

# New Jersey's Clean Energy Program

LGEA Exit Meeting for:  
*Kenilworth Board of Education*

July 22, 2019

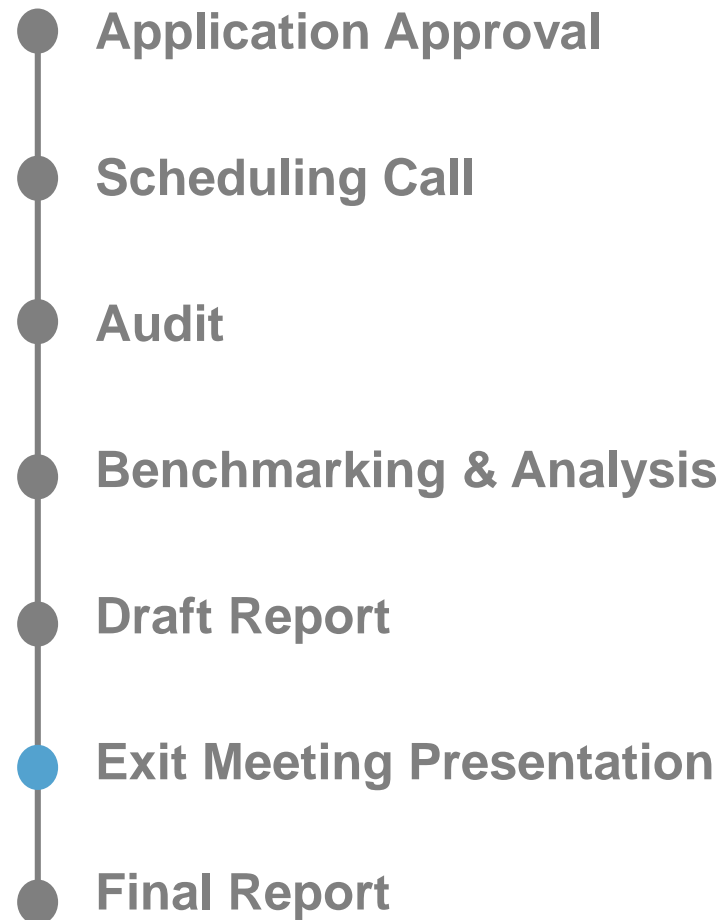
# INTRODUCTIONS

- *Kenilworth Board of Education*
  - Vincent Gonnella – Business Administrator
  - Christopher Caponegro – Supervisor of Buildings & Grounds
- *SSP Architects*
  - Scott Mihalick – Chief Operating Officer
- *NJ Clean Energy Program*
  - Aimee Lalonde – TRC Auditor
  - Sarah Walters – TRC Account Manager
  - Tony O'Donnell – TRC Outreach Manager
  - Arif Welcher – BPU Government/Business Manager

# 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 Kenilworth Board of Education

# LGEA PROCESS



# SITE VISIT & UTILITY ANALYSIS

## Overview of Systems, Baseline & Existing Conditions:

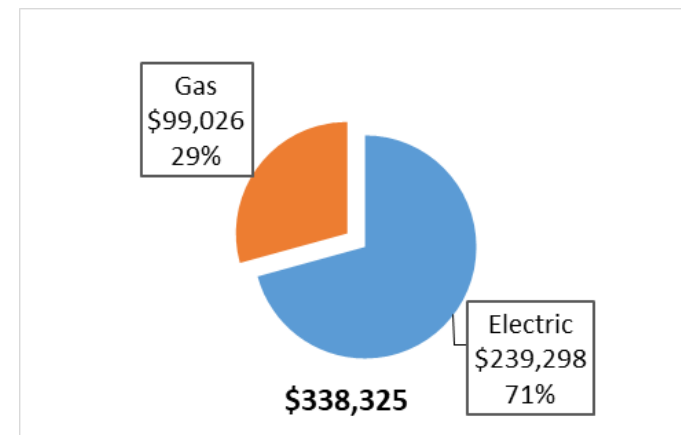
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment

## Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

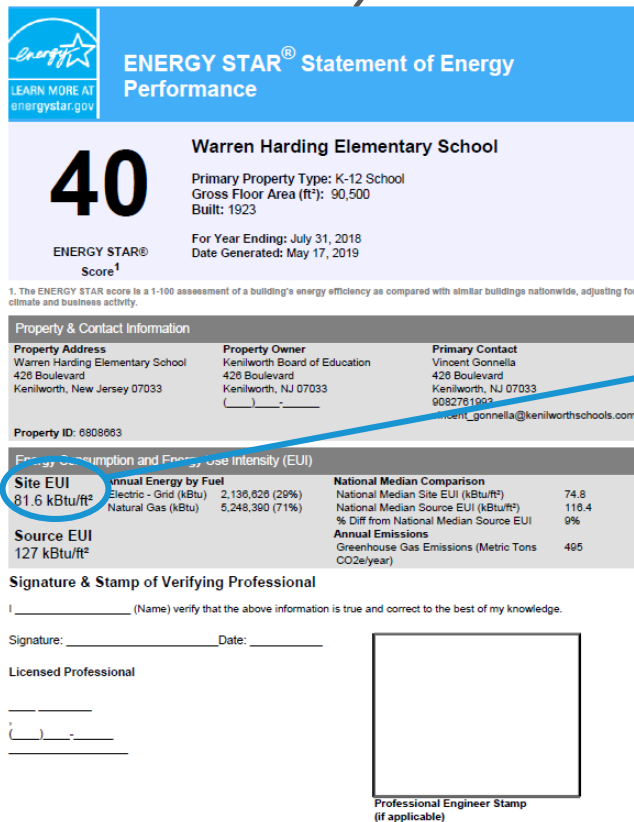
## Sites Visited/Analyzed

- Warren Harding Elementary School
- David Brearley Middle/High School



# BENCHMARKING

## Warren Harding Elementary School



**ENERGY STAR® Statement of Energy Performance**

**40**  
ENERGY STAR® Score<sup>1</sup>

**Warren Harding Elementary School**  
Primary Property Type: K-12 School  
Gross Floor Area (ft²): 90,500  
Built: 1923  
For Year Ending: July 31, 2018  
Date Generated: May 17, 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> Warren Harding Elementary School 426 Boulevard Kenilworth, New Jersey 07033	<b>Property Owner</b> Kenilworth Board of Education 426 Boulevard Kenilworth, NJ 07033 ( ) - ( ) - ( )	<b>Primary Contact</b> Vincent Gonnella 426 Boulevard Kenilworth, NJ 07033 9082781903 vgonnella@kenilworthschools.com
Property ID: 680863		

Energy Consumption and Energy Use Intensity (EUI)		
<b>Site EUI</b> 81.6 kBtu/ft²	<b>Annual Energy by Fuel</b> Electric - Grid (kBtu) 2,136,626 (26%) Natural Gas (kBtu) 5,248,360 (71%)	<b>National Median Comparison</b> National Median Site EUI (kBtu/ft²) 74.8 National Median Source EUI (kBtu/ft²) 116.4 % Diff from National Median Source EUI 9% <b>Annual Emissions</b> Greenhouse Gas Emissions (Metric Tons CO2e/year) 495
<b>Source EUI</b> 127 kBtu/ft²		

**Signature & Stamp of Verifying Professional**

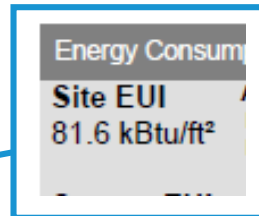
I, \_\_\_\_\_ (Name) verify that the above information is true and correct to the best of my knowledge.

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

Licensed Professional

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

Professional Engineer Stamp  
(if applicable)



Building Name	ENERGY STAR® Score
Warren Harding Elementary School	40
David Brearley Middle/High School	57

