



LGEA Presentation Island Beach State Park

January 24, 2023



New Jersey's Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *State of NJ – Island Beach State Park*
 - Jennifer Clayton
 - Mario Parella
 - Lou Tallone
 - Jeffrey MacMullen
 - Laura Petrangeli
 - Douglas Brown
 - Sara Bluhm
 - Zainab Nawaz
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Moussa Traore – LGEA Lead Auditor
 - Nick Nocco – LGEA Project Auditor

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)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for Island Beach 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:

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

Utility Consumption:

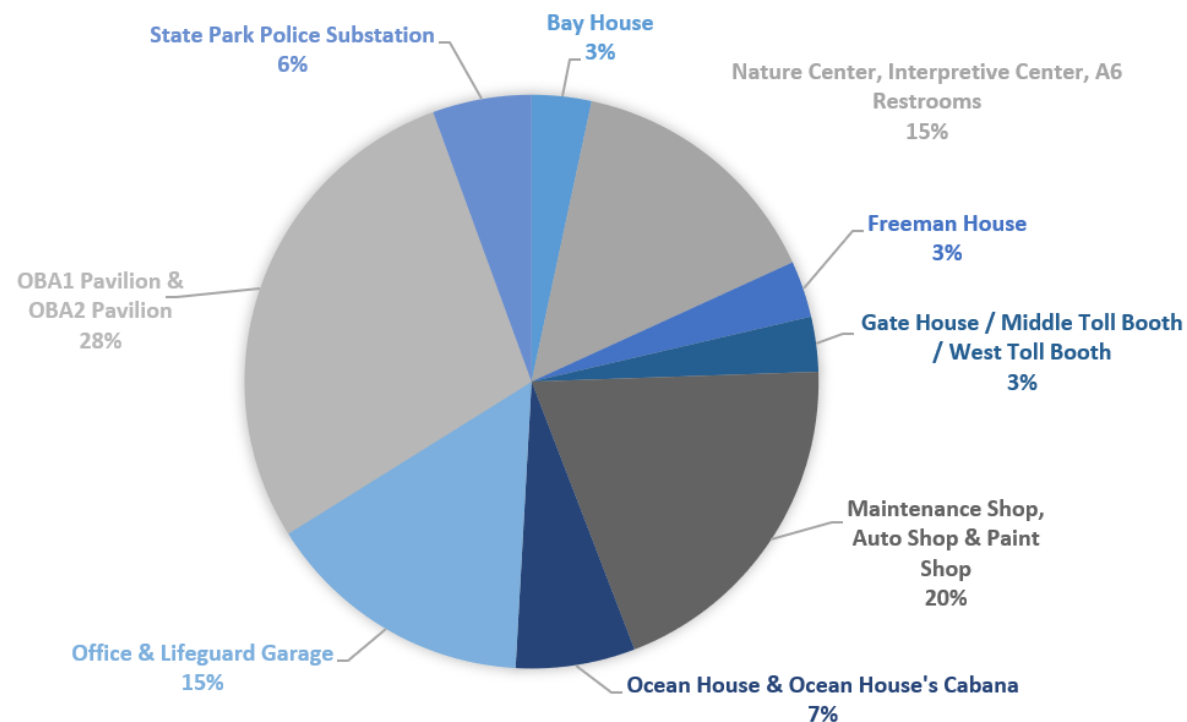
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- No. 2 Fuel Oil and Propane Consumption and Costs

Sites Visited/Analyzed

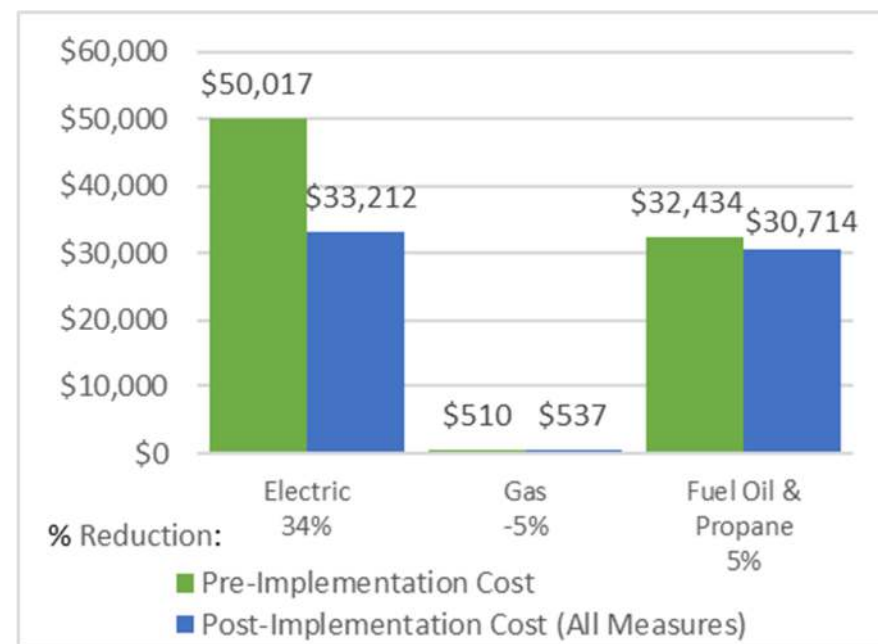
- Ocean House & Cabana
- Bay House
- Gate House & Toll Booths
- Maintenance Shop
- Auto Shop
- Freeman House
- State Park Police Substation
- OBA1 Pavilion
- Office
- OBA2 Pavilion
- Lifeguard Garage
- Paint Shop
- A6 Restrooms
- Nature Center
- Interpretive Center

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 **Maintenance Shop, Auto Shop & Paint Shop**

Primary Property Type: Repair Services (Vehicle, Shoe, Locksmith, etc.)
Gross Floor Area (ft²): 17,292
Built: 1930

