

# New Jersey's Clean Energy Program

LGEA Exit Meeting for:  
*Bridgeton Public Schools*

August 1, 2019



# INTRODUCTIONS

## *Bridgeton Public Schools*

- Nicole Albanese – School Business Administrator
- Jerry Vargas – Assistant School Business Administrator
- Charles Carter – Supervisor of Buildings & Grounds

## *NJ Clean Energy Program*

- Aimee Lalonde – TRC Program Manager
- Moussa Traore – TRC Auditor
- Amanda Muench – TRC Account Manager
- Gary Finger – TRC Outreach Manager
- Arif Welcher – BPU Government/ Business Manager
- Mike Thulen – BPU ESIP Coordinator
- Michelle Rossi – BPU State Energy Office



# 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 Bridgeton Public Schools



# 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
- Food Service and Refrigeration Equipment

## Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## Sites Visited/Analyzed

- Bridgeton High School
- West Avenue School
- Quarter Mile Lane School
- Buckshutem Elementary School
- Cherry Street School
- Indian Avenue School
- Broad Street School
- Thomas Cane IV Admin. Building
- Warehouse



# BENCHMARKING

## Bridgeton High School

**ENERGY STAR® Statement of Energy Performance**

**54**  
ENERGY STAR® Score<sup>1</sup>

**Bridgeton High School**  
Primary Property Type: K-12 School  
Gross Floor Area (ft<sup>2</sup>): 169,725  
Built: 1950  
For Year Ending: August 31, 2018  
Date Generated: May 10, 2019

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**

<b>Property Address</b> Bridgeton High School 111 N. West Ave Bridgeton, New Jersey 08302	<b>Property Owner</b> Bridgeton Board of Education 41 Blank Street Bridgeton, NJ 8302 ( ) - ( ) - ( )	<b>Primary Contact</b> Nicole Albanese 41 Blank Street Bridgeton, NJ 8302 856-455-8030 x2040 nalbanese@bridgeton.k12.nj.us
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Property ID: 6751386

**Energy Consumption and Energy Use Intensity (EUI)**

<b>Site EUI</b> 89.2 kBtu/ft <sup>2</sup>	<b>Annual Energy by Fuel</b> Natural Gas (kBtu) 8,342,180 (55%) Electric - Grid (kBtu) 8,804,835 (45%)	<b>National Median Comparison</b> National Median Site EUI (kBtu/ft <sup>2</sup> ) 93.2 National Median Source EUI (kBtu/ft <sup>2</sup> ) 171.2 % Diff from National Median Source EUI -4%
<b>Source EUI</b> 163.9 kBtu/ft <sup>2</sup>	<b>Annual Emissions</b> Greenhouse Gas Emissions (Metric Tons CO <sub>2</sub> e/year) 1,132	

**Signature & Stamp of Verifying Professional**

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Licensed Professional

\_\_\_\_\_  
( ) - ( ) - ( )

Professional Engineer Stamp  
(if applicable)

**Site EUI**  
89.2 kBtu/ft<sup>2</sup>

Building Name	ENERGY STAR® Score
Bridgeton High School	54
West Avenue School	55
Quarter Mile Lane School	27
Buckshutem Elementary School	18
Cherry Street School	46
Indian Avenue School	29
Broad Street School	29
Thomas Cane IV Admin Bldg.	45
Warehouse	67

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

# ALL OPPORTUNITIES

Energy Conservation Measure	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>	<b>1,649,176</b>	<b>318.3</b>	<b>-299.4</b>	<b>\$240,721.42</b>	<b>\$653,586.96</b>	<b>\$134,409.00</b>	<b>\$519,177.96</b>	<b>2.2</b>	<b>1,625,650</b>
Install LED Fixtures	350,448	58.8	-35.9	\$51,454.65	\$250,375.57	\$28,530.00	\$221,845.57	4.3	348,692
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	4,199	1.3	-0.8	\$605.63	\$2,125.75	\$322.00	\$1,803.75	3.0	4,138
Retrofit Fixtures with LED Lamps	1,294,529	258.2	-262.7	\$188,661.14	\$401,085.64	\$105,557.00	\$295,528.64	1.6	1,272,820
<b>Lighting Control Measures</b>	<b>333,089</b>	<b>68.2</b>	<b>-67.6</b>	<b>\$47,760.07</b>	<b>\$304,969.00</b>	<b>\$32,550.00</b>	<b>\$272,419.00</b>	<b>5.7</b>	<b>327,504</b>
Install Occupancy Sensor Lighting Controls	291,983	60.7	-59.2	\$41,742.74	\$265,544.00	\$32,550.00	\$232,994.00	5.6	287,096
Install High/Low Lighting Controls	41,106	7.5	-8.4	\$6,017.33	\$39,425.00	\$0.00	\$39,425.00	6.6	40,408
<b>Motor Upgrades</b>	<b>13,418</b>	<b>2.9</b>	<b>0.0</b>	<b>\$1,745.92</b>	<b>\$18,725.88</b>	<b>\$0.00</b>	<b>\$18,725.88</b>	<b>10.7</b>	<b>13,512</b>
Premium Efficiency Motors	13,418	2.9	0.0	\$1,745.92	\$18,725.88	\$0.00	\$18,725.88	10.7	13,512
<b>Variable Frequency Drive (VFD) Measures</b>	<b>722,379</b>	<b>114.8</b>	<b>145.2</b>	<b>\$107,102.80</b>	<b>\$539,953.01</b>	<b>\$28,200.00</b>	<b>\$511,753.01</b>	<b>4.8</b>	<b>744,433</b>
Install VFDs on Constant Volume (CV) Fans	249,123	74.8	0.0	\$36,512.63	\$255,573.86	\$20,200.00	\$235,373.86	6.4	250,864
Install VFDs on Chilled Water Pumps	23,371	4.7	0.0	\$3,306.60	\$29,482.88	\$0.00	\$29,482.88	8.9	23,534
Install VFDs on Heating Water Pumps	383,285	35.8	0.0	\$55,941.84	\$207,888.48	\$0.00	\$207,888.48	3.7	385,965
Install VFDs on Cooling Tower Fans	25,111	-0.7	0.0	\$3,831.31	\$27,744.69	\$4,200.00	\$23,544.69	6.1	25,287
Install VFDs on Kitchen Hood Fan Motors	41,490	0.3	145.2	\$7,510.42	\$19,263.10	\$3,800.00	\$15,463.10	2.1	58,783
<b>Electric Unitary HVAC Measures</b>	<b>60,269</b>	<b>52.0</b>	<b>0.0</b>	<b>\$8,547.72</b>	<b>\$328,135.47</b>	<b>\$15,375.50</b>	<b>\$312,759.97</b>	<b>36.6</b>	<b>60,690</b>
Install High Efficiency Air Conditioning Units	60,269	52.0	0.0	\$8,547.72	\$328,135.47	\$15,375.50	\$312,759.97	36.6	60,690
<b>Electric Chiller Replacement</b>	<b>11,704</b>	<b>14.3</b>	<b>0.0</b>	<b>\$1,633.91</b>	<b>\$49,236.27</b>	<b>\$4,500.00</b>	<b>\$44,736.27</b>	<b>27.4</b>	<b>11,785</b>
Install High Efficiency Chillers	11,704	14.3	0.0	\$1,633.91	\$49,236.27	\$4,500.00	\$44,736.27	27.4	11,785