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>284,272</b>	<b>87.8</b>	<b>-55.9</b>	<b>\$38,133.45</b>	<b>\$138,283</b>	<b>\$29,349</b>	<b>\$108,934</b>	<b>2.9</b>	<b>279,715</b>
Install LED Fixtures	17,883	3.3	-0.6	\$2,522.54	\$22,709	\$2,135	\$20,574	8.2	17,940
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,442	2.3	-0.3	\$190.66	\$3,316	\$550	\$2,766	14.5	1,417
Retrofit Fixtures with LED Lamps	264,946	82.1	-55.0	\$35,420.25	\$112,258	\$26,664	\$85,594	2.4	260,357
<b>Lighting Control Measures</b>	<b>19,425</b>	<b>4.0</b>	<b>-4.1</b>	<b>\$2,599.76</b>	<b>\$24,918</b>	<b>\$1,055</b>	<b>\$23,863</b>	<b>9.2</b>	<b>19,085</b>
Install Occupancy Sensor Lighting Controls	6,391	1.8	-1.3	\$851.88	\$11,418	\$1,055	\$10,363	12.2	6,280
Install High/Low Lighting Controls	13,034	2.1	-2.7	\$1,747.88	\$13,500	\$0	\$13,500	7.7	12,806
<b>Motor Upgrades</b>	<b>392</b>	<b>0.1</b>	<b>0.0</b>	<b>\$50.84</b>	<b>\$1,547</b>	<b>\$0</b>	<b>\$1,547</b>	<b>30.4</b>	<b>395</b>
Premium Efficiency Motors	392	0.1	0.0	\$50.84	\$1,547	\$0	\$1,547	30.4	395
<b>Variable Frequency Drive (VFD) Measures</b>	<b>188,365</b>	<b>44.0</b>	<b>0.0</b>	<b>\$25,381.24</b>	<b>\$179,397</b>	<b>\$8,080</b>	<b>\$171,317</b>	<b>6.7</b>	<b>189,882</b>
Install VFDs on Constant Volume (CV) Fans	106,467	30.0	0.0	\$14,088.97	\$132,025	\$8,080	\$123,945	8.8	107,212
Install VFDs on Chilled Water Pumps	27,299	7.8	0.0	\$3,764.09	\$19,457	\$0	\$19,457	5.2	27,490
Install VFDs on Heating Water Pumps	54,598	6.3	0.0	\$7,528.18	\$27,914	\$0	\$27,914	3.7	54,980
<b>Electric Unitary HVAC Measures</b>	<b>20,751</b>	<b>21.5</b>	<b>0.0</b>	<b>\$2,873.40</b>	<b>\$168,909</b>	<b>\$10,252</b>	<b>\$158,657</b>	<b>55.2</b>	<b>20,896</b>
Install High Efficiency Air Conditioning Units	20,751	21.5	0.0	\$2,873.40	\$168,909	\$10,252	\$158,657	55.2	20,896
<b>Electric Chiller Replacement</b>	<b>15,935</b>	<b>17.8</b>	<b>0.0</b>	<b>\$2,067.01</b>	<b>\$145,041</b>	<b>\$15,640</b>	<b>\$129,401</b>	<b>62.6</b>	<b>16,046</b>
Install High Efficiency Chillers	15,935	17.8	0.0	\$2,067.01	\$145,041	\$15,640	\$129,401	62.6	16,046
<b>Gas Heating (HVAC/Process) Replacement</b>	<b>0</b>	<b>0.0</b>	<b>252.0</b>	<b>\$1,974.95</b>	<b>\$43,366</b>	<b>\$7,200</b>	<b>\$36,166</b>	<b>18.3</b>	<b>29,505</b>
Install High Efficiency Furnaces	0	0.0	252.0	\$1,974.95	\$43,366	\$7,200	\$36,166	18.3	29,505
<b>HVAC System Improvements</b>	<b>726</b>	<b>0.0</b>	<b>16.1</b>	<b>\$227.98</b>	<b>\$2,719</b>	<b>\$0</b>	<b>\$2,719</b>	<b>11.9</b>	<b>2,622</b>
Implement Demand Control Ventilation (DCV)	726	0.0	16.1	\$227.98	\$2,719	\$0	\$2,719	11.9	2,622
<b>Domestic Water Heating Upgrade</b>	<b>38,462</b>	<b>18.0</b>	<b>-71.2</b>	<b>\$4,452.30</b>	<b>\$25,582</b>	<b>\$2,669</b>	<b>\$22,913</b>	<b>5.1</b>	<b>30,393</b>
Install High Efficiency Gas-Fired Water Heater	2,462	7.2	15.4	\$470.91	\$15,714	\$544	\$15,170	32.2	4,277
Install Gas-Fired Booster Water Heater	36,000	10.8	-125.0	\$3,681.19	\$9,288	\$2,125	\$7,163	1.9	21,616
Install Low-Flow DHW Devices	0	0.0	38.4	\$300.20	\$581	\$0	\$581	1.9	4,500
<b>Food Service Equipment &amp; Refrigeration Measures</b>	<b>9,962</b>	<b>0.8</b>	<b>0.0</b>	<b>\$1,292.25</b>	<b>\$4,865</b>	<b>\$350</b>	<b>\$4,515</b>	<b>3.5</b>	<b>10,032</b>
Refrigerator/Freezer Case Electrically Commutated Motors	4,915	0.6	0.0	\$637.55	\$1,517	\$200	\$1,317	2.1	4,949
Refrigeration Controls	5,047	0.2	0.0	\$654.70	\$3,348	\$150	\$3,198	4.9	5,082
<b>Plug Load Equipment Control - Vending Machine</b>	<b>4,836</b>	<b>0.6</b>	<b>0.0</b>	<b>\$649.37</b>	<b>\$690</b>	<b>\$150</b>	<b>\$540</b>	<b>0.8</b>	<b>4,869</b>
Vending Machine Control	4,836	0.6	0.0	\$649.37	\$690	\$150	\$540	0.8	4,869
<b>Custom Measures</b>	<b>40,180</b>	<b>0.0</b>	<b>628.0</b>	<b>\$10,293.70</b>	<b>\$357,615</b>	<b>\$0</b>	<b>\$357,615</b>	<b>34.7</b>	<b>113,995</b>
Installation of an Energy Management System	40,180	0.0	628.0	\$10,293.70	\$357,615	\$0	\$357,615	34.7	113,995
<b>TOTALS</b>	<b>623,306</b>	<b>194.5</b>	<b>765.0</b>	<b>\$89,996.25</b>	<b>\$1,092,932</b>	<b>\$74,744</b>	<b>\$1,018,187</b>	<b>11.3</b>	<b>717,235</b>

