

New Jersey's Clean Energy Program

LGEA Presentation
Gloucester City Public Schools

January 6, 2021



INTRODUCTIONS

- *Gloucester City Public Schools*
 - Dr. Dennis Vespe – Superintendent
 - Teri Weeks – Business Administrator
 - John Kenney – Facilities Director
 - Chris Kusmanick – Building Supervisor
 - Kevin Biehl – Building Supervisor
 - Robert Collins – Building Supervisor
- *NJ Clean Energy Program*
 - Brian DeLuca– TRC Director
 - Sarah Landis – TRC Auditor
 - Sarah Walters – TRC Account Manager
 - Greg Reinert – TRC Outreach 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)
- Overview of NJCEP equipment incentives
- Questions regarding the draft audit report
- Next steps for Gloucester City Public Schools



LGEA PROCESS

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

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Energy Management Systems
- Cooking & Refrigeration Equipment

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Solar Consumption and Costs

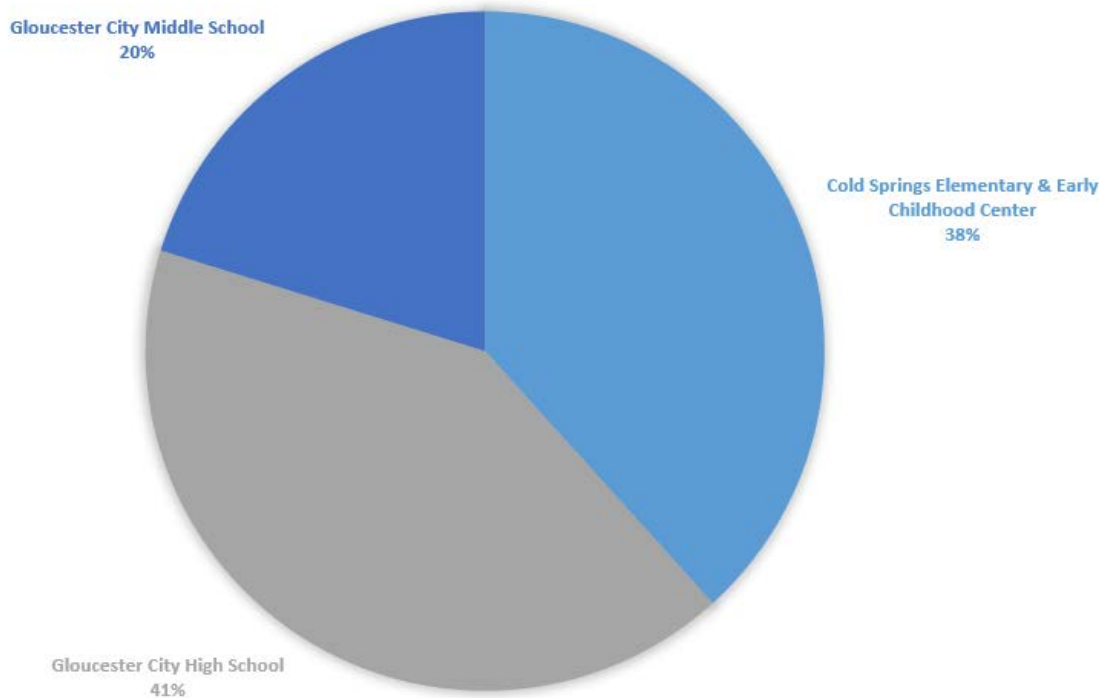
Sites Visited/Analyzed

- Gloucester City High School
- Gloucester City Middle School
- Cold Springs Elementary & Early Childhood Center

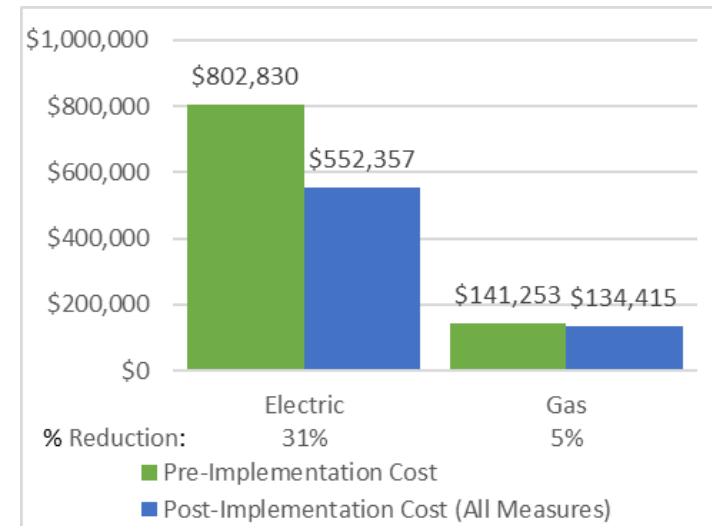


UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING



LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

26

ENERGY STAR® Score¹

Gloucester City High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 172,000
Built: 1960

For Year Ending: December 31, 2019
Date Generated: November 04, 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 Gloucester City High School 1300 Market Street Gloucester, New Jersey 08030 | Property Owner Gloucester City Public Schools 1300 Market Street Gloucester City, NJ 08030 856-456-7000 | Primary Contact Teri Weeks 1300 Market Street Gloucester City, NJ 08030 856-456-7000 x 2160 tweeks@gcsd.k12.nj.us |
| Property ID: 12484544 | | |
| Energy Consumption and Energy Use Intensity (EUI) | | |
| Site EUI 93.8 kBtu/ft ² | Annual Energy by Fuel Electric - Solar (kBtu) 333,383 (2%) Natural Gas (kBtu) 7,283,742 (45%) Electric - Grid (kBtu) 8,508,987 (53%) | National Median Comparison National Median Site EUI (kBtu/ft ²) 73.9 National Median Source EUI (kBtu/ft ²) 145.8 % Diff from National Median Source EUI 27% |
| Source EUI 184.9 kBtu/ft ² | Annual Emissions Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 1,233 | |

Site EUI
93.8 kBtu/ft²

Source EUI
184.9 kBtu/ft²

National Median Comparison

| | |
|--|-------|
| National Median Site EUI (kBtu/ft ²) | 73.9 |
| National Median Source EUI (kBtu/ft ²) | 145.8 |
| % Diff from National Median Source EUI | 27% |