# ALL OPPORTUNITIES (CONT.)

Energy Conservation Measure	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Gas Heating (HVAC/Process) Replacement</b>	<b>0</b>	<b>0.0</b>	<b>673.6</b>	<b>\$7,980.36</b>	<b>\$260,431.41</b>	<b>\$19,672.89</b>	<b>\$240,758.52</b>	<b>30.2</b>	<b>78,874</b>
Install High Efficiency Hot Water Boilers	0	0.0	587.0	\$6,940.81	\$242,495.33	\$18,472.89	\$224,022.44	32.3	68,725
Install High Efficiency Furnaces	0	0.0	24.1	\$262.46	\$10,630.82	\$1,200.00	\$9,430.82	35.9	2,819
Install High Efficiency Unit Heaters	0	0.0	62.6	\$777.09	\$7,305.26	\$0.00	\$7,305.26	9.4	7,330
<b>HVAC System Improvements</b>	<b>14,020</b>	<b>0.0</b>	<b>241.7</b>	<b>\$4,775.49</b>	<b>\$50,298.54</b>	<b>\$0.00</b>	<b>\$50,298.54</b>	<b>10.5</b>	<b>42,413</b>
Implement Demand Control Ventilation (DCV)	14,020	0.0	241.7	\$4,775.49	\$50,298.54	\$0.00	\$50,298.54	10.5	42,413
<b>Domestic Water Heating Upgrade</b>	<b>37,535</b>	<b>0.0</b>	<b>354.8</b>	<b>\$9,224.62</b>	<b>\$56,841.81</b>	<b>\$1,937.50</b>	<b>\$54,904.31</b>	<b>6.0</b>	<b>79,344</b>
Install High Efficiency Gas-Fired Water Heater	0	0.0	155.7	\$1,554.32	\$55,687.44	\$1,937.50	\$53,749.94	34.6	18,234
Install Low-Flow DHW Devices	37,535	0.0	199.1	\$7,670.30	\$1,154.37	\$0.00	\$1,154.37	0.2	61,110
<b>Food Service Equipment &amp; Refrigeration Measures</b>	<b>46,216</b>	<b>3.6</b>	<b>0.0</b>	<b>\$5,929.26</b>	<b>\$18,058.25</b>	<b>\$1,295.00</b>	<b>\$16,763.25</b>	<b>2.8</b>	<b>46,539</b>
Food Service Equipment Replacement	1,940	0.6	0.0	\$247.22	\$4,240.24	\$600.00	\$3,640.24	14.7	1,954
Refrigerator/Freezer Case Electrically Commutated Motors	35,860	2.9	0.0	\$4,568.59	\$3,639.60	\$120.00	\$3,519.60	0.8	36,111
Refrigeration Controls	7,922	0.1	0.0	\$1,035.38	\$8,770.41	\$500.00	\$8,270.41	8.0	7,977
Replace Refrigeration Equipment	493	0.1	0.0	\$78.07	\$1,408.00	\$75.00	\$1,333.00	17.1	497
<b>Plug Load Equipment Control - Vending Machine</b>	<b>19,785</b>	<b>2.3</b>	<b>0.0</b>	<b>\$2,944.46</b>	<b>\$3,910.00</b>	<b>\$550.00</b>	<b>\$3,360.00</b>	<b>1.1</b>	<b>19,924</b>
Vending Machine Control	19,785	2.3	0.0	\$2,944.46	\$3,910.00	\$550.00	\$3,360.00	1.1	19,924
<b>Custom Measures</b>	<b>37,949</b>	<b>0.0</b>	<b>420.5</b>	<b>\$5,555.98</b>	<b>\$157,000.00</b>	<b>\$0.00</b>	<b>\$157,000.00</b>	<b>28.3</b>	<b>87,444</b>
Installation of an Energy Management System	37,949	0.0	420.5	\$5,555.98	\$157,000.00	\$0.00	\$157,000.00	28.3	87,444
<b>TOTALS</b>	<b>2,945,539</b>	<b>576.3</b>	<b>1,468.8</b>	<b>\$443,922.01</b>	<b>\$2,441,146.60</b>	<b>\$238,489.89</b>	<b>\$2,202,656.71</b>	<b>5.0</b>	<b>3,138,113</b>



# COST EFFECTIVE OPPORTUNITIES

Energy Conservation Measure		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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>1,649,176</b>	<b>318.3</b>	<b>-299.4</b>	<b>\$240,721.42</b>	<b>\$653,586.96</b>	<b>\$134,409.00</b>	<b>\$519,177.96</b>	<b>2.2</b>	<b>1,625,650</b>
ECM 1	Install LED Fixtures	350,448	58.8	-35.9	\$51,454.65	\$250,375.57	\$28,530.00	\$221,845.57	4.3	348,692
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	4,199	1.3	-0.8	\$605.63	\$2,125.75	\$322.00	\$1,803.75	3.0	4,138
ECM 3	Retrofit Fixtures with LED Lamps	1,294,529	258.2	-262.7	\$188,661.14	\$401,085.64	\$105,557.00	\$295,528.64	1.6	1,272,820
<b>Lighting Control Measures</b>		<b>333,089</b>	<b>68.2</b>	<b>-67.6</b>	<b>\$47,760.07</b>	<b>\$304,969.00</b>	<b>\$32,550.00</b>	<b>\$272,419.00</b>	<b>5.7</b>	<b>327,504</b>
ECM 4	Install Occupancy Sensor Lighting Controls	291,983	60.7	-59.2	\$41,742.74	\$265,544.00	\$32,550.00	\$232,994.00	5.6	287,096
ECM 5	Install High/Low Lighting Controls	41,106	7.5	-8.4	\$6,017.33	\$39,425.00	\$0.00	\$39,425.00	6.6	40,408
<b>Motor Upgrades</b>		<b>13,418</b>	<b>2.9</b>	<b>0.0</b>	<b>\$1,745.92</b>	<b>\$18,725.88</b>	<b>\$0.00</b>	<b>\$18,725.88</b>	<b>10.7</b>	<b>13,512</b>
ECM 6	Premium Efficiency Motors	13,418	2.9	0.0	\$1,745.92	\$18,725.88	\$0.00	\$18,725.88	10.7	13,512
<b>Variable Frequency Drive (VFD) Measures</b>		<b>719,822</b>	<b>114.2</b>	<b>145.2</b>	<b>\$106,749.07</b>	<b>\$533,171.80</b>	<b>\$28,200.00</b>	<b>\$504,971.80</b>	<b>4.7</b>	<b>741,858</b>
ECM 7	Install VFDs on Constant Volume (CV) Fans	249,123	74.8	0.0	\$36,512.63	\$255,573.86	\$20,200.00	\$235,373.86	6.4	250,864
ECM 8	Install VFDs on Chilled Water Pumps	20,814	4.1	0.0	\$2,952.87	\$22,701.67	\$0.00	\$22,701.67	7.7	20,960
ECM 9	Install VFDs on Heating Water Pumps	383,285	35.8	0.0	\$55,941.84	\$207,888.48	\$0.00	\$207,888.48	3.7	385,965
ECM 10	Install VFDs on Cooling Tower Fans	25,111	-0.7	0.0	\$3,831.31	\$27,744.69	\$4,200.00	\$23,544.69	6.1	25,287
ECM 11	Install VFDs on Kitchen Hood Fan Motors	41,490	0.3	145.2	\$7,510.42	\$19,263.10	\$3,800.00	\$15,463.10	2.1	58,783
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>62.6</b>	<b>\$777.09</b>	<b>\$7,305.26</b>	<b>\$0.00</b>	<b>\$7,305.26</b>	<b>9.4</b>	<b>7,330</b>
ECM 12	Install High Efficiency Unit Heaters	0	0.0	62.6	\$777.09	\$7,305.26	\$0.00	\$7,305.26	9.4	7,330
<b>HVAC System Improvements</b>		<b>12,709</b>	<b>0.0</b>	<b>213.6</b>	<b>\$4,251.65</b>	<b>\$43,501.44</b>	<b>\$0.00</b>	<b>\$43,501.44</b>	<b>10.2</b>	<b>37,805</b>
ECM 13	Implement Demand Control Ventilation (DCV)	12,709	0.0	213.6	\$4,251.65	\$43,501.44	\$0.00	\$43,501.44	10.2	37,805
<b>Domestic Water Heating Upgrade</b>		<b>37,535</b>	<b>0.0</b>	<b>199.1</b>	<b>\$7,670.30</b>	<b>\$1,154.37</b>	<b>\$0.00</b>	<b>\$1,154.37</b>	<b>0.2</b>	<b>61,110</b>
ECM 14	Install Low-Flow DHW Devices	37,535	0.0	199.1	\$7,670.30	\$1,154.37	\$0.00	\$1,154.37	0.2	61,110
<b>Food Service Equipment &amp; Refrigeration Measures</b>		<b>43,782</b>	<b>3.0</b>	<b>0.0</b>	<b>\$5,603.97</b>	<b>\$12,410.01</b>	<b>\$620.00</b>	<b>\$11,790.01</b>	<b>2.1</b>	<b>44,088</b>
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	35,860	2.9	0.0	\$4,568.59	\$3,639.60	\$120.00	\$3,519.60	0.8	36,111
ECM 16	Refrigeration Controls	7,922	0.1	0.0	\$1,035.38	\$8,770.41	\$500.00	\$8,270.41	8.0	7,977
<b>Plug Load Equipment Control - Vending Machine</b>		<b>19,785</b>	<b>2.3</b>	<b>0.0</b>	<b>\$2,944.46</b>	<b>\$3,910.00</b>	<b>\$550.00</b>	<b>\$3,360.00</b>	<b>1.1</b>	<b>19,924</b>
ECM 17	Vending Machine Control	19,785	2.3	0.0	\$2,944.46	\$3,910.00	\$550.00	\$3,360.00	1.1	19,924
<b>TOTALS</b>		<b>2,829,316</b>	<b>508.8</b>	<b>253.5</b>	<b>\$418,223.95</b>	<b>\$1,578,734.72</b>	<b>\$196,329.00</b>	<b>\$1,382,405.72</b>	<b>3.3</b>	<b>2,878,782</b>