For Year Ending: December 31, 2021
Date Generated: September 28, 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 Maintenance Shop, Auto Shop & Paint Shop 2401 Central Avenue South Seaside Park Berkeley Township, New Jersey 08752 | Property Owner State of NJ - Island Beach State Park 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 (609) 633-9666 BPU.EnergyServices@bpu.nj.gov |
|---|--|---|

Property ID: 21642169

Energy Consumption and Energy Use Intensity (EUI)

| | | |
|------------------------------------|---|--|
| Site EUI 49.1 kBtu/ft² | Annual Energy by Fuel Electric - Grid (kBtu) 122,636 (14%) Fuel Oil (No. 2) (kBtu) 726,046 (86%) | National Median Comparison National Median Site EUI (kBtu/ft²) 76.4 National Median Source EUI (kBtu/ft²) 96.9 % Diff from National Median Source EUI -36% |
| Source EUI 62.3 kBtu/ft² | Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year) 65 | |

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
49.1 kBtu/ft²

Source EUI
62.3 kBtu/ft²

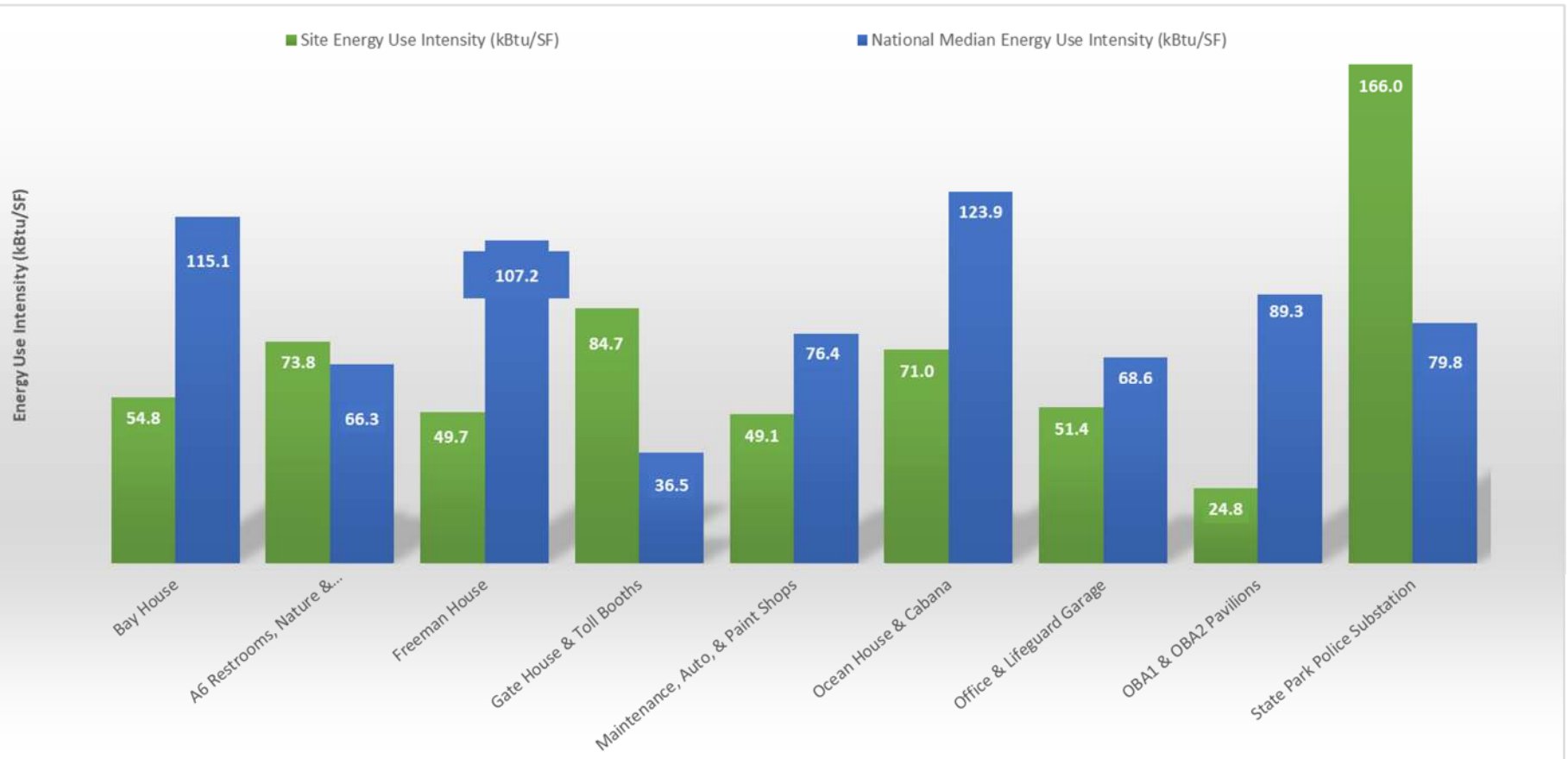
National Median Comparison

| | |
|--|------|
| National Median Site EUI (kBtu/ft²) | 76.4 |
| National Median Source EUI (kBtu/ft²) | 96.9 |
| % Diff from National Median Source EUI | -36% |

| Site Name | ENERGY STAR® Score |
|---|--------------------|
| Bay House | N/A |
| A6 Restrooms, Nature & Interpretive Centers | N/A |
| Freeman House | N/A |
| Gate House & Toll Booths | N/A |
| Maintenance, Auto, & Paint Shops | N/A |
| Ocean House & Cabana | N/A |
| Office & Lifeguard Garage | 70 |
| OBA1 & OBA2 Pavilions | N/A |
| State Park Police Substation | N/A |

