LGEA Presentation

Bloomfield Board of Education

September 6, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *Bloomfield BOE*
  - Vicky Guo – Business Administrator
  - Joe Scazafave – Facilities Manager

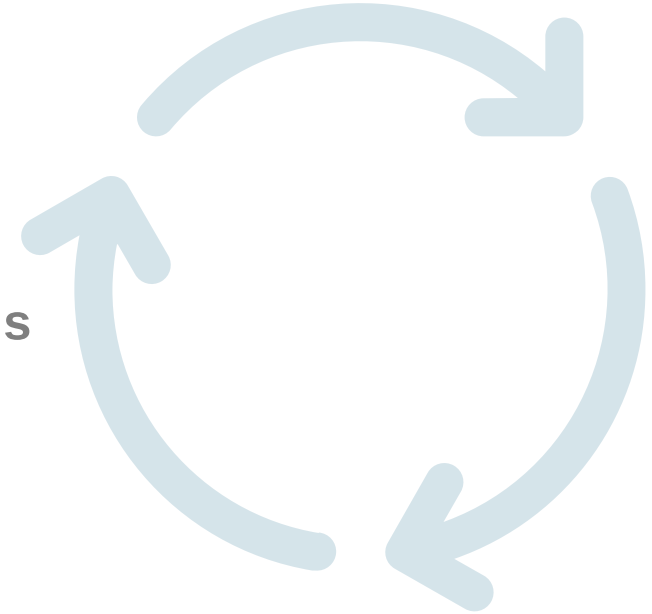
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Technical Manager
  - Christopher Nolan – LGEA Project Auditor
  - Amanda Muench – LGEA Account Manager
  - Michelle Rossi – ESIP Coordinator (BPU)

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 Bloomfield Board of Education

LGEA Process

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



New Jersey's cleanenergy program™

Site Visit & Utility Analysis

Overview of Systems, Baseline & Existing Conditions:

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

Utility Consumption:

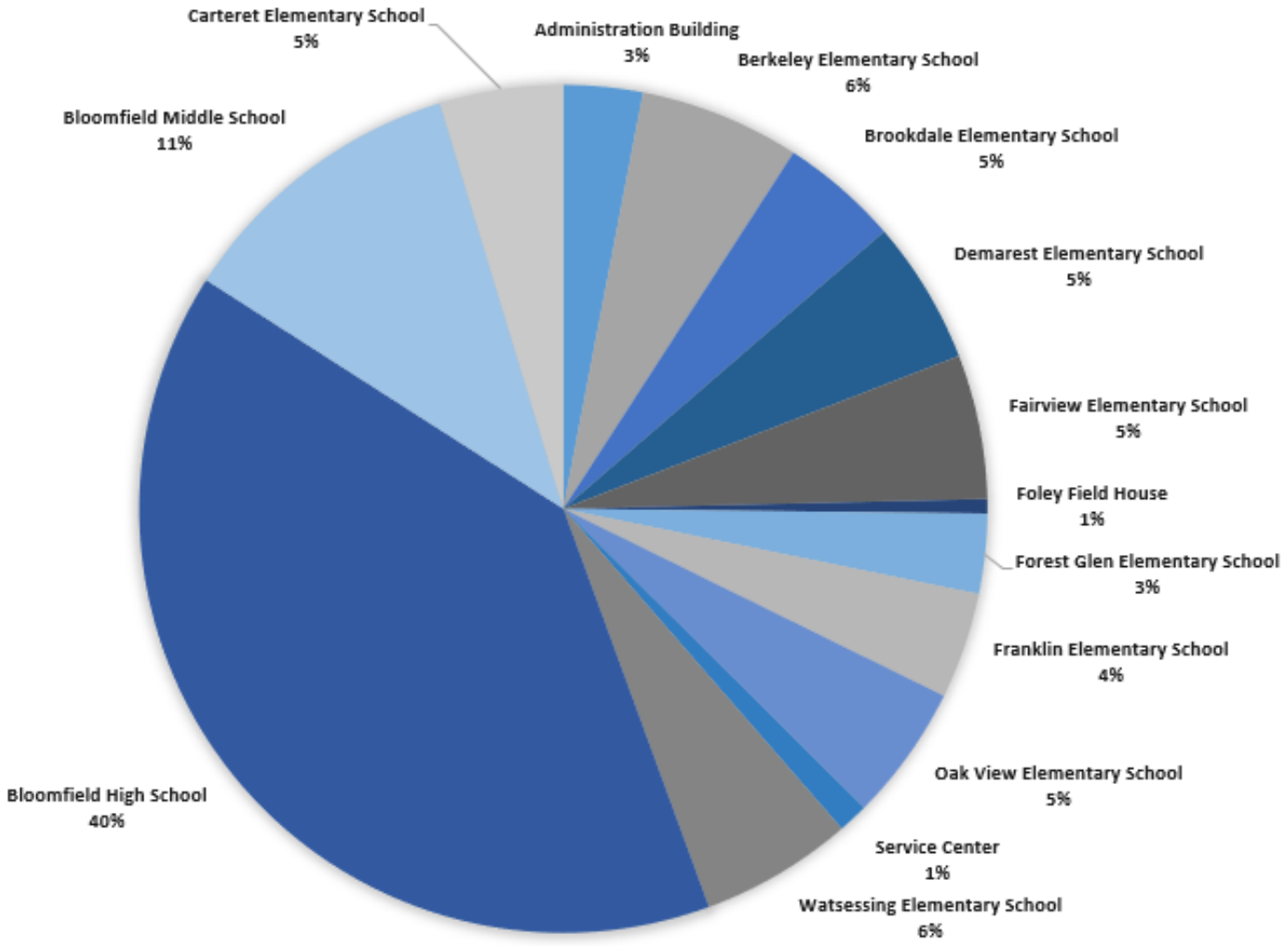
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

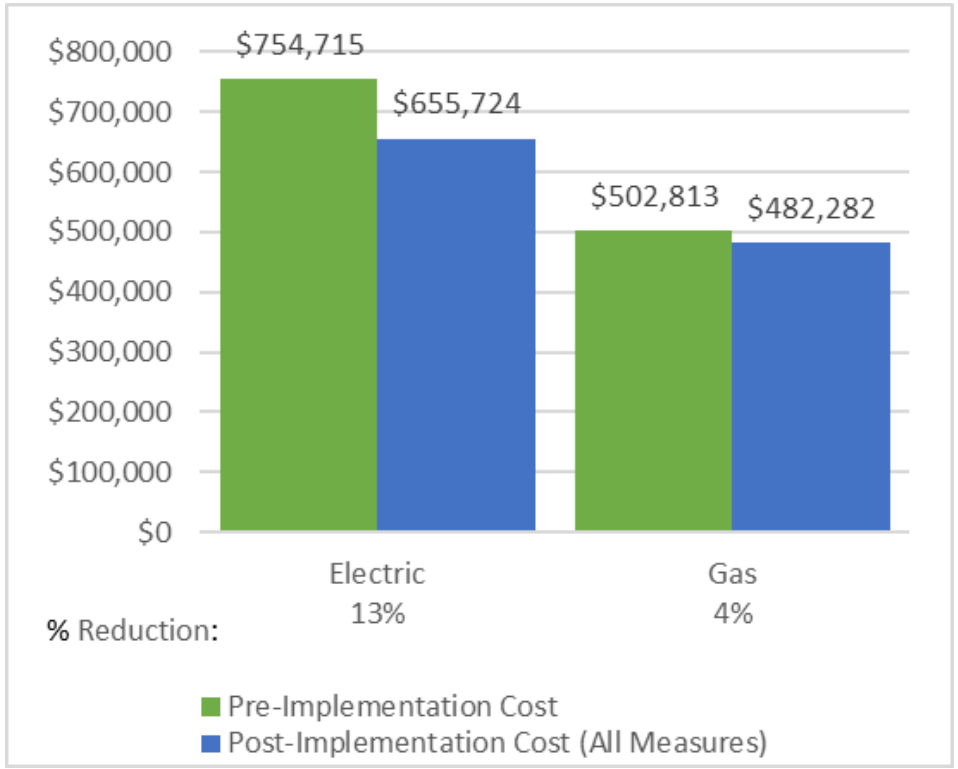
- Administration Building
- Berkeley Elementary School
- Brookdale Elementary School
- Demarest Elementary School
- Fairview Elementary School
- Foley Field House
- Forest Glen Elementary School
- Franklin Elementary School
- Oak View Elementary School
- Service Center
- Watsessing Elementary School
- Bloomfield High School
- Bloomfield Middle School
- Carteret Elementary School

