

LGEA Presentation

436 East State Street

January 30, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future



INTRODUCTIONS

- *436 East State Street*
 - Laura Petrangeli
 - Jeffrey MacMullen
 - Stephen Myers
 - Chris Steward (HAVCO)
 - John (HAVCO)
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Moussa Traore – LGEA Technical Manager
 - Ryan Gibson – LGEA Project Auditor
 - Amanda Muench – LGEA Account Manager

AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified & other recommendations
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for 436 East State Street

LGEA PROCESS

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



436 EAST STATE STREET

Overview of Systems, Baseline & Existing Conditions:

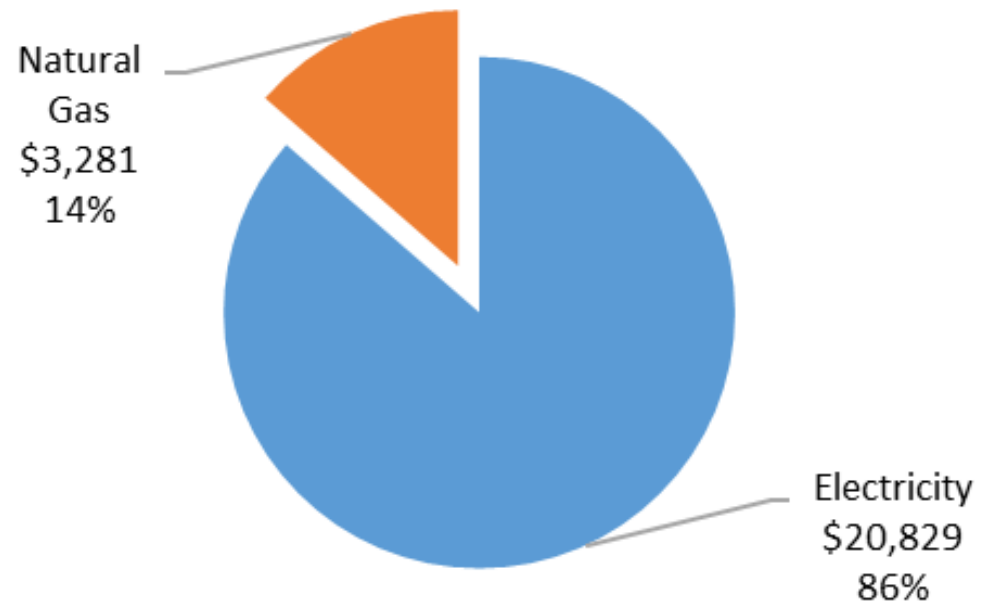
- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment

Utility Consumption:

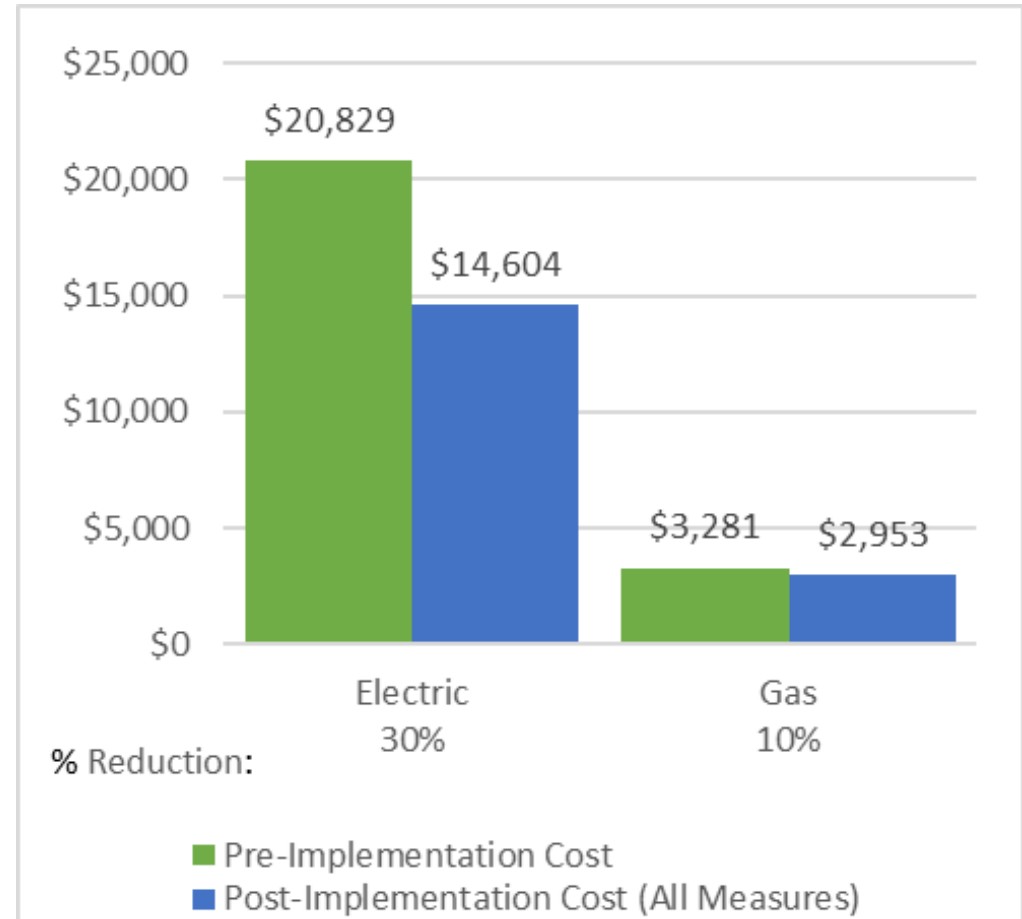
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Water Consumption and Costs

