

LGEA Presentation

Office of Weights and Measures

October 13, 2023



New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *Office of Weights and Measures*
 - Terri Goldberg – Deputy Director – Facilities Management
 - David Donahue – Building Management Specialist
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Moussa Traore – LGEA Technical Manager
 - 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**easures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for Office of Weights and Measures

LGEA PROCESS

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



OFFICE OF WEIGHTS AND MEASURES

Overview of Systems, Baseline & Existing Conditions:

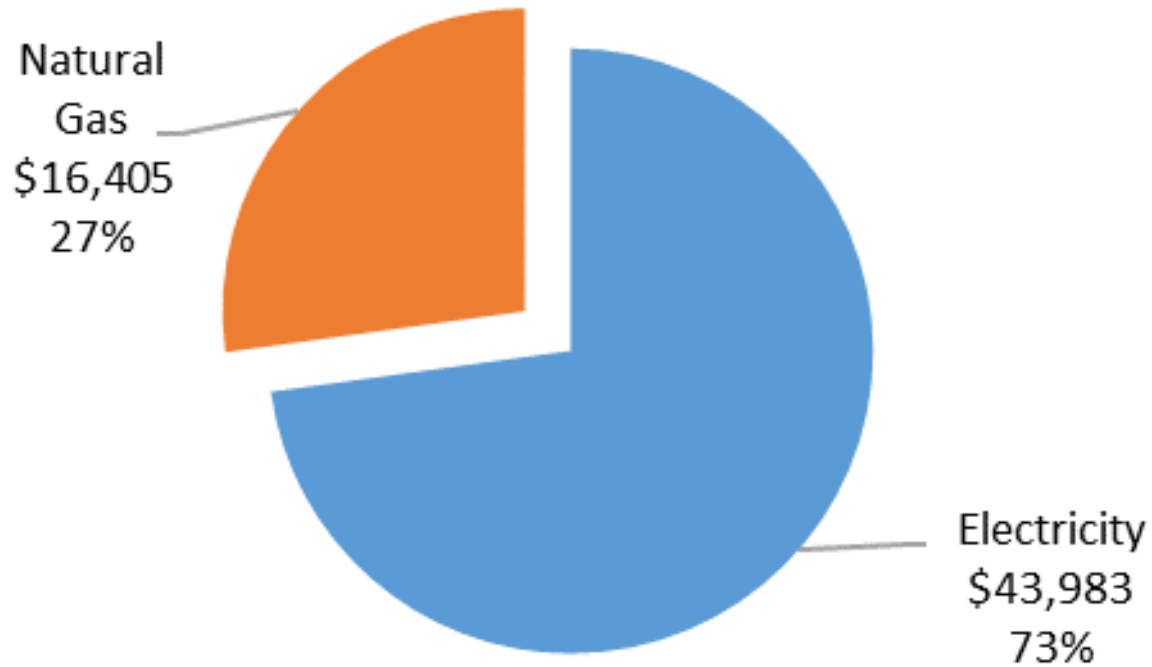
- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment

Utility Consumption:

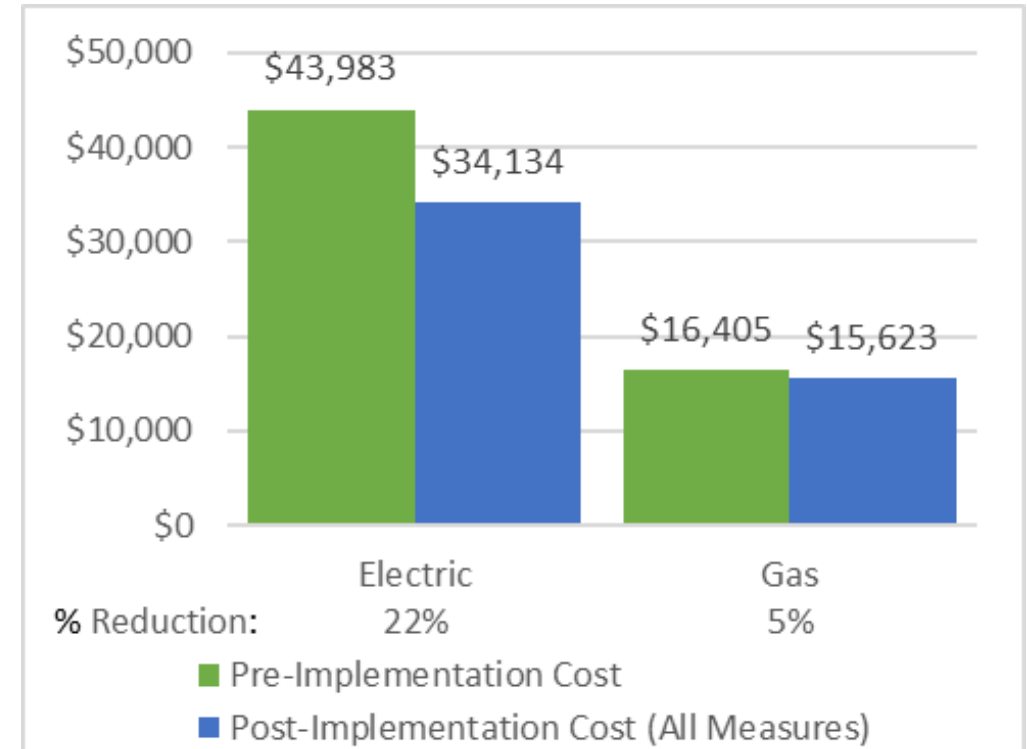
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

45

ENERGY STAR® Score¹

LPS - Office of Weights and Measures (OWM)

Primary Property Type: Office
Gross Floor Area (ft²): 27,000
Built: 1984

For Year Ending: December 31, 2022
Date Generated: July 06, 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 LPS - Office of Weights and Measures (OWM) 1261 Route 1 & 9 South Avenal, New Jersey 07001	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 (609) 633-9886 BPU.EnergyServices@bpu.nj.gov
Property ID: 26935845		

Energy Consumption and Energy Use Intensity (EUI)		
Site EUI 88.6 kBtu/ft²	Annual Energy by Fuel Natural Gas (kBtu) 1,462,266 (61%) Electric - Grid (kBtu) 929,692 (39%)	National Median Comparison National Median Site EUI (kBtu/ft²) 83.8 National Median Source EUI (kBtu/ft²) 145 % Diff from National Median Source EUI 6%
Source EUI 153.3 kBtu/ft²	Annual Emissions Total (Location-Based) GHG Emissions 159 (Metric Tons CO2e/year)	

Site EUI
88.6 kBtu/ft²

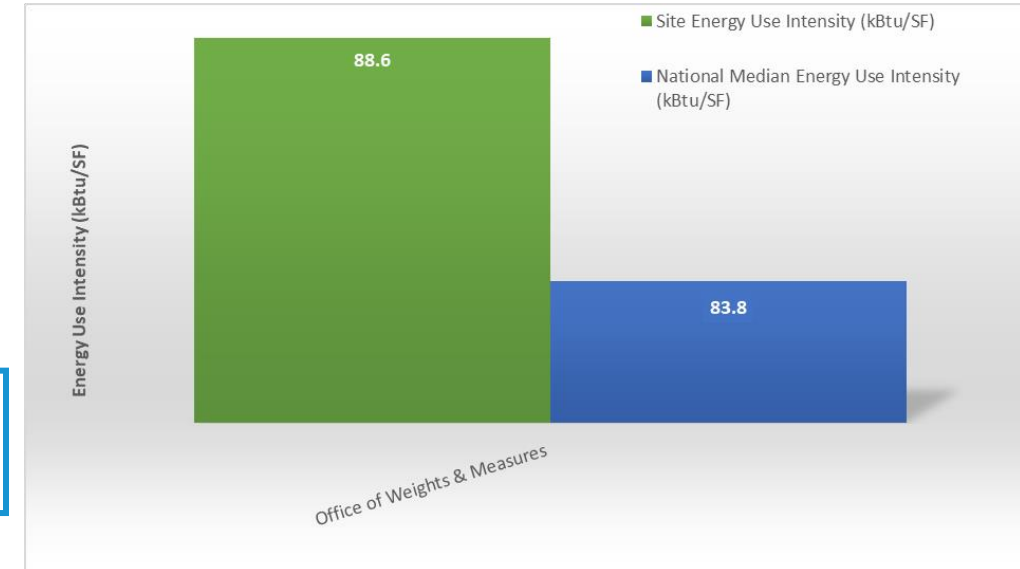
Source EUI
153.3 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²) 83.8