\* - All incentives presented in this table are based on N.J. Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

# BRIDGETON HIGH SCHOOL

#	Energy Conservation Measure Static	Energy Conservation Measure	Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (MMBtu)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)	
<b>Lighting Upgrades</b>					<b>441,245</b>	<b>82.9</b>	<b>-74</b>	<b>-74</b>	<b>\$69,819</b>	<b>\$179,462</b>	<b>\$34,919</b>	<b>\$144,543</b>	<b>2.1</b>	<b>435,648</b>
ECM 1	Install LED Fixtures	Install LED Fixtures	Yes	106,421	13.1	-4	-4	\$16,974	\$76,000	\$7,525	\$68,475	4.0	106,680	
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	180	0.0	0	0	\$28	\$110	\$12	\$98	3.5	177	
ECM 3	Retrofit Fixtures with LED Lamps	Retrofit Fixtures with LED Lamps	Yes	334,644	69.7	-70	-70	\$52,817	\$103,352	\$27,382	\$75,970	1.4	328,791	
<b>Lighting Control Measures</b>					<b>85,891</b>	<b>18.1</b>	<b>-18</b>	<b>-18</b>	<b>\$13,556</b>	<b>\$78,819</b>	<b>\$8,540</b>	<b>\$70,279</b>	<b>5.2</b>	<b>84,389</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Install Occupancy Sensor Lighting Controls	Yes	75,121	16.4	-16	-16	\$11,856	\$72,294	\$8,540	\$63,754	5.4	73,807	
ECM 5	Install High/Low Lighting Controls	Install High/Low Lighting Controls	Yes	10,770	1.8	-2	-2	\$1,700	\$6,525	\$0	\$6,525	3.8	10,582	
<b>Motor Upgrades</b>					<b>955</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	<b>\$153</b>	<b>\$876</b>	<b>\$0</b>	<b>\$876</b>	<b>5.7</b>	<b>961</b>
ECM 6	Premium Efficiency Motors	Premium Efficiency Motors	Yes	955	0.3	0	0	\$153	\$876	\$0	\$876	5.7	961	
<b>Variable Frequency Drive (VFD) Measures</b>					<b>68,878</b>	<b>10.9</b>	<b>0</b>	<b>0</b>	<b>\$11,012</b>	<b>\$67,432</b>	<b>\$1,080</b>	<b>\$66,352</b>	<b>6.0</b>	<b>69,360</b>
ECM 7	Install VFDs on Constant Volume (CV) HVAC	Install VFDs on Constant Volume (CV) Fans	Yes	12,832	4.1	0	0	\$2,052	\$18,630	\$1,080	\$17,550	8.6	12,922	
ECM 8	Install VFDs on Hot Water Pumps	Install VFDs on Heating Water Pumps	Yes	56,046	6.8	0	0	\$8,960	\$48,802	\$0	\$48,802	5.4	56,438	
<b>Electric Unitary HVAC Measures</b>					<b>18,615</b>	<b>12.4</b>	<b>0</b>	<b>0</b>	<b>\$2,976</b>	<b>\$144,716</b>	<b>\$6,931</b>	<b>\$137,785</b>	<b>46.3</b>	<b>18,745</b>
ECM 9	Install High Efficiency Electric AC	Install High Efficiency Air Conditioning Units	No	18,615	12.4	0	0	\$2,976	\$144,716	\$6,931	\$137,785	46.3	18,745	
<b>HVAC System Improvements</b>					<b>6,215</b>	<b>0.0</b>	<b>119</b>	<b>119</b>	<b>\$2,162</b>	<b>\$21,751</b>	<b>\$0</b>	<b>\$21,751</b>	<b>10.1</b>	<b>20,237</b>
ECM 10	Implement Demand Control Ventilation	Implement Demand Control Ventilation (DCV)	Yes	6,215	0.0	119	119	\$2,162	\$21,751	\$0	\$21,751	10.1	20,237	
<b>Domestic Water Heating Upgrade</b>					<b>0</b>	<b>0.0</b>	<b>197</b>	<b>197</b>	<b>\$1,933</b>	<b>\$33,052</b>	<b>\$1,138</b>	<b>\$31,914</b>	<b>16.5</b>	<b>23,124</b>
ECM 11	Install High Efficiency Gas Water Heater	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	123	123	\$1,201	\$32,572	\$1,138	\$31,434	26.2	14,366	
ECM 12	Install Low-Flow Domestic Hot Water Devices	Install Low-Flow DHW Devices	Yes	0	0.0	75	75	\$732	\$480	\$0	\$480	0.7	8,758	
<b>Food Service &amp; Refrigeration Measures</b>					<b>6,790</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>\$1,086</b>	<b>\$1,150</b>	<b>\$200</b>	<b>\$950</b>	<b>0.9</b>	<b>6,837</b>
ECM 13	Vending Machine Control	Vending Machine Control	Yes	6,790	0.8	0	0	\$1,086	\$1,150	\$200	\$950	0.9	6,837	
<b>TOTALS (COST EFFECTIVE MEASURES)</b>					<b>609,975</b>	<b>112.9</b>	<b>102</b>	<b>102</b>	<b>\$98,520</b>	<b>\$349,971</b>	<b>\$44,739</b>	<b>\$305,232</b>	<b>3.1</b>	<b>626,191</b>
<b>TOTALS (ALL MEASURES)</b>					<b>628,589</b>	<b>125.3</b>	<b>225</b>	<b>225</b>	<b>\$102,697</b>	<b>\$527,258</b>	<b>\$52,808</b>	<b>\$474,451</b>	<b>4.6</b>	<b>659,302</b>

