LGEA Presentation

Bethlehem Township Public Schools

October 31, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *Bethlehem Township Public Schools*
  - Kirby Hendershot – Business Administrator
  - Ray Mulvey – Facilities Director
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Sayje Essoka-Lasenberry – LGEA Project Auditor
  - Melissa Lott – LGEA Account Manager
- *Utility Energy Efficiency Programs*
  - Tiffany Lewis – JCP&L
  - Andrew Doss – JCP&L

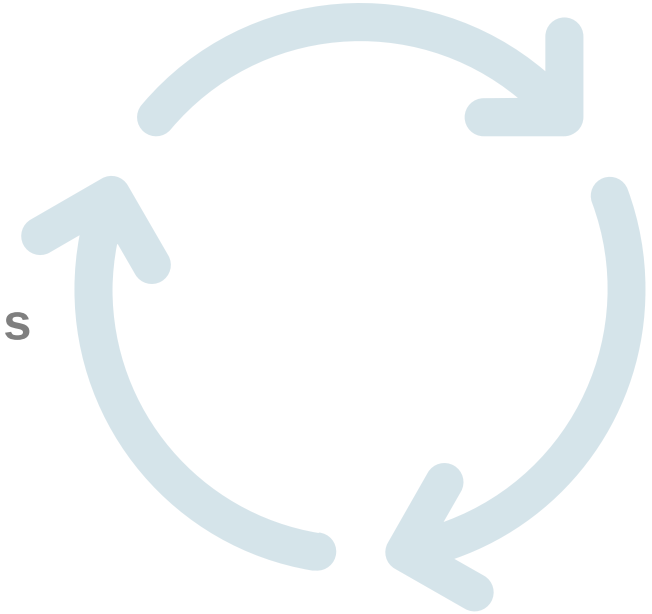
BPU | New Jersey's cleanenergy program™

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 Bethlehem Township Public Schools

LGEA Process

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



THOMAS B. CONLEY ELEMENTARY SCHOOL

Overview of Systems, Baseline & Existing Conditions:

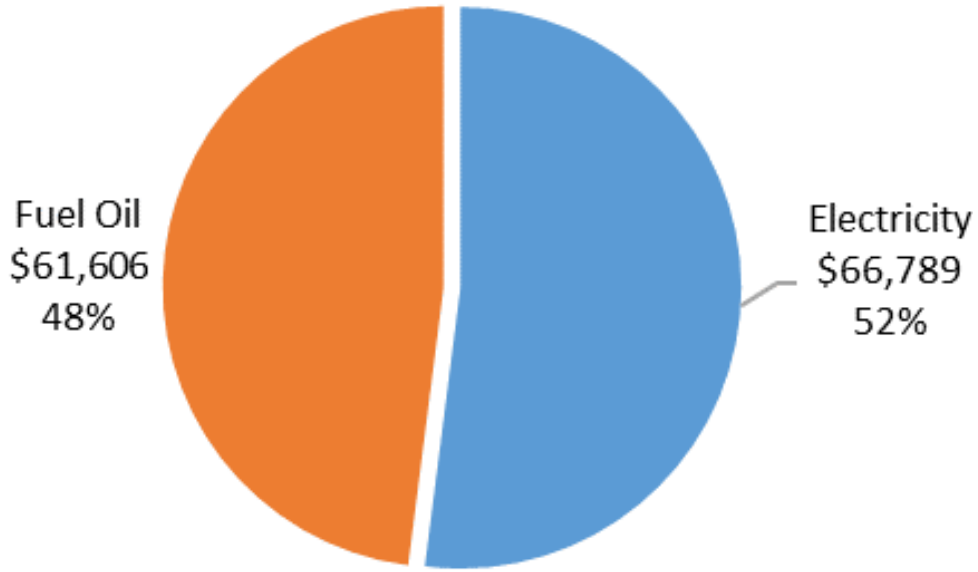
- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment & Vending Machines
- Building Automation System
- Food Service Equipment & Refrigeration

Utility Consumption and Costs:

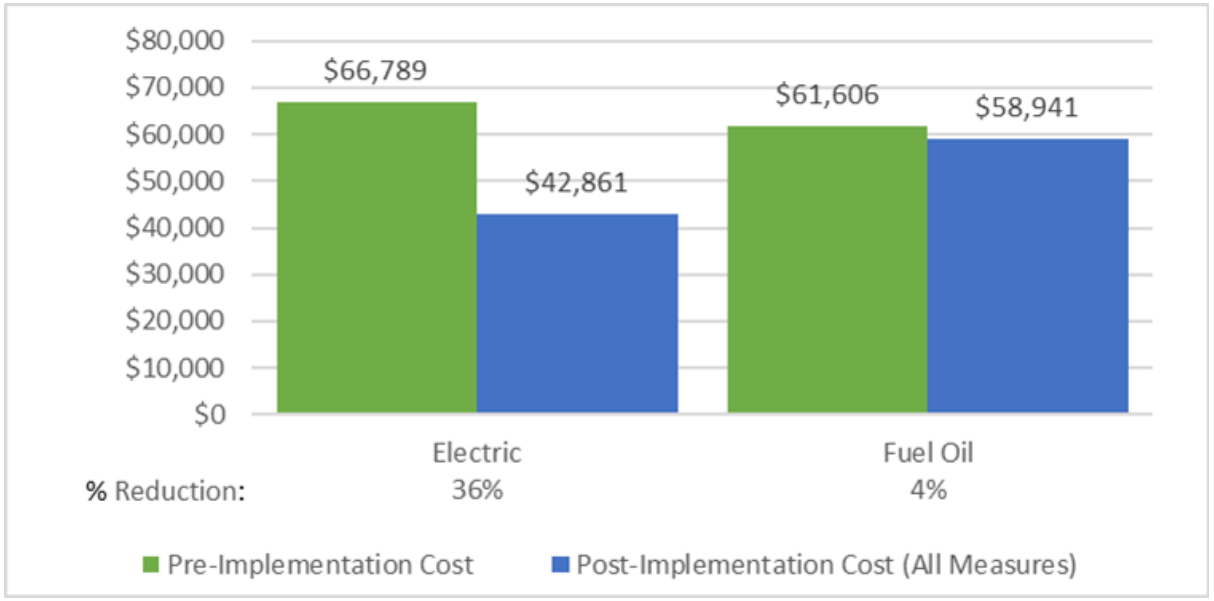
- Electric
- Fuel Oil

Utility Breakout

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

23

ENERGY STAR® Score[1]

Thomas B. Conley Elementary School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 59,584
Built: 1972

For Year Ending: February 29, 2024
Date Generated: August 22, 2024

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	Property Owner	Primary Contact
Thomas B. Conley Elementary School 940 Iron Bridge Road Asbury, New Jersey 08802	Bethlehem Township School District 940 Iron Bridge Road Asbury, NJ 08802 (908) 479-6336	Brian Latzke 940 Iron Bridge Road Asbury, NJ 08802 (908) 479-6336 blatzke@btschools.org

Property ID: 34537821

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
75.8 kBtu/ft²

Source EUI
127.8 kBtu/ft²

Annual Energy by Fuel
Electric - Grid (kBtu) 1,708,597 (38%)
Fuel Oil (No. 1) (kBtu) 2,805,298 (62%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	58.6
National Median Source EUI (kBtu/ft²)	99
% Diff from National Median Source EUI	29%

Annual Emissions
Total (Location-Based) GHG Emissions (Metric Tons CO2e/year) 360

