New Jersey's Clean Energy Program

LGEA Presentation

Belvidere Board of Education

June 23, 2020

INTRODUCTIONS

- *Belvidere School District*
  - Rachelle Tjalma – Business Administrator
  - James Barrick – Operations Chief
- *NJ Clean Energy Program*
  - Aimee Lalonde – TRC Program Manager
  - Yagna Otia – TRC Auditor
  - Sarah Walters – TRC Account Manager
  - Mike Mandzik – TRC Outreach Manager
  - Michelle Rossi – ESIP Coordinator (BPU)
  - Arif Welcher – Government/Business Manager (BPU)

AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for Belvidere BOE

LGEA Process

- Application Approval
- Scheduling Call
- Audit
- Benchmarking & Analysis
- Draft Report
- Exit Meeting Presentation
- Final Report

Site Visit & Utility Analysis

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Kitchen Equipment

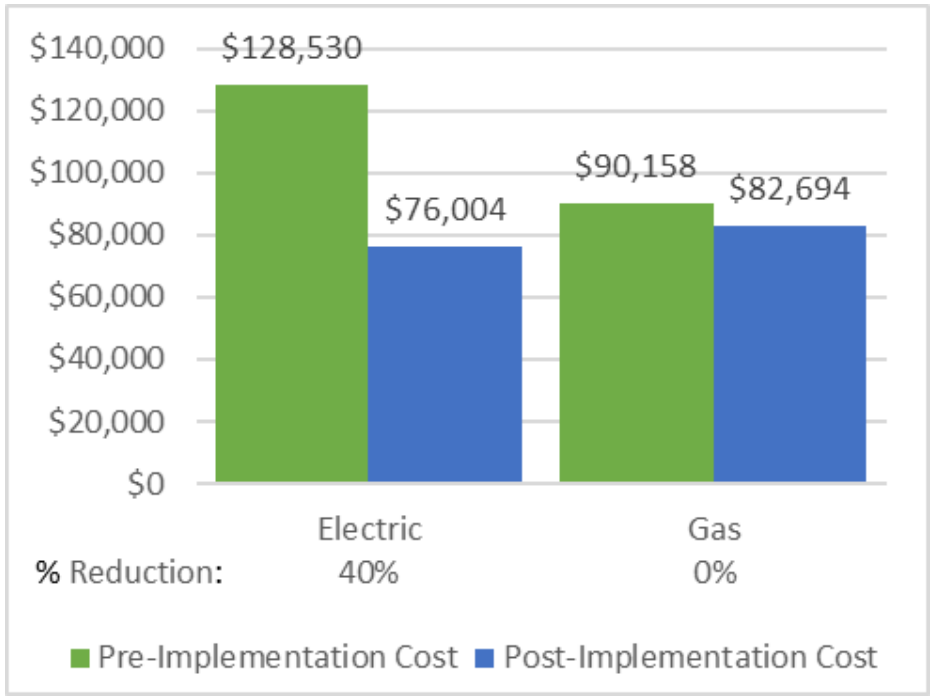
Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

