

LGEA Presentation Cranbury Public Library

August 20, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future



INTRODUCTIONS

- *Cranbury Public Library*
 - Brooke Basista – Director
- *NJ Clean Energy Program*
 - Sarah Walters – LGEA Project Manager
 - Moussa Traore – LGEA Technical Manager
 - Juno Romanick – LGEA Project Auditor
 - Dan Krasowsky – LGEA Account Manager

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 The Cranbury Public Library

LGEA PROCESS

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



CRANBURY PUBLIC LIBRARY

Overview of Systems, Baseline & Existing Conditions:

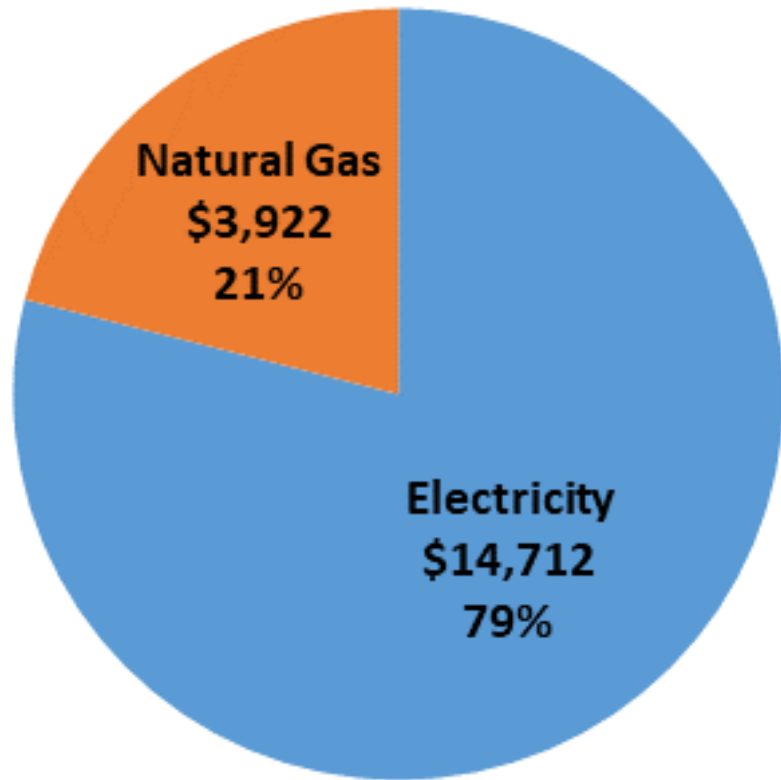
- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment

Utility Consumption:

