

LGEA Presentation Military and Veteran Affairs

November 3, 2023

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future



INTRODUCTIONS

- *Military and Veteran Affairs*
 - Lise Blackburn – Energy Manager
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Moussa Traore – LGEA Technical Manager
 - Eduardo Garcia – LGEA Project Auditor
 - Meredith Coley – LGEA Account Manager
- *NJ BPU*
 - Sara Bluhm
 - Yuliia Herhel

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 Military and Veteran Affairs

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
- Cooking and Refrigeration Equipment

Utility Consumption:

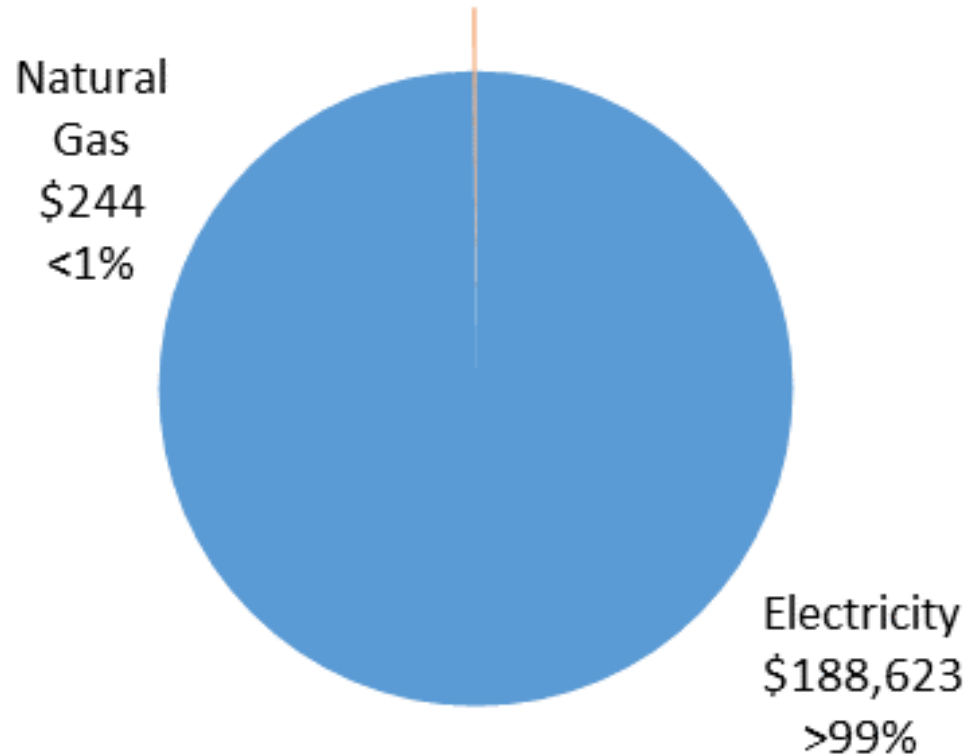
- Electric Consumption and Costs
- Solar Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