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
75.8 kBtu/ft²

Source EUI
127.8 kBtu/ft²

National Median Comparison

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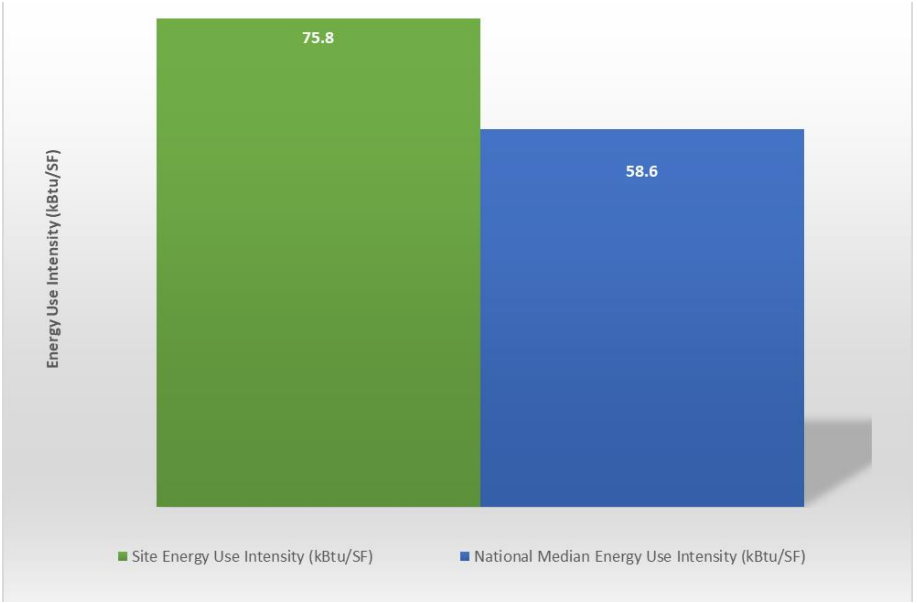
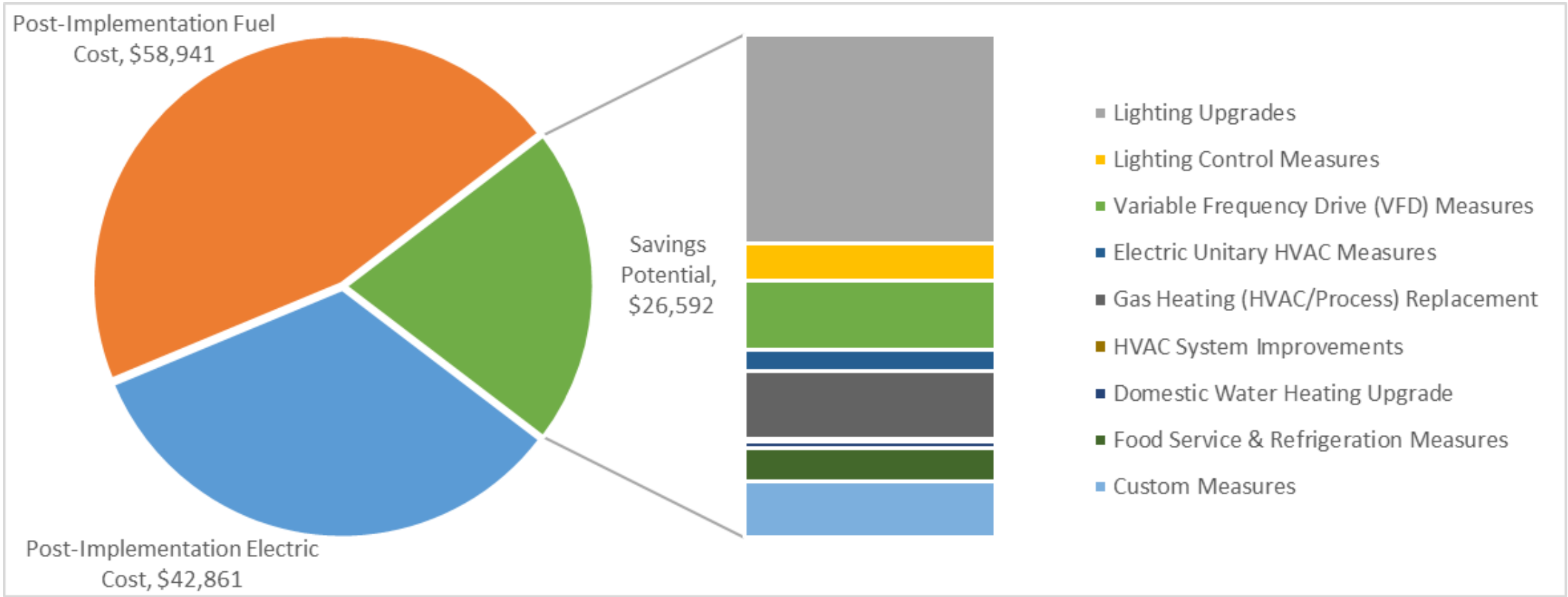


ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

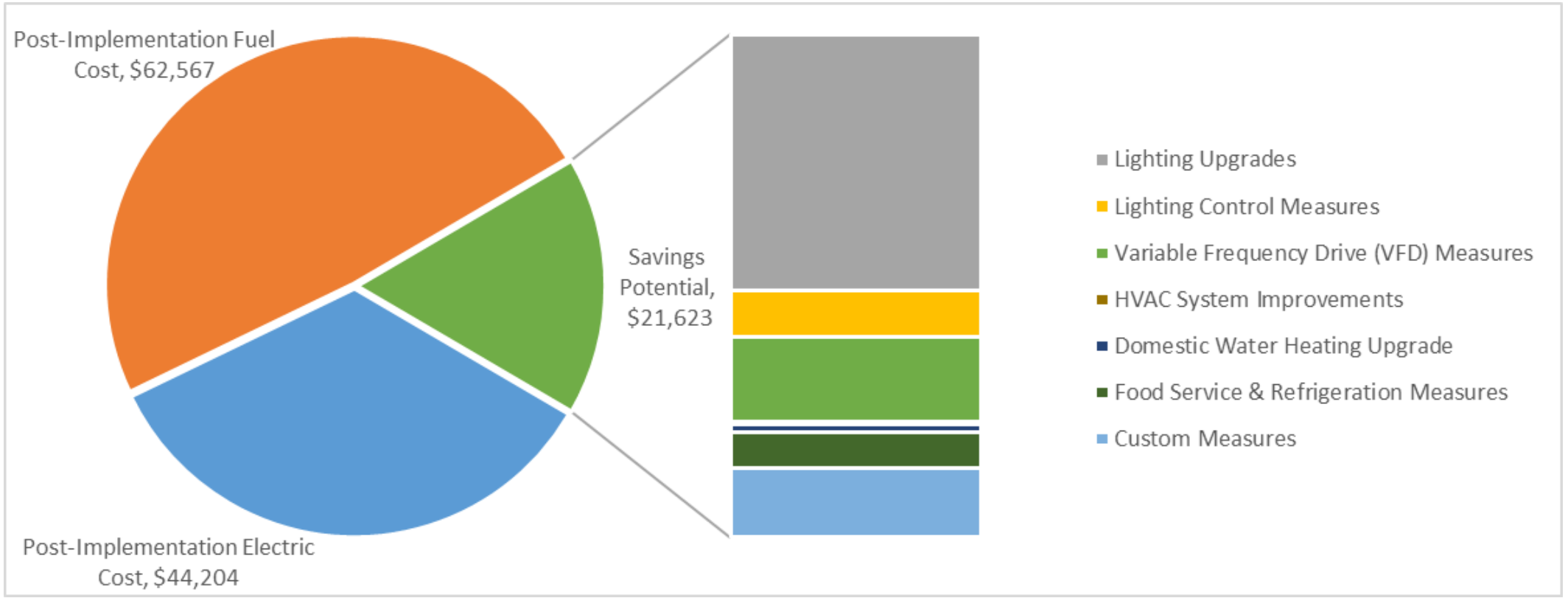
All Opportunities

Savings Potential



Cost Effective Opportunities

Savings Potential



THOMAS B. CONLEY ELEMENTARY SCHOOL (1 OF 2)

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades		**88,396**	**29.7**	**-37.0**	**$11,028**	**$63,760**	**$9,550**	**$54,210**	**4.9**	**82,966**
ECM 1	Install LED Fixtures	33,376	11.2	-14.0	$4,164	$25,780	$2,000	$23,780	5.7	31,326
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	6,027	2.0	-2.5	$752	$4,250	$500	$3,750	5.0	5,657
ECM 3	Retrofit Fixtures with LED Lamps	48,992	16.5	-20.5	$6,112	$33,730	$7,050	$26,680	4.4	45,983
Lighting Control Measures		**16,035**	**5.4**	**-6.7**	**$2,000**	**$35,170**	**$7,460**	**$27,710**	**13.9**	**15,050**
ECM 4	Install Occupancy Sensor Lighting Controls	14,401	4.8	-6.0	$1,797	$29,260	$3,580	$25,680	14.3	13,517
ECM 5	Install High/Low Lighting Controls	1,633	0.5	-0.7	$204	$5,910	$3,880	$2,030	10.0	1,533
Variable Frequency Drive (VFD) Measures		**27,127**	**7.5**	**0.0**	**$3,634**	**$41,500**	**$6,500**	**$35,000**	**9.6**	**27,317**
ECM 6	Install VFDs on Constant Volume (CV) Fans	9,511	4.8	0.0	$1,274	$16,900	$2,700	$14,200	11.1	9,577
ECM 7	Install VFDs on Heating Water Pumps	17,616	2.7	0.0	$2,360	$24,600	$3,800	$20,800	8.8	17,739
Unitary HVAC Measures		**8,222**	**9.2**	**0.0**	**$1,102**	**$85,500**	**$5,200**	**$80,300**	**72.9**	**8,280**
ECM 8	Install High Efficiency Air Conditioning Units	8,222	9.2	0.0	$1,102	$85,500	$5,200	$80,300	72.9	8,280
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**164.6**	**$3,626**	**$146,000**	**$7,500**	**$138,500**	**38.2**	**26,936**
ECM 9	Install High Efficiency Hot Water Boilers	0	0.0	164.6	$3,626	$146,000	$7,500	$138,500	38.2	26,936
HVAC System Improvements		**955**	**0.0**	**0.0**	**$128**	**$120**	**$20**	**$100**	**0.8**	**961**
ECM 10	Install Pipe Insulation	955	0.0	0.0	$128	$120	$20	$100	0.8	961

THOMAS B. CONLEY ELEMENTARY SCHOOL (2 OF 2)