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

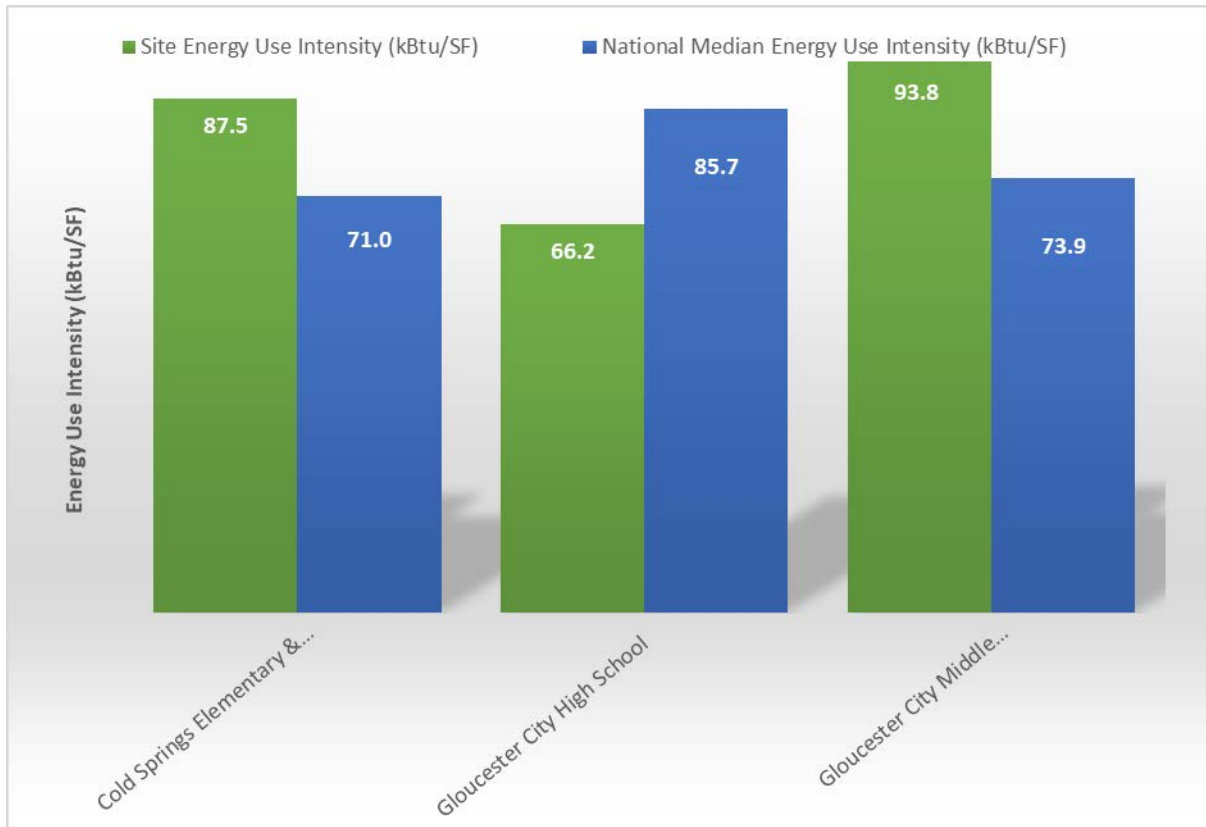
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Professional Engineer or Registered Architect Stamp (if applicable)

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.

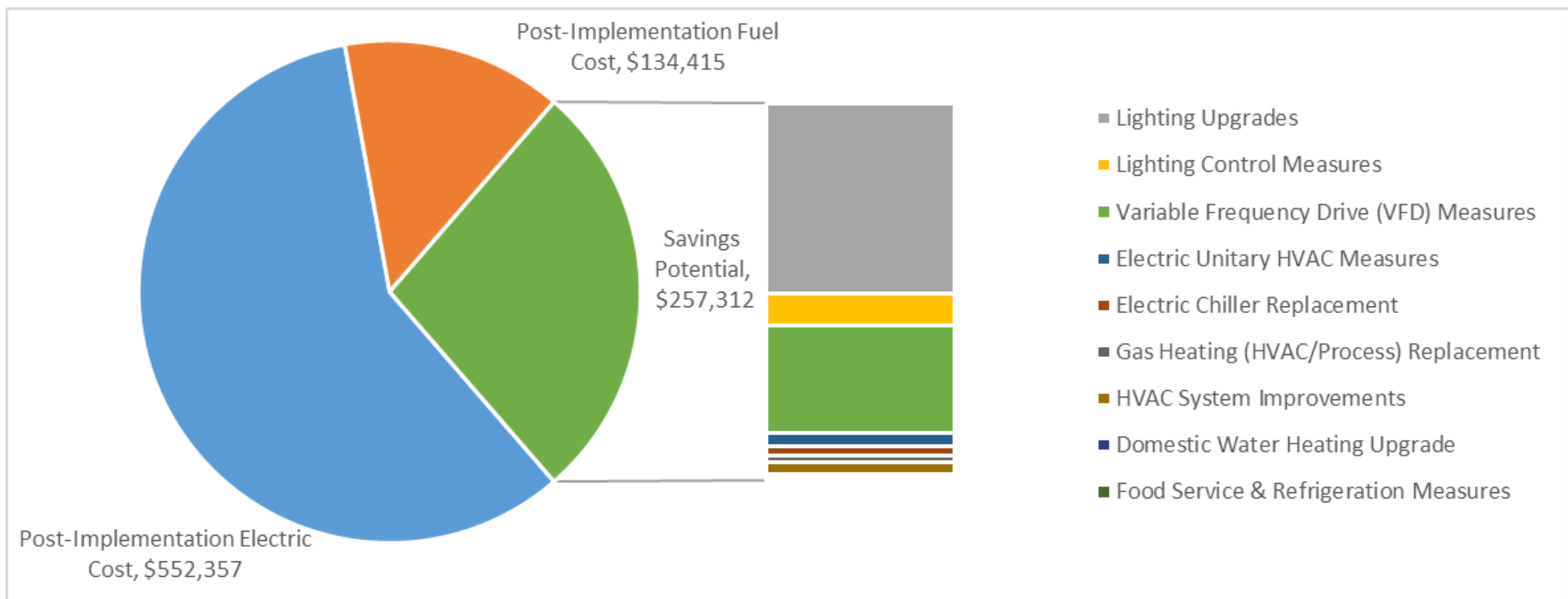
BENCHMARKING



| Site Name | Energy Star Score |
|-------------------------------|-------------------|
| Cold Springs EECC | 29 |
| Gloucester City Middle School | 74 |
| Gloucester City High School | 26 |