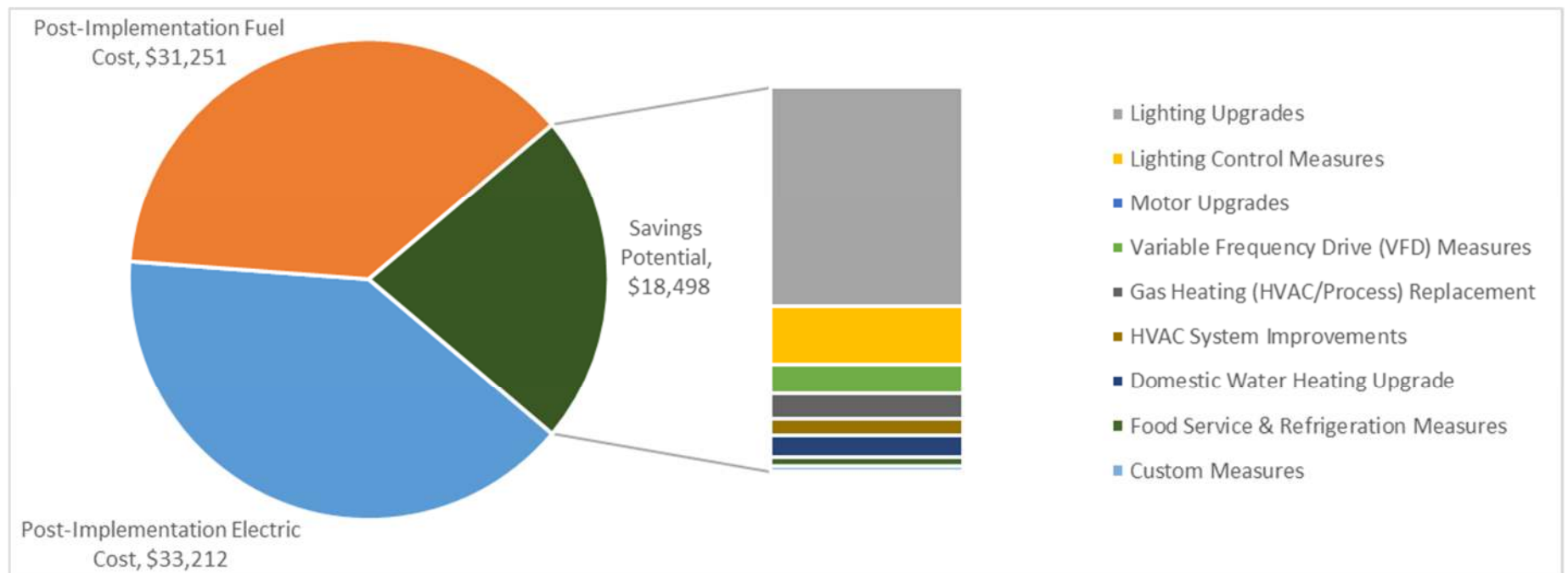
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

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 | | 79,782 | 19.1 | -18.7 | \$10,577 | \$40,487 | \$6,904 | \$33,583 | 3.2 | 77,592 |
| ECM 1 | Install LED Fixtures | 24,453 | 2.0 | -0.8 | \$3,354 | \$19,678 | \$2,800 | \$16,878 | 5.0 | 24,508 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | 6,618 | 2.3 | -2.2 | \$859 | \$3,848 | \$590 | \$3,258 | 3.8 | 6,321 |
| ECM 3 | Retrofit Fixtures with LED Lamps | 48,711 | 14.8 | -15.6 | \$6,364 | \$16,961 | \$3,514 | \$13,447 | 2.1 | 46,762 |
| Lighting Control Measures | | 20,103 | 4.4 | -4.3 | \$2,755 | \$24,243 | \$7,485 | \$16,758 | 6.1 | 19,600 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | 16,930 | 3.4 | -3.1 | \$2,355 | \$17,518 | \$2,200 | \$15,318 | 6.5 | 16,586 |
| ECM 5 | Install Photocell Controls | 175 | 0.0 | 0.0 | \$23 | \$200 | \$0 | \$200 | 8.5 | 176 |
| ECM 6 | Install High/Low Lighting Controls | 2,997 | 1.0 | -1.3 | \$376 | \$6,525 | \$5,285 | \$1,240 | 3.3 | 2,838 |
| Motor Upgrades | | 124 | 0.0 | 0.0 | \$17 | \$909 | \$0 | \$909 | 54.1 | 125 |
| ECM 7 | Premium Efficiency Motors | 124 | 0.0 | 0.0 | \$17 | \$909 | \$0 | \$909 | 54.1 | 125 |
| Variable Frequency Drive (VFD) Measures | | 9,611 | 0.2 | 0.0 | \$1,430 | \$14,923 | \$375 | \$14,548 | 10.2 | 9,678 |
| ECM 8 | Install VFDs on Heating Water Pumps | 990 | 0.1 | 0.0 | \$134 | \$3,010 | \$75 | \$2,935 | 21.8 | 997 |
| ECM 9 | Install VFDs on Kitchen Hood Fan Motors | 8,622 | 0.1 | 0.0 | \$1,296 | \$11,913 | \$300 | \$11,613 | 9.0 | 8,682 |