Utility Breakout

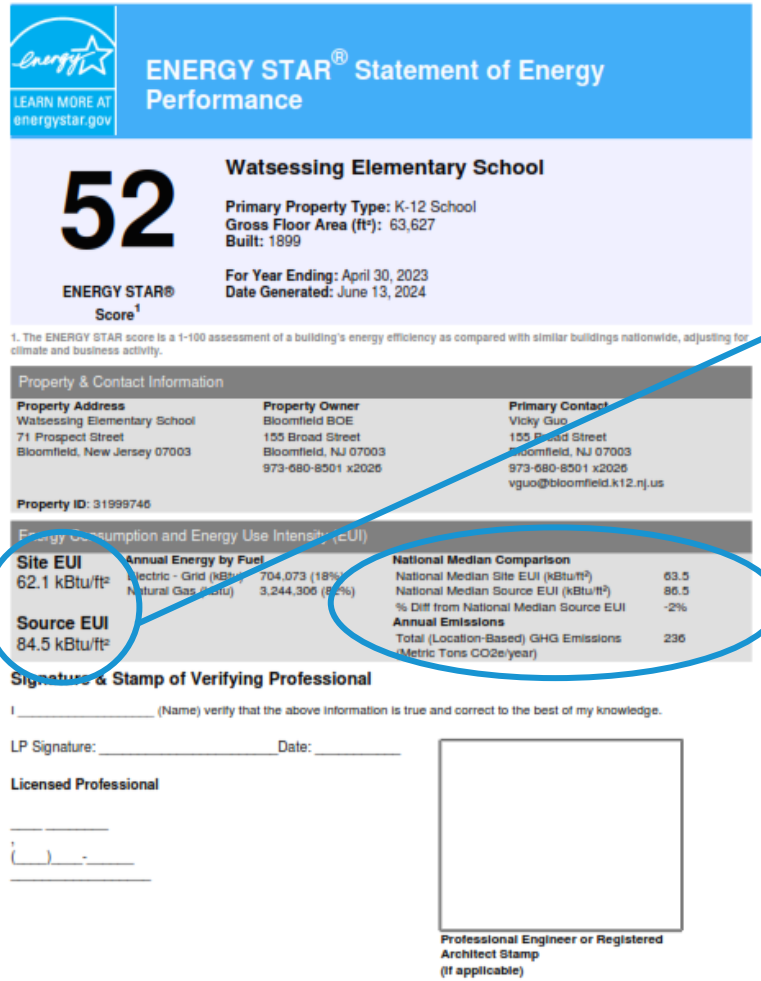
Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

52

ENERGY STAR® Score[1]

Watsessing Elementary School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 63,627
Built: 1899

For Year Ending: April 30, 2023
Date Generated: June 13, 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
Watsessing Elementary School 71 Prospect Street Bloomfield, New Jersey 07003	Bloomfield BOE 155 Broad Street Bloomfield, NJ 07003 973-680-8501 x2026	Vicky Guo 155 Broad Street Bloomfield, NJ 07003 973-680-8501 x2026 vguo@bloomfield.k12.nj.us

Property ID: 31999746

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
62.1 kBtu/ft²

Source EUI
84.5 kBtu/ft²

Annual Energy by Fuel
Electric - Grid (kBtu) 704,073 (18%)
Natural Gas (kBtu) 3,244,306 (82%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	63.5
National Median Source EUI (kBtu/ft²)	86.5
% Diff from National Median Source EUI	-2%

Annual Emissions
Total (Location-Based) GHG Emissions (Metric Tons CO2e/year) 236

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
62.1 kBtu/ft²

Source EUI
84.5 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²)	63.5
National Median Source EUI (kBtu/ft²)	86.5
% Diff from National Median Source EUI	-2%

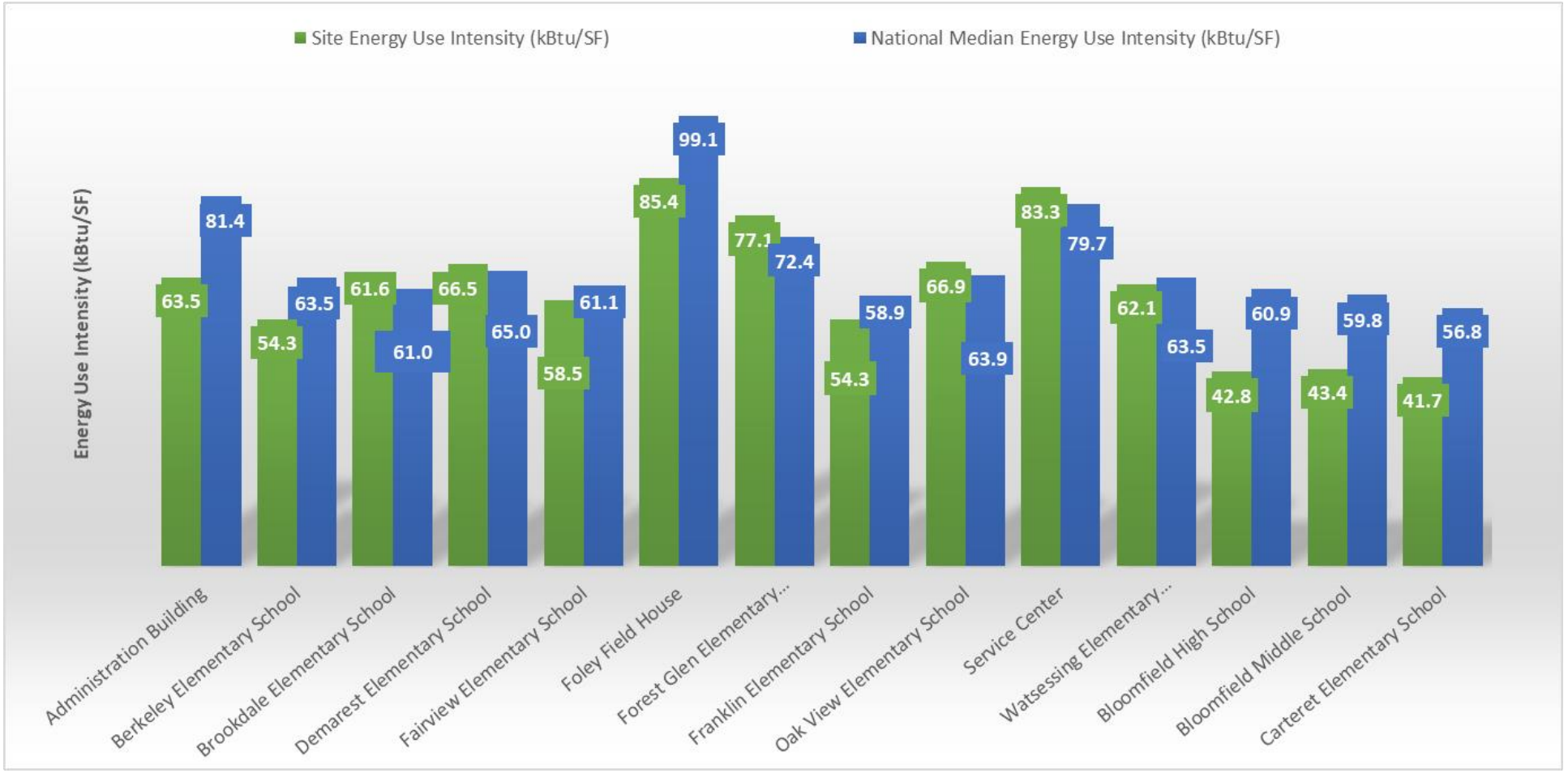
Site Name	Energy Star Score
Administration Building	67
Berkeley Elementary School	64
Brookdale Elementary School	49
Demarest Elementary School	47
Fairview Elementary School	54
Foley Field House	N/A
Forest Glen Elementary School	43
Franklin Elementary School	57
Oak View Elementary School	45
Service Center	N/A
Watsessing Elementary School	52
Bloomfield High School	79
Bloomfield Middle School	77
Carteret Elementary School	77

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.

Two of your buildings qualify for ENERGY STAR® certification. LGEA can help!