ALL OPPORTUNITIES

Savings Potential



ALL 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 ₂ e Emissions Reduction (lbs) |
|--|--|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Lighting Upgrades | | 1,024,382 | 196.3 | -197.7 | \$130,361 | \$375,002 | \$141,763 | \$233,239 | 1.8 | 1,008,398 |
| ECM 1 | Install LED Fixtures | 206,452 | 22.3 | -27.8 | \$26,266 | \$125,122 | \$20,577 | \$104,545 | 4.0 | 204,645 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | 2,382 | 0.4 | -0.5 | \$300 | \$912 | \$190 | \$722 | 2.4 | 2,340 |
| ECM 3 | Retrofit Fixtures with LED Lamps | 815,548 | 173.7 | -169.4 | \$103,795 | \$248,968 | \$120,996 | \$127,972 | 1.2 | 801,413 |
| Lighting Control Measures | | 167,940 | 28.2 | -35.0 | \$21,259 | \$108,217 | \$43,905 | \$64,312 | 3.0 | 165,022 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | 153,019 | 25.4 | -32.0 | \$19,348 | \$86,642 | \$22,800 | \$63,842 | 3.3 | 150,343 |
| ECM 5 | Install Daylight Dimming/Photocell Controls | 762 | 0.0 | 0.0 | \$100 | \$200 | \$0 | \$200 | 2.0 | 767 |
| ECM 6 | Install High/Low Lighting Controls | 14,159 | 2.8 | -3.0 | \$1,812 | \$21,375 | \$21,105 | \$270 | 0.1 | 13,911 |
| Variable Frequency Drive (VFD) Measures | | 571,382 | 125.8 | 30.6 | \$73,742 | \$660,337 | \$78,800 | \$581,537 | 7.9 | 578,964 |
| ECM 7 | Install VFDs on Constant Volume (CV) Fans | 335,053 | 77.8 | 0.0 | \$43,120 | \$178,933 | \$47,500 | \$131,433 | 3.0 | 337,395 |
| ECM 8 | Install VFDs on Chilled Water Pumps | 108,789 | 33.8 | 0.0 | \$13,953 | \$251,205 | \$6,400 | \$244,805 | 17.5 | 109,550 |
| ECM 9 | Install VFDs on Heating Water Pumps | 80,573 | 8.7 | 0.0 | \$10,362 | \$192,481 | \$14,000 | \$178,481 | 17.2 | 81,136 |
| ECM 10 | Install VFDs on Cooling Tower Fans | 16,248 | -0.9 | 0.0 | \$2,106 | \$17,441 | \$6,000 | \$11,441 | 5.4 | 16,361 |
| ECM 11 | Install Boiler Draft Fan VFDs | 22,753 | 6.0 | 0.0 | \$2,905 | \$10,546 | \$4,400 | \$6,146 | 2.1 | 22,912 |
| ECM 12 | Install VFDs on Kitchen Hood Fan Motors | 1,891 | 0.0 | 30.6 | \$503 | \$3,261 | \$200 | \$3,061 | 6.1 | 5,491 |
| ECM 13 | Install VFDs on Water Supply Pump | 6,076 | 0.4 | 0.0 | \$793 | \$6,471 | \$300 | \$6,171 | 7.8 | 6,119 |
| Electric Unitary HVAC Measures | | 64,543 | 54.5 | 72.7 | \$8,846 | \$375,432 | \$56,490 | \$318,942 | 36.1 | 73,505 |
| ECM 14 | Install High Efficiency Air Conditioning Units | 64,543 | 54.5 | 72.7 | \$8,846 | \$375,432 | \$56,490 | \$318,942 | 36.1 | 73,505 |
| Electric Chiller Replacement | | 45,925 | 32.4 | 0.0 | \$5,953 | \$363,062 | \$19,650 | \$343,412 | 57.7 | 46,246 |
| ECM 15 | Install High Efficiency Chillers | 45,925 | 32.4 | 0.0 | \$5,953 | \$363,062 | \$19,650 | \$343,412 | 57.7 | 46,246 |