- Oxford Elementary School
- Belvidere High School

Utility Breakout



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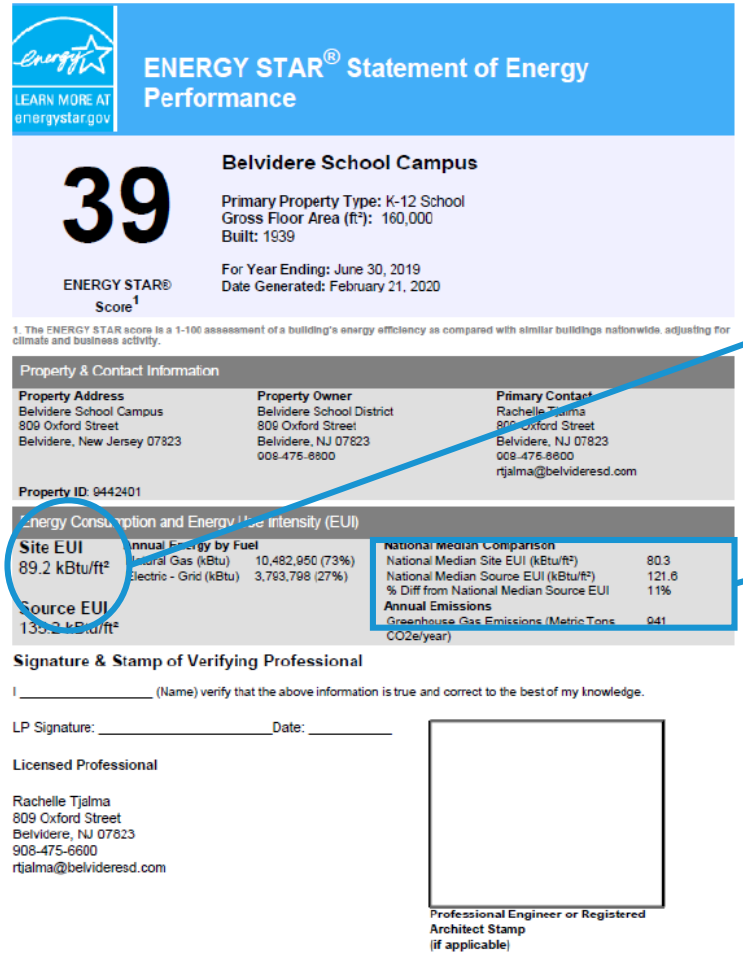
BENCHMARKING



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

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ENERGY STAR® Score[1]

Belvidere School Campus

Primary Property Type: K-12 School
Gross Floor Area (ft²): 160,000
Built: 1939

For Year Ending: June 30, 2019
Date Generated: February 21, 2020

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
Belvidere School Campus 809 Oxford Street Belvidere, New Jersey 07823	Belvidere School District 809 Oxford Street Belvidere, NJ 07823 908-475-6600	Rachelle Tjalma 809 Oxford Street Belvidere, NJ 07823 908-475-6600 rtjalma@belvideresd.com

Property ID: 9442401

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
89.2 kBtu/ft²

Source EUI
135.2 kBtu/ft²

Annual Energy by Fuel
Natural Gas (kBtu) 10,482,950 (73%)
Electric - Grid (kBtu) 3,793,798 (27%)

National Median Comparison
National Median Site EUI (kBtu/ft²) 80.3
National Median Source EUI (kBtu/ft²) 121.6
% Diff from National Median Source EUI 11%

Annual Emissions
Greenhouse Gas Emissions (Metric Tons CO2e/year) 941

Signature & Stamp of Verifying Professional

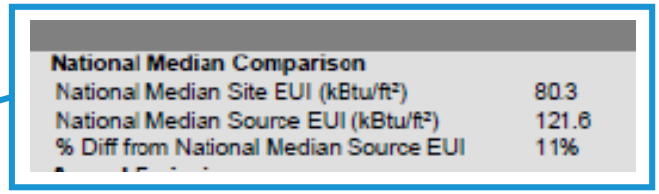
I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

Rachelle Tjalma
809 Oxford Street
Belvidere, NJ 07823
908-475-6600
rtjalma@belvideresd.com

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.