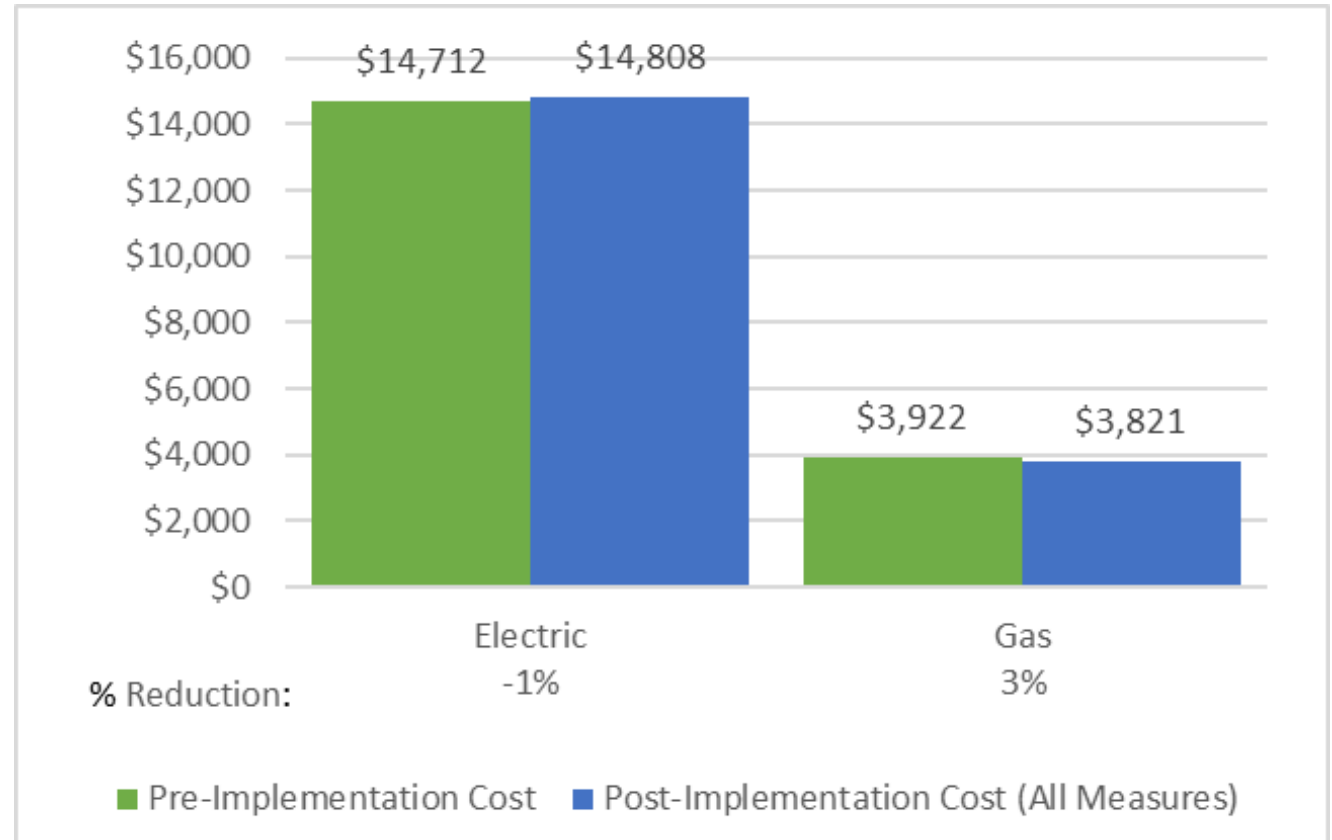
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Water Consumption and Costs

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

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

N/A

Cranbury Public Library

Primary Property Type: Library
Gross Floor Area (ft²): 11,000
Built: 2022

For Year Ending: February 29, 2024
Date Generated: June 24, 2024

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 Cranbury Public Library 30 Park Place West Cranbury, New Jersey 08512	Property Owner Cranbury Public Library 30 Park Place West Cranbury, NJ 08512 (609) 722-8902	Primary Contact Brooke Basista 30 Park Place West Cranbury, NJ 08512 (609) 722-8992 ex. 205 director@cranburypubliclibrary.org
--	--	--

Property ID: 34515088

Energy Consumption and Energy Use Intensity (EUI)

Site EUI 61.4 kBtu/ft²	Annual Energy by Fuel <table><tr><td>Electric - Grid (kBtu)</td><td>311,132 (46%)</td></tr><tr><td>Natural Gas (kBtu)</td><td>383,727 (54%)</td></tr></table>	Electric - Grid (kBtu)	311,132 (46%)	Natural Gas (kBtu)	383,727 (54%)	National Median Comparison <table><tr><td>National Median Site EUI (kBtu/ft²)</td><td>77.4</td></tr><tr><td>National Median Source EUI (kBtu/ft²)</td><td>143.6</td></tr><tr><td>% Diff from National Median Source EUI</td><td>-21%</td></tr></table>	National Median Site EUI (kBtu/ft²)	77.4	National Median Source EUI (kBtu/ft²)	143.6	% Diff from National Median Source EUI	-21%
Electric - Grid (kBtu)	311,132 (46%)											
Natural Gas (kBtu)	383,727 (54%)											
National Median Site EUI (kBtu/ft²)	77.4											
National Median Source EUI (kBtu/ft²)	143.6											
% Diff from National Median Source EUI	-21%											
Source EUI 113.9 kBtu/ft²	Annual Emissions <table><tr><td>Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)</td><td>47</td></tr></table>		Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	47								
Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	47											