ALL OPPORTUNITIES

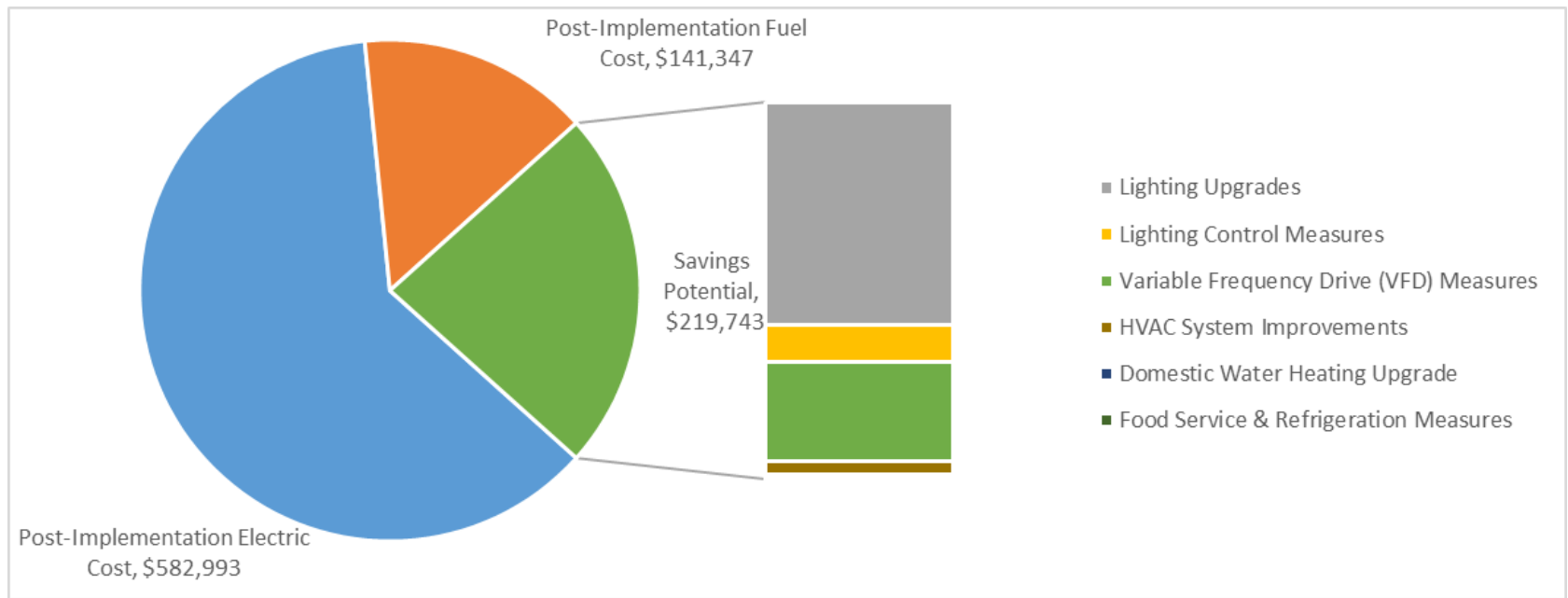
| # | Energy Conservation Measure | Annual Electric Savings (kWh) | Peak Demand Savings (kW) | Annual Fuel Savings (MMBtu) | Annual Energy Cost Savings (\$) | Estimated M&L Cost (\$) | Estimated Incentive (\$)* | Estimated Net M&L Cost (\$) | Simple Payback Period (yrs)** | CO ₂ e Emissions Reduction (lbs) |
|--|--|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Gas Heating (HVAC/Process) Replacement | | 0 | 0.0 | 671.7 | \$5,399 | \$101,250 | \$22,578 | \$78,672 | 14.6 | 78,647 |
| ECM 16 | Install High Efficiency Hot Water Boilers | 0 | 0.0 | 650.8 | \$5,225 | \$93,663 | \$21,578 | \$72,085 | 13.8 | 76,197 |
| ECM 17 | Install High Efficiency Furnaces | 0 | 0.0 | 20.9 | \$174 | \$7,587 | \$1,000 | \$6,587 | 37.9 | 2,450 |
| HVAC System Improvements | | 57,451 | 0.5 | 81.9 | \$8,014 | \$44,882 | \$76 | \$44,806 | 5.6 | 67,440 |
| ECM 18 | Implement Demand Control Ventilation (DCV) | 56,630 | 0.0 | 49.5 | \$7,638 | \$40,783 | \$0 | \$40,783 | 5.3 | 62,824 |
| ECM 19 | Install Pipe Insulation | 0 | 0.0 | 11.0 | \$90 | \$128 | \$76 | \$52 | 0.6 | 1,286 |
| ECM 20 | Install Duct Insulation | 821 | 0.5 | 21.4 | \$286 | \$3,972 | \$0 | \$3,972 | 13.9 | 3,330 |
| Domestic Water Heating Upgrade | | 0 | 0.0 | 210.0 | \$1,722 | \$27,848 | \$4,598 | \$23,249 | 13.5 | 24,591 |
| ECM 21 | Install High Efficiency Gas-Fired Water Heater | 0 | 0.0 | 66.5 | \$552 | \$26,048 | \$2,799 | \$23,249 | 42.1 | 7,791 |
| ECM 22 | Install Low-Flow DHW Devices | 0 | 0.0 | 143.5 | \$1,170 | \$1,800 | \$1,800 | \$0 | 0.0 | 16,800 |
| Food Service & Refrigeration Measures | | 15,639 | 1.3 | 0.0 | \$2,016 | \$18,538 | \$2,690 | \$15,848 | 7.9 | 15,748 |
| ECM 23 | Refrigerator/Freezer Case Electrically Commutated Motors | 2,840 | 0.4 | 0.0 | \$364 | \$3,943 | \$1,040 | \$2,903 | 8.0 | 2,859 |
| ECM 24 | Refrigeration Controls | 6,191 | 0.1 | 0.0 | \$797 | \$12,755 | \$1,250 | \$11,505 | 14.4 | 6,234 |
| ECM 25 | Vending Machine Control | 6,609 | 0.8 | 0.0 | \$855 | \$1,840 | \$400 | \$1,440 | 1.7 | 6,655 |
| TOTALS | | 1,947,262 | 439.0 | 834.3 | \$257,312 | \$2,074,569 | \$370,550 | \$1,704,019 | 6.6 | 2,058,561 |

* - All incentives presented in this table are based on NJ Smart Start Building 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).