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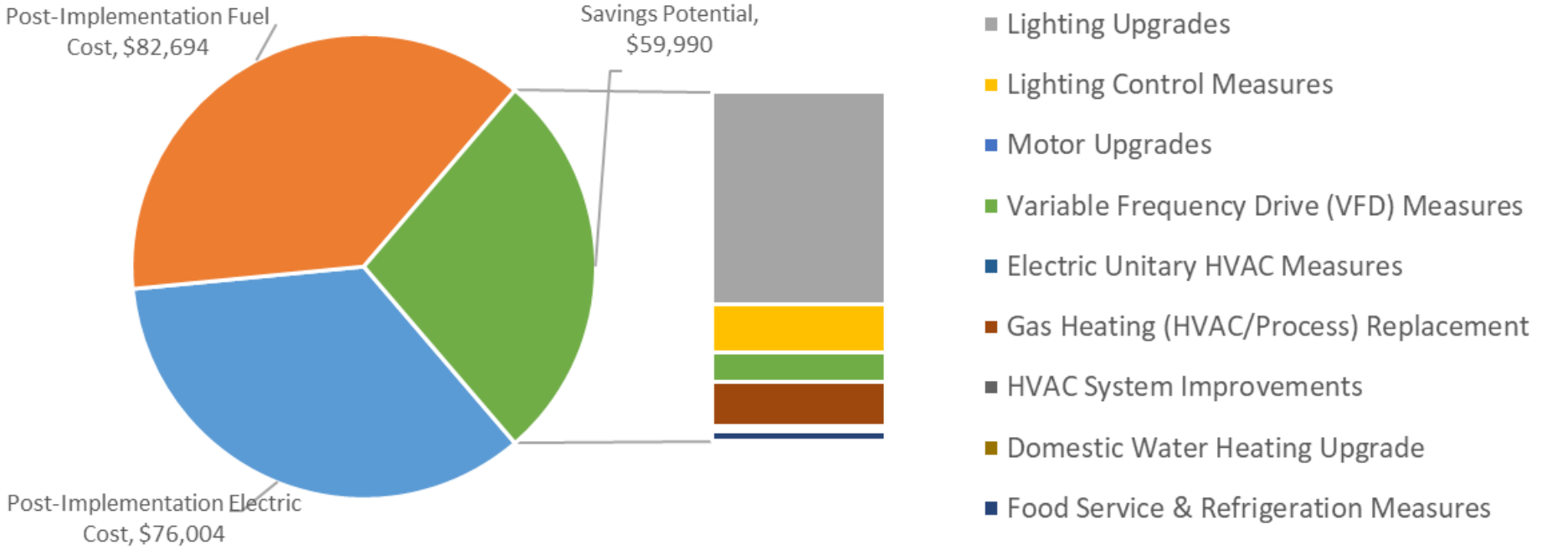
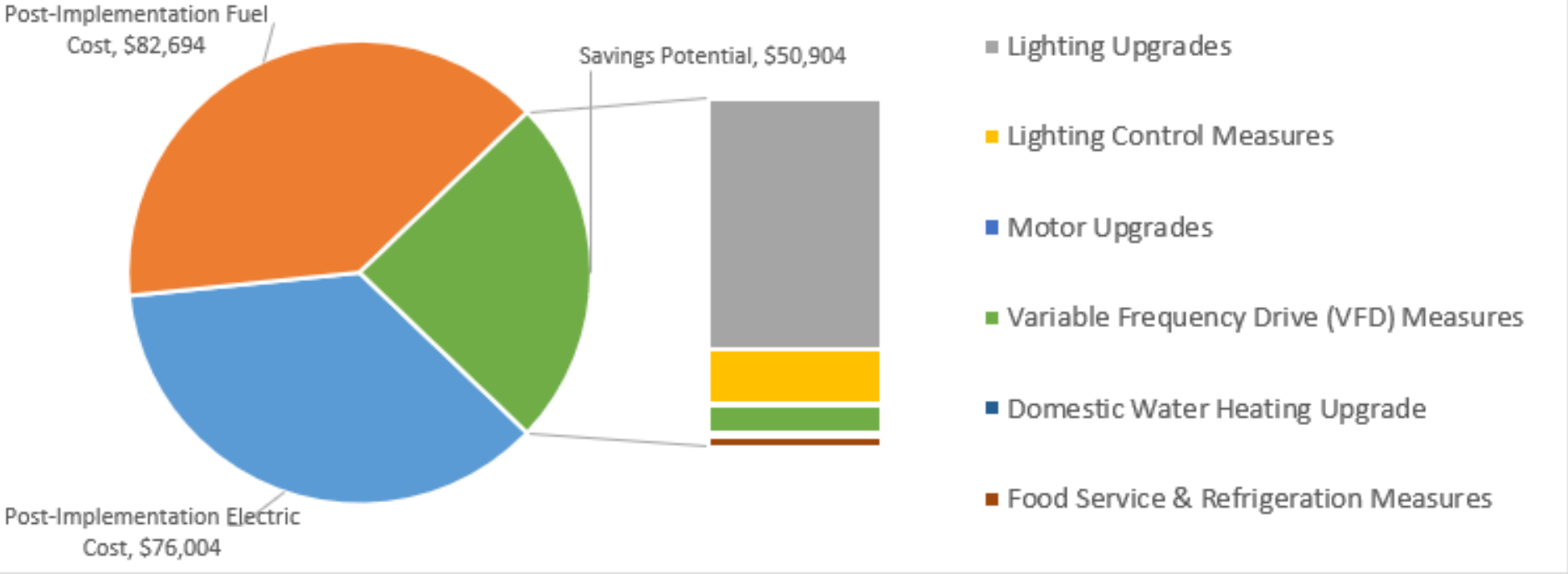
All Opportunities