BPU New Jersey's cleanenergy program™

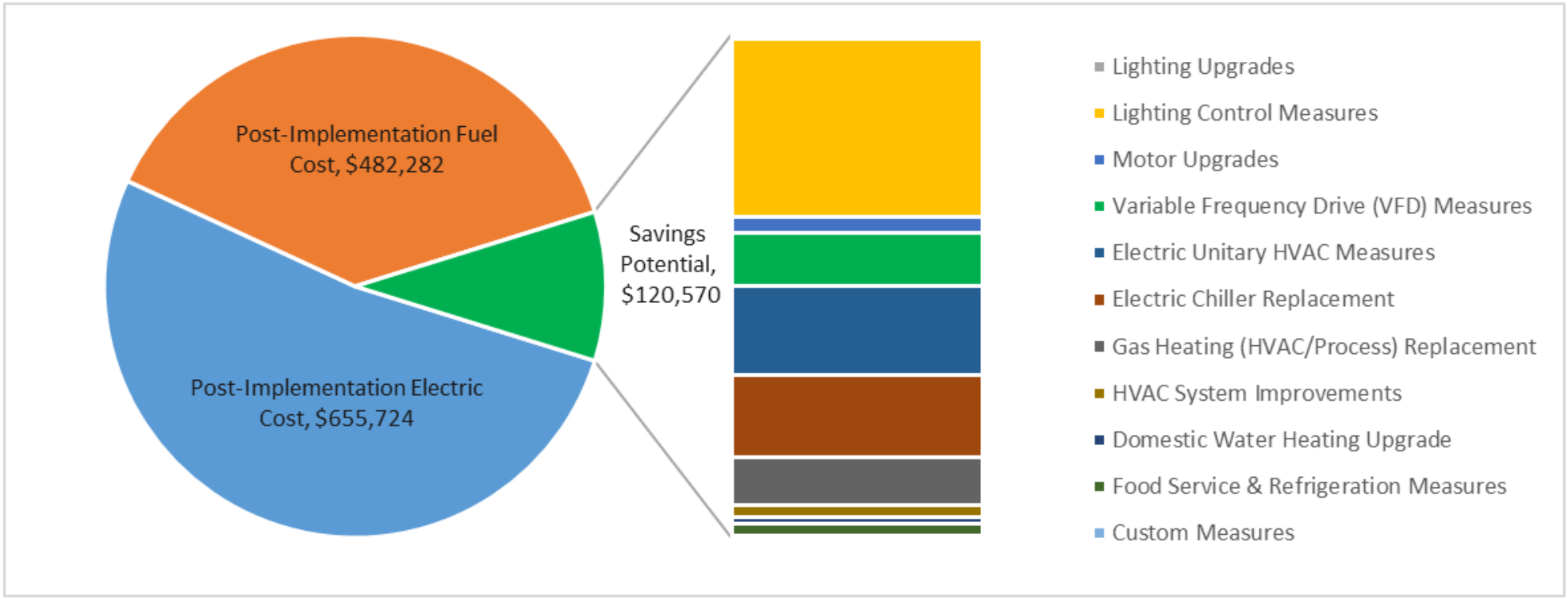
BENCHMARKING



New Jersey's cleanenergy program™

ALL OPPORTUNITIES

Savings Potential



ALL OPPORTUNITIES (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		**5,643**	**0.6**	**-1.1**	**$888**	**$670**	**$50**	**$620**	**0.7**	**5,556**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	88	0.0	0.0	$14	$40	$0	$40	2.9	87
ECM 2	Retrofit Fixtures with LED Lamps	5,554	0.5	-1.1	$874	$630	$50	$580	0.7	5,469
Lighting Control Measures		**305,797**	**65.2**	**-63.9**	**$42,705**	**$348,910**	**$73,540**	**$275,370**	**6.4**	**300,448**
ECM 3	Install Occupancy Sensor Lighting Controls	257,008	58.2	-53.7	$35,742	$289,620	$34,170	$255,450	7.1	252,512
ECM 4	Install High/Low Lighting Controls	48,789	7.0	-10.2	$6,964	$59,290	$39,370	$19,920	2.9	47,936
Motor Upgrades		**30,342**	**7.8**	**0.0**	**$3,958**	**$79,900**	**$0**	**$79,900**	**20.2**	**30,554**
ECM 5	Premium Efficiency Motors	30,342	7.8	0.0	$3,958	$79,900	$0	$79,900	20.2	30,554
Variable Frequency Drive (VFD) Measures		**84,295**	**32.9**	**39.1**	**$12,668**	**$223,100**	**$16,200**	**$206,900**	**16.3**	**89,462**
ECM 6	Install VFDs on Constant Volume (CV) Fans	39,247	14.6	0.0	$5,580	$78,000	$4,300	$73,700	13.2	39,521
ECM 7	Install VFDs on Chilled Water Pumps	17,785	7.4	0.0	$2,692	$37,800	$5,600	$32,200	12.0	17,910
ECM 8	Install VFDs on Heating Water Pumps	5,762	1.0	0.0	$893	$19,900	$1,300	$18,600	20.8	5,802
ECM 9	Install Boiler Draft Fan VFDs	6,373	4.5	0.0	$926	$13,400	$2,000	$11,400	12.3	6,417
ECM 10	Install VFDs on Boiler Feedwater Pumps	3,223	3.8	0.0	$503	$38,300	$600	$37,700	74.9	3,246
ECM 11	Install VFDs on Kitchen Hood Fan Motors	8,821	0.2	39.1	$1,627	$13,900	$400	$13,500	8.3	13,461
ECM 12	Install VFDs on Condensate Pumps	3,084	1.4	0.0	$447	$21,800	$2,000	$19,800	44.3	3,106
Unitary HVAC Measures		**161,756**	**166.5**	**1.2**	**$21,307**	**$1,126,000**	**$66,100**	**$1,059,900**	**49.7**	**163,026**
ECM 13	Install High Efficiency Air Conditioning Units	161,756	166.5	1.2	$21,307	$1,126,000	$66,100	$1,059,900	49.7	163,026

ALL OPPORTUNITIES (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)
Electric Chiller Replacement		**149,474**	**12.1**	**0.0**	**$19,921**	**$784,900**	**$57,600**	**$727,300**	**36.5**	**150,519**
ECM 14	Install High Efficiency Chillers	149,474	12.1	0.0	$19,921	$784,900	$57,600	$727,300	36.5	150,519
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**905.7**	**$11,337**	**$868,925**	**$51,400**	**$817,525**	**72.1**	**106,043**
ECM 15	Install High Efficiency Hot Water Boilers	0	0.0	497.2	$6,129	$718,600	$41,500	$677,100	110.5	58,217
ECM 16	Install High Efficiency Steam Boilers	0	0.0	60.4	$752	$85,400	$3,400	$82,000	109.0	7,078
ECM 17	Install High Efficiency Furnaces	0	0.0	161.5	$1,983	$30,125	$1,500	$28,625	14.4	18,910
ECM 18	Install Infrared Heaters	0	0.0	186.5	$2,473	$34,800	$5,000	$29,800	12.1	21,838
HVAC System Improvements		**13,649**	**0.0**	**85.5**	**$2,836**	**$15,850**	**$190**	**$15,660**	**5.5**	**23,757**
ECM 19	Implement Demand Control Ventilation (DCV)	13,649	0.0	62.8	$2,552	$14,600	$0	$14,600	5.7	21,095
ECM 20	Install Pipe Insulation	0	0.0	22.7	$284	$1,250	$190	$1,060	3.7	2,662
Domestic Water Heating Upgrade		**1,595**	**0.0**	**117.4**	**$1,725**	**$4,080**	**$1,610**	**$2,470**	**1.4**	**15,350**
ECM 21	Install Low-Flow DHW Devices	1,595	0.0	117.4	$1,725	$4,080	$1,610	$2,470	1.4	15,350
Food Service & Refrigeration Measures		**19,698**	**1.1**	**0.0**	**$2,701**	**$39,780**	**$2,210**	**$37,570**	**13.9**	**19,836**
ECM 22	Refrigerator/Freezer Case Electrically Commutated Motors	5,500	0.7	0.0	$768	$7,840	$840	$7,000	9.1	5,538
ECM 23	Refrigeration Controls	12,244	0.2	0.0	$1,679	$31,400	$1,320	$30,080	17.9	12,329
ECM 24	Vending Machine Control	1,954	0.2	0.0	$254	$540	$50	$490	1.9	1,968
Custom Measures		**-56,042**	**0.0**	**588.0**	**-$524**	**$63,800**	**$0**	**$63,800**	**-121.8**	**12,414**
ECM 25	Replace Gas Fired Water Heater with Heat Pump Water Heater	-56,042	0.0	588.0	-$524	$63,800	$0	$63,800	-121.8	12,414
TOTALS (ALL MEASURES)		**716,206**	**286.2**	**1,671.8**	**$119,522**	**$3,555,915**	**$268,900**	**$3,287,015**	**27.5**	**916,964**

* - 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.