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

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

64
ENERGY STAR® Score¹

DEP - Office Building (436 East State)
Primary Property Type: Office
Gross Floor Area (ft²): 9,460
Built: 1960
For Year Ending: May 31, 2024
Date Generated: January 06, 2025

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 - Office Building (436 East State) 436 East State Street Trenton, New Jersey 08625	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 Avenue Trenton, NJ 08625 (609) 633-9666 BPU.EnergyServices@opu.nj.gov
Property ID: 36841522		
Energy Consumption and Energy Use Intensity (EUI)		
Site EUI 64.7 kBtu/ft²	Annual Energy by Fuel Natural Gas (kBtu) 234,964 (38%) Electric - Grid (kBtu) 377,017 (62%)	Annual Emissions Total (Location-Based) GHG Emissions (Metric Tons CO2e/year) 46
Source EUI 137.7 kBtu/ft²	National Median Comparison National Median Site EUI (kBtu/ft²) 79.2 National Median Source EUI (kBtu/ft²) 168.6 % Diff from National Median Source EUI -18%	Green Power Green Power - Onsite (kWh) N/A Green Power - Offsite (kWh) 0 Percent of RECs Retained N/A

Signature & Stamp of Verifying Professional

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

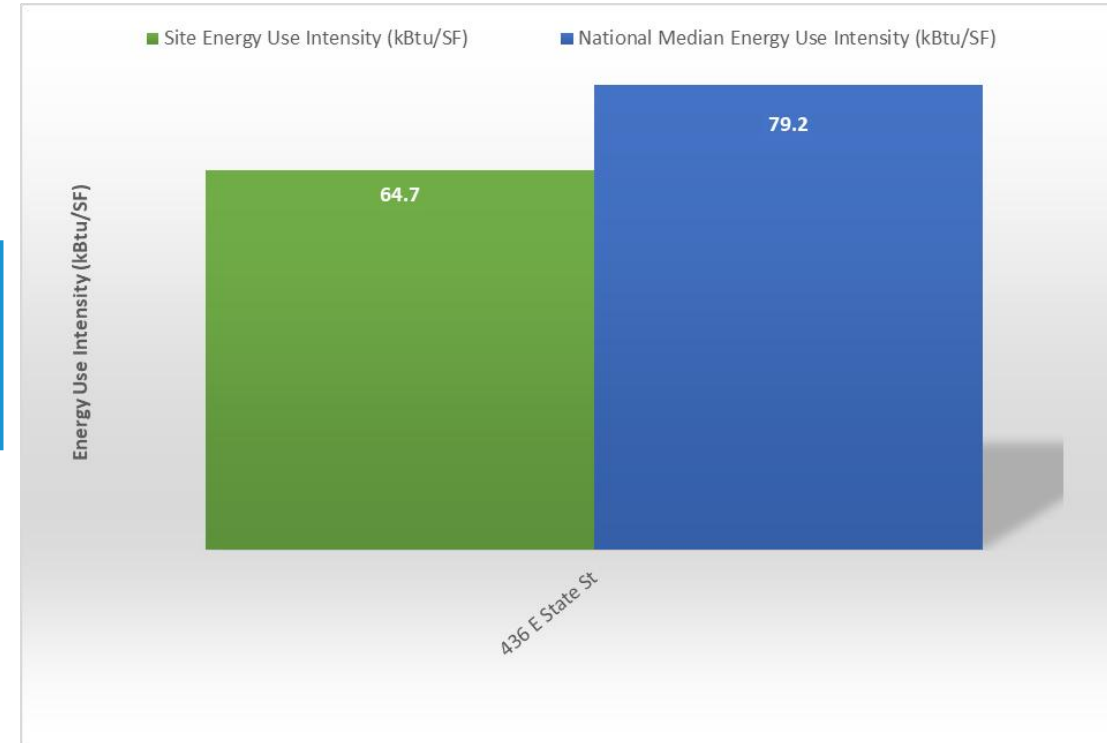
LP Signature: _____ Date: _____

Licensed Professional

() - _____

Professional Engineer or Registered Architect Stamp (if applicable)