# WEST AVENUE SCHOOL

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>131,595</b>	<b>31.0</b>	<b>-20</b>	<b>\$18,183</b>	<b>\$98,479</b>	<b>\$17,543</b>	<b>\$80,936</b>	<b>4.5</b>	<b>130,192</b>
ECM 1	Install LED Fixtures	Yes	56,654	9.5	-4	\$7,870	\$59,273	\$8,200	\$51,073	6.5	56,560
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	114	0.0	0	\$16	\$69	\$10	\$59	3.7	112
ECM 3	Retrofit Fixtures with LED Lamps	Yes	74,827	21.5	-16	\$10,298	\$39,137	\$9,333	\$29,804	2.9	73,520
<b>Lighting Control Measures</b>			<b>22,924</b>	<b>6.5</b>	<b>-5</b>	<b>\$3,155</b>	<b>\$27,703</b>	<b>\$3,255</b>	<b>\$24,448</b>	<b>7.7</b>	<b>22,523</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	19,547	5.8	-4	\$2,690	\$24,328	\$3,255	\$21,073	7.8	19,206
ECM 5	Install High/Low Lighting Controls	Yes	3,377	0.7	-1	\$465	\$3,375	\$0	\$3,375	7.3	3,318
<b>Variable Frequency Drive (VFD) Measures</b>			<b>33,838</b>	<b>5.6</b>	<b>0</b>	<b>\$4,724</b>	<b>\$31,841</b>	<b>\$0</b>	<b>\$31,841</b>	<b>6.7</b>	<b>34,075</b>
ECM 6	Install VFDs on Chilled Water Pumps	Yes	17,030	3.5	0	\$2,378	\$15,920	\$0	\$15,920	6.7	17,149
ECM 7	Install VFDs on Heating Water Pumps	Yes	16,808	2.1	0	\$2,347	\$15,920	\$0	\$15,920	6.8	16,926
<b>Electric Unitary HVAC Measures</b>			<b>7,421</b>	<b>6.7</b>	<b>0</b>	<b>\$1,036</b>	<b>\$56,058</b>	<b>\$2,586</b>	<b>\$53,472</b>	<b>51.6</b>	<b>7,473</b>
ECM 8	Install High Efficiency Air Conditioning Units	No	7,421	6.7	0	\$1,036	\$56,058	\$2,586	\$53,472	51.6	7,473
<b>Electric Chiller Replacement</b>			<b>11,704</b>	<b>14.3</b>	<b>0</b>	<b>\$1,634</b>	<b>\$49,236</b>	<b>\$4,500</b>	<b>\$44,736</b>	<b>27.4</b>	<b>11,785</b>
ECM 9	Install High Efficiency Chillers	No	11,704	14.3	0	\$1,634	\$49,236	\$4,500	\$44,736	27.4	11,785
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>11</b>	<b>\$103</b>	<b>\$8,494</b>	<b>\$800</b>	<b>\$7,694</b>	<b>74.4</b>	<b>1,271</b>
ECM 10	Install High Efficiency Furnaces	No	0	0.0	11	\$103	\$8,494	\$800	\$7,694	74.4	1,271
<b>HVAC System Improvements</b>			<b>1,854</b>	<b>0.0</b>	<b>21</b>	<b>\$460</b>	<b>\$5,438</b>	<b>\$0</b>	<b>\$5,438</b>	<b>11.8</b>	<b>4,339</b>
ECM 11	Implement Demand Control Ventilation (DCV)	Yes	1,854	0.0	21	\$460	\$5,438	\$0	\$5,438	11.8	4,339
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>26</b>	<b>\$252</b>	<b>\$11,615</b>	<b>\$400</b>	<b>\$11,215</b>	<b>44.5</b>	<b>3,099</b>
ECM 12	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	19	\$180	\$11,558	\$400	\$11,158	62.1	2,210
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$72	\$57	\$0	\$57	0.8	889
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$273</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.5</b>	<b>1,968</b>
ECM 14	Vending Machine Control	Yes	1,954	0.2	0	\$273	\$460	\$50	\$410	1.5	1,968
<b>Custom Measures</b>			<b>17,210</b>	<b>0.0</b>	<b>237</b>	<b>\$2,403</b>	<b>\$85,000</b>	<b>\$0</b>	<b>\$85,000</b>	<b>35.4</b>	<b>45,114</b>
ECM 15	Installation of an Energy Management System	No	17,210	0.0	237	\$2,403	\$85,000	\$0	\$85,000	35.4	45,114
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>192,166</b>	<b>43.4</b>	<b>4</b>	<b>\$26,867</b>	<b>\$163,978</b>	<b>\$20,848</b>	<b>\$143,130</b>	<b>5.3</b>	<b>193,985</b>
<b>TOTALS (ALL MEASURES)</b>			<b>228,501</b>	<b>64.4</b>	<b>271</b>	<b>\$32,222</b>	<b>\$374,324</b>	<b>\$29,134</b>	<b>\$345,190</b>	<b>10.7</b>	<b>261,839</b>

# QUARTER MILE LANE SCHOOL

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>199,538</b>	<b>35.8</b>	<b>-40</b>	<b>\$31,081</b>	<b>\$66,216</b>	<b>\$15,995</b>	<b>\$50,221</b>	<b>1.6</b>	<b>196,271</b>
ECM 1	Install LED Fixtures	Yes	9,093	1.0	0	\$1,439	\$12,558	\$1,300	\$11,258	7.8	9,156
ECM 2	Retrofit Fixtures with LED Lamps	Yes	190,445	34.8	-40	\$29,642	\$53,659	\$14,695	\$38,964	1.3	187,114
<b>Lighting Control Measures</b>			<b>14,807</b>	<b>2.3</b>	<b>-3</b>	<b>\$2,305</b>	<b>\$11,745</b>	<b>\$945</b>	<b>\$10,800</b>	<b>4.7</b>	<b>14,548</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	11,549	1.8	-2	\$1,798	\$9,720	\$945	\$8,775	4.9	11,347
ECM 4	Install High/Low Lighting Controls	Yes	3,257	0.5	-1	\$507	\$2,025	\$0	\$2,025	4.0	3,201
<b>Variable Frequency Drive (VFD) Measures</b>			<b>155,255</b>	<b>30.9</b>	<b>75</b>	<b>\$25,477</b>	<b>\$125,766</b>	<b>\$9,920</b>	<b>\$115,846</b>	<b>4.5</b>	<b>165,076</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	88,809	26.6	0	\$14,050	\$81,316	\$6,920	\$74,396	5.3	89,430
ECM 6	Install VFDs on Heating Water Pumps	Yes	42,131	4.1	0	\$6,665	\$23,032	\$0	\$23,032	3.5	42,426
ECM 7	Install VFDs on Cooling Tower Fans	Yes	12,481	0.1	0	\$1,975	\$14,172	\$1,800	\$12,372	6.3	12,569
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	11,834	0.1	75	\$2,786	\$7,246	\$1,200	\$6,046	2.2	20,652
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>25</b>	<b>\$303</b>	<b>\$23,897</b>	<b>\$1,864</b>	<b>\$22,033</b>	<b>72.7</b>	<b>2,898</b>
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	25	\$303	\$23,897	\$1,864	\$22,033	72.7	2,898
<b>HVAC System Improvements</b>			<b>4,640</b>	<b>0.0</b>	<b>73</b>	<b>\$1,629</b>	<b>\$16,313</b>	<b>\$0</b>	<b>\$16,313</b>	<b>10.0</b>	<b>13,229</b>
ECM 10	Implement Demand Control Ventilation (DCV)	Yes	4,640	0.0	73	\$1,629	\$16,313	\$0	\$16,313	10.0	13,229
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>14</b>	<b>\$173</b>	<b>\$11,558</b>	<b>\$400</b>	<b>\$11,158</b>	<b>64.3</b>	<b>1,658</b>
ECM 11	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	14	\$173	\$11,558	\$400	\$11,158	64.3	1,658
<b>Food Service &amp; Refrigeration Measures</b>			<b>4,060</b>	<b>0.5</b>	<b>0</b>	<b>\$642</b>	<b>\$2,098</b>	<b>\$175</b>	<b>\$1,923</b>	<b>3.0</b>	<b>4,088</b>
ECM 12	Replace Refrigeration Equipment	No	493	0.1	0	\$78	\$1,408	\$75	\$1,333	17.1	497
ECM 13	Vending Machine Control	Yes	3,566	0.4	0	\$564	\$690	\$100	\$590	1.0	3,591
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>377,806</b>	<b>69.4</b>	<b>105</b>	<b>\$61,055</b>	<b>\$220,731</b>	<b>\$26,960</b>	<b>\$193,771</b>	<b>3.2</b>	<b>392,715</b>
<b>TOTALS (ALL MEASURES)</b>			<b>378,299</b>	<b>69.5</b>	<b>144</b>	<b>\$61,610</b>	<b>\$257,593</b>	<b>\$29,299</b>	<b>\$228,294</b>	<b>3.7</b>	<b>397,768</b>