National Median Source EUI (kBtu/ft²) 145

% Diff from National Median Source EUI 6%



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

() _____

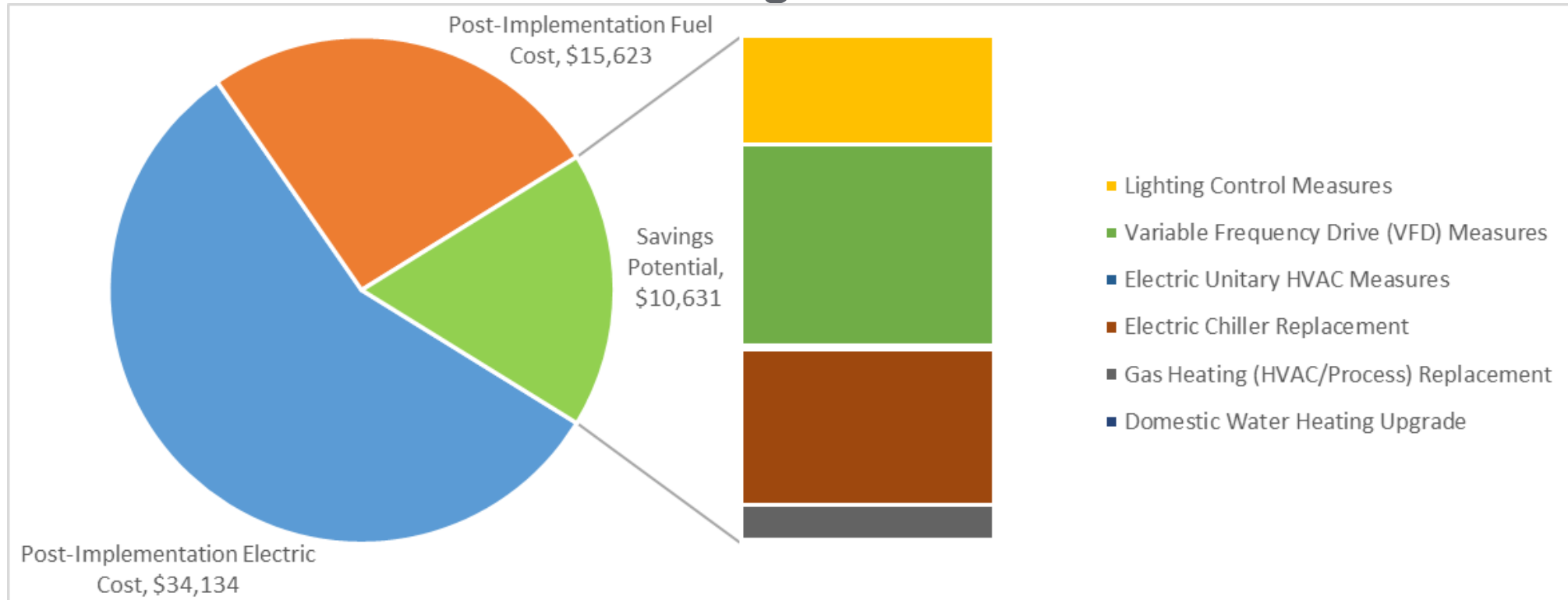


Professional Engineer or Registered
Architect Stamp
(if applicable)

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.