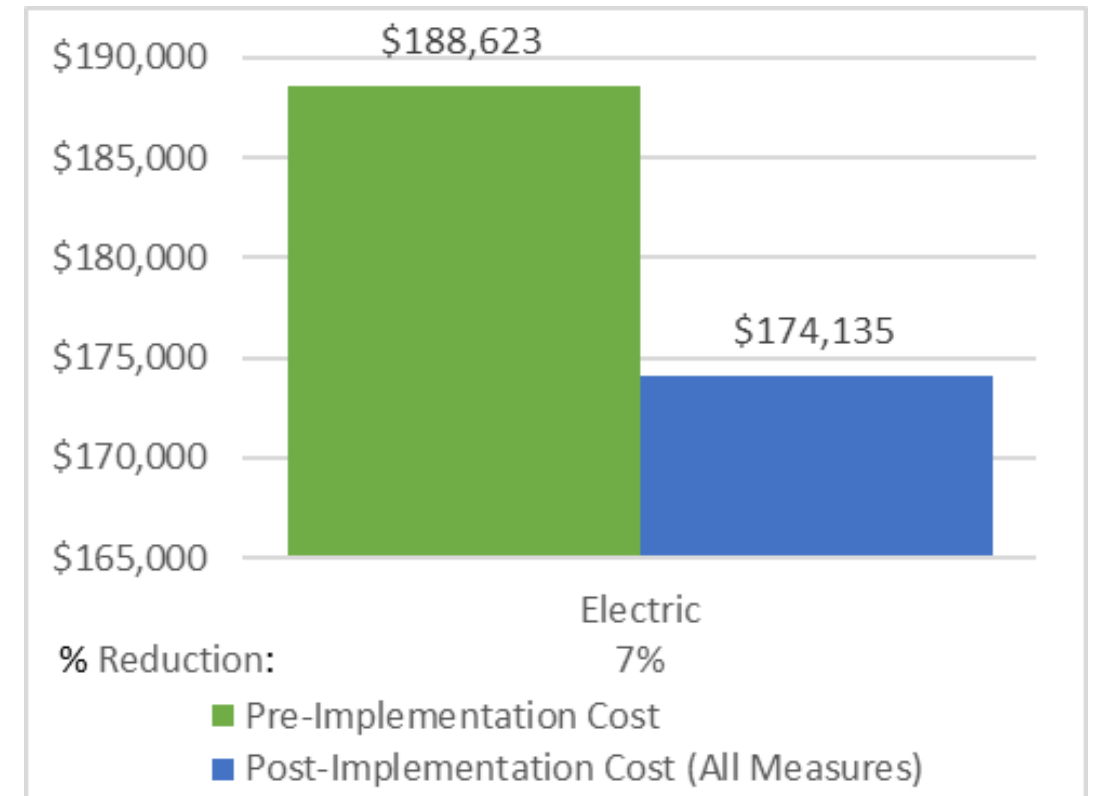
- Main Building
- Pump House

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

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

23

ENERGY STAR® Score¹

DMAVA - Headquarters Building & Pump House

Primary Property Type: Office
Gross Floor Area (ft²): 57,228
Built: 1971

For Year Ending: December 31, 2022
Date Generated: September 11, 2023

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 DMAVA - Headquarters Building & Pump House 101 Eggert Crossing Road Lawrenceville, New Jersey 08648	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 6096330668 BPU.EnergyServices@bpu.nj.gov
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Property ID: 27503817

Energy Consumption and Energy Use Intensity (EUI)

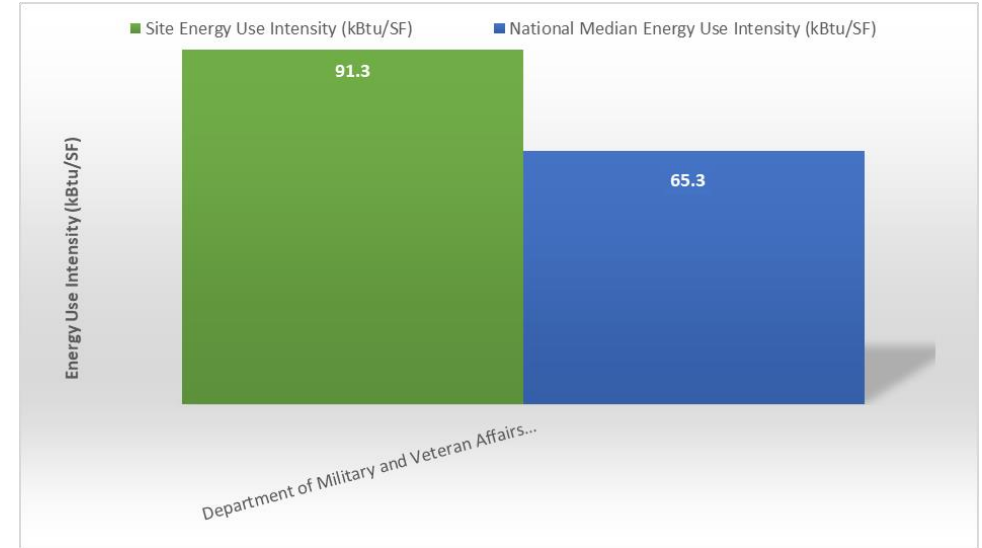
Site EUI 91.3 kBtu/ft²	Annual Energy by Fuel <table><tr><td>Electric - Solar (kBtu)</td><td>783,398 (15%)</td></tr><tr><td>Electric - Grid (kBtu)</td><td>4,458,293 (85%)</td></tr><tr><td>Natural Gas (kBtu)</td><td>1,470 (0%)</td></tr></table>	Electric - Solar (kBtu)	783,398 (15%)	Electric - Grid (kBtu)	4,458,293 (85%)	Natural Gas (kBtu)	1,470 (0%)	National Median Comparison <table><tr><td>National Median Site EUI (kBtu/ft²)</td><td>65.3</td></tr><tr><td>National Median Source EUI (kBtu/ft²)</td><td>165.7</td></tr><tr><td>% Diff from National Median Source EUI</td><td>40%</td></tr></table>	National Median Site EUI (kBtu/ft²)	65.3	National Median Source EUI (kBtu/ft²)	165.7	% Diff from National Median Source EUI	40%
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Source EUI 231.5 kBtu/ft²	Annual Emissions <table><tr><td>Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)</td><td>401</td></tr></table>		Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	401										
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Site EUI
91.3 kBtu/ft²