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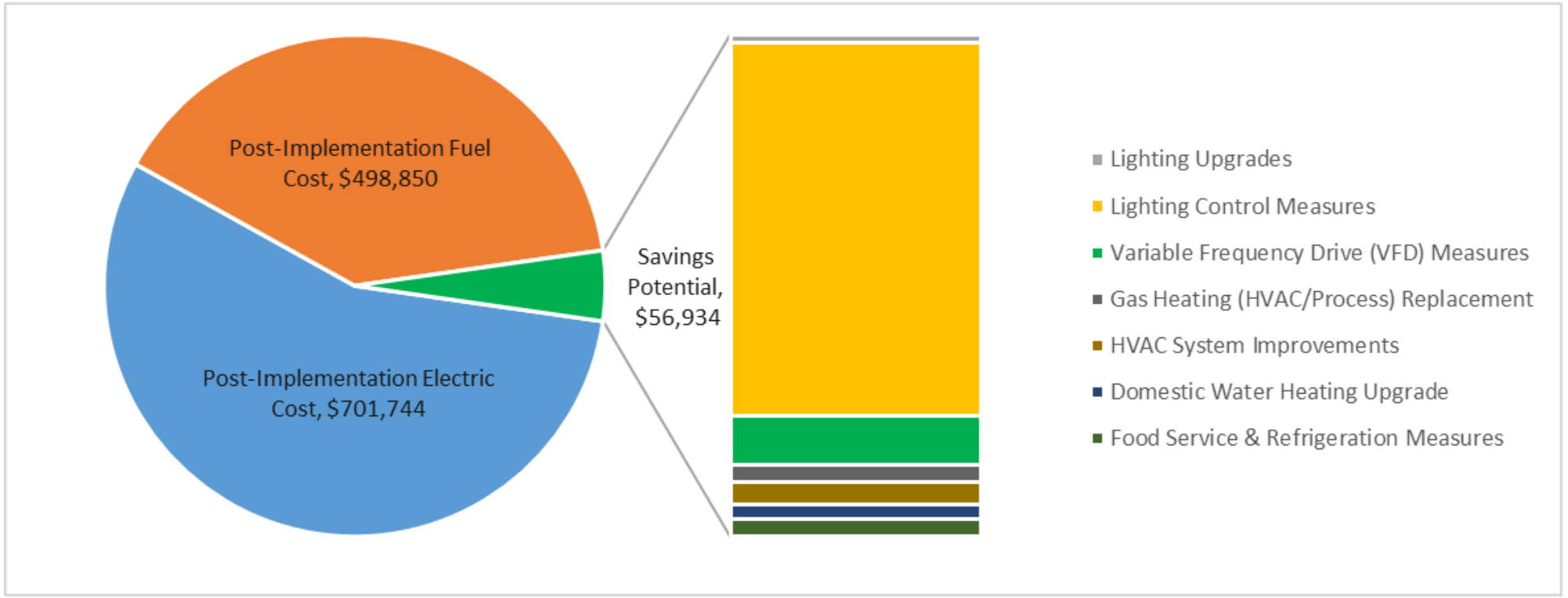
Cost Effective Opportunities

Savings Potential



Cost Effective Opportunities

#	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		**5,643**	**0.6**	**-1.1**	**$888**	**$670**	**$50**	**$620**	**0.7**	**5,556**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	88	0.0	0.0	$14	$40	$0	$40	2.9	87
ECM 2	Retrofit Fixtures with LED Lamps	5,554	0.5	-1.1	$874	$630	$50	$580	0.7	5,469
Lighting Control Measures		**303,878**	**64.6**	**-63.5**	**$42,407**	**$345,000**	**$73,040**	**$271,960**	**6.4**	**298,563**
ECM 3	Install Occupancy Sensor Lighting Controls	255,188	57.6	-53.4	$35,459	$285,990	$33,740	$252,250	7.1	250,725
ECM 4	Install High/Low Lighting Controls	48,690	7.0	-10.2	$6,948	$59,010	$39,300	$19,710	2.8	47,838
Variable Frequency Drive (VFD) Measures		**36,735**	**8.8**	**39.1**	**$5,540**	**$52,700**	**$4,700**	**$48,000**	**8.7**	**41,570**
ECM 6	Install VFDs on Constant Volume (CV) Fans	18,155	6.5	0.0	$2,458	$27,600	$2,500	$25,100	10.2	18,282
ECM 7	Install VFDs on Chilled Water Pumps	9,759	2.1	0.0	$1,455	$11,200	$1,800	$9,400	6.5	9,827
ECM 11	Install VFDs on Kitchen Hood Fan Motors	8,821	0.2	39.1	$1,627	$13,900	$400	$13,500	8.3	13,461
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**161.5**	**$1,983**	**$30,125**	**$1,500**	**$28,625**	**14.4**	**18,910**
ECM 17	Install High Efficiency Furnaces	0	0.0	161.5	$1,983	$30,125	$1,500	$28,625	14.4	18,910
HVAC System Improvements		**12,876**	**0.0**	**62.6**	**$2,448**	**$10,050**	**$190**	**$9,860**	**4.0**	**20,298**
ECM 19	Implement Demand Control Ventilation (DCV)	12,876	0.0	39.9	$2,164	$8,800	$0	$8,800	4.1	17,637
Domestic Water Heating Upgrade		**1,595**	**0.0**	**117.4**	**$1,725**	**$4,080**	**$1,610**	**$2,470**	**1.4**	**15,350**
ECM 21	Install Low-Flow DHW Devices	1,595	0.0	117.4	$1,725	$4,080	$1,610	$2,470	1.4	15,350
Food Service & Refrigeration Measures		**14,534**	**1.0**	**0.0**	**$1,943**	**$20,600**	**$1,440**	**$19,160**	**9.9**	**14,636**
ECM 22	Refrigerator/Freezer Case Electrically Commutated Motors	5,500	0.7	0.0	$768	$7,840	$840	$7,000	9.1	5,538
ECM 23	Refrigeration Controls	7,080	0.1	0.0	$921	$12,220	$550	$11,670	12.7	7,130
ECM 24	Vending Machine Control	1,954	0.2	0.0	$254	$540	$50	$490	1.9	1,968
TOTALS		**375,261**	**75.0**	**316.0**	**$56,934**	**$463,225**	**$82,530**	**$380,695**	**6.7**	**414,884**

* - All incentives presented in this table are included as placesholders 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).

BERKELEY ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**22,526**	**5.2**	**-5**	**$3,300**	**$43,050**	**$11,620**	**$31,430**	**9.5**	**22,132**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	17,501	4.4	-4	$2,564	$30,660	$3,430	$27,230	10.6	17,195
ECM 2	Install High/Low Lighting Controls	Yes	5,025	0.8	-1	$736	$12,390	$8,190	$4,200	5.7	4,937
Variable Frequency Drive (VFD) Measures			**12,781**	**3.8**	**0**	**$1,905**	**$23,700**	**$2,100**	**$21,600**	**11.3**	**12,871**
ECM 3	Install VFDs on Constant Volume (CV) Fans	Yes	2,574	0.9	0	$384	$5,100	$200	$4,900	12.8	2,592
ECM 4	Install VFDs on Chilled Water Pumps	Yes	9,759	2.1	0	$1,455	$11,200	$1,800	$9,400	6.5	9,827
ECM 5	Install VFDs on Boiler Feedwater Pumps	No	448	0.9	0	$67	$7,400	$100	$7,300	109.2	451
Electric Chiller Replacement			**14,499**	**-2.8**	**0**	**$2,161**	**$125,600**	**$6,300**	**$119,300**	**55.2**	**14,601**
ECM 6	Install High Efficiency Chillers	No	14,499	-2.8	0	$2,161	$125,600	$6,300	$119,300	55.2	14,601
Domestic Water Heating Upgrade			**0**	**0.0**	**14**	**$176**	**$360**	**$150**	**$210**	**1.2**	**1,680**
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	14	$176	$360	$150	$210	1.2	1,680
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$96**	**$2,430**	**$120**	**$2,310**	**24.2**	**646**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$39	$370	$40	$330	8.4	264
ECM 9	Refrigeration Controls	No	379	0.0	0	$56	$2,060	$80	$1,980	35.1	382
TOTALS (COST EFFECTIVE MEASURES)			**35,121**	**8.2**	**10**	**$5,353**	**$60,080**	**$13,810**	**$46,270**	**8.6**	**36,495**
TOTALS (ALL MEASURES)			**50,448**	**6.2**	**10**	**$7,638**	**$195,140**	**$20,290**	**$174,850**	**22.9**	**51,929**

* - 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).

BROOKDALE ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**198**	**0.0**	**0**	**$29**	**$160**	**$10**	**$150**	**5.2**	**194**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	198	0.0	0	$29	$160	$10	$150	5.2	194
Lighting Control Measures			**16,513**	**3.0**	**-3**	**$2,392**	**$18,040**	**$3,750**	**$14,290**	**6.0**	**16,224**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	13,193	2.5	-3	$1,911	$14,100	$1,560	$12,540	6.6	12,962
ECM 3	Install High/Low Lighting Controls	Yes	3,320	0.5	-1	$481	$3,940	$2,190	$1,750	3.6	3,262
Variable Frequency Drive (VFD) Measures			**2,011**	**0.2**	**0**	**$296**	**$7,900**	**$200**	**$7,700**	**26.0**	**2,025**
ECM 4	Install VFDs on Heating Water Pumps	No	2,011	0.2	0	$296	$7,900	$200	$7,700	26.0	2,025
Unitary HVAC Measures			**1,465**	**1.2**	**0**	**$216**	**$11,100**	**$400**	**$10,700**	**49.6**	**1,476**
ECM 5	Install High Efficiency Air Conditioning Units	No	1,465	1.2	0	$216	$11,100	$400	$10,700	49.6	1,476
HVAC System Improvements			**0**	**0.0**	**2**	**$24**	**$140**	**$20**	**$120**	**5.0**	**246**
ECM 6	Install Pipe Insulation	Yes	0	0.0	2	$24	$140	$20	$120	5.0	246
Domestic Water Heating Upgrade			**0**	**0.0**	**7**	**$77**	**$150**	**$60**	**$90**	**1.2**	**781**
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	7	$77	$150	$60	$90	1.2	781
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$94**	**$2,430**	**$120**	**$2,310**	**24.5**	**646**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$39	$370	$40	$330	8.5	264
ECM 9	Refrigeration Controls	No	379	0.0	0	$56	$2,060	$80	$1,980	35.5	382
Custom Measures* **			**-1,970**	**0.0**	**21**	**-$48**	**$2,500**	**$0**	**$2,500**	**-52.1**	**475**
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-1,970	0.0	21	-$48	$2,500	$0	$2,500	-52.1	475
TOTALS (COST EFFECTIVE MEASURES)			**16,973**	**3.1**	**5**	**$2,561**	**$18,860**	**$3,880**	**$14,980**	**5.8**	**17,709**
TOTALS (ALL MEASURES)			**18,858**	**4.5**	**26**	**$3,081**	**$42,420**	**$4,560**	**$37,860**	**12.3**	**22,066**

* - 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).