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 ₂ e Emissions Reduction (lbs) |
|--|--|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Lighting Upgrades | | 1,024,382 | 196.3 | -197.7 | \$130,361 | \$375,002 | \$141,763 | \$233,239 | 1.8 | 1,008,398 |
| ECM 1 | Install LED Fixtures | 206,452 | 22.3 | -27.8 | \$26,266 | \$125,122 | \$20,577 | \$104,545 | 4.0 | 204,645 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | 2,382 | 0.4 | -0.5 | \$300 | \$912 | \$190 | \$722 | 2.4 | 2,340 |
| ECM 3 | Retrofit Fixtures with LED Lamps | 815,548 | 173.7 | -169.4 | \$103,795 | \$248,968 | \$120,996 | \$127,972 | 1.2 | 801,413 |
| Lighting Control Measures | | 167,940 | 28.2 | -35.0 | \$21,259 | \$108,217 | \$43,905 | \$64,312 | 3.0 | 165,022 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | 153,019 | 25.4 | -32.0 | \$19,348 | \$86,642 | \$22,800 | \$63,842 | 3.3 | 150,343 |
| ECM 5 | Install Daylight Dimming/PhotoCell Controls | 762 | 0.0 | 0.0 | \$100 | \$200 | \$0 | \$200 | 2.0 | 767 |
| ECM 6 | Install High/Low Lighting Controls | 14,159 | 2.8 | -3.0 | \$1,812 | \$21,375 | \$21,105 | \$270 | 0.1 | 13,911 |
| Variable Frequency Drive (VFD) Measures | | 450,035 | 98.6 | 30.6 | \$58,244 | \$263,659 | \$72,800 | \$190,859 | 3.3 | 456,769 |
| ECM 7 | Install VFDs on Constant Volume (CV) Fans | 335,053 | 77.8 | 0.0 | \$43,120 | \$178,933 | \$47,500 | \$131,433 | 3.0 | 337,395 |
| ECM 8 | Install VFDs on Chilled Water Pumps | 29,620 | 10.4 | 0.0 | \$3,840 | \$21,690 | \$5,600 | \$16,090 | 4.2 | 29,827 |
| ECM 9 | Install VFDs on Heating Water Pumps | 38,395 | 4.9 | 0.0 | \$4,977 | \$25,317 | \$8,800 | \$16,517 | 3.3 | 38,663 |
| ECM 10 | Install VFDs on Cooling Tower Fans | 16,248 | -0.9 | 0.0 | \$2,106 | \$17,441 | \$6,000 | \$11,441 | 5.4 | 16,361 |
| ECM 11 | Install Boiler Draft Fan VFDs | 22,753 | 6.0 | 0.0 | \$2,905 | \$10,546 | \$4,400 | \$6,146 | 2.1 | 22,912 |
| ECM 12 | Install VFDs on Kitchen Hood Fan Motors | 1,891 | 0.0 | 30.6 | \$503 | \$3,261 | \$200 | \$3,061 | 6.1 | 5,491 |
| ECM 13 | Install VFDs on Water Supply Pump | 6,076 | 0.4 | 0.0 | \$793 | \$6,471 | \$300 | \$6,171 | 7.8 | 6,119 |
| HVAC System Improvements | | 56,369 | 0.0 | 47.1 | \$7,586 | \$35,473 | \$76 | \$35,397 | 4.7 | 62,276 |
| ECM 18 | Implement Demand Control Ventilation (DCV) | 56,369 | 0.0 | 36.1 | \$7,496 | \$35,345 | \$0 | \$35,345 | 4.7 | 60,990 |
| ECM 19 | Install Pipe Insulation | 0 | 0.0 | 11.0 | \$90 | \$128 | \$76 | \$52 | 0.6 | 1,286 |
| Domestic Water Heating Upgrade | | 0 | 0.0 | 143.5 | \$1,170 | \$1,800 | \$1,800 | \$0 | 0.0 | 16,800 |
| ECM 22 | Install Low-Flow DHW Devices | 0 | 0.0 | 143.5 | \$1,170 | \$1,800 | \$1,800 | \$0 | 0.0 | 16,800 |
| Food Service & Refrigeration Measures | | 8,706 | 1.0 | 0.0 | \$1,123 | \$4,266 | \$1,040 | \$3,226 | 2.9 | 8,766 |
| ECM 23 | Refrigerator/Freezer Case Electrically Commutated Motors | 2,097 | 0.3 | 0.0 | \$268 | \$2,426 | \$640 | \$1,786 | 6.7 | 2,112 |
| ECM 25 | Vending Machine Control | 6,609 | 0.8 | 0.0 | \$855 | \$1,840 | \$400 | \$1,440 | 1.7 | 6,655 |
| TOTALS | | 1,707,432 | 324.1 | -11.4 | \$219,743 | \$788,418 | \$261,384 | \$527,034 | 2.4 | 1,718,031 |

* - All incentives presented in this table are based on NJ Smart Start Building 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).

GLOUCESTER CITY 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 ₂ e Emissions Reduction (lbs) |
|--|--|-----------------|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Lighting Upgrades | | | 499,683 | 70.8 | -93 | \$63,021 | \$182,422 | \$48,632 | \$133,790 | 2.1 | 492,289 |
| ECM 1 | Install LED Fixtures | Yes | 136,857 | 13.1 | -18 | \$17,323 | \$102,177 | \$15,580 | \$86,597 | 5.0 | 135,712 |
| ECM 2 | Retrofit Fluorescent Fixtures with LED Lamps and Drivers | Yes | 2,382 | 0.4 | 0 | \$300 | \$912 | \$190 | \$722 | 2.4 | 2,340 |
| ECM 3 | Retrofit Fixtures with LED Lamps | Yes | 360,445 | 57.2 | -75 | \$45,398 | \$79,333 | \$32,862 | \$46,471 | 1.0 | 354,237 |
| Lighting Control Measures | | | 114,567 | 17.7 | -24 | \$14,428 | \$53,662 | \$14,490 | \$39,172 | 2.7 | 112,563 |
| ECM 4 | Install Occupancy Sensor Lighting Controls | Yes | 114,567 | 17.7 | -24 | \$14,428 | \$53,662 | \$14,490 | \$39,172 | 2.7 | 112,563 |
| Variable Frequency Drive (VFD) Measures | | | 301,265 | 61.2 | 0 | \$38,462 | \$492,791 | \$32,100 | \$460,691 | 12.0 | 303,371 |
| ECM 5 | Install VFDs on Constant Volume (CV) Fans | Yes | 159,277 | 29.2 | 0 | \$20,334 | \$93,335 | \$22,500 | \$70,835 | 3.5 | 160,390 |
| ECM 6 | Install VFDs on Chilled Water Pumps | No | 77,058 | 22.2 | 0 | \$9,838 | \$221,746 | \$0 | \$221,746 | 22.5 | 77,596 |
| ECM 7 | Install VFDs on Heating Water Pumps | No | 42,178 | 3.8 | 0 | \$5,385 | \$167,164 | \$5,200 | \$161,964 | 30.1 | 42,473 |
| ECM 8 | Install Boiler Draft Fan VFDs | Yes | 22,753 | 6.0 | 0 | \$2,905 | \$10,546 | \$4,400 | \$6,146 | 2.1 | 22,912 |
| Unitary HVAC Measures | | | 63,065 | 52.6 | 73 | \$8,655 | \$365,566 | \$54,910 | \$310,657 | 35.9 | 72,016 |
| ECM 9 | Install High Efficiency Air Conditioning Units | No | 63,065 | 52.6 | 73 | \$8,655 | \$365,566 | \$54,910 | \$310,657 | 35.9 | 72,016 |
| Gas Heating (HVAC/Process) Replacement | | | 0 | 0.0 | 21 | \$174 | \$7,587 | \$1,000 | \$6,587 | 37.9 | 2,450 |
| ECM 10 | Install High Efficiency Furnaces | No | 0 | 0.0 | 21 | \$174 | \$7,587 | \$1,000 | \$6,587 | 37.9 | 2,450 |
| HVAC System Improvements | | | 56,369 | 0.0 | 44 | \$7,561 | \$35,437 | \$56 | \$35,381 | 4.7 | 61,900 |
| ECM 11 | Implement Demand Control Ventilation (DCV) | Yes | 56,369 | 0.0 | 36 | \$7,496 | \$35,345 | \$0 | \$35,345 | 4.7 | 60,990 |
| ECM 12 | Install Pipe Insulation | Yes | 0 | 0.0 | 8 | \$65 | \$92 | \$56 | \$36 | 0.6 | 910 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 123 | \$1,025 | \$26,493 | \$3,243 | \$23,249 | 22.7 | 14,457 |
| ECM 13 | Install High Efficiency Gas-Fired Water Heater | No | 0 | 0.0 | 67 | \$552 | \$26,048 | \$2,799 | \$23,249 | 42.1 | 7,791 |
| ECM 14 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 57 | \$473 | \$445 | \$445 | \$0 | 0.0 | 6,666 |
| Food Service & Refrigeration Measures | | | 6,612 | 0.5 | 0 | \$844 | \$7,908 | \$1,190 | \$6,718 | 8.0 | 6,659 |
| ECM 15 | Refrigerator/Freezer Case Electrically Commutated Motors | Yes | 2,097 | 0.3 | 0 | \$268 | \$2,426 | \$640 | \$1,786 | 6.7 | 2,112 |
| ECM 16 | Refrigeration Controls | No | 2,964 | 0.1 | 0 | \$378 | \$5,022 | \$450 | \$4,572 | 12.1 | 2,985 |
| ECM 17 | Vending Machine Control | Yes | 1,551 | 0.2 | 0 | \$198 | \$460 | \$100 | \$360 | 1.8 | 1,562 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 856,298 | 124.1 | -16 | \$109,187 | \$378,733 | \$91,263 | \$287,471 | 2.6 | 860,395 |
| TOTALS (ALL MEASURES) | | | 1,041,562 | 202.7 | 144 | \$134,168 | \$1,171,866 | \$155,621 | \$1,016,246 | 7.6 | 1,065,705 |