Source EUI
231.5 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²)	65.3
National Median Source EUI (kBtu/ft²)	165.7
% Diff from National Median Source EUI	40%



Signature & Stamp of Verifying Professional

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

LP Signature: _____ Date: _____

Licensed Professional

() - _____

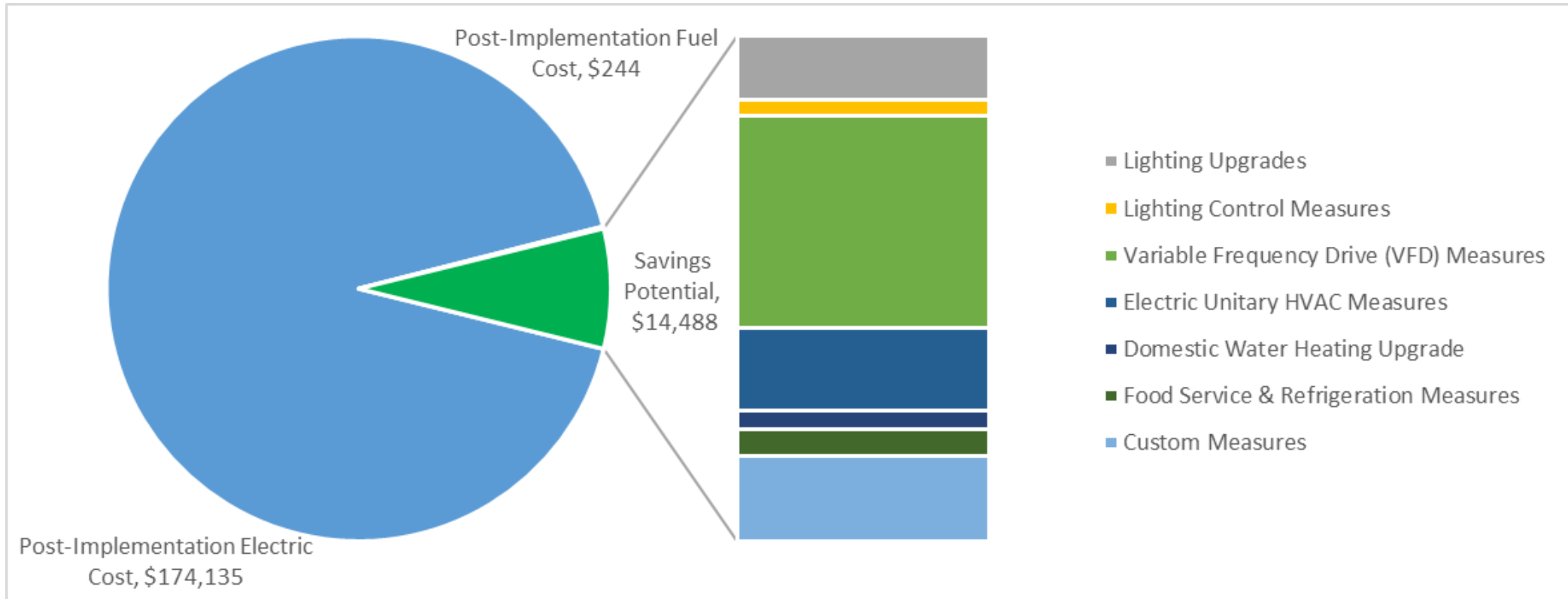


Professional Engineer or Registered Architect Stamp (if applicable)