# BUCKSHUTEM ES

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>281,747</b>	<b>51.2</b>	<b>-52</b>	<b>\$40,810</b>	<b>\$94,724</b>	<b>\$21,819</b>	<b>\$72,905</b>	<b>1.8</b>	<b>277,672</b>
ECM 1	Install LED Fixtures	Yes	14,830	1.6	0	\$2,180	\$18,353	\$1,900	\$16,453	7.5	14,933
ECM 2	Retrofit Fixtures with LED Lamps	Yes	266,917	49.6	-52	\$38,630	\$76,371	\$19,919	\$56,452	1.5	262,739
<b>Lighting Control Measures</b>			<b>60,962</b>	<b>11.0</b>	<b>-13</b>	<b>\$8,812</b>	<b>\$44,955</b>	<b>\$4,025</b>	<b>\$40,930</b>	<b>4.6</b>	<b>59,895</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	49,347	8.9	-10	\$7,133	\$32,130	\$4,025	\$28,105	3.9	48,484
ECM 4	Install High/Low Lighting Controls	Yes	11,614	2.1	-2	\$1,679	\$12,825	\$0	\$12,825	7.6	11,411
<b>Variable Frequency Drive (VFD) Measures</b>			<b>236,093</b>	<b>34.3</b>	<b>39</b>	<b>\$35,170</b>	<b>\$175,882</b>	<b>\$9,280</b>	<b>\$166,602</b>	<b>4.7</b>	<b>242,337</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	71,841	22.8	0	\$10,561	\$104,734	\$6,280	\$98,454	9.3	72,343
ECM 6	Install VFDs on Heating Water Pumps	Yes	145,870	12.3	0	\$21,444	\$53,952	\$0	\$53,952	2.5	146,890
ECM 7	Install VFDs on Cooling Tower Fans	Yes	12,630	-0.8	0	\$1,857	\$13,573	\$2,400	\$11,173	6.0	12,718
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	5,752	0.0	39	\$1,308	\$3,623	\$600	\$3,023	2.3	10,386
<b>Electric Unitary HVAC Measures</b>			<b>7,200</b>	<b>6.4</b>	<b>0</b>	<b>\$1,058</b>	<b>\$26,307</b>	<b>\$1,380</b>	<b>\$24,927</b>	<b>23.6</b>	<b>7,250</b>
ECM 9	Install High Efficiency Air Conditioning Units	No	7,200	6.4	0	\$1,058	\$26,307	\$1,380	\$24,927	23.6	7,250
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>126</b>	<b>\$1,487</b>	<b>\$82,932</b>	<b>\$6,469</b>	<b>\$76,463</b>	<b>51.4</b>	<b>14,769</b>
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	126	\$1,487	\$82,932	\$6,469	\$76,463	51.4	14,769
<b>HVAC System Improvements</b>			<b>1,311</b>	<b>0.0</b>	<b>28</b>	<b>\$524</b>	<b>\$6,797</b>	<b>\$0</b>	<b>\$6,797</b>	<b>13.0</b>	<b>4,608</b>
ECM 11	Implement Demand Control Ventilation (DCV)	No	1,311	0.0	28	\$524	\$6,797	\$0	\$6,797	13.0	4,608
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,333</b>	<b>0.0</b>	<b>0</b>	<b>\$196</b>	<b>\$519</b>	<b>\$50</b>	<b>\$469</b>	<b>2.4</b>	<b>1,342</b>
ECM 12	Refrigeration Controls	Yes	1,333	0.0	0	\$196	\$519	\$50	\$469	2.4	1,342
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>580,134</b>	<b>96.5</b>	<b>-25</b>	<b>\$84,988</b>	<b>\$316,080</b>	<b>\$35,174</b>	<b>\$280,906</b>	<b>3.3</b>	<b>581,246</b>
<b>TOTALS (ALL MEASURES)</b>			<b>588,645</b>	<b>102.9</b>	<b>129</b>	<b>\$88,058</b>	<b>\$432,116</b>	<b>\$43,023</b>	<b>\$389,093</b>	<b>4.4</b>	<b>607,874</b>

# CHERRY STREET SCHOOL

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>161,113</b>	<b>28.1</b>	<b>-31</b>	<b>\$21,918</b>	<b>\$51,242</b>	<b>\$9,336</b>	<b>\$41,906</b>	<b>1.9</b>	<b>158,616</b>
ECM 1	Install LED Fixtures	Yes	56,432	9.3	-9	\$7,695	\$21,023	\$1,450	\$19,573	2.5	55,730
ECM 2	Retrofit Fixtures with LED Lamps	Yes	104,681	18.8	-22	\$14,223	\$30,218	\$7,886	\$22,332	1.6	102,886
<b>Lighting Control Measures</b>			<b>32,843</b>	<b>5.9</b>	<b>-7</b>	<b>\$4,461</b>	<b>\$29,970</b>	<b>\$3,360</b>	<b>\$26,610</b>	<b>6.0</b>	<b>32,268</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	29,059	5.2	-6	\$3,947	\$25,920	\$3,360	\$22,560	5.7	28,551
ECM 4	Install High/Low Lighting Controls	Yes	3,783	0.7	-1	\$514	\$4,050	\$0	\$4,050	7.9	3,717
<b>Variable Frequency Drive (VFD) Measures</b>			<b>23,540</b>	<b>3.7</b>	<b>0</b>	<b>\$3,257</b>	<b>\$26,899</b>	<b>\$400</b>	<b>\$26,499</b>	<b>8.1</b>	<b>23,704</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	5,986	1.5	0	\$828	\$4,197	\$400	\$3,797	4.6	6,028
ECM 6	Install VFDs on Chilled Water Pumps	No	2,557	0.6	0	\$354	\$6,781	\$0	\$6,781	19.2	2,575
ECM 7	Install VFDs on Heating Water Pumps	Yes	14,997	1.7	0	\$2,075	\$15,920	\$0	\$15,920	7.7	15,102
<b>Electric Unitary HVAC Measures</b>			<b>2,571</b>	<b>1.3</b>	<b>0</b>	<b>\$356</b>	<b>\$9,076</b>	<b>\$368</b>	<b>\$8,708</b>	<b>24.5</b>	<b>2,589</b>
ECM 8	Install High Efficiency Air Conditioning Units	No	2,571	1.3	0	\$356	\$9,076	\$368	\$8,708	24.5	2,589
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>13</b>	<b>\$159</b>	<b>\$2,137</b>	<b>\$400</b>	<b>\$1,737</b>	<b>10.9</b>	<b>1,548</b>
ECM 9	Install High Efficiency Furnaces	No	0	0.0	13	\$159	\$2,137	\$400	\$1,737	10.9	1,548
<b>Domestic Water Heating Upgrade</b>			<b>15,014</b>	<b>0.0</b>	<b>11</b>	<b>\$2,214</b>	<b>\$158</b>	<b>\$0</b>	<b>\$158</b>	<b>0.1</b>	<b>16,452</b>
ECM 10	Install Low-Flow DHW Devices	Yes	15,014	0.0	11	\$2,214	\$158	\$0	\$158	0.1	16,452
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$270</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.5</b>	<b>1,968</b>
ECM 11	Vending Machine Control	Yes	1,954	0.2	0	\$270	\$460	\$50	\$410	1.5	1,968
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>231,907</b>	<b>37.4</b>	<b>-26</b>	<b>\$31,767</b>	<b>\$101,947</b>	<b>\$13,146</b>	<b>\$88,801</b>	<b>2.8</b>	<b>230,434</b>
<b>TOTALS (ALL MEASURES)</b>			<b>237,036</b>	<b>39.2</b>	<b>-13</b>	<b>\$32,635</b>	<b>\$119,941</b>	<b>\$13,914</b>	<b>\$106,027</b>	<b>3.2</b>	<b>237,146</b>