\* - 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

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>284,272</b>	<b>87.8</b>	<b>-55.9</b>	<b>\$38,133</b>	<b>\$138,283</b>	<b>\$29,349</b>	<b>\$108,934</b>	<b>2.9</b>	<b>279,715</b>
ECM 1	Install LED Fixtures	17,883	3.3	-0.6	\$2,523	\$22,709	\$2,135	\$20,574	8.2	17,940
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,442	2.3	-0.3	\$191	\$3,316	\$550	\$2,766	14.5	1,417
ECM 3	Retrofit Fixtures with LED Lamps	264,946	82.1	-55.0	\$35,420	\$112,258	\$26,664	\$85,594	2.4	260,357
<b>Lighting Control Measures</b>		<b>19,425</b>	<b>4.0</b>	<b>-4.1</b>	<b>\$2,600</b>	<b>\$24,918</b>	<b>\$1,055</b>	<b>\$23,863</b>	<b>9.2</b>	<b>19,085</b>
ECM 4	Install Occupancy Sensor Lighting Controls	6,391	1.8	-1.3	\$852	\$11,418	\$1,055	\$10,363	12.2	6,280
ECM 5	Install High/Low Lighting Controls	13,034	2.1	-2.7	\$1,748	\$13,500	\$0	\$13,500	7.7	12,806
<b>Variable Frequency Drive (VFD) Measures</b>		<b>102,177</b>	<b>20.6</b>	<b>0.0</b>	<b>\$14,201</b>	<b>\$70,006</b>	<b>\$1,760</b>	<b>\$68,246</b>	<b>4.8</b>	<b>102,891</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	20,279	6.5	0.0	\$2,909	\$22,635	\$1,760	\$20,875	7.2	20,421
ECM 7	Install VFDs on Chilled Water Pumps	27,299	7.8	0.0	\$3,764	\$19,457	\$0	\$19,457	5.2	27,490
ECM 8	Install VFDs on Heating Water Pumps	54,598	6.3	0.0	\$7,528	\$27,914	\$0	\$27,914	3.7	54,980
<b>Domestic Water Heating Upgrade</b>		<b>36,000</b>	<b>10.8</b>	<b>-86.6</b>	<b>\$3,981</b>	<b>\$9,868</b>	<b>\$2,125</b>	<b>\$7,743</b>	<b>1.9</b>	<b>26,116</b>
ECM 9	Install Gas-Fired Booster Water Heater	36,000	10.8	-125.0	\$3,681	\$9,288	\$2,125	\$7,163	1.9	21,616
ECM 10	Install Low-Flow DHW Devices	0	0.0	38.4	\$300	\$581	\$0	\$581	1.9	4,500
<b>Food Service Equipment &amp; Refrigeration Measures</b>		<b>9,962</b>	<b>0.8</b>	<b>0.0</b>	<b>\$1,292</b>	<b>\$4,865</b>	<b>\$350</b>	<b>\$4,515</b>	<b>3.5</b>	<b>10,032</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	4,915	0.6	0.0	\$638	\$1,517	\$200	\$1,317	2.1	4,949
ECM 12	Refrigeration Controls	5,047	0.2	0.0	\$655	\$3,348	\$150	\$3,198	4.9	5,082
<b>Plug Load Equipment Control - Vending Machine</b>		<b>4,836</b>	<b>0.6</b>	<b>0.0</b>	<b>\$649</b>	<b>\$690</b>	<b>\$150</b>	<b>\$540</b>	<b>0.8</b>	<b>4,869</b>
ECM 13	Vending Machine Control	4,836	0.6	0.0	\$649	\$690	\$150	\$540	0.8	4,869
<b>TOTALS</b>		<b>456,672</b>	<b>124.5</b>	<b>-146.5</b>	<b>\$60,857</b>	<b>\$248,630</b>	<b>\$34,789</b>	<b>\$213,841</b>	<b>3.5</b>	<b>442,708</b>