* - 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).

GLOUCESTER CITY 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 ₂ e Emissions Reduction (lbs) |
|--|--|-----------------|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Lighting Upgrades | | | 187,880 | 53.8 | -39 | \$24,205 | \$77,836 | \$42,246 | \$35,590 | 1.5 | 184,615 |
| ECM 1 | Retrofit Fixtures with LED Lamps | Yes | 187,880 | 53.8 | -39 | \$24,205 | \$77,836 | \$42,246 | \$35,590 | 1.5 | 184,615 |
| Lighting Control Measures | | | 1,639 | 0.1 | 0 | \$212 | \$1,010 | \$210 | \$800 | 3.8 | 1,629 |
| ECM 2 | Install Occupancy Sensor Lighting Controls | Yes | 877 | 0.1 | 0 | \$113 | \$810 | \$210 | \$600 | 5.3 | 862 |
| ECM 3 | Install Photocell Controls | Yes | 762 | 0.0 | 0 | \$100 | \$200 | \$0 | \$200 | 2.0 | 767 |
| Variable Frequency Drive (VFD) Measures | | | 10,079 | 1.6 | 31 | \$1,572 | \$17,500 | \$1,300 | \$16,200 | 10.3 | 13,737 |
| ECM 4 | Install VFDs on Chilled Water Pumps | No | 2,112 | 1.2 | 0 | \$276 | \$7,768 | \$800 | \$6,968 | 25.3 | 2,127 |
| ECM 5 | Install VFDs on Kitchen Hood Fan Motors | Yes | 1,891 | 0.0 | 31 | \$503 | \$3,261 | \$200 | \$3,061 | 6.1 | 5,491 |
| ECM 6 | Install VFDs on Water Supply Pump | Yes | 6,076 | 0.4 | 0 | \$793 | \$6,471 | \$300 | \$6,171 | 7.8 | 6,119 |
| HVAC System Improvements | | | 821 | 0.5 | 21 | \$286 | \$3,972 | \$0 | \$3,972 | 13.9 | 3,330 |
| ECM 7 | Install Duct Insulation | No | 821 | 0.5 | 21 | \$286 | \$3,972 | \$0 | \$3,972 | 13.9 | 3,330 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 8 | \$67 | \$151 | \$151 | \$0 | 0.0 | 938 |
| ECM 8 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 8 | \$67 | \$151 | \$151 | \$0 | 0.0 | 938 |
| Food Service & Refrigeration Measures | | | 1,954 | 0.2 | 0 | \$255 | \$460 | \$100 | \$360 | 1.4 | 1,968 |
| ECM 9 | Vending Machine Control | Yes | 1,954 | 0.2 | 0 | \$255 | \$460 | \$100 | \$360 | 1.4 | 1,968 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 199,441 | 54.6 | -1 | \$26,036 | \$89,189 | \$43,207 | \$45,982 | 1.8 | 200,761 |
| TOTALS (ALL MEASURES) | | | 202,374 | 56.3 | 21 | \$26,598 | \$100,928 | \$44,007 | \$56,922 | 2.1 | 206,217 |

* - 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).