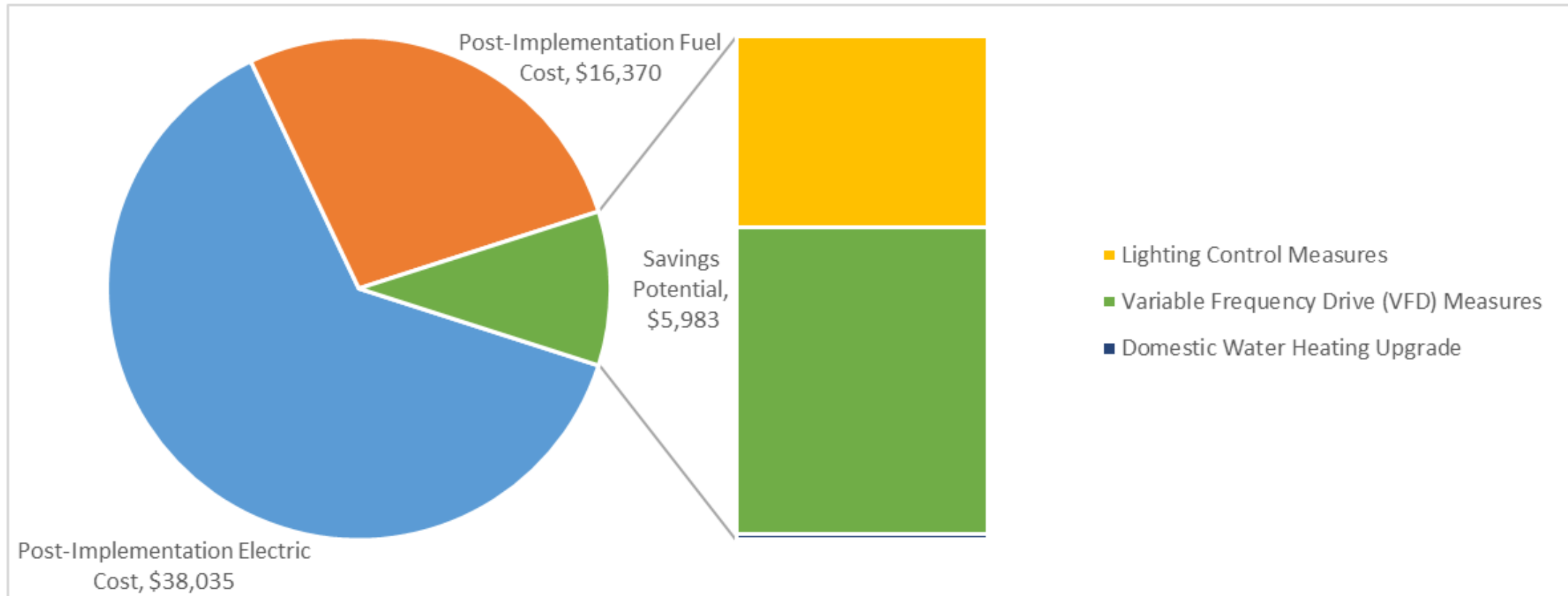
ALL OPPORTUNITIES

Savings Potential



COST EFFECTIVE OPPORTUNITIES

Savings Potential



OFFICE OF WEIGHTS AND MEASURES

#	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			14,507	5.3	-3	\$2,261	\$8,636	\$1,445	\$7,191	3.2	14,253
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	13,908	5.1	-3	\$2,168	\$7,534	\$815	\$6,719	3.1	13,665
ECM 2	Install High/Low Lighting Controls	Yes	598	0.2	0	\$93	\$1,102	\$630	\$472	5.1	588
Variable Frequency Drive (VFD) Measures			26,756	5.6	0	\$4,233	\$43,956	\$1,300	\$42,656	10.1	26,943
ECM 3	Install VFDs on Constant Volume (CV) Fans	Yes	18,524	4.3	0	\$2,931	\$25,166	\$900	\$24,266	8.3	18,653
ECM 4	Install VFDs on Chilled Water Pumps	Yes	4,564	0.9	0	\$722	\$9,395	\$200	\$9,195	12.7	4,596
ECM 5	Install VFDs on Heating Water Pumps	No	3,667	0.4	0	\$580	\$9,395	\$200	\$9,195	15.8	3,693
Unitary HVAC Measures			436	0.3	0	\$69	\$6,982	\$368	\$6,615	95.9	439
ECM 6	Install High Efficiency Air Conditioning Units	No	436	0.3	0	\$69	\$6,982	\$368	\$6,615	95.9	439
Electric Chiller Replacement			20,556	15.5	0	\$3,252	\$77,267	\$1,200	\$76,067	23.4	20,700
ECM 7	Install High Efficiency Chillers	No	20,556	15.5	0	\$3,252	\$77,267	\$1,200	\$76,067	23.4	20,700