\* - 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).



# WARREN HARDING ELEMENTARY

#	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>123,502</b>	<b>36.8</b>	<b>-23</b>	<b>\$17,542</b>	<b>\$66,186</b>	<b>\$13,762</b>	<b>\$52,424</b>	<b>3.0</b>	<b>121,712</b>
ECM 1	Install LED Fixtures	Yes	15,106	1.5	0	\$2,167	\$18,611	\$2,000	\$16,611	7.7	15,212
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	430	0.1	0	\$61	\$239	\$30	\$209	3.4	423
ECM 3	Retrofit Fixtures with LED Lamps	Yes	107,966	35.1	-23	\$15,314	\$47,337	\$11,732	\$35,605	2.3	106,077
<b>Lighting Control Measures</b>			<b>8,138</b>	<b>1.7</b>	<b>-2</b>	<b>\$1,154</b>	<b>\$9,836</b>	<b>\$385</b>	<b>\$9,451</b>	<b>8.2</b>	<b>7,996</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,423	0.7	-1	\$344	\$4,436	\$385	\$4,051	11.8	2,380
ECM 5	Install High/Low Lighting Controls	Yes	5,716	0.9	-1	\$811	\$5,400	\$0	\$5,400	6.7	5,616
<b>Variable Frequency Drive (VFD) Measures</b>			<b>69,006</b>	<b>16.5</b>	<b>0</b>	<b>\$9,898</b>	<b>\$53,881</b>	<b>\$1,760</b>	<b>\$52,121</b>	<b>5.3</b>	<b>69,488</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	20,279	6.5	0	\$2,909	\$22,635	\$1,760	\$20,875	7.2	20,421
ECM 7	Install VFDs on Chilled Water Pumps	Yes	16,242	5.8	0	\$2,330	\$14,082	\$0	\$14,082	6.0	16,356
ECM 8	Install VFDs on Heating Water Pumps	Yes	32,484	4.2	0	\$4,660	\$17,164	\$0	\$17,164	3.7	32,711
<b>Electric Unitary HVAC Measures</b>			<b>13,233</b>	<b>13.4</b>	<b>0</b>	<b>\$1,898</b>	<b>\$124,107</b>	<b>\$6,250</b>	<b>\$117,857</b>	<b>62.1</b>	<b>13,325</b>
ECM 9	Install High Efficiency Air Conditioning Units	No	13,233	13.4	0	\$1,898	\$124,107	\$6,250	\$117,857	62.1	13,325
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>75</b>	<b>\$577</b>	<b>\$12,126</b>	<b>\$2,400</b>	<b>\$9,726</b>	<b>16.9</b>	<b>8,812</b>
ECM 10	Install High Efficiency Furnaces	No	0	0.0	75	\$577	\$12,126	\$2,400	\$9,726	16.9	8,812
<b>HVAC System Improvements</b>			<b>726</b>	<b>0.0</b>	<b>16</b>	<b>\$228</b>	<b>\$2,719</b>	<b>\$0</b>	<b>\$2,719</b>	<b>11.9</b>	<b>2,622</b>
ECM 11	Implement Demand Control Ventilation (DCV)	No	726	0.0	16	\$228	\$2,719	\$0	\$2,719	11.9	2,622
<b>Domestic Water Heating Upgrade</b>			<b>2,462</b>	<b>7.2</b>	<b>31</b>	<b>\$591</b>	<b>\$15,950</b>	<b>\$544</b>	<b>\$15,407</b>	<b>26.1</b>	<b>6,110</b>
ECM 12	Install High Efficiency Gas-Fired Water Heater	No	2,462	7.2	15	\$471	\$15,714	\$544	\$15,170	32.2	4,277
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	16	\$120	\$237	\$0	\$237	2.0	1,833
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,612</b>	<b>0.2</b>	<b>0</b>	<b>\$231</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>0.8</b>	<b>1,623</b>
ECM 14	Vending Machine Control	Yes	1,612	0.2	0	\$231	\$230	\$50	\$180	0.8	1,623
<b>Custom Measures</b>			<b>13,364</b>	<b>0.0</b>	<b>287</b>	<b>\$4,118</b>	<b>\$135,750</b>	<b>\$0</b>	<b>\$135,750</b>	<b>33.0</b>	<b>47,055</b>
ECM 15	Installation of an Energy Management System	No	13,364	0.0	287	\$4,118	\$135,750	\$0	\$135,750	33.0	47,055
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>202,258</b>	<b>55.1</b>	<b>-9</b>	<b>\$28,946</b>	<b>\$130,370</b>	<b>\$15,957</b>	<b>\$114,413</b>	<b>4.0</b>	<b>202,653</b>
<b>TOTALS (ALL MEASURES)</b>			<b>232,042</b>	<b>75.8</b>	<b>385</b>	<b>\$36,238</b>	<b>\$420,786</b>	<b>\$25,150</b>	<b>\$395,636</b>	<b>10.9</b>	<b>278,744</b>