COLD SPRINGS ELEMENTARY & EARLY CHILDHOOD 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 ₂ e Emissions Reduction (lbs) |
|--|--|-----------------|-------------------------------|--------------------------|-----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-------------------------------|---|
| Lighting Upgrades | | | 336,818 | 71.8 | -66 | \$43,134 | \$114,745 | \$50,885 | \$63,859 | 1.5 | 331,494 |
| ECM 1 | Install LED Fixtures | Yes | 69,595 | 9.1 | -10 | \$8,943 | \$22,945 | \$4,997 | \$17,948 | 2.0 | 68,933 |
| ECM 2 | Retrofit Fixtures with LED Lamps | Yes | 267,222 | 62.6 | -56 | \$34,192 | \$91,799 | \$45,888 | \$45,911 | 1.3 | 262,561 |
| Lighting Control Measures | | | 51,734 | 10.4 | -11 | \$6,619 | \$53,545 | \$29,205 | \$24,340 | 3.7 | 50,829 |
| ECM 3 | Install Occupancy Sensor Lighting Controls | Yes | 37,575 | 7.6 | -8 | \$4,808 | \$32,170 | \$8,100 | \$24,070 | 5.0 | 36,918 |
| ECM 4 | Install High/Low Lighting Controls | Yes | 14,159 | 2.8 | -3 | \$1,812 | \$21,375 | \$21,105 | \$270 | 0.1 | 13,911 |
| Variable Frequency Drive (VFD) Measures | | | 260,038 | 63.0 | 0 | \$33,708 | \$150,046 | \$45,400 | \$104,646 | 3.1 | 261,857 |
| ECM 5 | Install VFDs on Constant Volume (CV) Fans | Yes | 175,776 | 48.6 | 0 | \$22,785 | \$85,597 | \$25,000 | \$60,597 | 2.7 | 177,005 |
| ECM 6 | Install VFDs on Chilled Water Pumps | Yes | 29,620 | 10.4 | 0 | \$3,840 | \$21,690 | \$5,600 | \$16,090 | 4.2 | 29,827 |
| ECM 7 | Install VFDs on Heating Water Pumps | Yes | 38,395 | 4.9 | 0 | \$4,977 | \$25,317 | \$8,800 | \$16,517 | 3.3 | 38,663 |
| ECM 8 | Install VFDs on Cooling Tower Fans | Yes | 16,248 | -0.9 | 0 | \$2,106 | \$17,441 | \$6,000 | \$11,441 | 5.4 | 16,361 |
| Unitary HVAC Measures | | | 1,478 | 1.9 | 0 | \$192 | \$9,866 | \$1,580 | \$8,286 | 43.2 | 1,489 |
| ECM 9 | Install High Efficiency Air Conditioning Units | No | 1,478 | 1.9 | 0 | \$192 | \$9,866 | \$1,580 | \$8,286 | 43.2 | 1,489 |
| Electric Chiller Replacement | | | 45,925 | 32.4 | 0 | \$5,953 | \$363,062 | \$19,650 | \$343,412 | 57.7 | 46,246 |
| ECM 10 | Install High Efficiency Chillers | No | 45,925 | 32.4 | 0 | \$5,953 | \$363,062 | \$19,650 | \$343,412 | 57.7 | 46,246 |
| Gas Heating (HVAC/Process) Replacement | | | 0 | 0.0 | 651 | \$5,225 | \$93,663 | \$21,578 | \$72,085 | 13.8 | 76,197 |
| ECM 11 | Install High Efficiency Hot Water Boilers | No | 0 | 0.0 | 651 | \$5,225 | \$93,663 | \$21,578 | \$72,085 | 13.8 | 76,197 |
| HVAC System Improvements | | | 261 | 0.0 | 17 | \$167 | \$5,474 | \$20 | \$5,454 | 32.6 | 2,211 |
| ECM 12 | Implement Demand Control Ventilation (DCV) | No | 261 | 0.0 | 13 | \$142 | \$5,438 | \$0 | \$5,438 | 38.4 | 1,835 |
| ECM 13 | Install Pipe Insulation | Yes | 0 | 0.0 | 3 | \$26 | \$36 | \$20 | \$16 | 0.6 | 376 |
| Domestic Water Heating Upgrade | | | 0 | 0.0 | 79 | \$631 | \$1,205 | \$1,205 | \$0 | 0.0 | 9,196 |
| ECM 14 | Install Low-Flow DHW Devices | Yes | 0 | 0.0 | 79 | \$631 | \$1,205 | \$1,205 | \$0 | 0.0 | 9,196 |
| Food Service & Refrigeration Measures | | | 7,072 | 0.5 | 0 | \$917 | \$10,170 | \$1,400 | \$8,770 | 9.6 | 7,121 |
| ECM 15 | Refrigerator/Freezer Case Electrically Commutated Motors | No | 742 | 0.1 | 0 | \$96 | \$1,517 | \$400 | \$1,117 | 11.6 | 748 |
| ECM 16 | Refrigeration Controls | No | 3,227 | 0.1 | 0 | \$418 | \$7,733 | \$800 | \$6,933 | 16.6 | 3,249 |
| ECM 17 | Vending Machine Control | Yes | 3,103 | 0.4 | 0 | \$402 | \$920 | \$200 | \$720 | 1.8 | 3,124 |
| TOTALS (COST EFFECTIVE MEASURES) | | | 651,693 | 145.5 | 5 | \$84,521 | \$320,496 | \$126,915 | \$193,581 | 2.3 | 656,876 |
| TOTALS (ALL MEASURES) | | | 703,326 | 180.0 | 670 | \$96,546 | \$801,774 | \$170,923 | \$630,852 | 6.5 | 786,639 |

* - 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 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**
- **Replace Smooth V-Belts with Notched or Synchronous Belts**

SOLAR ENERGY GENERATION POTENTIAL

| | Gloucester City HS | Gloucester City MS | Cold Springs |
|--|--------------------|--------------------|--------------|
| <i>Potential:</i> | HIGH | HIGH | HIGH |
| <i>System Potential: (kW)</i> | 339 | 118 | 310 |
| <i>Electric Generation: (kWh per year)</i> | 403,874 | 140,582 | 369,325 |
| <i>Displaced Cost: (per year)</i> | \$51,560 | \$18,360 | \$47,870 |

Transition Incentive (TI) Program:

<https://www.njcleanenergy.com/renewable-energy/programs/transition-incentive-program>

Community Solar Energy Pilot Program:

<http://www.NJCleanEnergy.com/CommunitySolar>

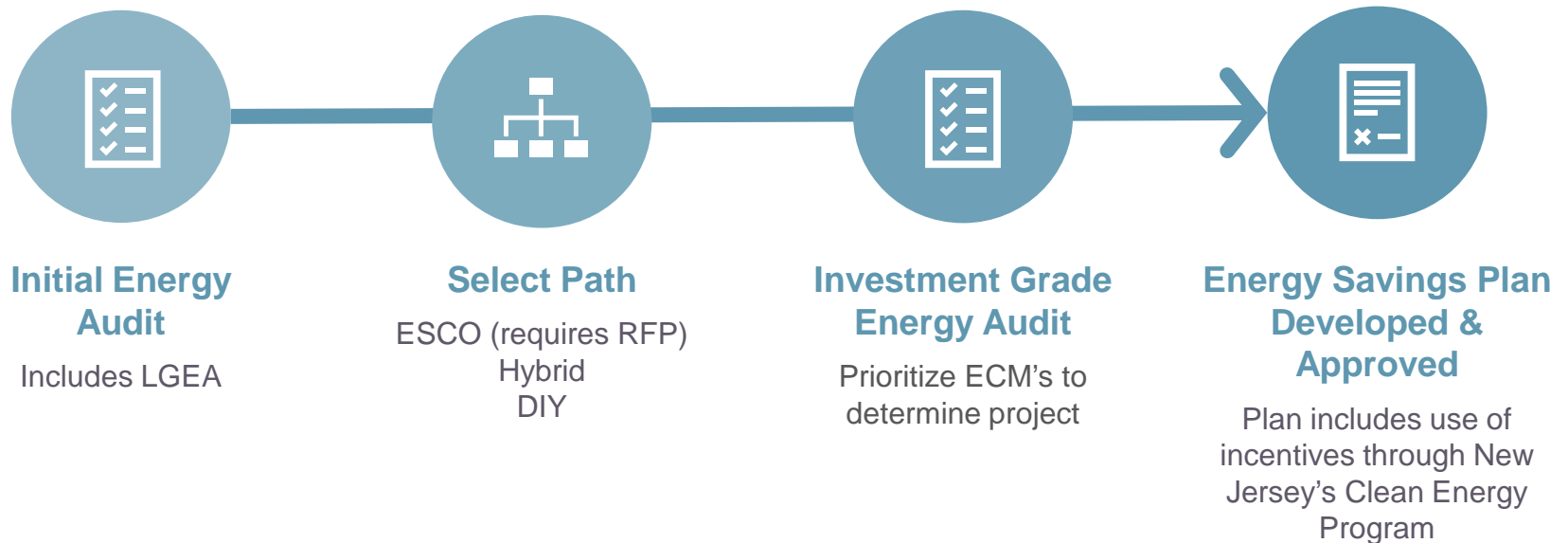
FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Provides alternative financing for energy savings projects at public institutions
- Administered directly by the NJBPU
- Project is paid for with the value of its own energy savings
- 15 or 20-year repayment term
- NJCEP incentives/rebates are layered within an ESIP
- No upfront capital expenses
- Doesn't require voter approval