# INDIAN AVENUE SCHOOL

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>120,472</b>	<b>20.6</b>	<b>-22</b>	<b>\$18,054</b>	<b>\$48,104</b>	<b>\$9,676</b>	<b>\$38,428</b>	<b>2.1</b>	<b>118,756</b>
ECM 1	Install LED Fixtures	Yes	25,541	3.4	-2	\$3,859	\$22,058	\$2,610	\$19,448	5.0	25,486
ECM 2	Retrofit Fixtures with LED Lamps	Yes	94,931	17.2	-20	\$14,195	\$26,046	\$7,066	\$18,980	1.3	93,270
<b>Lighting Control Measures</b>			<b>28,790</b>	<b>5.2</b>	<b>-6</b>	<b>\$4,305</b>	<b>\$27,431</b>	<b>\$3,080</b>	<b>\$24,351</b>	<b>5.7</b>	<b>28,287</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	24,395	4.4	-5	\$3,648	\$23,606	\$3,080	\$20,526	5.6	23,968
ECM 4	Install High/Low Lighting Controls	Yes	4,395	0.8	-1	\$657	\$3,825	\$0	\$3,825	5.8	4,318
<b>Motor Upgrades</b>			<b>222</b>	<b>0.0</b>	<b>0</b>	<b>\$34</b>	<b>\$705</b>	<b>\$0</b>	<b>\$705</b>	<b>20.9</b>	<b>223</b>
ECM 5	Premium Efficiency Motors	Yes	222	0.0	0	\$34	\$705	\$0	\$705	20.9	223
<b>Variable Frequency Drive (VFD) Measures</b>			<b>40,753</b>	<b>5.0</b>	<b>0</b>	<b>\$6,196</b>	<b>\$33,610</b>	<b>\$400</b>	<b>\$33,210</b>	<b>5.4</b>	<b>41,038</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	5,986	1.5	0	\$910	\$4,197	\$400	\$3,797	4.2	6,028
ECM 7	Install VFDs on Chilled Water Pumps	Yes	3,784	0.6	0	\$575	\$6,781	\$0	\$6,781	11.8	3,810
ECM 8	Install VFDs on Heating Water Pumps	Yes	30,983	2.9	0	\$4,711	\$22,632	\$0	\$22,632	4.8	31,200
<b>Electric Unitary HVAC Measures</b>			<b>203</b>	<b>0.1</b>	<b>0</b>	<b>\$31</b>	<b>\$729</b>	<b>\$0</b>	<b>\$729</b>	<b>23.6</b>	<b>205</b>
ECM 9	Install High Efficiency Air Conditioning Units	No	203	0.1	0	\$31	\$729	\$0	\$729	23.6	205
<b>Domestic Water Heating Upgrade</b>			<b>16,682</b>	<b>0.0</b>	<b>14</b>	<b>\$2,708</b>	<b>\$179</b>	<b>\$0</b>	<b>\$179</b>	<b>0.1</b>	<b>18,465</b>
ECM 10	Install Low-Flow DHW Devices	Yes	16,682	0.0	14	\$2,708	\$179	\$0	\$179	0.1	18,465
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$297</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 11	Vending Machine Control	Yes	1,954	0.2	0	\$297	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>20,739</b>	<b>0.0</b>	<b>183</b>	<b>\$3,153</b>	<b>\$72,000</b>	<b>\$0</b>	<b>\$72,000</b>	<b>22.8</b>	<b>42,330</b>
ECM 12	Installation of an Energy Management System	No	20,739	0.0	183	\$3,153	\$72,000	\$0	\$72,000	22.8	42,330
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>208,873</b>	<b>31.1</b>	<b>-14</b>	<b>\$31,595</b>	<b>\$110,489</b>	<b>\$13,206</b>	<b>\$97,283</b>	<b>3.1</b>	<b>208,738</b>
<b>TOTALS (ALL MEASURES)</b>			<b>229,815</b>	<b>31.2</b>	<b>170</b>	<b>\$34,779</b>	<b>\$183,218</b>	<b>\$13,206</b>	<b>\$170,012</b>	<b>4.9</b>	<b>251,273</b>

# BROAD STREET SCHOOL

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>236,741</b>	<b>44.7</b>	<b>-50</b>	<b>\$29,576</b>	<b>\$70,885</b>	<b>\$16,870</b>	<b>\$54,015</b>	<b>1.8</b>	<b>232,600</b>
ECM 1	Install LED Fixtures	Yes	31,902	6.0	-7	\$3,986	\$8,912	\$300	\$8,612	2.2	31,344
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	675	0.1	0	\$84	\$206	\$30	\$176	2.1	663
ECM 3	Retrofit Fixtures with LED Lamps	Yes	204,164	38.6	-43	\$25,506	\$61,766	\$16,540	\$45,226	1.8	200,593
<b>Lighting Control Measures</b>			<b>68,142</b>	<b>12.9</b>	<b>-14</b>	<b>\$8,513</b>	<b>\$65,950</b>	<b>\$7,245</b>	<b>\$58,705</b>	<b>6.9</b>	<b>66,950</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	65,085	12.3	-14	\$8,131	\$59,950	\$7,245	\$52,705	6.5	63,947
ECM 5	Install High/Low Lighting Controls	Yes	3,057	0.6	-1	\$382	\$6,000	\$0	\$6,000	15.7	3,003
<b>Motor Upgrades</b>			<b>12,242</b>	<b>2.6</b>	<b>0</b>	<b>\$1,560</b>	<b>\$17,145</b>	<b>\$0</b>	<b>\$17,145</b>	<b>11.0</b>	<b>12,327</b>
ECM 6	Premium Efficiency Motors	Yes	12,242	2.6	0	\$1,560	\$17,145	\$0	\$17,145	11.0	12,327
<b>Variable Frequency Drive (VFD) Measures</b>			<b>164,022</b>	<b>24.4</b>	<b>31</b>	<b>\$21,267</b>	<b>\$78,523</b>	<b>\$7,120</b>	<b>\$71,403</b>	<b>3.4</b>	<b>168,843</b>
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	63,668	18.3	0	\$8,111	\$42,500	\$5,120	\$37,380	4.6	64,113
ECM 8	Install VFDs on Heating Water Pumps	Yes	76,449	6.0	0	\$9,740	\$27,629	\$0	\$27,629	2.8	76,984
ECM 9	Install VFDs on Kitchen Hood Fan Motors	Yes	23,904	0.1	31	\$3,416	\$8,394	\$2,000	\$6,394	1.9	27,746
<b>Electric Unitary HVAC Measures</b>			<b>24,258</b>	<b>25.0</b>	<b>0</b>	<b>\$3,090</b>	<b>\$91,249</b>	<b>\$4,111</b>	<b>\$87,139</b>	<b>28.2</b>	<b>24,428</b>
ECM 10	Install High Efficiency Air Conditioning Units	No	24,258	25.0	0	\$3,090	\$91,249	\$4,111	\$87,139	28.2	24,428
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>436</b>	<b>\$5,150</b>	<b>\$135,667</b>	<b>\$10,140</b>	<b>\$125,527</b>	<b>24.4</b>	<b>51,058</b>
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	436	\$5,150	\$135,667	\$10,140	\$125,527	24.4	51,058
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>91</b>	<b>\$1,076</b>	<b>\$229</b>	<b>\$0</b>	<b>\$229</b>	<b>0.2</b>	<b>10,666</b>
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	91	\$1,076	\$229	\$0	\$229	0.2	10,666
<b>Food Service &amp; Refrigeration Measures</b>			<b>47,957</b>	<b>4.0</b>	<b>0</b>	<b>\$6,110</b>	<b>\$16,822</b>	<b>\$1,270</b>	<b>\$15,552</b>	<b>2.5</b>	<b>48,292</b>
ECM 13	Food Service Equipment Replacement	No	1,940	0.6	0	\$247	\$4,240	\$600	\$3,640	14.7	1,954
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	35,860	2.9	0	\$4,569	\$3,640	\$120	\$3,520	0.8	36,111
ECM 15	Refrigeration Controls	Yes	6,589	0.1	0	\$839	\$8,252	\$450	\$7,802	9.3	6,636
ECM 16	Vending Machine Control	Yes	3,566	0.4	0	\$454	\$690	\$100	\$590	1.3	3,591
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>527,162</b>	<b>87.9</b>	<b>59</b>	<b>\$67,854</b>	<b>\$245,314</b>	<b>\$31,905</b>	<b>\$213,409</b>	<b>3.1</b>	<b>537,725</b>
<b>TOTALS (ALL MEASURES)</b>			<b>553,361</b>	<b>113.5</b>	<b>495</b>	<b>\$76,342</b>	<b>\$476,470</b>	<b>\$46,756</b>	<b>\$429,715</b>	<b>5.6</b>	<b>615,165</b>