Savings Potential



Cost Effective Opportunities

Savings Potential



Energy Conservation Measures (ECMS)

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**324,951**	**56.3**	**-66**	**$36,626**	**$94,375**	**$44,262**	**$50,113**	**1.4**	**319,439**
ECM 1	Install LED Fixtures	Yes	14,887	1.7	-2	$1,686	$13,316	$2,260	$11,056	6.6	14,738
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	3,829	0.6	-1	$431	$1,064	$300	$764	1.8	3,762
ECM 3	Retrofit Fixtures with LED Lamps	Yes	305,975	54.0	-63	$34,479	$79,778	$41,702	$38,076	1.1	300,683
ECM 4	Install LED Exit Signs	Yes	260	0.0	0	$29	$217	$0	$217	7.4	256
Lighting Control Measures			**71,815**	**12.3**	**-15**	**$8,092**	**$54,430**	**$18,955**	**$35,475**	**4.4**	**70,559**
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	64,046	11.0	-13	$7,216	$46,285	$11,425	$34,860	4.8	62,925
ECM 6	Install High/Low Lighting Controls	Yes	7,769	1.3	-2	$875	$8,145	$7,530	$615	0.7	7,633
Motor Upgrades			**1,184**	**0.3**	**0**	**$136**	**$1,896**	**$0**	**$1,896**	**14.0**	**1,193**
ECM 7	Premium Efficiency Motors	Yes	1,184	0.3	0	$136	$1,896	$0	$1,896	14.0	1,193
Variable Frequency Drive (VFD) Measures			**43,164**	**12.2**	**0**	**$4,941**	**$53,565**	**$8,500**	**$45,065**	**9.1**	**43,466**
ECM 8	Install VFDs on Constant Volume (CV) Fans	Yes	34,953	10.0	0	$4,001	$39,221	$7,400	$31,821	8.0	35,197
ECM 9	Install VFDs on Heating Water Pumps	No	2,885	0.3	0	$330	$6,781	$300	$6,481	19.6	2,905
ECM 10	Install Boiler Draft Fan VFDs	No	5,327	1.8	0	$610	$7,562	$800	$6,762	11.1	5,364
Electric Unitary HVAC Measures			**1,354**	**1.5**	**0**	**$155**	**$7,481**	**$920**	**$6,561**	**42.3**	**1,364**
ECM 11	Install High Efficiency Air Conditioning Units	No	1,354	1.5	0	$155	$7,481	$920	$6,561	42.3	1,364

* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Energy Conservation Measures (ECMS)

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**870**	**$7,480**	**$229,442**	**$0**	**$229,442**	**30.7**	**101,816**
ECM 12	Install High Efficiency Steam Boilers	No	0	0.0	870	$7,480	$229,442	$0	$229,442	30.7	101,816
HVAC System Improvements			**1,017**	**0.0**	**17**	**$262**	**$19,032**	**$0**	**$19,032**	**72.6**	**3,007**
ECM 13	Implement Demand Control Ventilation (DCV)	No	1,017	0.0	17	$262	$19,032	$0	$19,032	72.6	3,007
Domestic Water Heating Upgrade			**1,791**	**0.0**	**63**	**$745**	**$6,131**	**$2,336**	**$3,795**	**5.1**	**9,153**
ECM 14	Install Low-Flow DHW Devices	Yes	1,791	0.0	63	$745	$6,131	$2,336	$3,795	5.1	9,153
Food Service & Refrigeration Measures			**13,581**	**1.4**	**0**	**$1,555**	**$8,594**	**$1,470**	**$7,124**	**4.6**	**13,676**
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,049	0.1	0	$120	$1,213	$320	$893	7.4	1,056
ECM 16	Refrigeration Controls	No	2,176	0.0	0	$249	$5,541	$550	$4,991	20.0	2,191
ECM 17	Vending Machine Control	Yes	10,356	1.2	0	$1,185	$1,840	$600	$1,240	1.0	10,428
TOTALS (COST EFFECTIVE MEASURES)			**446,099**	**80.4**	**-19**	**$50,904**	**$199,107**	**$73,873**	**$125,234**	**2.5**	**447,024**
TOTALS (ALL MEASURES)			**458,858**	**84.0**	**868**	**$59,990**	**$474,946**	**$76,443**	**$398,503**	**6.6**	**563,672**

* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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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

- **Retro-Commissioning Study**
- Upgrade/Replace Energy Management System
- Installation of an Energy Management System
- Electric Submeter
- Ozone Laundry System
- Pool Heating System Upgrades
- Eliminate Oversized Domestic Hot Water Heating Systems
- Heating System Conversion from Steam to Hot Water
- Upgrade to a Heat Pump System
- Vestibule Revolving Doors
- Window Replacements
- Disaggregate Boiler System

CLEAN ENERGY PROGRAM PORTFOLIO

ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit, Institutional and Multifamily

INCENTIVE PROGRAMS

Equipment Rebates:

- **SmartStart**
- **Customer Tailored Energy Efficiency Pilot (CTEEP)**
- Direct Install
- Large Energy Users

Whole Buildings:

- **Pay for Performance**

Energy Generation:

- Combined Heat and Power – Fuel Cells

OTHER PROGRAMS

Renewable Energy Generation:

- **Transition Incentive Program (TI Program)**
- **Community Solar**

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Solar Energy Generation Potential

Potential:	**HIGH**
System Potential: (kW)	257
Electric Generation: (kWh per year)	306,182
Displaced Cost: (per year)	$35,050

Transition Incentive (TI) Program:

http://www.NJCleanEnergy.com/renewable-energy/programs/transition-incentive-program

Community Solar Energy Pilot Program:

http://www.NJCleanEnergy.com/CommunitySolar

Pay for Performance

NJCleanEnergy.com/P4P

NEW JERSEY'S CLEAN ENERGY PROGRAM

P4P

PAY FOR PERFORMANCE

What is P4P: Comprehensive, whole-building approach to saving energy in existing or new facilities.

Qualifications: Annual peak demand 200 kW+ in the previous year for existing buildings

About: Customer choose from a network of pre-approved ***Participating Partners***

Incentives:

- Incentives paid in *three* installments
  - Up to $2MM per project(($4MM entity cap/year)
    - $1 million for electric measures
    - $1 million for gas measures
  - Up to 50% of project cost (or **80%** for UEZ/OZ/Local Govt./ **K-12 Public Schools**) up to $2MM per project / $4MM per entity annually

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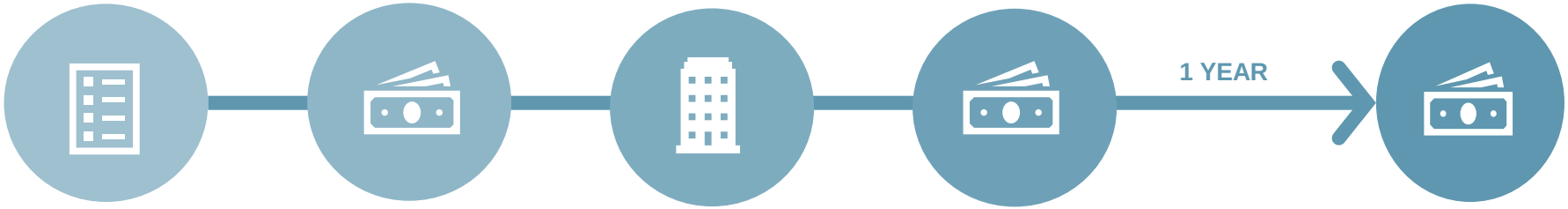
Pay for Performance