CARTERET ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**20,843**	**4.2**	**-4**	**$3,236**	**$26,590**	**$5,840**	**$20,750**	**6.4**	**20,478**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	16,328	3.5	-3	$2,535	$20,670	$2,290	$18,380	7.2	16,042
ECM 2	Install High/Low Lighting Controls	Yes	4,515	0.7	-1	$701	$5,920	$3,550	$2,370	3.4	4,436
Motor Upgrades			**419**	**0.9**	**0**	**$67**	**$4,800**	**$0**	**$4,800**	**72.2**	**422**
ECM 3	Premium Efficiency Motors	No	419	0.9	0	$67	$4,800	$0	$4,800	72.2	422
Variable Frequency Drive (VFD) Measures			**324**	**0.7**	**0**	**$51**	**$6,300**	**$100**	**$6,200**	**120.8**	**326**
ECM 4	Install VFDs on Boiler Feedwater Pumps	No	324	0.7	0	$51	$6,300	$100	$6,200	120.8	326
Unitary HVAC Measures			**431**	**0.3**	**0**	**$68**	**$1,000**	**$0**	**$1,000**	**14.6**	**434**
ECM 5	Install High Efficiency Air Conditioning Units	No	431	0.3	0	$68	$1,000	$0	$1,000	14.6	434
Domestic Water Heating Upgrade			**0**	**0.0**	**8**	**$122**	**$160**	**$80**	**$80**	**0.7**	**905**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	8	$122	$160	$80	$80	0.7	905
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$102**	**$2,430**	**$120**	**$2,310**	**22.7**	**646**
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$42	$370	$40	$330	7.9	264
ECM 8	Refrigeration Controls	No	379	0.0	0	$60	$2,060	$80	$1,980	32.9	382
Custom Measures			**-1,970**	**0.0**	**21**	**$20**	**$2,900**	**$0**	**$2,900**	**145.0**	**475**
ECM 9	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	1,970	0.0	21	$20	$2,900	$0	$2,900	145.0	475
TOTALS (COST EFFECTIVE MEASURES)			**21,105**	**4.2**	**3**	**$3,400**	**$27,120**	**$5,960**	**$21,160**	**6.2**	**21,648**
TOTALS (ALL MEASURES)			**20,688**	**6.2**	**24**	**$3,667**	**$44,180**	**$6,140**	**$38,040**	**10.4**	**23,687**

* - 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).

DEMAREST ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**6,682**	**1.7**	**-1**	**$953**	**$9,130**	**$1,520**	**$7,610**	**8.0**	**6,565**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	6,139	1.6	-1	$876	$8,010	$920	$7,090	8.1	6,032
ECM 2	Install High/Low Lighting Controls	Yes	543	0.1	0	$77	$1,120	$600	$520	6.7	533
Variable Frequency Drive (VFD) Measures			**3,084**	**1.4**	**0**	**$447**	**$21,800**	**$2,000**	**$19,800**	**44.3**	**3,106**
ECM 3	Install VFDs on Condensate Pumps	No	3,084	1.4	0	$447	$21,800	$2,000	$19,800	44.3	3,106
Unitary HVAC Measures			**992**	**0.8**	**0**	**$144**	**$3,000**	**$0**	**$3,000**	**20.9**	**999**
ECM 4	Install High Efficiency Air Conditioning Units	No	992	0.8	0	$144	$3,000	$0	$3,000	20.9	999
Domestic Water Heating Upgrade			**0**	**0.0**	**8**	**$87**	**$220**	**$90**	**$130**	**1.5**	**964**
ECM 5	Install Low-Flow DHW Devices	Yes	0	0.0	8	$87	$220	$90	$130	1.5	964
Food Service & Refrigeration Measures			**655**	**0.0**	**0**	**$95**	**$2,430**	**$120**	**$2,310**	**24.4**	**659**
ECM 6	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$38	$370	$40	$330	8.7	264
ECM 7	Refrigeration Controls	No	393	0.0	0	$57	$2,060	$80	$1,980	34.8	396
TOTALS (COST EFFECTIVE MEASURES)			**6,944**	**1.7**	**7**	**$1,078**	**$9,720**	**$1,650**	**$8,070**	**7.5**	**7,793**
TOTALS (ALL MEASURES)			**11,413**	**3.9**	**7**	**$1,725**	**$36,580**	**$3,730**	**$32,850**	**19.0**	**12,293**

* - 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).

FAIRVIEW ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**318**	**0.0**	**0**	**$47**	**$100**	**$20**	**$80**	**1.7**	**312**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	318	0.0	0	$47	$100	$20	$80	1.7	312
Lighting Control Measures			**13,542**	**3.3**	**-3**	**$2,005**	**$23,240**	**$6,040**	**$17,200**	**8.6**	**13,305**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	11,193	2.9	-2	$1,657	$17,900	$2,430	$15,470	9.3	10,997
ECM 3	Install High/Low Lighting Controls	Yes	2,349	0.4	0	$348	$5,340	$3,610	$1,730	5.0	2,308
Variable Frequency Drive (VFD) Measures			**10,773**	**4.6**	**0**	**$1,623**	**$31,700**	**$2,300**	**$29,400**	**18.1**	**10,848**
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	5,148	1.7	0	$776	$10,200	$400	$9,800	12.6	5,184
ECM 5	Install VFDs on Chilled Water Pumps	No	4,728	2.1	0	$712	$13,200	$1,800	$11,400	16.0	4,761
ECM 6	Install VFDs on Boiler Feedwater Pumps	No	897	0.9	0	$135	$8,300	$100	$8,200	60.7	903
Electric Chiller Replacement			**4,384**	**0.0**	**0**	**$661**	**$85,300**	**$5,400**	**$79,900**	**121.0**	**4,414**
ECM 7	Install High Efficiency Chillers	No	4,384	0.0	0	$661	$85,300	$5,400	$79,900	121.0	4,414
Domestic Water Heating Upgrade			**0**	**0.0**	**9**	**$108**	**$210**	**$100**	**$110**	**1.0**	**1,000**
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	9	$108	$210	$100	$110	1.0	1,000
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$97**	**$2,430**	**$120**	**$2,310**	**23.9**	**646**
ECM 9	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$40	$370	$40	$330	8.4	264
ECM 10	Refrigeration Controls	No	379	0.0	0	$57	$2,060	$80	$1,980	34.7	382
Custom Measures* **			**-3,283**	**0.0**	**35**	**-$51**	**$2,500**	**$0**	**$2,500**	**-49.0**	**792**
ECM 11	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-3,283	0.0	35	-$51	$2,500	$0	$2,500	-49.0	792
TOTALS (COST EFFECTIVE MEASURES)			**14,122**	**3.3**	**6**	**$2,200**	**$23,920**	**$6,200**	**$17,720**	**8.1**	**14,882**
TOTALS (ALL MEASURES)			**26,374**	**8.0**	**41**	**$4,490**	**$145,480**	**$13,980**	**$131,500**	**29.3**	**31,317**

* - 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).