ALL OPPORTUNITIES

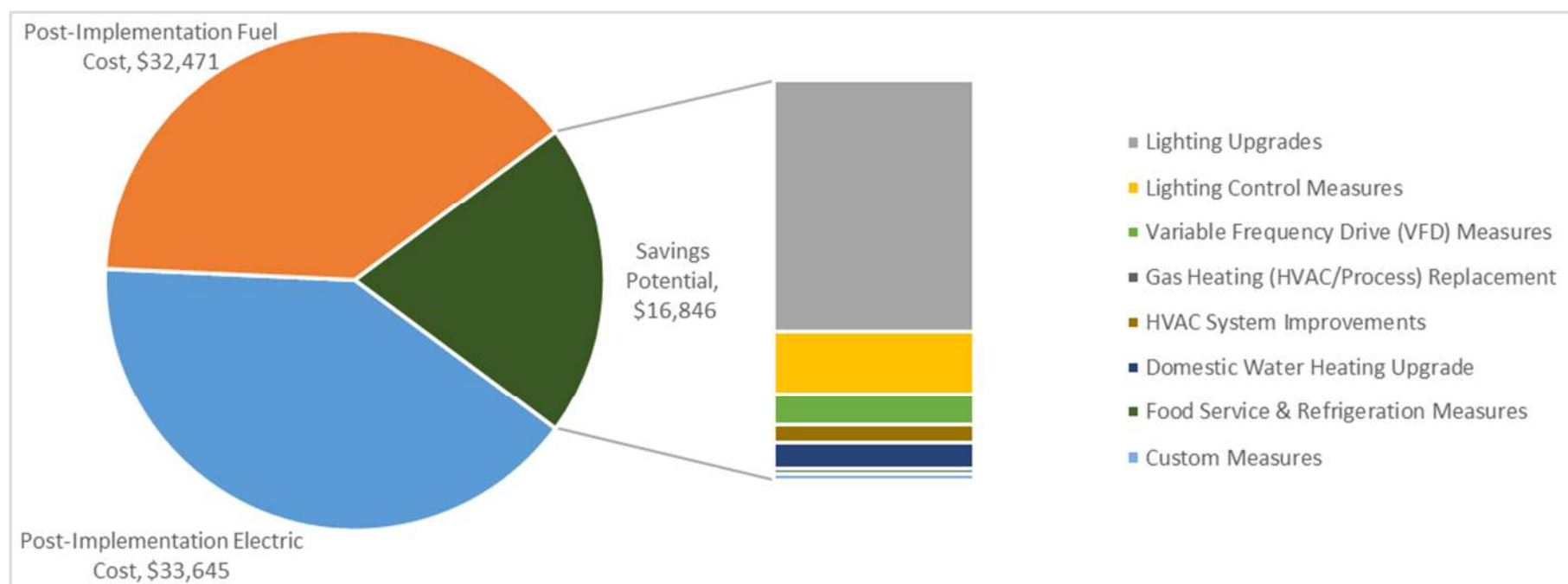
| # | Energy Conservation Measure | Annual Electric Savings (kWh) | Peak Demand Savings (kW) | Annual Fuel Savings (MMBtu) | Annual Energy Cost Savings (\$) | Estimated M&L Cost (\$) | Estimated Incentive (\$)* | Estimated Net M&L Cost (\$) | Simple Payback Period (yrs)** | CO ₂ e Emissions Reduction (lbs) |
|--|--|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Gas Heating (HVAC/Process) Replacement | | 0 | 0.0 | 74.7 | \$1,204 | \$34,177 | \$2,140 | \$32,037 | 26.6 | 11,892 |
| ECM 10 | Install High Efficiency Hot Water Boilers | 0 | 0.0 | 57.0 | \$926 | \$26,675 | \$1,640 | \$25,035 | 27.0 | 8,997 |
| ECM 11 | Install High Efficiency Furnaces | 0 | 0.0 | 17.7 | \$278 | \$7,502 | \$500 | \$7,002 | 25.2 | 2,896 |
| HVAC System Improvements | | 606 | 0.0 | 43.6 | \$778 | \$869 | \$195 | \$674 | 0.9 | 7,688 |
| ECM 12 | Install Pipe Insulation | 606 | 0.0 | 43.6 | \$778 | \$869 | \$195 | \$674 | 0.9 | 7,688 |
| Domestic Water Heating Upgrade | | 6,084 | 0.0 | 9.0 | \$1,040 | \$452 | \$226 | \$226 | 0.2 | 7,497 |
| ECM 13 | Install Low-Flow DHW Devices | 6,084 | 0.0 | 9.0 | \$1,040 | \$452 | \$226 | \$226 | 0.2 | 7,497 |
| Food Service & Refrigeration Measures | | 2,805 | 0.2 | 0.0 | \$422 | \$5,383 | \$400 | \$4,983 | 11.8 | 2,824 |
| ECM 14 | Refrigerator/Freezer Case Electrically Commutated Motors | 1,438 | 0.2 | 0.0 | \$216 | \$1,517 | \$200 | \$1,317 | 6.1 | 1,448 |
| ECM 15 | Refrigeration Controls | 1,367 | 0.0 | 0.0 | \$205 | \$3,867 | \$200 | \$3,667 | 17.8 | 1,376 |
| Custom Measures | | 2,022 | 0.0 | 0.0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| ECM 16 | Install Heat Pump Water Heater | 2,022 | 0.0 | 0.0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| TOTALS | | 121,136 | 23.9 | 104.2 | \$18,498 | \$123,732 | \$17,725 | \$106,008 | 5.7 | 138,933 |