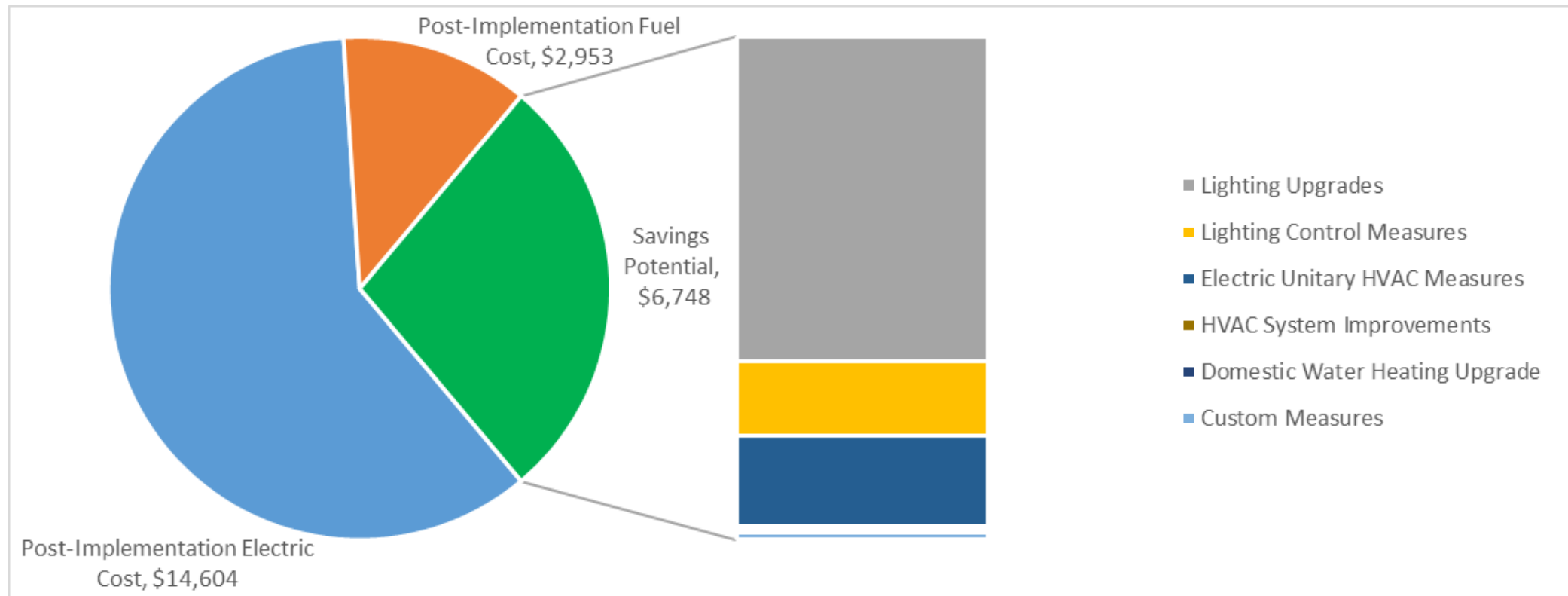
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Source EUI 137.7 kBtu/ft²	National Median Comparison	
	National Median Site EUI (kBtu/ft²)	79.2
	National Median Source EUI (kBtu/ft²)	168.6
	% Diff from National Median Source EUI	-18%



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.