Gas Heating (HVAC/Process) Replacement			0	0.0	66	\$747	\$71,572	\$3,686	\$67,886	90.9	7,736
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	66	\$747	\$71,572	\$3,686	\$67,886	90.9	7,736
Domestic Water Heating Upgrade			0	0.0	6	\$69	\$67	\$30	\$37	0.5	719
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$69	\$67	\$30	\$37	0.5	719
TOTALS (COST EFFECTIVE MEASURES)			37,595	10.5	3	\$5,983	\$43,264	\$2,575	\$40,689	6.8	38,221
TOTALS (ALL MEASURES)			62,255	26.7	69	\$10,631	\$208,480	\$8,028	\$200,452	18.9	70,790

* - 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

- Installation of a Building Automation System
- Replacing vs. Repairing a Built-up Air Handler
- 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

Office of Measures and Weights

Potential:

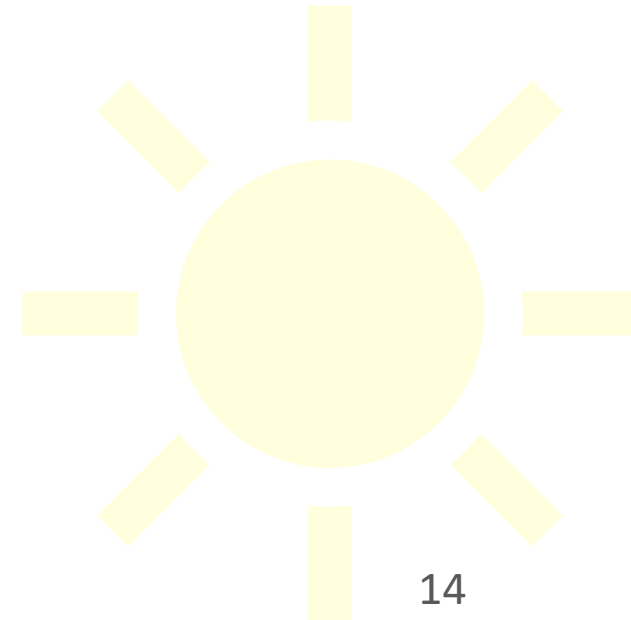
High



SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	OW&M
<i>Potential:</i>	MEDIUM
<i>System Potential: (kW)</i>	56
<i>Electric Generation: (kWh per year)</i>	66,717
<i>Displaced Cost: (per year)</i>	\$189,300



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

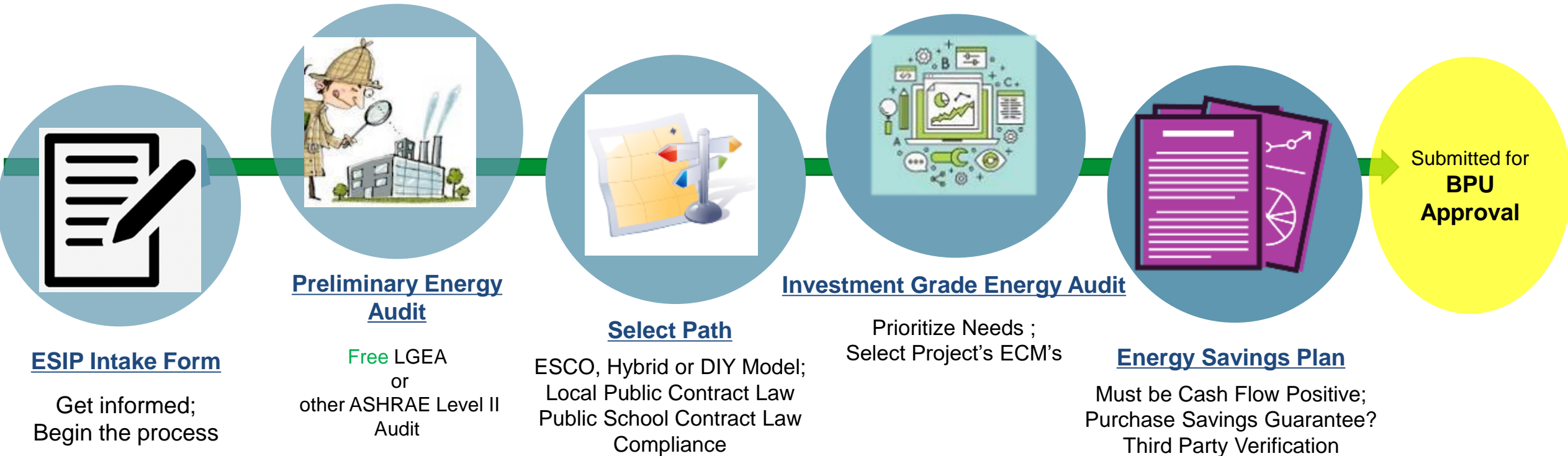
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- 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