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

() - _____

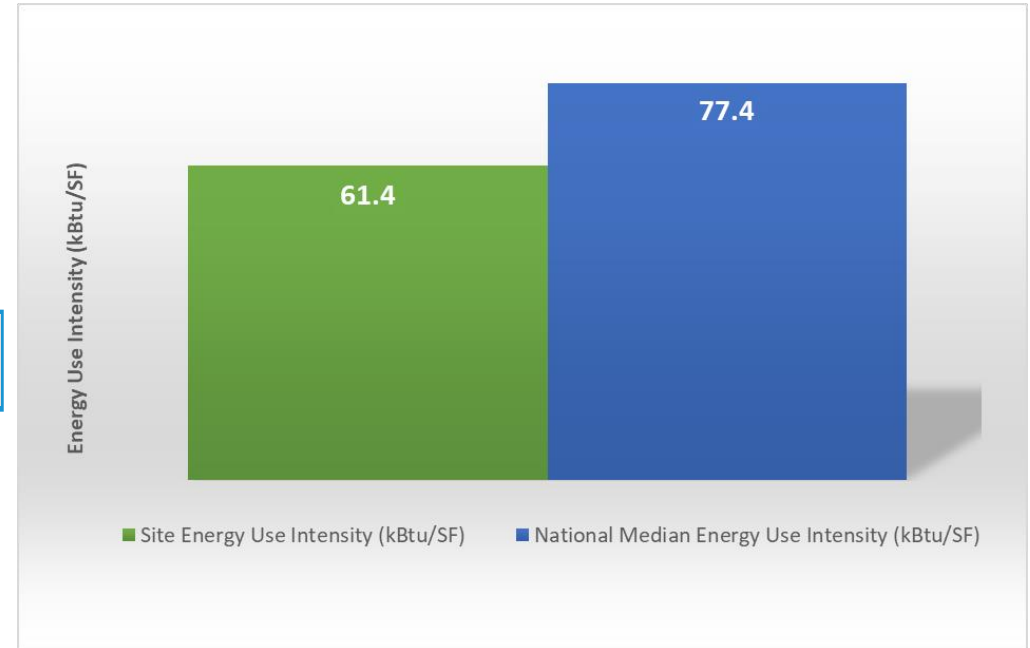
Professional Engineer or Registered Architect Stamp (if applicable)