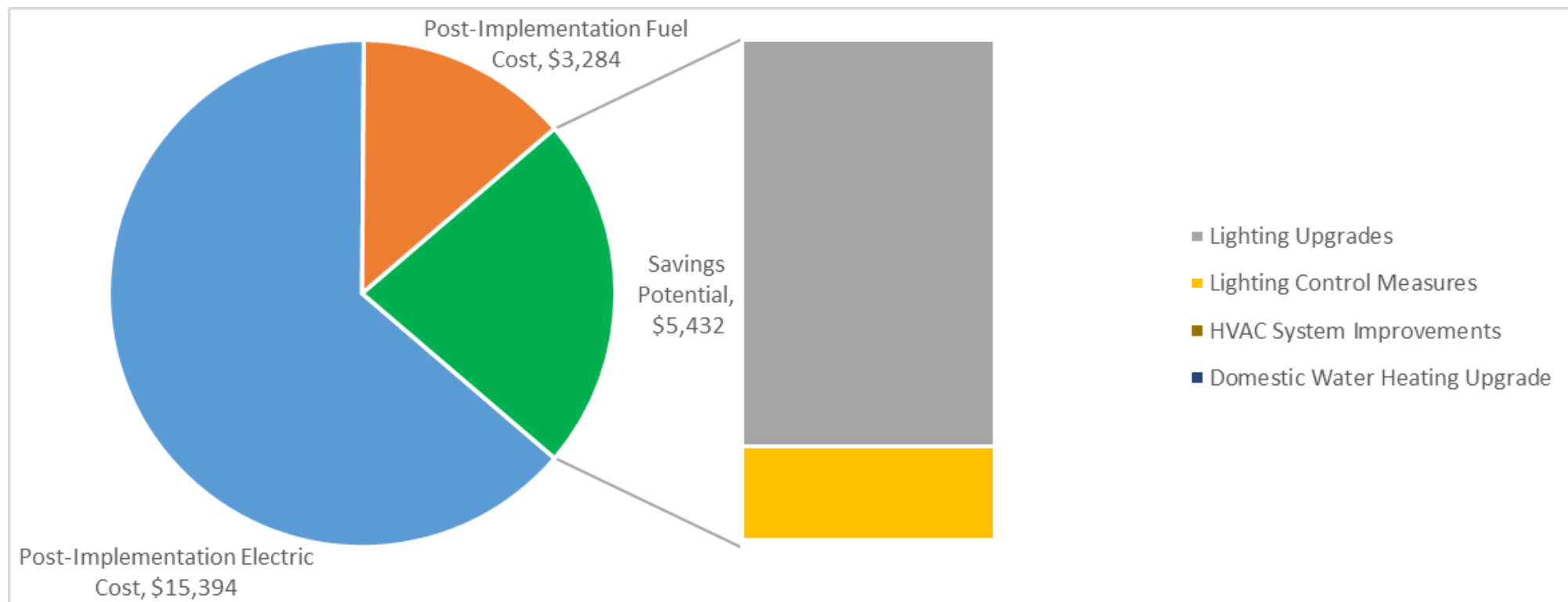
ALL OPPORTUNITIES

Savings Potential



COST EFFECTIVE OPPORTUNITIES

Savings Potential



436 EAST STATE STREET

#	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			23,196	7.9	-5	\$4,349	\$13,850	\$2,080	\$11,770	2.7	22,791
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	13,263	4.6	-3	\$2,487	\$7,510	\$850	\$6,660	2.7	13,031
ECM 2	Retrofit Fixtures with LED Lamps	Yes	9,933	3.3	-2	\$1,862	\$6,340	\$1,230	\$5,110	2.7	9,759
Lighting Control Measures			5,354	1.8	-1	\$1,004	\$6,410	\$1,040	\$5,370	5.4	5,260
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	4,984	1.7	-1	\$934	\$5,850	\$680	\$5,170	5.5	4,897
ECM 4	Install High/Low Lighting Controls	Yes	370	0.1	0	\$69	\$560	\$360	\$200	2.9	364
Unitary HVAC Measures			6,403	3.2	0	\$1,219	\$26,900	\$1,200	\$25,700	21.1	6,448
ECM 5	Install High Efficiency Air Conditioning Units	No	6,403	3.2	0	\$1,219	\$26,900	\$1,200	\$25,700	21.1	6,448
HVAC System Improvements			0	0.0	2	\$33	\$170	\$30	\$140	4.2	281
ECM 6	Install Pipe Insulation	Yes	0	0.0	2	\$33	\$170	\$30	\$140	4.2	281
Domestic Water Heating Upgrade			0	0.0	3	\$46	\$70	\$30	\$40	0.9	392
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$46	\$70	\$30	\$40	0.9	392
Custom Measures***			-2,251	0.0	24	-\$98	\$2,500	\$0	\$2,500	-25.5	543
ECM 8	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-2,251	0.0	24	-\$98	\$2,500	\$0	\$2,500	-25.5	543
TOTALS (COST EFFECTIVE MEASURES)			28,550	9.7	0	\$5,432	\$20,500	\$3,180	\$17,320	3.2	28,724
TOTALS (ALL MEASURES)			32,702	12.9	24	\$6,552	\$49,900	\$4,380	\$45,520	6.9	35,715

* - 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

- Upgrade to a Heat Pump System
- VRF Systems

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

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THANK YOU