FINANCING MECHANISM: ESIP



ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

FOR MORE INFORMATION

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

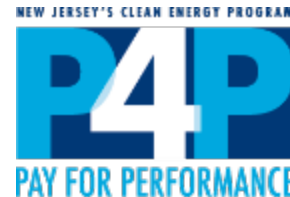
RECOMMENDED NJCEP INCENTIVES PER BUILDING

| Entity Name | Pay For Performance | SmartStart | CTEEP |
|--|---------------------|------------|-------|
| Gloucester City High School | | X | X |
| Gloucester City Middle School | | X | X |
| Cold Springs Elementary & Early Childhood Center | X | X | X |



PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



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

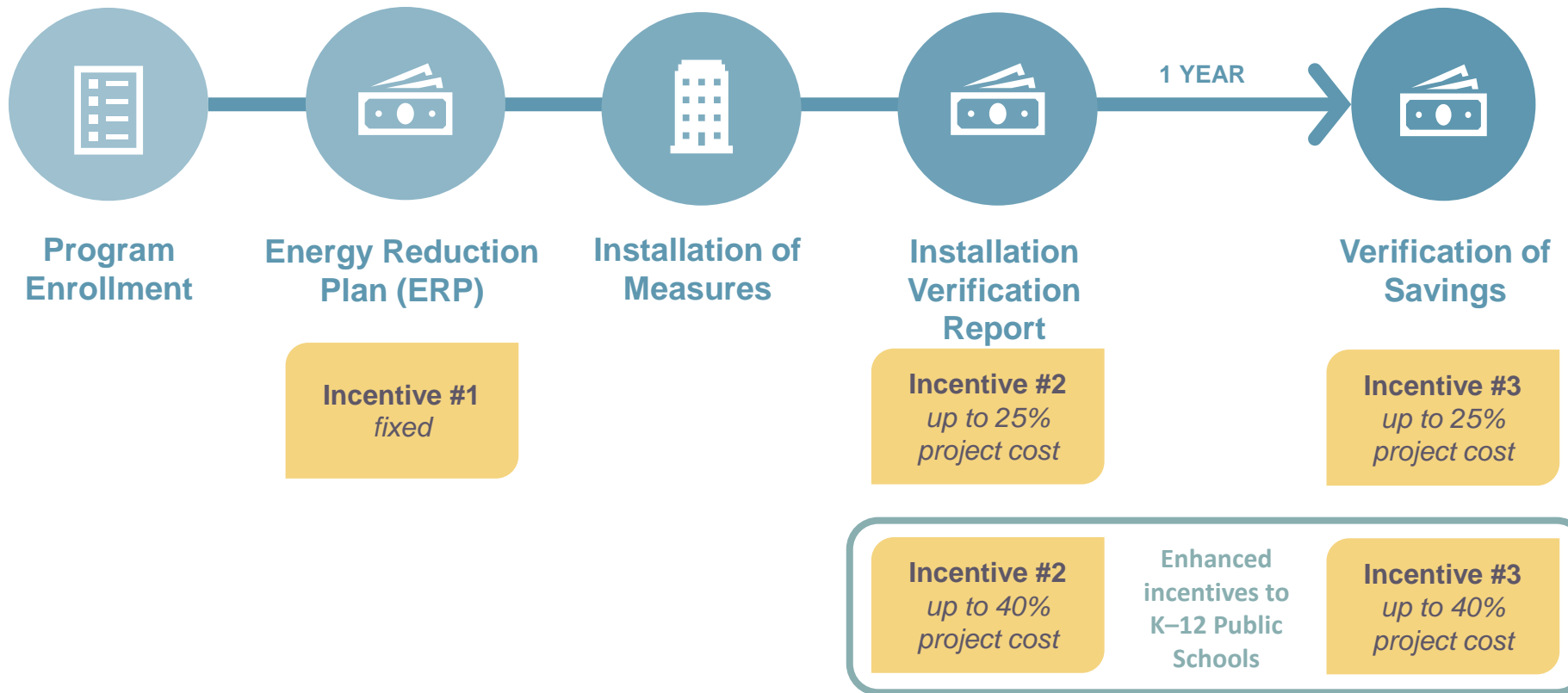
About: Customer choose from a network of pre-approved *Participating Partners*

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

PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



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

- Electric Chillers
- Gas Cooling
- Electric Unitary HVAC
- Ground Source Heat Pumps
- Gas Heating
- Variable Frequency Drives
- Gas Water Heating
- Lighting/Lighting Controls
- Refrigeration Doors
- Refrigeration Controls
- Food Service Equipment
- Refrigerator/Freezer Motors

DOUBLE INCENTIVES

for OZ/UEZ, local government (munis & counties), K-12 public school, or designated as affordable housing



CUSTOM INCENTIVES

- New or innovative technologies proven to be cost-effective and not listed as prescriptive
- Must meet code for retrofit projects or exceed code for new construction
- Project pre and post inspection required



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:

- Up to \$500,000 for each electric or gas account
- Technical assistance incentives for custom project evaluation (up to \$10K)

**SAME INCENTIVE
VALUES AS
SMARTSTART**

CTEEP: CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

NJCleanEnergy.com/CTEEP



**SAME INCENTIVE
VALUES AS
SMARTSTART**



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QUESTIONS