Site EUI
61.4 kBtu/ft²

Source EUI
113.9 kBtu/ft²

National Median Comparison

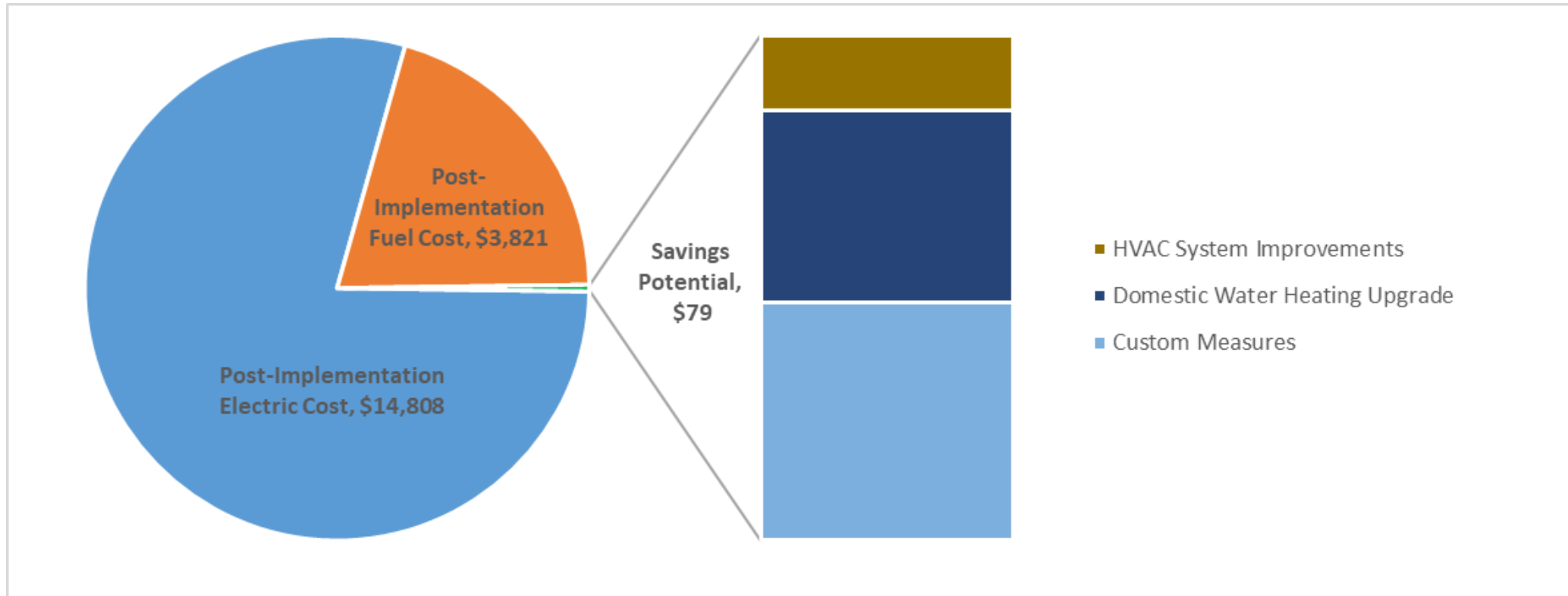
National Median Site EUI (kBtu/ft²)	77.4
National Median Source EUI (kBtu/ft²)	143.6
% Diff from National Median Source EUI	-21%



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.