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

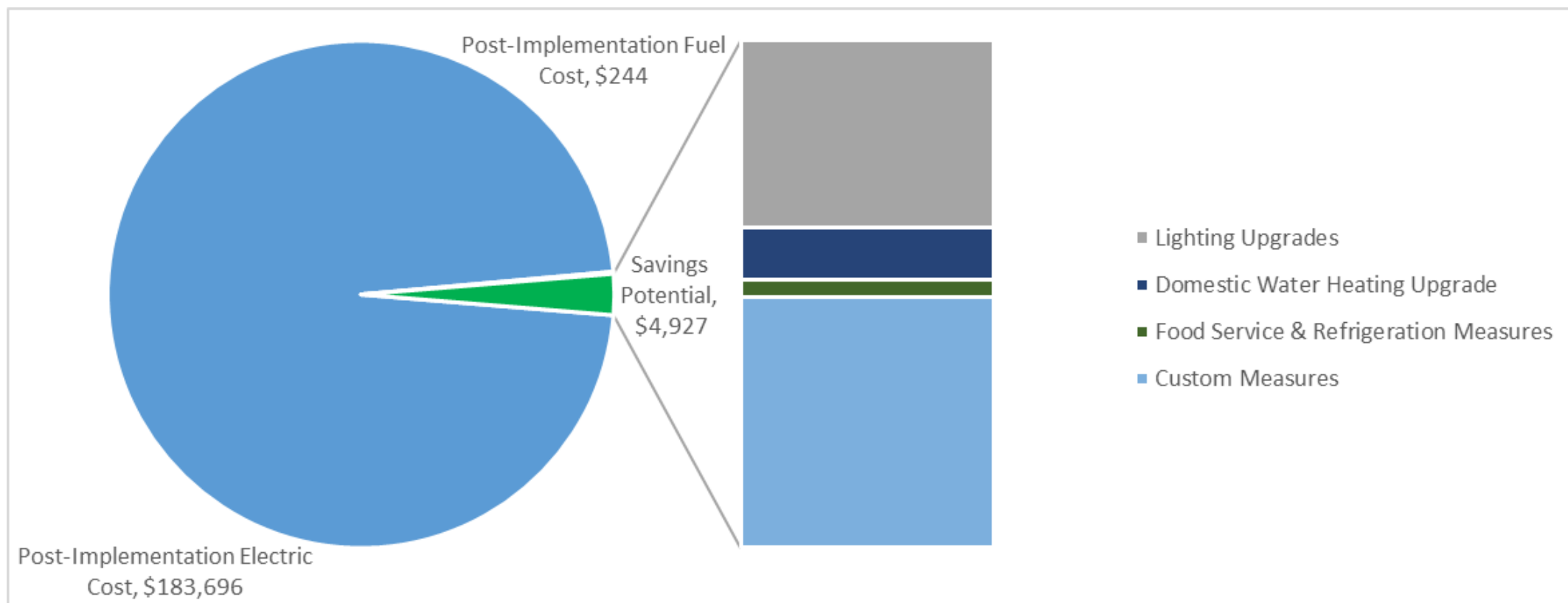
ALL OPPORTUNITIES

Savings Potential



COST EFFECTIVE OPPORTUNITIES

Savings Potential



MILITARY AND VETERAN AFFAIRS

#	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			12,573	3.6	0	\$1,815	\$11,460	\$1,080	\$10,380	5.7	12,661
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	235	0.1	0	\$34	\$180	\$20	\$160	4.7	236
ECM 2	Retrofit Fixtures with LED Lamps	Yes	6,084	2.7	0	\$878	\$8,170	\$1,060	\$7,110	8.1	6,127
ECM 3	Install LED Exit Signs	Yes	6,255	0.8	0	\$903	\$3,110	\$0	\$3,110	3.4	6,298
Lighting Control Measures			3,209	1.5	0	\$463	\$11,890	\$2,030	\$9,860	21.3	3,231
ECM 4	Install Occupancy Sensor Lighting Controls	No	2,945	1.4	0	\$425	\$9,650	\$1,050	\$8,600	20.2	2,966
ECM 5	Install High/Low Lighting Controls	No	263	0.1	0	\$38	\$2,240	\$980	\$1,260	33.2	265
Variable Frequency Drive (VFD) Measures			42,171	12.7	0	\$6,088	\$110,300	\$8,000	\$102,300	16.8	42,466
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	40,433	12.5	0	\$5,837	\$105,500	\$7,900	\$97,600	16.7	40,716
ECM 7	Install VFDs on Process/Pool Filtration Pumps	No	1,738	0.2	0	\$251	\$4,800	\$100	\$4,700	18.7	1,750
Unitary HVAC Measures			16,601	40.8	0	\$2,396	\$329,400	\$15,100	\$314,300	131.2	16,717
ECM 8	Install High Efficiency Air Conditioning Units	No	16,601	40.8	0	\$2,396	\$329,400	\$15,100	\$314,300	131.2	16,717
Domestic Water Heating Upgrade			3,467	0.0	0	\$501	\$230	\$90	\$140	0.3	3,492
ECM 9	Install Low-Flow DHW Devices***	Yes	3,467	0.0	0	\$501	\$230	\$90	\$140	0.3	3,492
Food Service & Refrigeration Measures			5,460	0.6	0	\$788	\$11,270	\$550	\$10,720	13.6	5,499
ECM 10	Replace Refrigeration Equipment	No	4,252	0.5	0	\$614	\$11,000	\$500	\$10,500	17.1	4,281
ECM 11	Vending Machine Control	Yes	1,209	0.1	0	\$175	\$270	\$50	\$220	1.3	1,217
Custom Measures			16,882	0.0	0	\$2,437	\$9,400	\$0	\$9,400	3.9	17,000
ECM 12	Replace Electric Water Heater with Heat Pump Water Heater	Yes	16,882	0.0	0	\$2,437	\$9,400	\$0	\$9,400	3.9	17,000
TOTALS (COST EFFECTIVE MEASURES)			34,131	3.7	0	\$4,927	\$21,360	\$1,220	\$20,140	4.1	34,370
TOTALS (ALL MEASURES)			100,364	59.3	0	\$14,488	\$483,950	\$26,850	\$457,100	31.5	101,066