* - 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 | | 79,782 | 19.1 | -18.7 | \$10,577 | \$40,487 | \$6,904 | \$33,583 | 3.2 | 77,592 |
| ECM 1 | Install LED Fixtures | 24,453 | 2.0 | -0.8 | \$3,354 | \$19,678 | \$2,800 | \$16,878 | 5.0 | 24,508 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | 6,618 | 2.3 | -2.2 | \$859 | \$3,848 | \$590 | \$3,258 | 3.8 | 6,321 |
| ECM 3 | Retrofit Fixtures with LED Lamps | 48,711 | 14.8 | -15.6 | \$6,364 | \$16,961 | \$3,514 | \$13,447 | 2.1 | 46,762 |
| Lighting Control Measures | | 19,386 | 4.1 | -4.0 | \$2,663 | \$21,510 | \$7,075 | \$14,435 | 5.4 | 18,922 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | 16,218 | 3.2 | -2.8 | \$2,264 | \$15,010 | \$1,860 | \$13,150 | 5.8 | 15,912 |
| ECM 5 | Install Photocell Controls | 175 | 0.0 | 0.0 | \$23 | \$200 | \$0 | \$200 | 8.5 | 176 |
| ECM 6 | Install High/Low Lighting Controls | 2,993 | 1.0 | -1.3 | \$376 | \$6,300 | \$5,215 | \$1,085 | 2.9 | 2,834 |
| Variable Frequency Drive (VFD) Measures | | 8,622 | 0.1 | 0.0 | \$1,296 | \$11,913 | \$300 | \$11,613 | 9.0 | 8,682 |
| ECM 9 | Install VFDs on Kitchen Hood Fan Motors | 8,622 | 0.1 | 0.0 | \$1,296 | \$11,913 | \$300 | \$11,613 | 9.0 | 8,682 |
| HVAC System Improvements | | 606 | 0.0 | 43.6 | \$778 | \$869 | \$195 | \$674 | 0.9 | 7,688 |
| ECM 12 | Install Pipe Insulation | 606 | 0.0 | 43.6 | \$778 | \$869 | \$195 | \$674 | 0.9 | 7,688 |
| Domestic Water Heating Upgrade | | 6,084 | 0.0 | 9.0 | \$1,040 | \$452 | \$226 | \$226 | 0.2 | 7,497 |
| ECM 13 | Install Low-Flow DHW Devices | 6,084 | 0.0 | 9.0 | \$1,040 | \$452 | \$226 | \$226 | 0.2 | 7,497 |
| Food Service & Refrigeration Measures | | 1,438 | 0.2 | 0.0 | \$216 | \$1,517 | \$200 | \$1,317 | 6.1 | 1,448 |
| ECM 14 | Refrigerator/Freezer Case Electrically Commutated Motors | 1,438 | 0.2 | 0.0 | \$216 | \$1,517 | \$200 | \$1,317 | 6.1 | 1,448 |
| Custom Measures | | 2,022 | 0.0 | 0.0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| ECM 16 | Install Heat Pump Water Heater | 2,022 | 0.0 | 0.0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| TOTALS | | 117,940 | 23.4 | 29.9 | \$16,846 | \$79,036 | \$14,900 | \$64,136 | 3.8 | 123,866 |

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

OCEAN HOUSE & CABANA

| # | 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 | | | 1,663 | 1.9 | 0 | \$222 | \$1,214 | \$155 | \$1,059 | 4.8 | 1,614 |
| ECM 1 | Install LED Fixtures | Yes | 648 | 0.0 | 0 | \$89 | \$412 | \$100 | \$312 | 3.5 | 653 |
| ECM 2 | Retrofit Fixtures with LED Lamps | Yes | 1,015 | 1.9 | 0 | \$132 | \$802 | \$55 | \$747 | 5.6 | 961 |
| Lighting Control Measures | | | 23 | 0.0 | 0 | \$3 | \$727 | \$145 | \$582 | 190.6 | 22 |
| ECM 3 | Install Occupancy Sensor Lighting Controls | No | 19 | 0.0 | 0 | \$2 | \$502 | \$75 | \$427 | 171.7 | 18 |
| ECM 4 | Install High/Low Lighting Controls | No | 4 | 0.0 | 0 | \$1 | \$225 | \$70 | \$155 | 274.2 | 4 |
| Gas Heating (HVAC/Process) Replacement | | | 0 | 0.0 | 15 | \$264 | \$7,953 | \$400 | \$7,553 | 28.6 | 2,117 |
| ECM 5 | Install High Efficiency Hot Water Boilers | No | 0 | 0.0 | 15 | \$264 | \$7,953 | \$400 | \$7,553 | 28.6 | 2,117 |
| HVAC System Improvements | | | 34 | 0.0 | 0 | \$5 | \$29 | \$10 | \$19 | 4.1 | 34 |
| ECM 6 | Install Pipe Insulation | Yes | 34 | 0.0 | 0 | \$5 | \$29 | \$10 | \$19 | 4.1 | 34 |
| Domestic Water Heating Upgrade | | | 417 | 0.0 | 2 | \$99 | \$57 | \$29 | \$29 | 0.3 | 756 |
| ECM 7 | Install Low-Flow DHW Devices | Yes | 417 | 0.0 | 2 | \$99 | \$57 | \$29 | \$29 | 0.3 | 756 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 2,114 | 1.9 | 2 | \$326 | \$1,301 | \$194 | \$1,107 | 3.4 | 2,404 |
| TOTALS (ALL MEASURES) | | | 2,137 | 2.0 | 17 | \$593 | \$9,981 | \$739 | \$9,242 | 15.6 | 4,543 |

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

BAY 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 | | | 799 | 0.4 | 0 | \$106 | \$606 | \$127 | \$479 | 4.5 | 776 |
| ECM 1 | Install LED Fixtures | Yes | 392 | 0.0 | 0 | \$54 | \$412 | \$100 | \$312 | 5.8 | 395 |
| ECM 2 | Retrofit Fixtures with LED Lamps | Yes | 406 | 0.4 | 0 | \$53 | \$194 | \$27 | \$167 | 3.2 | 381 |
| Lighting Control Measures | | | 39 | 0.0 | 0 | \$5 | \$386 | \$55 | \$331 | 65.5 | 36 |
| ECM 3 | Install Occupancy Sensor Lighting Controls | No | 39 | 0.0 | 0 | \$5 | \$386 | \$55 | \$331 | 65.5 | 36 |
| HVAC System Improvements | | | 0 | 0.0 | 11 | \$168 | \$216 | \$64 | \$152 | 0.9 | 1,732 |
| ECM 4 | Install Pipe Insulation | Yes | 0 | 0.0 | 11 | \$168 | \$216 | \$64 | \$152 | 0.9 | 1,732 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 1 | \$23 | \$22 | \$11 | \$11 | 0.5 | 233 |
| ECM 5 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 1 | \$23 | \$22 | \$11 | \$11 | 0.5 | 233 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 799 | 0.4 | 12 | \$297 | \$843 | \$202 | \$642 | 2.2 | 2,740 |
| TOTALS (ALL MEASURES) | | | 838 | 0.4 | 12 | \$302 | \$1,229 | \$257 | \$973 | 3.2 | 2,777 |

* - 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).