# THOMAS CANE IV ADMIN. BUILDING

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>20,818</b>	<b>6.6</b>	<b>0</b>	<b>\$2,786</b>	<b>\$11,980</b>	<b>\$2,229</b>	<b>\$9,751</b>	<b>3.5</b>	<b>20,964</b>
ECM 1	Install LED Fixtures	Yes	4,327	0.7	0	\$579	\$4,551	\$305	\$4,246	7.3	4,358
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	721	0.3	0	\$96	\$325	\$50	\$275	2.8	726
ECM 3	Retrofit Fixtures with LED Lamps	Yes	15,770	5.6	0	\$2,110	\$7,105	\$1,874	\$5,231	2.5	15,880
<b>Lighting Control Measures</b>			<b>10,499</b>	<b>3.6</b>	<b>0</b>	<b>\$1,405</b>	<b>\$12,030</b>	<b>\$1,365</b>	<b>\$10,665</b>	<b>7.6</b>	<b>10,572</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	9,646	3.3	0	\$1,291	\$11,230	\$1,365	\$9,865	7.6	9,714
ECM 5	Install High/Low Lighting Controls	Yes	852	0.3	0	\$114	\$800	\$0	\$800	7.0	858
<b>Domestic Water Heating Upgrade</b>			<b>1,668</b>	<b>0.0</b>	<b>0</b>	<b>\$223</b>	<b>\$14</b>	<b>\$0</b>	<b>\$14</b>	<b>0.1</b>	<b>1,680</b>
ECM 6	Install Low-Flow DHW Devices	Yes	1,668	0.0	0	\$223	\$14	\$0	\$14	0.1	1,680
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>32,985</b>	<b>10.2</b>	<b>0</b>	<b>\$4,414</b>	<b>\$24,025</b>	<b>\$3,594</b>	<b>\$20,431</b>	<b>4.6</b>	<b>33,216</b>
<b>TOTALS (ALL MEASURES)</b>			<b>32,985</b>	<b>10.2</b>	<b>0</b>	<b>\$4,414</b>	<b>\$24,025</b>	<b>\$3,594</b>	<b>\$20,431</b>	<b>4.6</b>	<b>33,216</b>

# WAREHOUSE

#	Energy Conservation Measure	Recommend?	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>55,906</b>	<b>17.3</b>	<b>-12</b>	<b>\$8,495</b>	<b>\$32,494</b>	<b>\$6,022</b>	<b>\$26,472</b>	<b>3.1</b>	<b>54,931</b>
ECM 1	Install LED Fixtures	Yes	45,247	14.1	-10	\$6,874	\$27,647	\$4,940	\$22,707	3.3	44,444
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,509	0.8	-1	\$381	\$1,416	\$220	\$1,196	3.1	2,460
ECM 3	Retrofit Fixtures with LED Lamps	Yes	8,150	2.4	-2	\$1,240	\$3,431	\$862	\$2,569	2.1	8,026
<b>Lighting Control Measures</b>			<b>8,231</b>	<b>2.7</b>	<b>-2</b>	<b>\$1,249</b>	<b>\$6,366</b>	<b>\$735</b>	<b>\$5,631</b>	<b>4.5</b>	<b>8,071</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	8,231	2.7	-2	\$1,249	\$6,366	\$735	\$5,631	4.5	8,071
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>63</b>	<b>\$777</b>	<b>\$7,305</b>	<b>\$0</b>	<b>\$7,305</b>	<b>9.4</b>	<b>7,330</b>
ECM 5	Install High Efficiency Unit Heaters	Yes	0	0.0	63	\$777	\$7,305	\$0	\$7,305	9.4	7,330
<b>Domestic Water Heating Upgrade</b>			<b>4,171</b>	<b>0.0</b>	<b>0</b>	<b>\$645</b>	<b>\$36</b>	<b>\$0</b>	<b>\$36</b>	<b>0.1</b>	<b>4,200</b>
ECM 6	Install Low-Flow DHW Devices	Yes	4,171	0.0	0	\$645	\$36	\$0	\$36	0.1	4,200
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>68,308</b>	<b>20.0</b>	<b>49</b>	<b>\$11,166</b>	<b>\$46,201</b>	<b>\$6,757</b>	<b>\$39,444</b>	<b>3.5</b>	<b>74,532</b>
<b>TOTALS (ALL MEASURES)</b>			<b>68,308</b>	<b>20.0</b>	<b>49</b>	<b>\$11,166</b>	<b>\$46,201</b>	<b>\$6,757</b>	<b>\$39,444</b>	<b>3.5</b>	<b>74,532</b>

# SOLAR ENERGY GENERATION POTENTIAL

	Bridgeton HS	West Ave. School	Quarter Mile Lane School	Buckshutem ES	Cherry Street School
<i>Potential:</i>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	502	169	374	493	164
<i>Electric Generation: (kWh per year)</i>	598,068	201,342	445,573	587,345	195,385
<i>Displaced Cost: (per year)</i>	\$95,620	\$439,400	\$70,490	\$86,340	\$426,400

**SREC Registration Program (SRP):**

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

**Community Solar Energy Pilot Program:**

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



# SOLAR ENERGY GENERATION POTENTIAL

	Indian Ave. School	Broad Street School	Thomas Cane IV Admin. Bldg
<i>Potential:</i>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	146	301	59
<i>Electric Generation: (kWh per year)</i>	173,490	358,602	70,291
<i>Displaced Cost: (per year)</i>	\$26,450	\$1,173,900	\$153,400

SREC Registration Program (SRP):

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

Community Solar Energy Pilot Program:

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



# 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***

# 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 (CHP)

## OTHER PROGRAMS

### Renewable Energy Generation:

- **SREC Registration Program (SRP)**



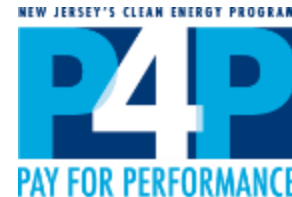
# RECOMMENDED NJCEP INCENTIVES PER BUILDING

Bridgeton PS	Pay For Performance	Direct Install	SmartStart	CTEEP
Bridgeton High School	X		X	X
West Avenue School	X		X	X
Quarter Mile Lane School	X		X	X
Buckshutem Elementary School	X		X	X
Cherry Street School			X	X
Indian Avenue School		X	X	X
Broad Street School	X		X	X
Thomas Cane IV Admin. Building		X	X	X
Warehouse		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*