* - 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

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

Military and Veteran Affairs

Potential:

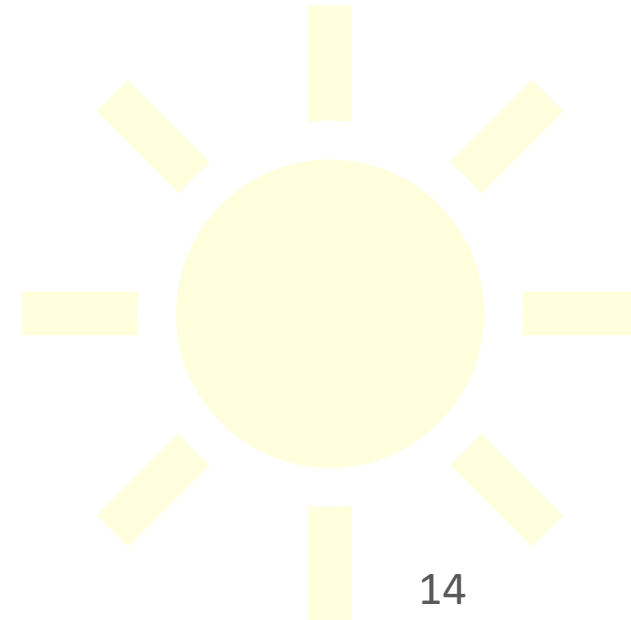
Medium



SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	DMAVA
<i>Potential:</i>	HIGH
<i>System Potential: (kW)</i>	107
<i>Electric Generation: (kWh per year)</i>	127,477
<i>Displaced Cost: (per year)</i>	\$18,400



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

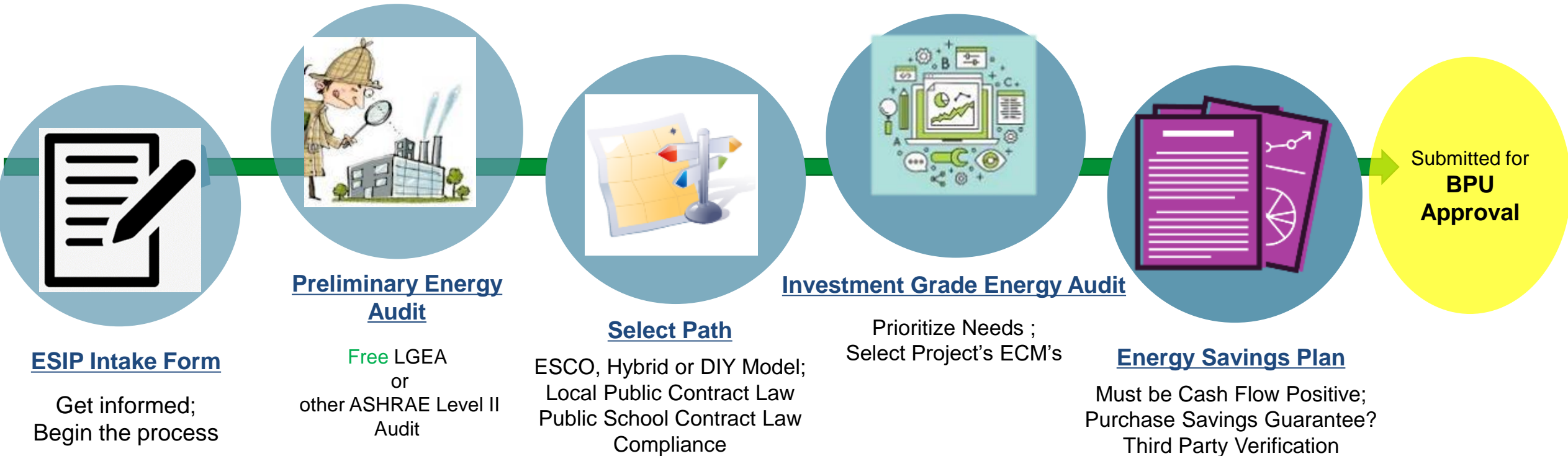
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- 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