#	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_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**2,453**	**0.0**	**0.0**	**$329**	**$250**	**$120**	**$130**	**0.4**	**2,470**
ECM 11	Install Low-Flow DHW Devices	2,453	0.0	0.0	$329	$250	$120	$130	0.4	2,470
Food Service & Refrigeration Measures		**13,271**	**1.4**	**0.0**	**$1,778**	**$16,950**	**$1,080**	**$15,870**	**8.9**	**13,364**
ECM 12	Dishwasher Replacement	9,072	1.0	0.0	$1,215	$10,800	$700	$10,100	8.3	9,136
ECM 13	Refrigerator/Freezer Case Electrically Commutated Motors	786	0.1	0.0	$105	$1,120	$120	$1,000	9.5	792
ECM 14	Refrigeration Controls	1,801	0.0	0.0	$241	$4,760	$210	$4,550	18.9	1,814
ECM 15	Vending Machine Control	1,612	0.2	0.0	$216	$270	$50	$220	1.0	1,623
Custom Measures		**22,158**	**0.0**	**0.0**	**$2,968**	**$8,000**	**$0**	**$8,000**	**2.7**	**22,313**
ECM 16	Replace Electric Water Heater with Heat Pump Water Heater	22,158	0.0	0.0	$2,968	$8,000	$0	$8,000	2.7	22,313
TOTALS (COST EFFECTIVE MEASURES)		**168,594**	**43.9**	**-43.7**	**$21,623**	**$160,990**	**$24,520**	**$136,470**	**6.3**	**162,628**
TOTALS (ALL MEASURES)		**178,617**	**53.1**	**121.0**	**$26,592**	**$397,250**	**$37,430**	**$359,820**	**13.5**	**199,658**

* - 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

BPU New Jersey's cleanenergy program™

WATER BEST PRACTICES

- Leak Detection and Repair
- Toilets and Urinals
- Faucets and Showerheads
- Commercial Kitchen Equipment
- Laundry Equipment
- Cooling Towners
- 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