NJCleanEnergy.com/P4P



Program Enrollment

Submission and Approval of Application

Energy Reduction Plan (ERP)

Development and Approval

Incentive #1
fixed

Installation of Measures

Installation Report

Incentive #2
up to 25% project cost

FY20: Up to 40% for K-12 Public Schools

Verification of Savings

Comparison of Performance vs ERP

Incentive #3
up to 25% project cost

FY20: Up to 40% for K-12 Public Schools

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SmartStart

NJCleanEnergy.com/SSB

What is SSB: Individual high efficiency equipment rebates for new construction, renovation, remodeling, equipment replacement

Qualifications:

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

About:

- Prescriptive and custom designed measures
- Pre-approval required only for lighting projects with incentives >$100,000 and *all* custom projects
- For measures not requiring pre-approval, applications must be submitted to the program within one year of purchase.

Incentives:

- Prescriptive: $500,000 cap for each electric or gas account
- Custom, lesser of the following:
  - $0.16/kWh and/or $1.60/Therm saved annually
  - 50% of incremental installed cost
  - Buy-down to 1 year payback based on incremental cost and savings

SmartStart

NJCleanEnergy.com/SSB

Prescriptive Incentives

- Lighting & Lighting Controls
- Packaged HVAC
- Boilers & Water Heaters
- Chillers
- VFD's
- Food Service
- Refrigeration

Prescriptive Only:

DOUBLE INCENTIVES FOR OZ/UEZ/ LOCAL GOVT./K-12 PUBLIC SCHOOLS

Custom Incentives

- New or innovative technologies proven to be cost-effective and not listed as prescriptive
- Projects must have a minimum first year energy savings of 75,000 kWh or 1,500 therms
- Project pre and post inspection required

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Customer Tailored Energy Efficiency Pilot

NJCleanEnergy.com/CTEEP

What is CTEEP: A streamlined/single application process for participants submitting multiple different technology types.

Qualifications:

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

About:

- On site assistance available
- Additional technical incentive available to offset soft costs associated with developing and planning custom projects

Incentives:

- $250,000 fiscal year entity cap
- Technical assistance incentives for custom project evaluation (up to $10K)

SAME INCENTIVE VALUES AS SMARTSTART

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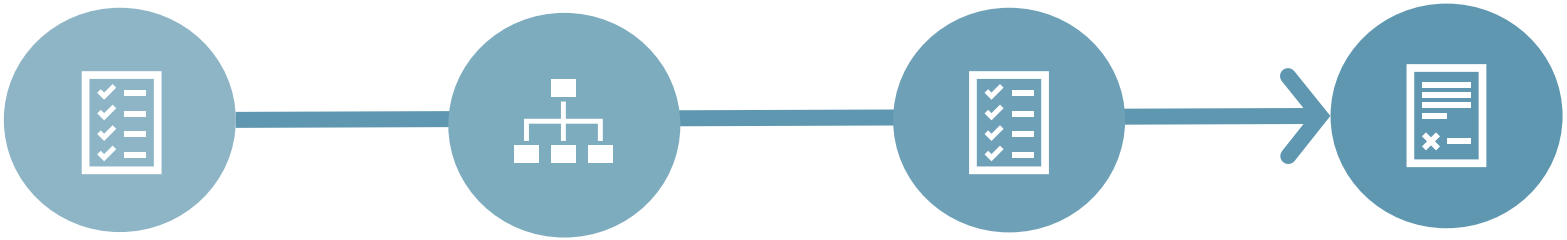
FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Provides alternative financing for energy savings projects at public institutions
- Administered directly by the BPU
- Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract
- Requires NO new bonding and is outside of capital budget
- Does not count as debt or require voter approval

Financing Mechanism: ESIP



Initial Energy Audit

Includes LGEA

Select Path

ESCO (requires RFP)
Hybrid
DIY

Investment Grade Energy Audit

Energy Savings Plan Developed & Approved

Plan includes use of incentives through New Jersey's Clean Energy Program

Energy Savings Improvement Program (ESIP)

FOR MORE INFORMATION

Michelle Rossi

ESIP Coordinator

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For More Information

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QUESTIONS

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