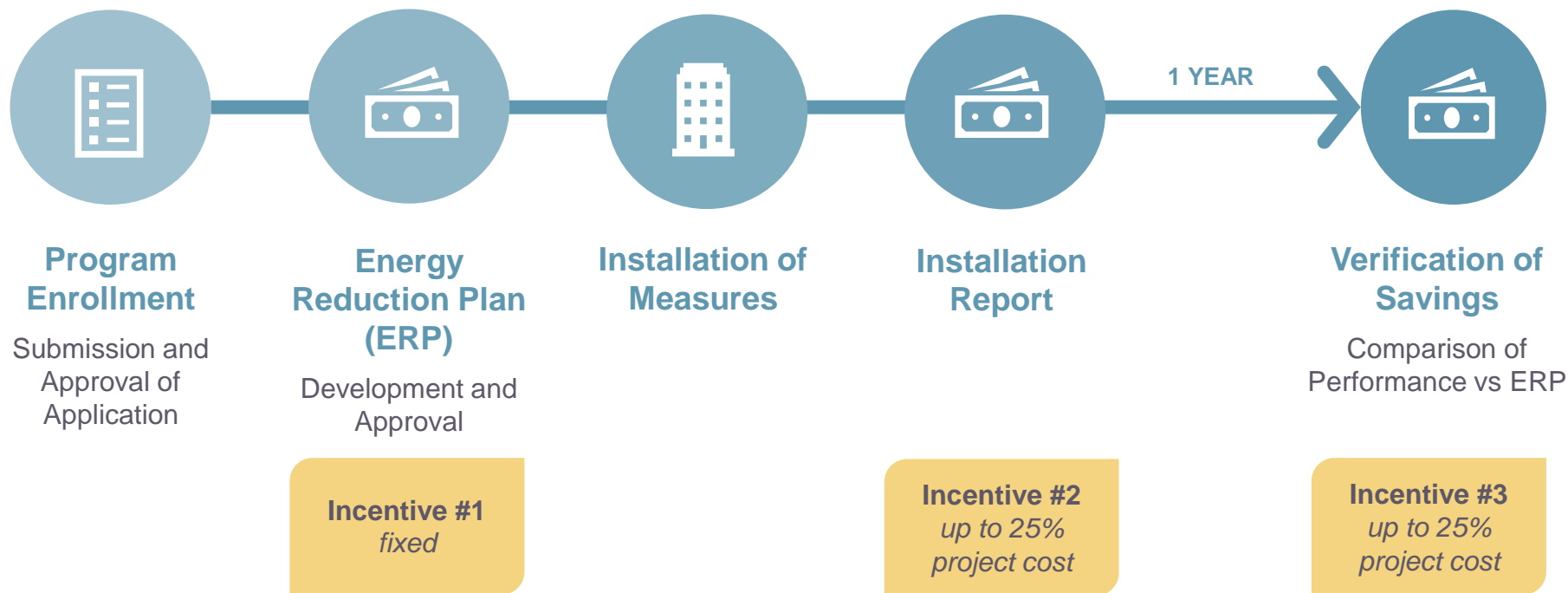
- Incentives:**
- Incentives paid in *three* installments
    - Up to \$2MM per project( (\$4MM entity cap/year)
      - \$1 million for electric measures
      - \$1 million for gas measures
    - Up to 50% of project cost (or 80% for UEZ/OZ/ MUNI/K-12 Public Schools) up to \$2MM per project / \$4MM per entity annually
    - Incentive #2 & #3 are doubles for UEZ/OZ/ MUNI/K-12 Public Schools





# PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



# DIRECT INSTALL

NJCleanEnergy.com/DI



**What is DI:** Turn-key retrofit program to replace outdated and inefficient equipment, including lighting, HVAC, refrigeration, etc.

**Qualifications:** Average electric peak demand <200 kW in the previous 12 months

- About:**
- Pre-approved participating contractors provide support and process paperwork
  - Incentives paid directly to the contractor
  - Fast project turnaround time (4-6 months)

- Incentives:**
- \$125,000 incentive funding per project/building (\$250K UEZ/OZ/ MUNI/K-12 Public Schools), or
  - \$250,000 entity cap (\$500K ESIP)

# DIRECT INSTALL

[NJCleanEnergy.com/DI](http://NJCleanEnergy.com/DI)

Facilities in Urban Enterprise Zones (UEZ), Opportunity Zones (OZ), municipalities, and K-12 public schools:

**INCENTIVE FUNDING**

**CUSTOMER**

Up to **80%** of installed cost is paid directly to the contractor

20% of installed cost

All other eligible facilities:

**INCENTIVE FUNDING**

**CUSTOMER**

Up to **70%** of installed cost is paid directly to the contractor

30% of installed cost



# DIRECT INSTALL

NJCleanEnergy.com/DI

## Participating Contractor

**Tri-State Light & Energy, Inc.**

Alan Rhode

610-789-1900 x226

[asr@tsle.com](mailto:asr@tsle.com)



# 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/ MUNI/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



# CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

[NJCleanEnergy.com/CTEEP](http://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**

# SMARTSTART, CTEEP, & P4P: FINANCING OPTION

- NJNG provides 0% financing options that will cover up to \$130,000 per year.
- 10 year term-repayments made on regular monthly gas bill
- Need to review project with NJNG to confirm project qualifies.
- The SAVEGREEN program can help with a consultation to discuss your Commercial Energy Efficiency Project.

- Questions? Contact:

Peter Druckenmiller  
Program Manager  
South Jersey Gas  
609-572-4271

[wdruckenmiller@sjindustries.com](mailto:wdruckenmiller@sjindustries.com)





# RECOMMENDED NJCEP INCENTIVES PER BUILDING

Bridgeton PS	Pay For Performance	Direct Install	SmartStart	CTEEP
Bridgeton High School	X		X	X
West Avenue School	X		X	X
Quarter Mile Lane School	X		X	X
Buckshutem Elementary School	X		X	X
Cherry Street School			X	X
Indian Avenue School		X	X	X
Broad Street School	X		X	X
Thomas Cane IV Admin. Building		X	X	X
Warehouse		X	X	X



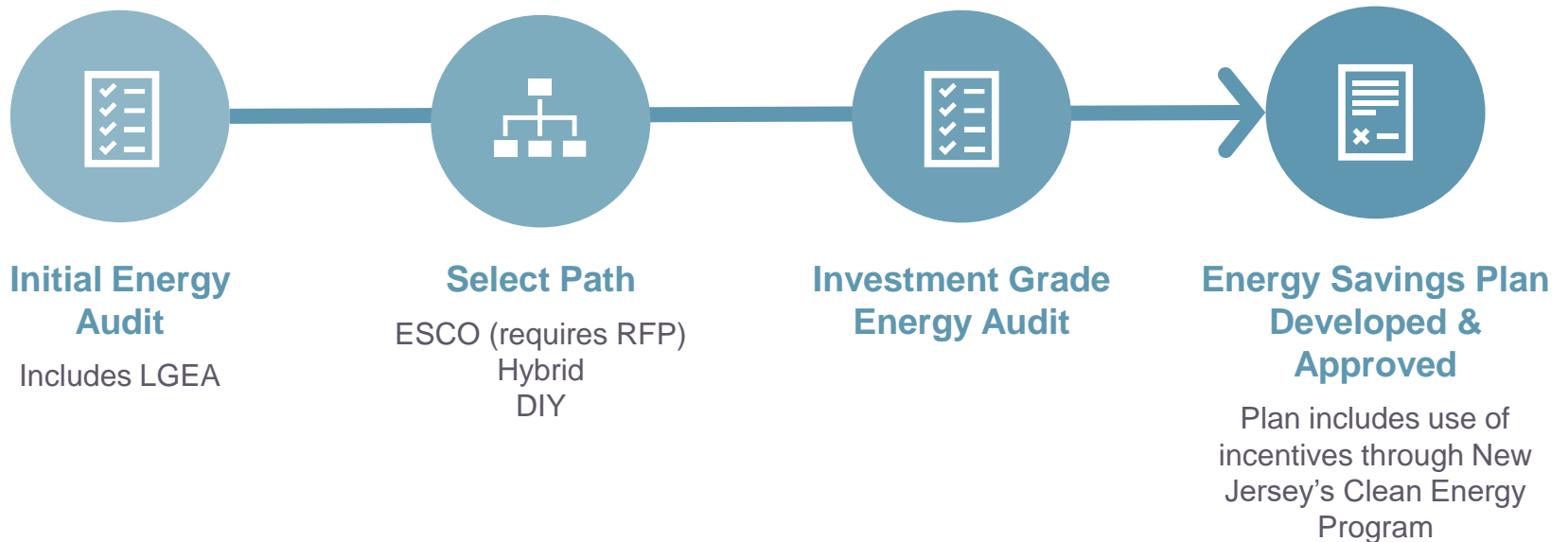
# FINANCING MECHANISM: ESIP

## 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



# ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

## FOR MORE INFORMATION

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ESIP Coordinator

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# FOR MORE INFORMATION

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# QUESTIONS