GATE HOUSE & TOLL BOOTHS

| # | 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 | | | 2,850 | 0.4 | -1 | \$380 | \$674 | \$159 | \$515 | 1.4 | 2,808 |
| ECM 1 | Retrofit Fixtures with LED Lamps | Yes | 2,850 | 0.4 | -1 | \$380 | \$674 | \$159 | \$515 | 1.4 | 2,808 |
| Lighting Control Measures | | | 679 | 0.1 | 0 | \$90 | \$270 | \$35 | \$235 | 2.6 | 666 |
| ECM 2 | Install Occupancy Sensor Lighting Controls | Yes | 679 | 0.1 | 0 | \$90 | \$270 | \$35 | \$235 | 2.6 | 666 |
| Domestic Water Heating Upgrade | | | 245 | 0.0 | 0 | \$35 | \$14 | \$7 | \$7 | 0.2 | 247 |
| ECM 3 | Install Low-Flow DHW Devices | Yes | 245 | 0.0 | 0 | \$35 | \$14 | \$7 | \$7 | 0.2 | 247 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 3,773 | 0.5 | -1 | \$505 | \$959 | \$201 | \$758 | 1.5 | 3,721 |
| TOTALS (ALL MEASURES) | | | 3,773 | 0.5 | -1 | \$505 | \$959 | \$201 | \$758 | 1.5 | 3,721 |

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

MAINTENANCE, AUTO, PAINT SHOPS

| # | 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 | | | 8,124 | 1.6 | -2 | \$1,068 | \$4,824 | \$968 | \$3,856 | 3.6 | 7,814 |
| ECM 1 | Install LED Fixtures | Yes | 3,241 | 0.0 | 0 | \$440 | \$2,061 | \$500 | \$1,561 | 3.5 | 3,264 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | Yes | 2,490 | 1.0 | -1 | \$320 | \$2,047 | \$320 | \$1,727 | 5.4 | 2,320 |
| ECM 3 | Retrofit Fixtures with LED Lamps | Yes | 2,393 | 0.6 | -1 | \$308 | \$716 | \$148 | \$568 | 1.8 | 2,230 |
| Lighting Control Measures | | | 2,218 | 0.5 | -1 | \$285 | \$3,126 | \$290 | \$2,836 | 9.9 | 2,066 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | Yes | 2,218 | 0.5 | -1 | \$285 | \$3,126 | \$290 | \$2,836 | 9.9 | 2,066 |
| Motor Upgrades | | | 124 | 0.0 | 0 | \$17 | \$909 | \$0 | \$909 | 54.1 | 125 |
| ECM 5 | Premium Efficiency Motors | No | 124 | 0.0 | 0 | \$17 | \$909 | \$0 | \$909 | 54.1 | 125 |
| Variable Frequency Drive (VFD) Measures | | | 990 | 0.1 | 0 | \$134 | \$3,010 | \$75 | \$2,935 | 21.8 | 997 |
| ECM 6 | Install VFDs on Heating Water Pumps | No | 990 | 0.1 | 0 | \$134 | \$3,010 | \$75 | \$2,935 | 21.8 | 997 |
| Gas Heating (HVAC/Process) Replacement | | | 0 | 0.0 | 42 | \$662 | \$18,722 | \$1,240 | \$17,482 | 26.4 | 6,879 |
| ECM 7 | Install High Efficiency Hot Water Boilers | No | 0 | 0.0 | 42 | \$662 | \$18,722 | \$1,240 | \$17,482 | 26.4 | 6,879 |
| HVAC System Improvements | | | 0 | 0.0 | 25 | \$387 | \$264 | \$60 | \$204 | 0.5 | 4,019 |
| ECM 8 | Install Pipe Insulation | Yes | 0 | 0.0 | 25 | \$387 | \$264 | \$60 | \$204 | 0.5 | 4,019 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| ECM 9 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| Custom Measures | | | 2,022 | 0.0 | 0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| ECM 10 | Install Heat Pump Water Heater | Yes | 2,022 | 0.0 | 0 | \$275 | \$2,289 | \$0 | \$2,289 | 8.3 | 2,036 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 12,364 | 2.1 | 22 | \$2,029 | \$10,517 | \$1,325 | \$9,192 | 4.5 | 16,091 |
| TOTALS (ALL MEASURES) | | | 13,477 | 2.3 | 64 | \$2,842 | \$33,159 | \$2,640 | \$30,518 | 10.7 | 24,091 |

* - 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).

FREEMAN 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 | | | 1,895 | 0.4 | -1 | \$250 | \$282 | \$40 | \$242 | 1.0 | 1,794 |
| ECM 1 | Retrofit Fixtures with LED Lamps | Yes | 1,895 | 0.4 | -1 | \$250 | \$282 | \$40 | \$242 | 1.0 | 1,794 |
| Gas Heating (HVAC/Process) Replacement | | | 0 | 0.0 | 18 | \$278 | \$7,502 | \$500 | \$7,002 | 25.2 | 2,896 |
| ECM 2 | Install High Efficiency Furnaces | No | 0 | 0.0 | 18 | \$278 | \$7,502 | \$500 | \$7,002 | 25.2 | 2,896 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| ECM 3 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 1,895 | 0.4 | 0 | \$265 | \$296 | \$47 | \$249 | 0.9 | 1,950 |
| TOTALS (ALL MEASURES) | | | 1,895 | 0.4 | 18 | \$543 | \$7,798 | \$547 | \$7,251 | 13.4 | 4,845 |

* - 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).