Michelle Rossi

ESIP Coordinator

ESIP@bpu.nj.gov

o: 609.913.6295

c: 609.915.0903

STATE FACILITIES INITIATIVE (SFI)

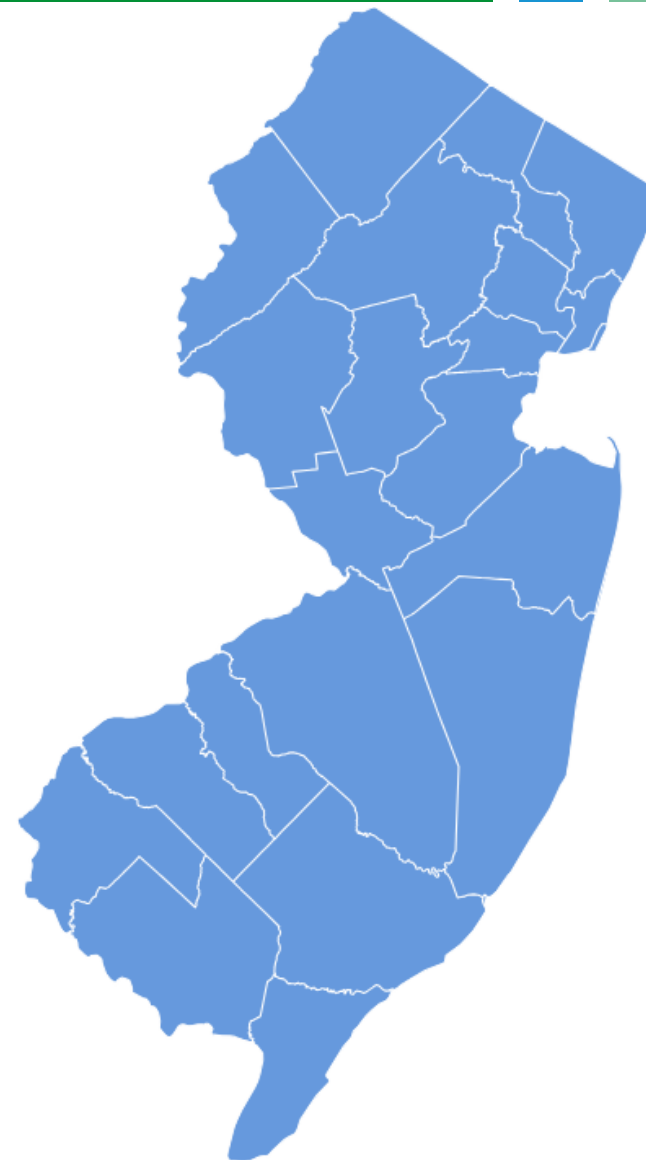
The State Facilities Initiative (SFI)

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

PSE&G

Dave Kirsch – David.Kirsch@pseg.com

Steve Barba – Steven.T.Barba@pseg.com

FOR MORE INFORMATION

Sarah Walters – LGEA Project Manager

SWalters@trccompanies.com

(732) 589-7372

Moussa Traore – LGEA Technical Manager

MTraore@trccompanies.com

(732) 902-1797

Meredith Coley – LGEA Account Manager

MColey@trccompanies.com

(252) 459-6654

Eduardo Garcia – LGEA Energy Auditor

EGGarcia@trccompanies.com

(240) 447-2764

THANK YOU