*** - Negative payback explained in section 4.7

FRANKLIN ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**13,915**	**3.1**	**-3**	**$2,240**	**$25,990**	**$4,860**	**$21,130**	**9.4**	**13,672**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	12,679	2.9	-3	$2,041	$22,320	$2,550	$19,770	9.7	12,457
ECM 2	Install High/Low Lighting Controls	Yes	1,237	0.2	0	$199	$3,670	$2,310	$1,360	6.8	1,215
Variable Frequency Drive (VFD) Measures			**3,144**	**1.4**	**0**	**$515**	**$13,100**	**$400**	**$12,700**	**24.7**	**3,166**
ECM 3	Install VFDs on Constant Volume (CV) Fans	No	2,574	0.9	0	$421	$5,100	$200	$4,900	11.6	2,592
ECM 4	Install VFDs on Boiler Feedwater Pumps	No	570	0.6	0	$93	$8,000	$200	$7,800	83.6	574
Unitary HVAC Measures			**4,082**	**3.8**	**0**	**$668**	**$25,400**	**$1,200**	**$24,200**	**36.2**	**4,110**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,082	3.8	0	$668	$25,400	$1,200	$24,200	36.2	4,110
Domestic Water Heating Upgrade			**1,595**	**0.0**	**0**	**$261**	**$190**	**$80**	**$110**	**0.4**	**1,606**
ECM 6	Install Low-Flow DHW Devices	Yes	1,595	0.0	0	$261	$190	$80	$110	0.4	1,606
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$105**	**$2,430**	**$120**	**$2,310**	**22.0**	**646**
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$43	$370	$40	$330	7.7	264
ECM 8	Refrigeration Controls	No	379	0.0	0	$62	$2,060	$80	$1,980	31.9	382
TOTALS (COST EFFECTIVE MEASURES)			**15,772**	**3.1**	**-3**	**$2,544**	**$26,550**	**$4,980**	**$21,570**	**8.5**	**15,542**
TOTALS (ALL MEASURES)			**23,377**	**8.3**	**-3**	**$3,788**	**$67,110**	**$6,660**	**$60,450**	**16.0**	**23,200**

* - 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).

FOREST GLEN ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**10,207**	**2.6**	**-2**	**$1,444**	**$7,200**	**$840**	**$6,360**	**4.4**	**10,029**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	10,207	2.6	-2	$1,444	$7,200	$840	$6,360	4.4	10,029
Variable Frequency Drive (VFD) Measures			**13,370**	**5.5**	**0**	**$1,924**	**$35,100**	**$1,200**	**$33,900**	**17.6**	**13,464**
ECM 2	Install VFDs on Constant Volume (CV) Fans	No	13,370	5.5	0	$1,924	$35,100	$1,200	$33,900	17.6	13,464
Domestic Water Heating Upgrade			**0**	**0.0**	**6**	**$72**	**$140**	**$50**	**$90**	**1.2**	**709**
ECM 3	Install Low-Flow DHW Devices	Yes	0	0.0	6	$72	$140	$50	$90	1.2	709
Custom Measures* **			**-1,313**	**0.0**	**14**	**-$22**	**$2,900**	**$0**	**$2,900**	**-131.8**	**317**
ECM 4	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-1,313	0.0	14	-$22	$2,900	$0	$2,900	**-131.8**	317
TOTALS (COST EFFECTIVE MEASURES)			**10,207**	**2.6**	**4**	**$1,516**	**$7,340**	**$890**	**$6,450**	**4.3**	**10,738**
TOTALS (ALL MEASURES)			**22,264**	**8.1**	**18**	**$3,418**	**$45,340**	**$2,090**	**$43,250**	**12.7**	**24,518**

* - 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).

*** - Negative payback explained in section 4.4

OAK VIEW ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**18,634**	**3.9**	**-4**	**$2,659**	**$24,660**	**$5,840**	**$18,820**	**7.1**	**18,308**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	13,900	3.2	-3	$1,984	$18,750	$2,150	$16,600	8.4	13,657
ECM 2	Install High/Low Lighting Controls	Yes	4,733	0.7	-1	$676	$5,910	$3,690	$2,220	3.3	4,650
Variable Frequency Drive (VFD) Measures			**6,373**	**4.5**	**0**	**$926**	**$13,400**	**$2,000**	**$11,400**	**12.3**	**6,417**
ECM 3	Install Boiler Draft Fan VFDs	No	6,373	4.5	0	$926	$13,400	$2,000	$11,400	12.3	6,417
Unitary HVAC Measures			**747**	**0.8**	**0**	**$109**	**$3,200**	**$0**	**$3,200**	**29.5**	**752**
ECM 4	Install High Efficiency Air Conditioning Units	No	747	0.8	0	$109	$3,200	$0	$3,200	29.5	752
HVAC System Improvements			**0**	**0.0**	**7**	**$88**	**$300**	**$40**	**$260**	**3.0**	**820**
ECM 5	Install Pipe Insulation	Yes	0	0.0	7	$88	$300	$40	$260	3.0	820
Domestic Water Heating Upgrade			**0**	**0.0**	**19**	**$242**	**$390**	**$180**	**$210**	**0.9**	**2,255**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	19	$242	$390	$180	$210	0.9	2,255
Custom Measures* **			**-6,565**	**0.0**	**70**	**-$76**	**$2,900**	**$0**	**$2,900**	**-38.2**	**1,585**
ECM 7	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-6,565	0.0	70	-$76	$2,900	$0	$2,900	-38.2	1,585
TOTALS (COST EFFECTIVE MEASURES)			**18,634**	**3.9**	**22**	**$2,989**	**$25,350**	**$6,060**	**$19,290**	**6.5**	**21,382**
TOTALS (ALL MEASURES)			**19,188**	**9.2**	**92**	**$3,948**	**$44,850**	**$8,060**	**$36,790**	**9.3**	**30,137**

* - 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).

*** - Negative payback explained in section 4.6

WATSESSING ELEMENTARY SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**16,627**	**3.6**	**-3**	**$2,602**	**$24,640**	**$5,720**	**$18,920**	**7.3**	**16,337**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	14,192	3.2	-3	$2,221	$19,850	$2,630	$17,220	7.8	13,944
ECM 2	Install High/Low Lighting Controls	Yes	2,435	0.4	-1	$381	$4,790	$3,090	$1,700	4.5	2,393
Variable Frequency Drive (VFD) Measures			**8,033**	**4.9**	**0**	**$1,278**	**$33,700**	**$3,200**	**$30,500**	**23.9**	**8,090**
ECM 3	Install VFDs on Chilled Water Pumps	No	3,298	3.3	0	$525	$13,400	$2,000	$11,400	21.7	3,321
ECM 4	Install VFDs on Heating Water Pumps	No	3,751	0.8	0	$597	$12,000	$1,100	$10,900	18.3	3,777
ECM 5	Install VFDs on Boiler Feedwater Pumps	No	985	0.8	0	$157	$8,300	$100	$8,200	52.3	992
Electric Chiller Replacement			**4,009**	**0.4**	**0**	**$638**	**$80,600**	**$5,000**	**$75,600**	**118.5**	**4,038**
ECM 6	Install High Efficiency Chillers	No	4,009	0.4	0	$638	$80,600	$5,000	$75,600	118.5	4,038
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**60**	**$752**	**$85,400**	**$3,400**	**$82,000**	**109.0**	**7,078**
ECM 7	Install High Efficiency Steam Boilers	No	0	0.0	60	$752	$85,400	$3,400	$82,000	109.0	7,078
HVAC System Improvements			**0**	**0.0**	**4**	**$44**	**$230**	**$40**	**$190**	**4.4**	**410**
ECM 8	Install Pipe Insulation	Yes	0	0.0	4	$44	$230	$40	$190	4.4	410
Domestic Water Heating Upgrade			**0**	**0.0**	**11**	**$137**	**$240**	**$100**	**$140**	**1.0**	**1,284**
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	11	$137	$240	$100	$140	1.0	1,284
Food Service & Refrigeration Measures			**641**	**0.0**	**0**	**$102**	**$2,430**	**$120**	**$2,310**	**22.6**	**646**
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$42	$370	$40	$330	7.9	264
ECM 11	Refrigeration Controls	No	379	0.0	0	$60	$2,060	$80	$1,980	32.8	382
Custom Measures* **			**-3,283**	**0.0**	**35**	**-$87**	**$2,500**	**$0**	**$2,500**	**-28.7**	**792**
ECM 12	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-3,283	0.0	35	-$87	$2,500	$0	$2,500	-28.7	792
TOTALS (COST EFFECTIVE MEASURES)			**16,889**	**3.6**	**11**	**$2,824**	**$25,480**	**$5,900**	**$19,580**	**6.9**	**18,295**
TOTALS (ALL MEASURES)			**26,028**	**8.9**	**106**	**$5,466**	**$229,740**	**$17,580**	**$212,160**	**38.8**	**38,673**

* - 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).