STATE PARK POLICE SUBSTATION

| # | 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 | | | 4,884 | 0.6 | -2 | \$620 | \$782 | \$203 | \$579 | 0.9 | 4,578 |
| ECM 1 | Retrofit Fixtures with LED Lamps | Yes | 4,884 | 0.6 | -2 | \$620 | \$782 | \$203 | \$579 | 0.9 | 4,578 |
| Lighting Control Measures | | | 1,136 | 0.1 | 0 | \$145 | \$856 | \$90 | \$766 | 5.3 | 1,077 |
| ECM 2 | Install Occupancy Sensor Lighting Controls | Yes | 961 | 0.1 | 0 | \$122 | \$656 | \$90 | \$566 | 4.6 | 901 |
| ECM 3 | Install Photocell Controls | Yes | 175 | 0.0 | 0 | \$23 | \$200 | \$0 | \$200 | 8.5 | 176 |
| HVAC System Improvements | | | 0 | 0.0 | 6 | \$98 | \$195 | \$30 | \$165 | 1.7 | 1,016 |
| ECM 4 | Install Pipe Insulation | Yes | 0 | 0.0 | 6 | \$98 | \$195 | \$30 | \$165 | 1.7 | 1,016 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| ECM 5 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 1 | \$15 | \$14 | \$7 | \$7 | 0.5 | 155 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 6,021 | 0.8 | 5 | \$878 | \$1,847 | \$330 | \$1,517 | 1.7 | 6,826 |
| TOTALS (ALL MEASURES) | | | 6,021 | 0.8 | 5 | \$878 | \$1,847 | \$330 | \$1,517 | 1.7 | 6,826 |

* - 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).

OBA1 AND OBA2 PAVILIONS

| # | 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 | | | 19,351 | 3.5 | 0 | \$2,909 | \$9,207 | \$816 | \$8,391 | 2.9 | 19,487 |
| ECM 1 | Install LED Fixtures | Yes | 8,503 | 1.4 | 0 | \$1,278 | \$5,942 | \$100 | \$5,842 | 4.6 | 8,562 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | Yes | 1,511 | 0.3 | 0 | \$227 | \$563 | \$90 | \$473 | 2.1 | 1,521 |
| ECM 3 | Retrofit Fixtures with LED Lamps | Yes | 9,338 | 1.8 | 0 | \$1,404 | \$2,702 | \$626 | \$2,076 | 1.5 | 9,403 |
| Lighting Control Measures | | | 9,510 | 1.5 | 0 | \$1,430 | \$7,832 | \$1,010 | \$6,822 | 4.8 | 9,576 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | Yes | 9,510 | 1.5 | 0 | \$1,430 | \$7,832 | \$1,010 | \$6,822 | 4.8 | 9,576 |
| Variable Frequency Drive (VFD) Measures | | | 8,622 | 0.1 | 89 | \$1,296 | \$11,913 | \$300 | \$11,613 | 9.0 | 8,682 |
| ECM 5 | Install VFDs on Kitchen Hood Fan Motors | Yes | 8,622 | 0.1 | 89 | \$1,296 | \$11,913 | \$300 | \$11,613 | 9.0 | 8,682 |
| HVAC System Improvements | | | 343 | 0.0 | 0 | \$55 | \$87 | \$15 | \$72 | 1.3 | 384 |
| ECM 6 | Install Pipe Insulation | Yes | 343 | 0.0 | 0 | \$55 | \$87 | \$15 | \$72 | 1.3 | 384 |
| Domestic Water Heating Upgrade | | | 4,310 | 0.0 | 0 | \$648 | \$222 | \$111 | \$111 | 0.2 | 4,340 |
| ECM 7 | Install Low-Flow DHW Devices | Yes | 4,310 | 0.0 | 0 | \$648 | \$222 | \$111 | \$111 | 0.2 | 4,340 |
| Food Service & Refrigeration Measures | | | 2,805 | 0.2 | 0 | \$422 | \$5,383 | \$400 | \$4,983 | 11.8 | 2,824 |
| ECM 8 | Refrigerator/Freezer Case Electrically Commutated Motors | Yes | 1,438 | 0.2 | 0 | \$216 | \$1,517 | \$200 | \$1,317 | 6.1 | 1,448 |
| ECM 9 | Refrigeration Controls | No | 1,367 | 0.0 | 0 | \$205 | \$3,867 | \$200 | \$3,667 | 17.8 | 1,376 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 43,573 | 5.3 | 90 | \$6,553 | \$30,777 | \$2,452 | \$28,325 | 4.3 | 43,917 |
| TOTALS (ALL MEASURES) | | | 44,939 | 5.3 | 90 | \$6,759 | \$34,644 | \$2,652 | \$31,992 | 4.7 | 45,293 |

* - 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).

OFFICE AND LIFEGUARD 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 | | | 21,595 | 5.1 | -6 | \$2,605 | \$15,048 | \$2,831 | \$12,217 | 4.7 | 20,827 |
| ECM 1 | Install LED Fixtures | Yes | 7,832 | 0.6 | -1 | \$972 | \$8,729 | \$1,400 | \$7,329 | 7.5 | 7,771 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | Yes | 2,385 | 0.7 | -1 | \$283 | \$894 | \$130 | \$764 | 2.7 | 2,260 |
| ECM 3 | Retrofit Fixtures with LED Lamps | Yes | 11,379 | 3.8 | -5 | \$1,350 | \$5,424 | \$1,301 | \$4,123 | 3.1 | 10,796 |
| Lighting Control Measures | | | 3,646 | 1.1 | -2 | \$432 | \$4,251 | \$1,135 | \$3,116 | 7.2 | 3,455 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | Yes | 2,851 | 0.9 | -1 | \$338 | \$3,126 | \$435 | \$2,691 | 8.0 | 2,702 |
| ECM 5 | Install High/Low Lighting Controls | Yes | 795 | 0.2 | 0 | \$94 | \$1,125 | \$700 | \$425 | 4.5 | 753 |
| HVAC System Improvements | | | 0 | 0.0 | 2 | \$35 | \$22 | \$6 | \$16 | 0.4 | 272 |
| ECM 6 | Install Pipe Insulation | Yes | 0 | 0.0 | 2 | \$35 | \$22 | \$6 | \$16 | 0.4 | 272 |
| Domestic Water Heating Upgrade | | | 278 | 0.0 | 2 | \$78 | \$50 | \$25 | \$25 | 0.3 | 616 |
| ECM 7 | Install Low-Flow DHW Devices | Yes | 278 | 0.0 | 2 | \$78 | \$50 | \$25 | \$25 | 0.3 | 616 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 25,519 | 6.2 | -4 | \$3,149 | \$19,370 | \$3,997 | \$15,373 | 4.9 | 25,171 |
| TOTALS (ALL MEASURES) | | | 25,519 | 6.2 | -4 | \$3,149 | \$19,370 | \$3,997 | \$15,373 | 4.9 | 25,171 |