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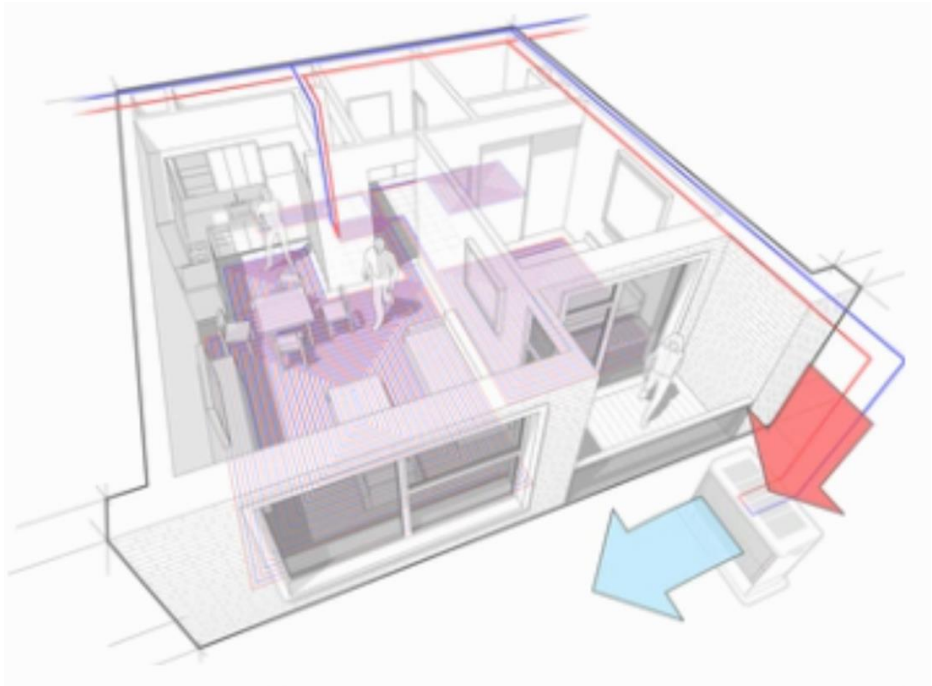
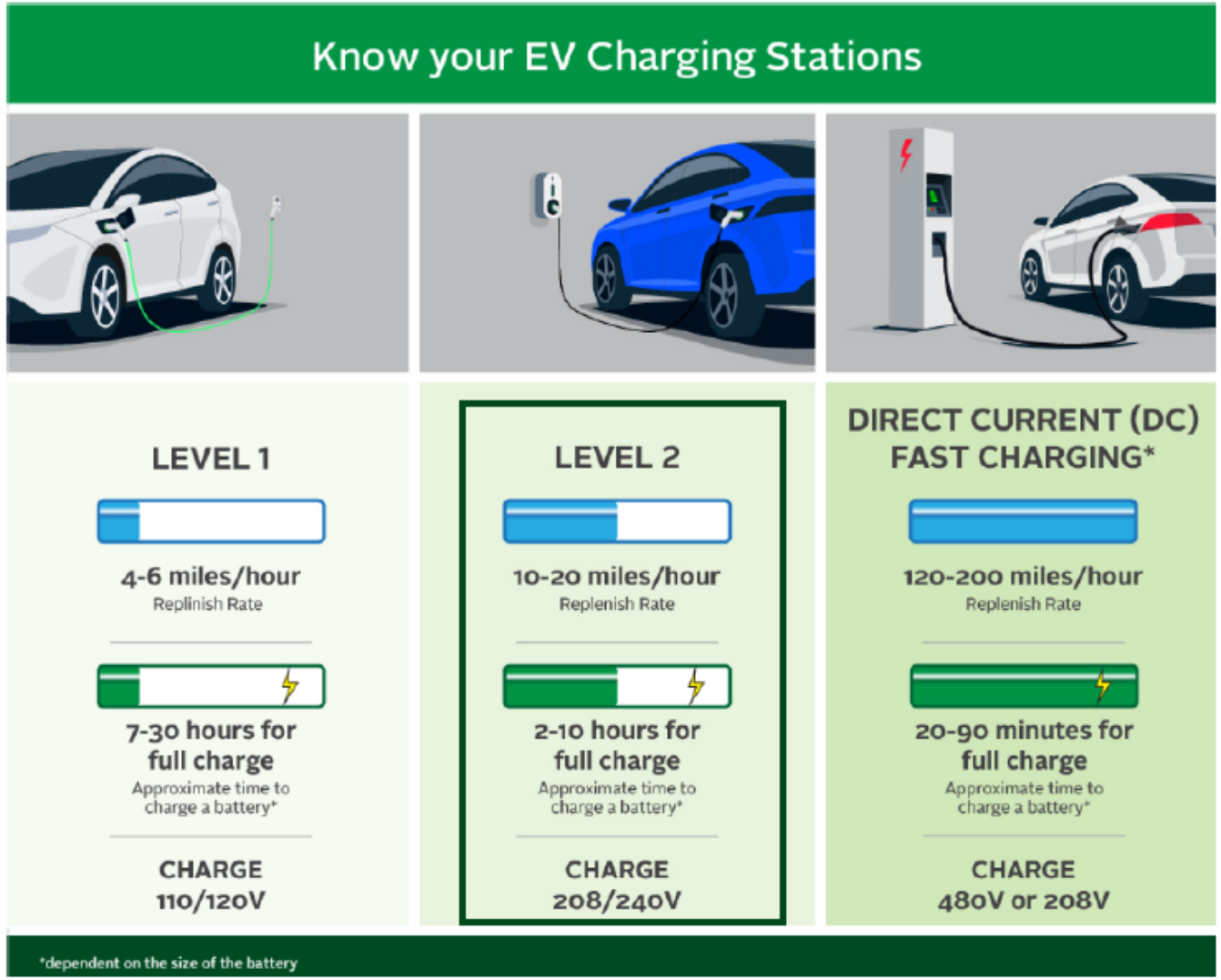
Measures for Future Consideration

- Upgrade/Replace Energy Management System
- Replace Fuel Oil Fired Equipment with Natural Gas Equipment
- Upgrade to a Heat Pump System
- VRF Systems