*** - Negative payback explained in section 4.8

MIDDLE SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Control Measures			**51,405**	**12.4**	**-11**	**$7,065**	**$45,870**	**$11,810**	**$34,060**	**4.8**	**50,506**
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	34,698	9.8	-7	$4,769	$38,280	$4,570	$33,710	7.1	34,091
ECM 2	Install High/Low Lighting Controls	Yes	16,707	2.6	-3	$2,296	$7,590	$7,240	$350	0.2	16,414
Variable Frequency Drive (VFD) Measures			**4,854**	**2.3**	**0**	**$679**	**$6,700**	**$1,000**	**$5,700**	**8.4**	**4,888**
ECM 3	Install VFDs on Constant Volume (CV) Fans	Yes	4,854	2.3	0	$679	$6,700	$1,000	$5,700	8.4	4,888
Unitary HVAC Measures			**1,944**	**4.0**	**1**	**$287**	**$36,200**	**$1,800**	**$34,400**	**120.0**	**2,097**
ECM 4	Install High Efficiency Air Conditioning Units	No	1,944	4.0	1	$287	$36,200	$1,800	$34,400	120.0	2,097
HVAC System Improvements			**772**	**0.0**	**29**	**$468**	**$6,000**	**$30**	**$5,970**	**12.8**	**4,230**
ECM 5	Implement Demand Control Ventilation (DCV)	No	772	0.0	23	$387	$5,800	$0	$5,800	15.0	3,459
ECM 6	Install Pipe Insulation	Yes	0	0.0	7	$80	$200	$30	$170	2.1	771
Domestic Water Heating Upgrade			**0**	**0.0**	**9**	**$113**	**$750**	**$220**	**$530**	**4.7**	**1,082**
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	9	$113	$750	$220	$530	4.7	1,082
Food Service & Refrigeration Measures			**3,544**	**0.2**	**0**	**$496**	**$6,260**	**$370**	**$5,890**	**11.9**	**3,569**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,047	0.1	0	$147	$1,500	$160	$1,340	9.1	1,054
ECM 9	Refrigeration Controls	No	2,497	0.0	0	$350	$4,760	$210	$4,550	13.0	2,514
Custom Measures* **			**-12,146**	**0.0**	**131**	**-$103**	**$12,600**	**$0**	**$12,600**	**-122.3**	**3,108**
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-12,146	0.0	131	-$103	$12,600	$0	$12,600	-122.3	3,108
TOTALS (COST EFFECTIVE MEASURES)			**57,305**	**14.8**	**5**	**$8,084**	**$55,020**	**$13,220**	**$41,800**	**5.2**	**58,301**
TOTALS (ALL MEASURES)			**50,373**	**18.9**	**160**	**$9,005**	**$114,380**	**$15,230**	**$99,150**	**11.0**	**69,479**

* - 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).

*** - Negative payback explained in section 4.7

HIGH SCHOOL

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**103**	**0.0**	**0**	**$13**	**$80**	**$0**	**$80**	**6.1**	**101**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	103	0.0	0	$13	$80	$0	$80	6.1	101
Lighting Control Measures			**108,956**	**21.0**	**-23**	**$13,889**	**$91,820**	**$14,110**	**$77,710**	**5.6**	**107,050**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	103,211	20.5	-22	$13,157	$85,160	$9,990	$75,170	5.7	101,406
ECM 3	Install High/Low Lighting Controls	Yes	5,745	0.4	-1	$732	$6,660	$4,120	$2,540	3.5	5,645
Motor Upgrades			**29,922**	**6.9**	**0**	**$3,891**	**$75,100**	**$0**	**$75,100**	**19.3**	**30,131**
ECM 4	Premium Efficiency Motors	No	29,922	6.9	0	$3,891	$75,100	$0	$75,100	19.3	30,131
Variable Frequency Drive (VFD) Measures			**19,548**	**3.6**	**39**	**$3,022**	**$29,700**	**$1,700**	**$28,000**	**9.3**	**24,263**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	10,727	3.4	0	$1,395	$15,800	$1,300	$14,500	10.4	10,802
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	8,821	0.2	39	$1,627	$13,900	$400	$13,500	8.3	13,461
Unitary HVAC Measures			**150,927**	**154.2**	**0**	**$19,627**	**$1,030,300**	**$62,200**	**$968,100**	**49.3**	**151,982**
ECM 7	Install High Efficiency Air Conditioning Units	No	150,927	154.2	0	$19,627	$1,030,300	$62,200	$968,100	49.3	151,982
Electric Chiller Replacement			**126,582**	**14.6**	**0**	**$16,461**	**$493,400**	**$40,900**	**$452,500**	**27.5**	**127,467**
ECM 8	Install High Efficiency Chillers	No	126,582	14.6	0	$16,461	$493,400	$40,900	$452,500	27.5	127,467
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**624**	**$7,663**	**$729,925**	**$42,000**	**$687,925**	**89.8**	**73,076**
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	463	$5,680	$699,800	$40,500	$659,300	116.1	54,166
ECM 10	Install High Efficiency Furnaces	Yes	0	0.0	162	$1,983	$30,125	$1,500	$28,625	14.4	18,910

HIGH SCHOOL (CONT.)

#	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_2e Emissions Reduction (lbs)
HVAC System Improvements			**12,876**	**0.0**	**40**	**$2,164**	**$8,800**	**$0**	**$8,800**	**4.1**	**17,637**
ECM 11	Implement Demand Control Ventilation (DCV)	Yes	12,876	0.0	40	$2,164	$8,800	$0	$8,800	4.1	17,637
Domestic Water Heating Upgrade			**0**	**0.0**	**20**	**$249**	**$1,080**	**$440**	**$640**	**2.6**	**2,374**
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	20	$249	$1,080	$440	$640	2.6	2,374
Food Service & Refrigeration Measures			**11,653**	**0.7**	**0**	**$1,515**	**$16,510**	**$1,000**	**$15,510**	**10.2**	**11,734**
ECM 13	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	2,618	0.3	0	$340	$3,750	$400	$3,350	9.8	2,636
ECM 14	Refrigeration Controls	Yes	7,080	0.1	0	$921	$12,220	$550	$11,670	12.7	7,130
ECM 15	Vending Machine Control	Yes	1,954	0.2	0	$254	$540	$50	$490	1.9	1,968
Custom Measures			**-19,696**	**0.0**	**210**	**$16**	**$20,600**	**$0**	**$20,600**	**1287.5**	**4,755**
ECM 16	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-19,696	0.0	210	$16	$20,600	$0	$20,600	1287.5	4,755
TOTALS (COST EFFECTIVE MEASURES)			**153,136**	**25.2**	**238**	**$22,836**	**$178,115**	**$18,750**	**$159,365**	**7.0**	**182,070**
TOTALS (ALL MEASURES)			**440,871**	**200.9**	**911**	**$68,512**	**$2,497,315**	**$162,350**	**$2,334,965**	**34.1**	**550,571**

* - 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).

ADMINISTRATIVE BUILDING

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**4,408**	**0.4**	**-1**	**$680**	**$130**	**$10**	**$120**	**0.2**	**4,331**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	4,408	0.4	-1	$680	$130	$10	$120	0.2	4,331
Lighting Control Measures			**4,028**	**0.8**	**-1**	**$621**	**$4,770**	**$1,090**	**$3,680**	**5.9**	**3,958**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	1,948	0.6	0	$300	$3,090	$380	$2,710	9.0	1,914
ECM 3	Install High/Low Lighting Controls	Yes	2,081	0.2	0	$321	$1,680	$710	$970	3.0	2,044
Unitary HVAC Measures			**346**	**0.3**	**0**	**$54**	**$1,800**	**$0**	**$1,800**	**33.1**	**348**
ECM 4	Install High Efficiency Air Conditioning Units	No	346	0.3	0	$54	$1,800	$0	$1,800	33.1	348
HVAC System Improvements			**0**	**0.0**	**2**	**$33**	**$280**	**$50**	**$230**	**7.0**	**281**
ECM 5	Install Pipe Insulation	Yes	0	0.0	2	$33	$280	$50	$230	7.0	281
Domestic Water Heating Upgrade			**0**	**0.0**	**3**	**$40**	**$100**	**$30**	**$70**	**1.8**	**337**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	3	$40	$100	$30	$70	1.8	337
Custom Measures* **			**-2,251**	**0.0**	**24**	**-$23**	**$2,500**	**$0**	**$2,500**	**-108.7**	**543**
ECM 7	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-2,251	0.0	24	-$23	$2,500	$0	$2,500	-108.7	543
TOTALS			**6,532**	**1.5**	**28**	**$1,405**	**$9,580**	**$1,180**	**$8,400**	**6.0**	**9,798**

* - 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).

*** - Negative payback explained in section 4.6

FOLEY FIELD HOUSE

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**491**	**0.0**	**0**	**$99**	**$130**	**$10**	**$120**	**1.2**	**494**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	491	0.0	0	$99	$130	$10	$120	1.2	494
Unitary HVAC Measures			**86**	**0.4**	**0**	**$17**	**$12,000**	**$500**	**$11,500**	**661.5**	**86**
ECM 2	Install High Efficiency Air Conditioning Units	No	86	0.4	0	$17	$12,000	$500	$11,500	661.5	86
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**35**	**$450**	**$18,800**	**$1,000**	**$17,800**	**39.6**	**4,051**
ECM 3	Install High Efficiency Hot Water Boilers	No	0	0.0	35	$450	$18,800	$1,000	$17,800	39.6	4,051
HVAC System Improvements			**0**	**0.0**	**1**	**$15**	**$100**	**$10**	**$90**	**6.0**	**135**
ECM 4	Install Pipe Insulation	Yes	0	0.0	1	$15	$100	$10	$90	6.0	135
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$25**	**$50**	**$20**	**$30**	**1.2**	**229**
ECM 5	Install Low-Flow DHW Devices	Yes	0	0.0	2	$25	$50	$20	$30	1.2	229
Custom Measures* **			**-2,158**	**0.0**	**12**	**-$126**	**$9,400**	**$0**	**$9,400**	**-74.6**	**-768**
ECM 6	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-2,158	0.0	12	-$126	$9,400	$0	$18,800	-149.2	-768
TOTALS			**-1,582**	**0.4**	**50**	**$481**	**$40,480**	**$1,540**	**$38,940**	**81.0**	**4,227**

* - 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).

