301

* - 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).

LUSSCROFT (WINTER QUARTERS)



#	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			80	0.1	0	\$23	\$500	\$60	\$440	19.4	81
ECM 1	Install LED Fixtures	Yes	72	0.0	0	\$20	\$200	\$50	\$150	7.4	73
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	No	4	0.0	0	\$1	\$90	\$10	\$80	64.7	4
ECM 3	Retrofit Fixtures with LED Lamps	No	4	0.0	0	\$1	\$30	\$0	\$30	28.1	4
ECM 4	Install LED Exit Signs	Yes	0	0.1	0	\$0	\$180	\$0	\$180	0.0	0
Motor Upgrades			0	0.0	0	\$0	\$1,000	\$0	\$1,000	8635.0	0
ECM 5	Premium Efficiency Motors	No	0	0.0	0	\$0	\$1,000	\$0	\$1,000	8635.0	0
TOTALS (COST EFFECTIVE MEASURES)			72	0.1	0	\$20	\$380	\$50	\$330	16.2	73
TOTALS (ALL MEASURES)			81	0.1	0	\$23	\$1,500	\$60	\$1,440	63.1	81

* - 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).

LUSSCROFT (DIRECTOR'S HOUSE)



#	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			45	0.3	0	\$7	\$280	\$0	\$280	38.6	42
ECM 1	Retrofit Fixtures with LED Lamps	No	45	0.3	0	\$7	\$280	\$0	\$280	38.6	42
Gas Heating (HVAC/Process) Replacement			0	0.0	17	\$444	\$11,000	\$400	\$10,600	23.9	2,807
ECM 2	Install High Efficiency Hot Water Boilers	No	0	0.0	17	\$444	\$11,000	\$400	\$10,600	23.9	2,807
HVAC System Improvements			0	0.0	14	\$353	\$460	\$60	\$400	1.1	2,233
ECM 3	Install Pipe Insulation	Yes	0	0.0	14	\$353	\$460	\$60	\$400	1.1	2,233
TOTALS (COST EFFECTIVE MEASURES)			0	0.0	14	\$353	\$460	\$60	\$400	1.1	2,233
TOTALS (ALL MEASURES)			45	0.3	31	\$804	\$11,740	\$460	\$11,280	14.0	5,082

* - 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).

LUSSCROFT (TURNER MANSION)



#	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			31	0.6	0	\$7	\$640	\$30	\$610	89.4	29
ECM 1	Retrofit Fixtures with LED Lamps	No	31	0.6	0	\$7	\$640	\$30	\$610	89.4	29
Gas Heating (HVAC/Process) Replacement			0	0.0	50	\$1,285	\$15,100	\$600	\$14,500	11.3	8,149
ECM 2	Install High Efficiency Hot Water Boilers	Yes	0	0.0	50	\$1,285	\$15,100	\$600	\$14,500	11.3	8,149
TOTALS (COST EFFECTIVE MEASURES)			0	0.0	50	\$1,285	\$15,100	\$600	\$14,500	11.3	8,149
TOTALS (ALL MEASURES)			31	0.6	50	\$1,292	\$15,740	\$630	\$15,110	11.7	8,178

* - 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 Best Practices by building

WATER BEST PRACTICES



- Leak Detection and Repair
- Toilets and Urinals
- Faucets and Showerheads
- Commercial Kitchen Equipment
- Laundry Equipment
- Cooling Towers
- Steam Boiler System
- Pools and Spas
- Laboratory and Medical Equipment
- Water Metering and Submetering
- Vehicle Washing
- Single Pass Cooling System
- Landscaping and Irrigation
- On-Site Alternative Water Sources

See individual reports for specific Water Best Practices by building

MEASURES FOR FUTURE CONSIDERATION

- Installation of an Energy Management System
- Upgrade to a Heat Pump System

EV CHARGING STATION POTENTIAL

NJCleanEnergy.com/EV

Know your EV Charging Stations



LEVEL 1



4-6 miles/hour
Replenish Rate



7-30 hours for full charge

Approximate time to charge a battery*

CHARGE
110/120V

LEVEL 2



10-20 miles/hour
Replenish Rate



2-10 hours for full charge

Approximate time to charge a battery*

CHARGE
208/240V

DIRECT CURRENT (DC) FAST CHARGING*



120-200 miles/hour
Replenish Rate



20-90 minutes for full charge

Approximate time to charge a battery*

CHARGE
480V or 208V

*dependent on the size of the battery

High Point State Park

Potential:

Medium / High



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

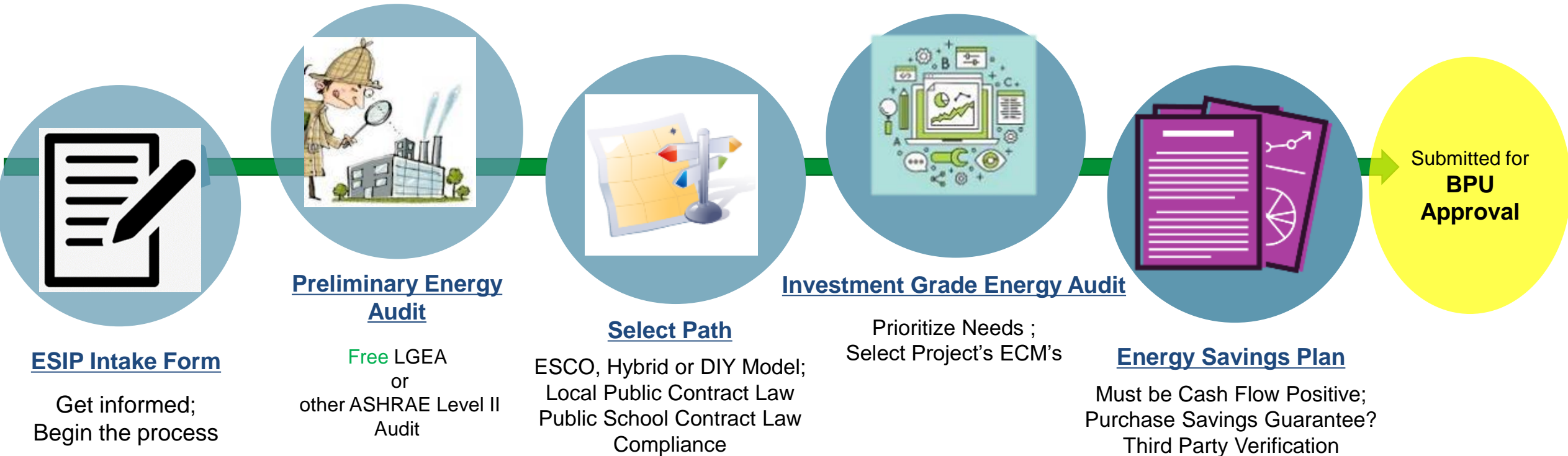
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP Program
- A creative tool and financing mechanism that allows public 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
- 2 Options: Lease Purchase Loan or Bond
- 15 or 20 year pay back term
- NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Grants
- No upfront capital expenses
- No referendum or impact to tax payers



ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP



ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP

FOR MORE INFORMATION

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STATE FACILITIES INITIATIVE (SFI)

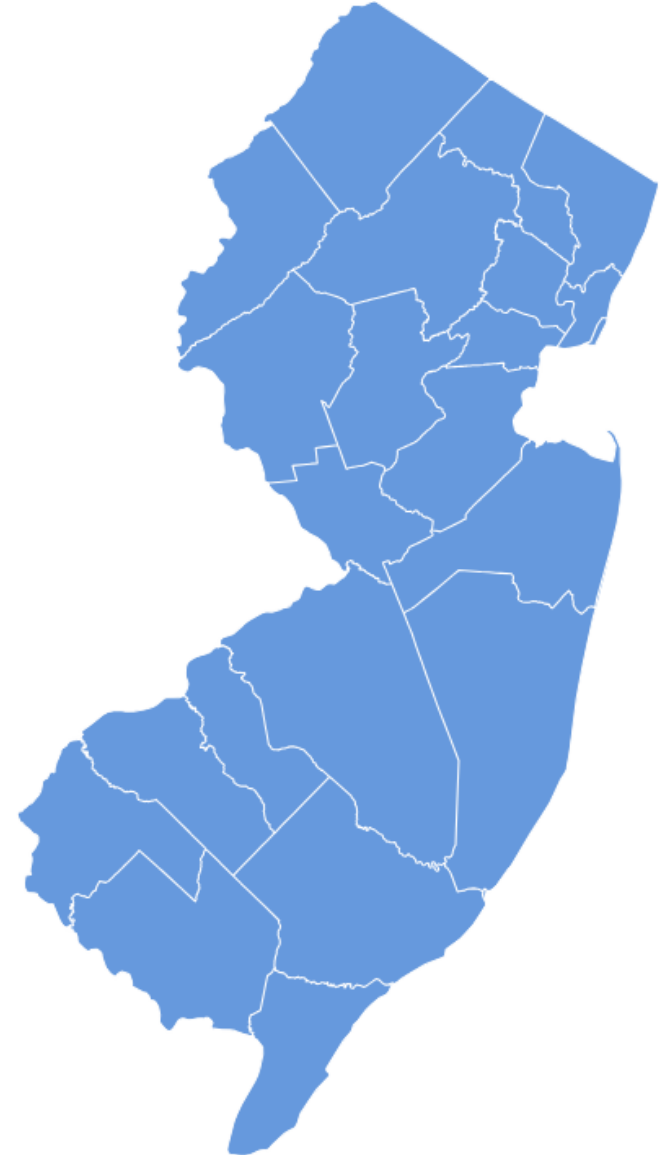
The State Facilities Initiative (SFI)

This program is for State-owned facilities.

The program identifies and implements Energy Efficiency projects in State-owned facilities or State-sponsored projects with the objective of producing energy and cost savings. The funding provided to the SFI is directly in line with EMP Goals 3.3.5 and 4.1.1.

EMP Goal 3.3.5 seeks to “[i]mprove energy efficiency in, and retrofit state buildings to, a high performance standard.”

EMP Goal 4.1.1 addresses electrifying State facilities.



C&I ENERGY EFFICIENCY PROGRAMS

NJCleanEnergy.com

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 investor-owned utility companies



Programs run by NJCEP



UTILITY RUN ENERGY EFFICIENCY PROGRAMS*

NJCleanEnergy.com/Transition

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

ENERGY MANAGEMENT :

- Includes the Building Tune-up (BT), Retro-commissioning (RCx), and Strategic Energy Management (SEM) subprograms. These subprograms offer a comprehensive mix of custom energy-savings measures such as basic HVAC tune-ups, building systems tune-ups, controls' calibration, diagnostic testing, and installation of measures to enhance your building's energy performance and savings.

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



**Other programs may be available to you. Check with your Utility Provider to see a full list of offering and what you may be qualified for.*

UTILITY RUN ENERGY EFFICIENCY PROGRAMS

JCP&L

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THANK YOU