EV Charging Station Potential

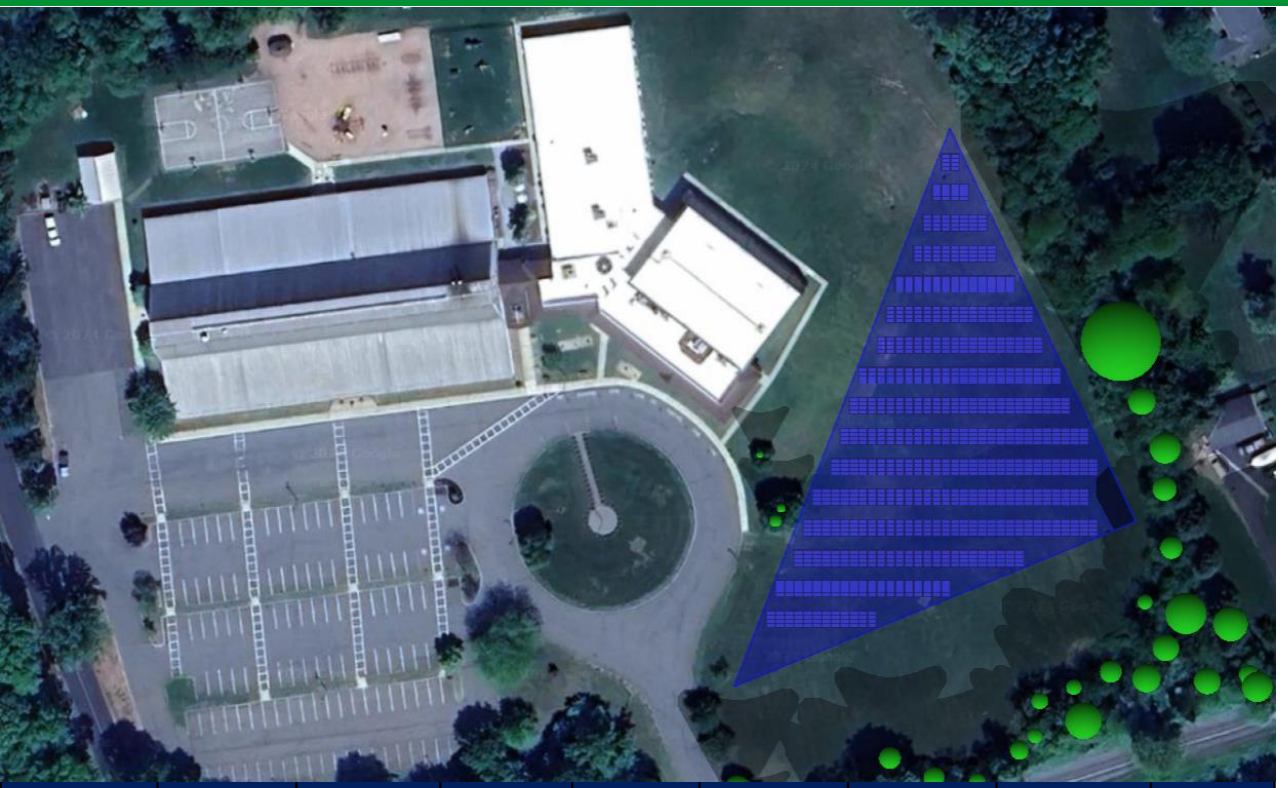
NJCleanEnergy.com/EV



	Thomas B. Conley Elementary School
Potential:	**High**

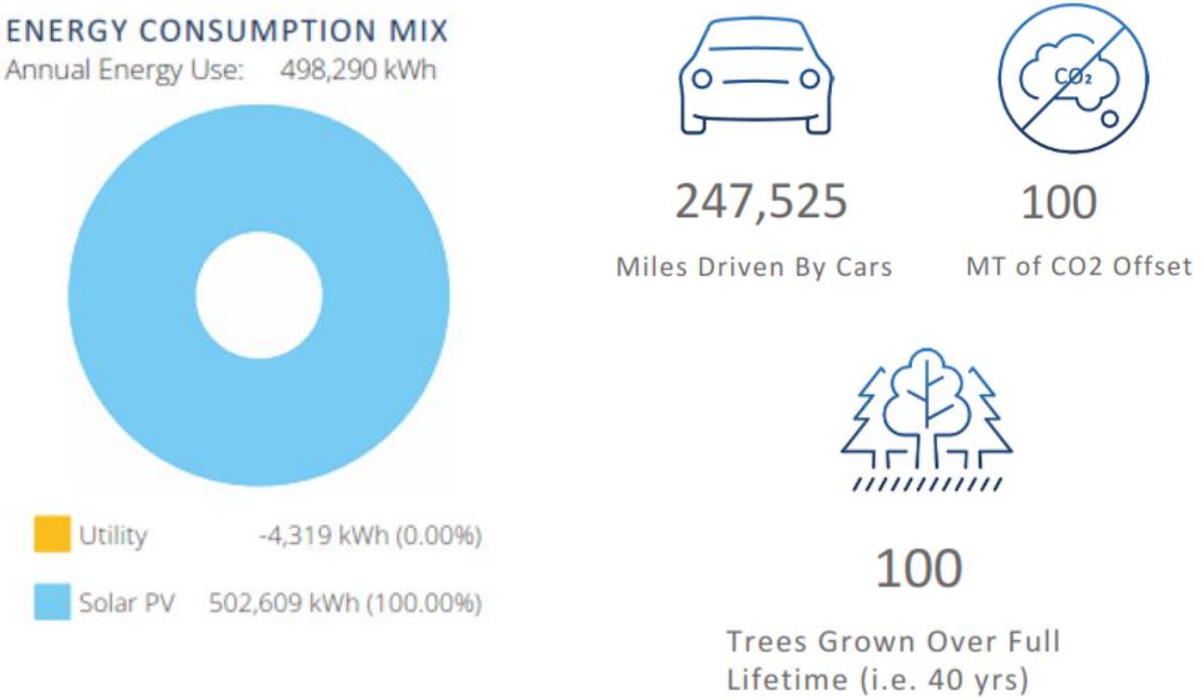
SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy



Equipment	Estimated Max Demand Savings (kW)	Estimated Annual Energy Generation (kWh)	Estimated Annual GHG Reduction ($MT\text{-}CO_2e$)	Estimated Annual Cost Savings ($)	Estimated Gross Project Cost ($)	Total Incentives ($)	Net Project Cost ($)	Simple Payback Period[12] (yr.)
370 kW Solar PV	38	502,608	100	$40,272	$2,276,000	$1,251,800	$1,024,200	25.4

<u>370 kW ground mount Solar PV System</u>: The ground mount solar panels are strategically positioned to make the most efficient use of the open area in front of school, maximizing coverage of the solar energy generation. The projected solar PV system is expected to generate a total energy output of 502,600 kWh, accounting for 100% of the site's total electricity consumption for the year 2023.



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

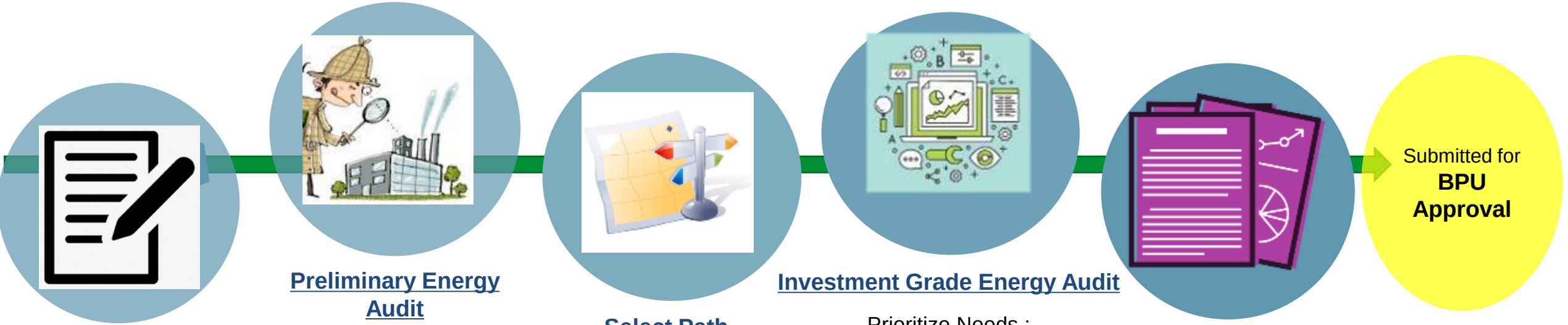
ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- 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

New Jersey's cleanenergy program™

Energy Savings Improvement Program

NJCleanEnergy.com/ESIP



ESIP Intake Form

Get informed;
Begin the process

Preliminary Energy Audit

Free LGEA
or
other ASHRAE Level II Audit

Select Path

ESCO, Hybrid or DIY Model;
Local Public Contract Law
Public School Contract Law
Compliance

Investment Grade Energy Audit

Prioritize Needs ;
Select Project's ECM's

Energy Savings Plan

Must be Cash Flow Positive;
Purchase Savings Guarantee?
Third Party Verification

Submitted for **BPU Approval**

New Jersey's cleanenergy program™

Energy Savings Improvement Program

NJCleanEnergy.com/ESIP

FOR MORE INFORMATION

Michelle Rossi

ESIP Coordinator

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c: 609.915.0903

SUSTAINABLE JERSEY – DIRECT PAY

Combining NJBPU Incentives with Direct Pay

Direct Pay (Elective Pay), part of Inflation Reduction Act (IRA), allows tax-exempt entities, including municipalities and school districts, to receive tax credits for clean energy projects.

About Direct Pay

- All eligible projects receive tax credits (not competitive)
- Currently authorized for 10 years
- Projects completed in 2023 are eligible for tax credits until Nov 15
  For local governments filing on a calendar year, fiscal year deadline is May 15

Eligible Projects Include

- Renewables – solar, geothermal, wind, etc.
- Electric vehicles
- Electric vehicle charging infrastructure *(limited)*
- Combined heat and power; Electric storage

Direct Pay can be used in combination with other funding sources like NJBPU incentives.

Example

Lightweight EV	$24,000
NJBPU Clean Fleet Grant	-$4,000
Direct Pay Tax Credit	-$7,500
Total cost to entity	**$12,500**

Note: Total incentive can not exceed total project cost.

Full list of Direct Pay eligible tax credits at https://www.irs.gov/pub/irs-pdf/p5817a.pdf

For more information, visit Sustainable Jersey's Direct Pay Tax Credits page.

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

JCP&L

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THANK YOU