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

Elizabethtown Gas

Casey Hennessy - CHennessy@sjindustries.com

Kim Byk - KByk@appliedenergygroup.com

Ben Adams - BenAdams@magrann.com

STATE FACILITIES INITIATIVE (SFI)

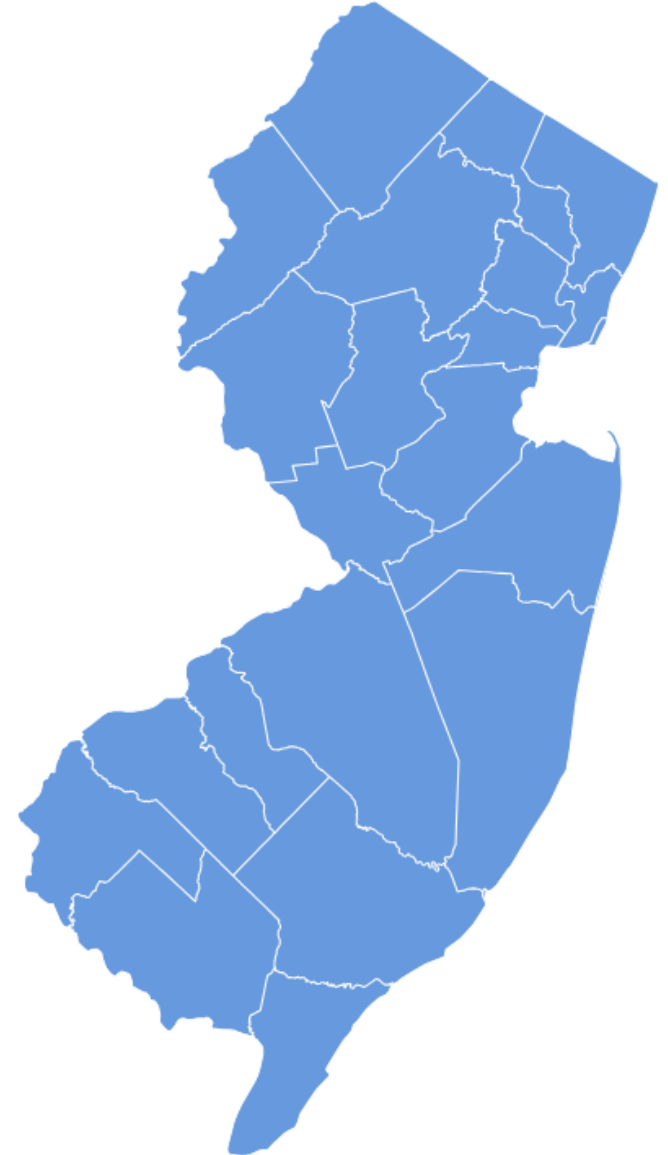
The State Facilities Initiative (SFI)

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.



FOR MORE INFORMATION

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THANK YOU