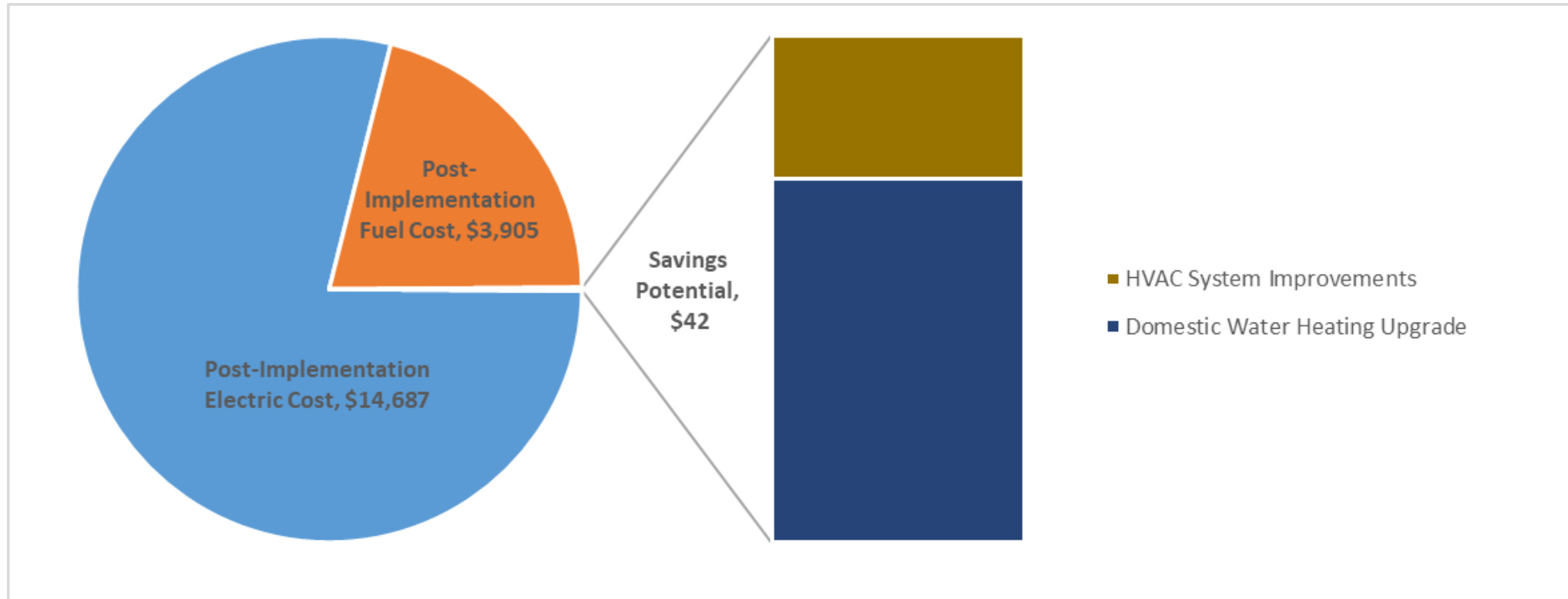
ALL OPPORTUNITIES

Savings Potential



COST EFFECTIVE OPPORTUNITIES

Savings Potential



CRANBURY PUBLIC LIBRARY

#	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)
HVAC System Improvements			74	0.0	0	\$12	\$50	\$10	\$40	3.4	74
ECM 1	Install Pipe Insulation	Yes	74	0.0	0	\$12	\$50	\$10	\$40	3.4	74
Domestic Water Heating Upgrade			82	0.0	2	\$30	\$70	\$20	\$50	1.7	262
ECM 2	Install Low-Flow DHW Devices	Yes	82	0.0	2	\$30	\$70	\$20	\$50	1.7	262
Custom Measures***			-788	0.0	8	-\$37	\$2,900	\$0	\$2,900	-78.4	143
ECM 3	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-788	0.0	8	-\$37	\$2,900	\$0	\$2,900	-78.4	143
TOTALS (COST EFFECTIVE MEASURES)			156	0.0	2	\$41	\$120	\$30	\$90	2.2	336
TOTALS (ALL MEASURES)			-632	0.0	10	\$4	\$3,020	\$30	\$2,990	665.4	480

* - 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).

*** - Negative pay back explained in section 4.3

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

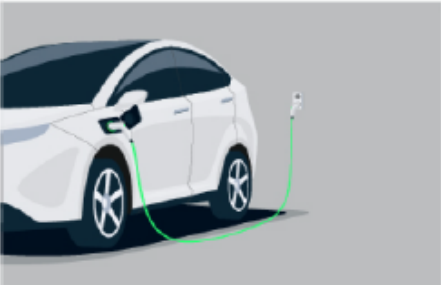
MEASURES FOR FUTURE CONSIDERATION

- Installation of a Building Automation System (BAS)
- Upgrade to a Heat Pump System
- Consider a Variable Refrigerant Flow System (VRF)

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

Cranbury Public Library

Potential:

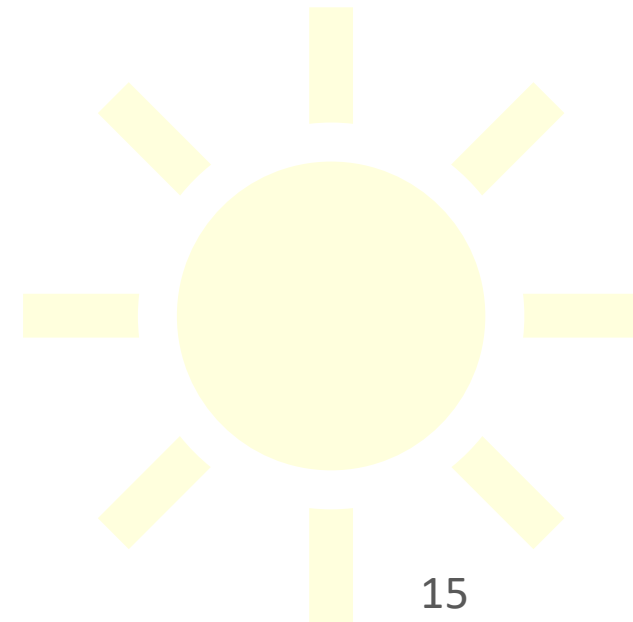
Medium



SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	Cranbury Public Library
<i>Potential:</i>	HIGH
<i>System Potential: (kW)</i>	20
<i>Electric Generation: (kWh per year)</i>	23,827
<i>Displaced Cost: (per year)</i>	\$3,770



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

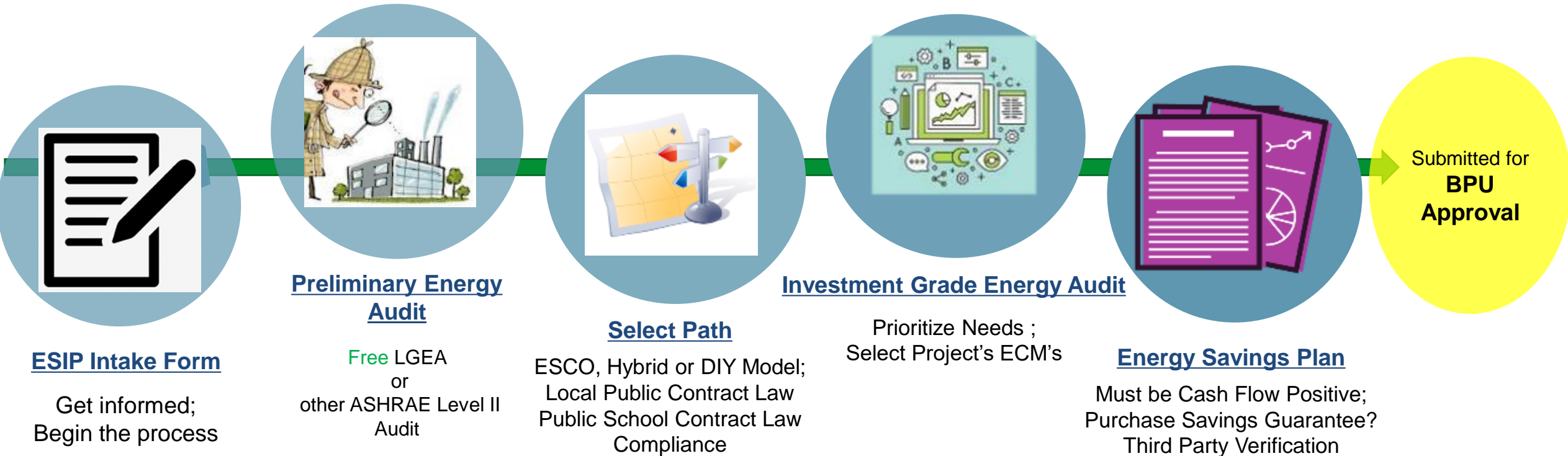
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- 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

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

Dan Krasowsky – LGEA Account Manager

DKrasowsky@trccompanies.com

(774) 245-8657

Juno Romanick – LGEA Energy Auditor

JRomanick@trccompanies.com

(908) 809-9989

THANK YOU