*** - Negative payback explained in section 4.6

SERVICE CENTER

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**125**	**0.0**	**0**	**$19**	**$70**	**$0**	**$70**	**3.6**	**123**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	88	0.0	0	$14	$40	$0	$40	2.9	87
ECM 2	Retrofit Fixtures with LED Lamps	Yes	37	0.0	0	$6	$30	$0	$30	5.3	36
Lighting Control Measures			**1,919**	**0.7**	**0**	**$298**	**$3,910**	**$500**	**$3,410**	**11.4**	**1,885**
ECM 3	Install Occupancy Sensor Lighting Controls	No	1,820	0.6	0	$283	$3,630	$430	$3,200	11.3	1,787
ECM 4	Install High/Low Lighting Controls	No	100	0.0	0	$15	$280	$70	$210	13.6	98
Unitary HVAC Measures			**736**	**0.5**	**0**	**$116**	**$2,000**	**$0**	**$2,000**	**17.2**	**741**
ECM 5	Install High Efficiency Air Conditioning Units	No	736	0.5	0	$116	$2,000	$0	$2,000	17.2	741
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**187**	**$2,473**	**$34,800**	**$5,000**	**$29,800**	**12.1**	**21,838**
ECM 6	Install Infrared Heaters	No	0	0.0	187	$2,473	$34,800	$5,000	$29,800	12.1	21,838
Domestic Water Heating Upgrade			**0**	**0.0**	**1**	**$16**	**$40**	**$10**	**$30**	**1.8**	**144**
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	1	$16	$40	$10	$30	1.8	144
Custom Measures* **			**-1,407**	**0.0**	**15**	**-$24**	**$2,500**	**$0**	**$2,500**	**-104.2**	**339**
ECM 8	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-1,407	0.0	15	-$24	$2,500	$0	$2,500	-104.2	339
TOTALS (COST EFFECTIVE MEASURES)			**125**	**0.0**	**1**	**$36**	**$110**	**$10**	**$100**	**2.8**	**267**
TOTALS (ALL MEASURES)			**1,373**	**1.2**	**202**	**$2,899**	**$43,320**	**$5,510**	**$37,810**	**13.0**	**25,070**

* - 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).

*** - Negative payback explained in section 4.6

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 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

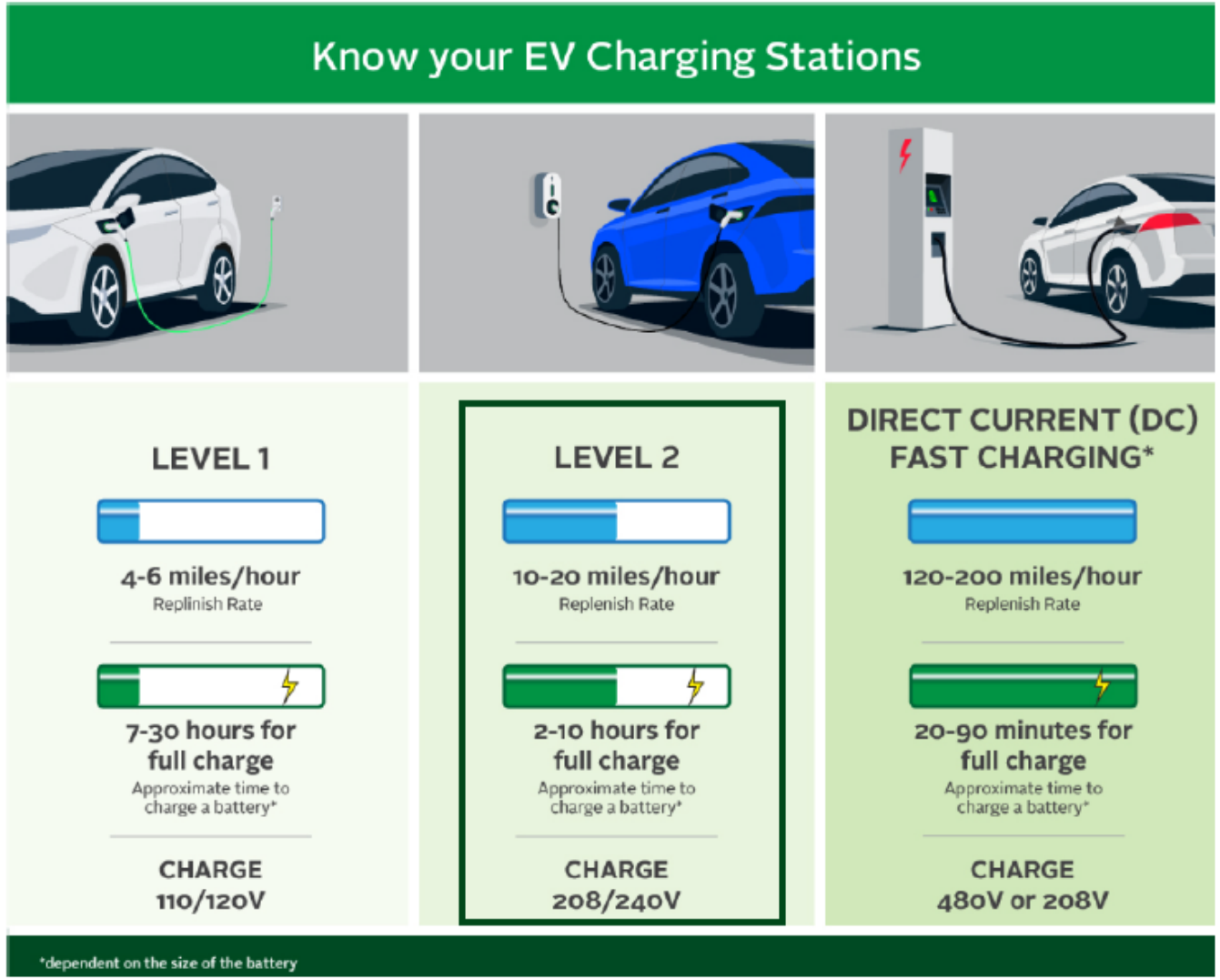
BPU New Jersey's cleanenergy program™

Measures for Future Consideration

- Upgrade to Heat Pump System
- Building Insulation
- Replace Water Cooled Condenser
- Installation of a Building Automation System (BAS)
- Heating System Conversion from Steam to Hot Water
- VRF Systems
- Implement Data Center Energy Efficiency Measures
- Variable Frequency Drives to Control Fixed Head Pump Motors

EV Charging Station Potential

NJCleanEnergy.com/EV



	Bloomfield BOE
Potential:	*Refer to Reports*

Solar Energy Generation Potential

NJCleanEnergy.com/renewable-energy

	Middle School	High School
Potential:	**HIGH**	**HIGH**
System Potential: (kW)	187	795
Electric Generation: (kWh per year)	222,786	947,140
Displaced Cost: (per year)	$31,190	$123,170

New Jersey's cleanenergy program™

FINANCING MECHANISM: ESIP

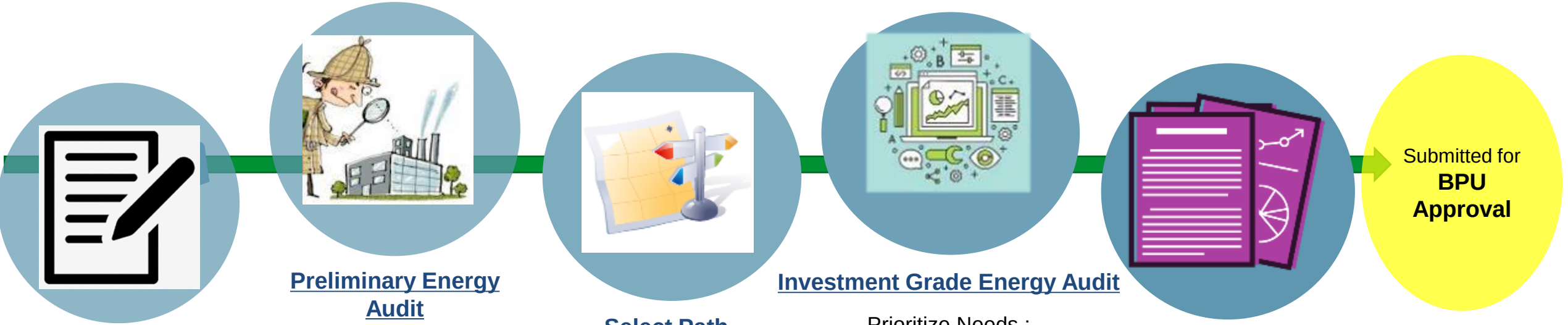
NJCleanEnergy.com/ESIP

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



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

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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