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

A6 RESTROOM, NATURE & 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 | | | 18,621 | 5.1 | -6 | \$2,418 | \$7,850 | \$1,605 | \$6,245 | 2.6 | 17,895 |
| ECM 1 | Install LED Fixtures | Yes | 3,837 | 0.0 | 0 | \$520 | \$2,121 | \$600 | \$1,521 | 2.9 | 3,864 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | Yes | 232 | 0.3 | 0 | \$30 | \$344 | \$50 | \$294 | 9.9 | 220 |
| ECM 3 | Retrofit Fixtures with LED Lamps | Yes | 14,552 | 4.8 | -6 | \$1,868 | \$5,384 | \$955 | \$4,429 | 2.4 | 13,812 |
| Lighting Control Measures | | | 2,852 | 0.9 | -1 | \$365 | \$6,795 | \$4,725 | \$2,070 | 5.7 | 2,700 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | No | 654 | 0.2 | 0 | \$84 | \$1,620 | \$210 | \$1,410 | 16.8 | 619 |
| ECM 5 | Install High/Low Lighting Controls | Yes | 2,198 | 0.7 | -1 | \$281 | \$5,175 | \$4,515 | \$660 | 2.3 | 2,081 |
| HVAC System Improvements | | | 229 | 0.0 | 0 | \$31 | \$58 | \$10 | \$48 | 1.5 | 231 |
| ECM 6 | Install Pipe Insulation | Yes | 229 | 0.0 | 0 | \$31 | \$58 | \$10 | \$48 | 1.5 | 231 |
| Domestic Water Heating Upgrade | | | 834 | 0.0 | 0 | \$113 | \$43 | \$22 | \$22 | 0.2 | 840 |
| ECM 7 | Install Low-Flow DHW Devices | Yes | 834 | 0.0 | 0 | \$113 | \$43 | \$22 | \$22 | 0.2 | 840 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 21,882 | 5.8 | -7 | \$2,843 | \$13,125 | \$6,152 | \$6,974 | 2.5 | 21,046 |
| TOTALS (ALL MEASURES) | | | 22,537 | 6.0 | -7 | \$2,927 | \$14,745 | \$6,362 | \$8,384 | 2.9 | 21,666 |

* - 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

- VRF Systems
- Window Replacements

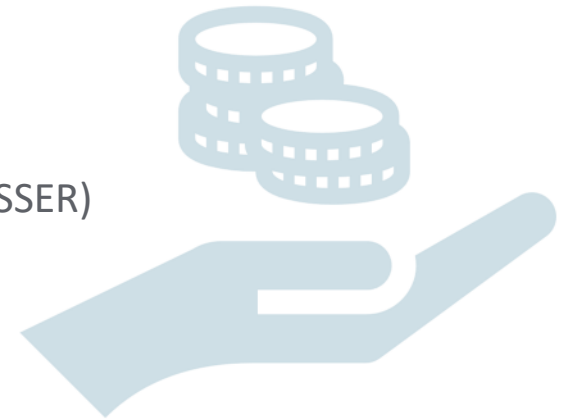


FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

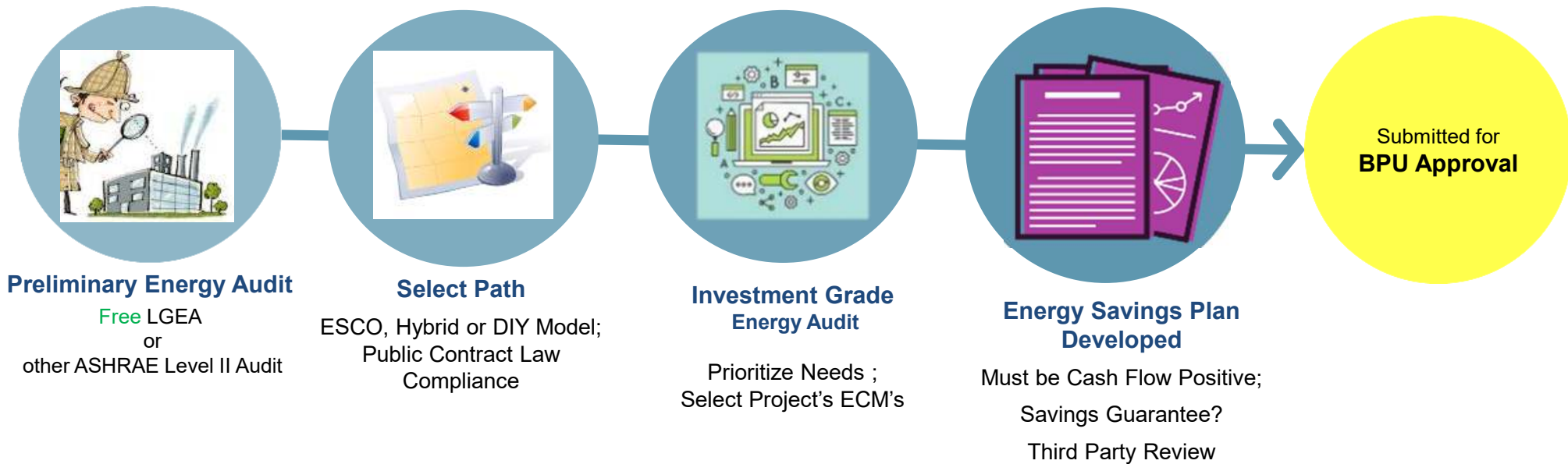
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP
- 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
- 15 or 20 year pay back; self funding
- NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Pandemic Relief Funds (ESSER)
- 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

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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

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

JCP&L

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THANK YOU