# DAVID BREARLEY MIDDLE/HIGH 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>160,770</b>	<b>51.0</b>	<b>-33</b>	<b>\$20,592</b>	<b>\$72,097</b>	<b>\$15,587</b>	<b>\$56,510</b>	<b>2.7</b>	<b>158,003</b>
ECM 1	Install LED Fixtures	Yes	2,777	1.8	-1	\$356	\$4,098	\$135	\$3,963	11.1	2,728
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,012	2.2	0	\$130	\$3,077	\$520	\$2,557	19.7	995
ECM 3	Retrofit Fixtures with LED Lamps	Yes	156,981	47.0	-32	\$20,106	\$64,922	\$14,932	\$49,990	2.5	154,280
<b>Lighting Control Measures</b>			<b>11,287</b>	<b>2.3</b>	<b>-2</b>	<b>\$1,445</b>	<b>\$15,082</b>	<b>\$670</b>	<b>\$14,412</b>	<b>10.0</b>	<b>11,089</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	3,969	1.1	-1	\$508	\$6,982	\$670	\$6,312	12.4	3,900
ECM 5	Install High/Low Lighting Controls	Yes	7,318	1.2	-2	\$937	\$8,100	\$0	\$8,100	8.6	7,190
<b>Motor Upgrades</b>			<b>392</b>	<b>0.1</b>	<b>0</b>	<b>\$51</b>	<b>\$1,547</b>	<b>\$0</b>	<b>\$1,547</b>	<b>30.4</b>	<b>395</b>
ECM 6	Premium Efficiency Motors	No	392	0.1	0	\$51	\$1,547	\$0	\$1,547	30.4	395
<b>Variable Frequency Drive (VFD) Measures</b>			<b>119,359</b>	<b>27.5</b>	<b>0</b>	<b>\$15,483</b>	<b>\$125,515</b>	<b>\$6,320</b>	<b>\$119,195</b>	<b>7.7</b>	<b>120,193</b>
ECM 7	Install VFDs on Constant Volume (CV) Fans	No	86,188	23.4	0	\$11,180	\$109,390	\$6,320	\$103,070	9.2	86,791
ECM 8	Install VFDs on Chilled Water Pumps	Yes	11,057	1.9	0	\$1,434	\$5,375	\$0	\$5,375	3.7	11,134
ECM 9	Install VFDs on Heating Water Pumps	Yes	22,114	2.1	0	\$2,869	\$10,750	\$0	\$10,750	3.7	22,269
<b>Electric Unitary HVAC Measures</b>			<b>7,518</b>	<b>8.1</b>	<b>0</b>	<b>\$975</b>	<b>\$44,802</b>	<b>\$4,002</b>	<b>\$40,800</b>	<b>41.8</b>	<b>7,571</b>
ECM 10	Install High Efficiency Air Conditioning Units	No	7,518	8.1	0	\$975	\$44,802	\$4,002	\$40,800	41.8	7,571
<b>Electric Chiller Replacement</b>			<b>15,935</b>	<b>17.8</b>	<b>0</b>	<b>\$2,067</b>	<b>\$145,041</b>	<b>\$15,640</b>	<b>\$129,401</b>	<b>62.6</b>	<b>16,046</b>
ECM 11	Install High Efficiency Chillers	No	15,935	17.8	0	\$2,067	\$145,041	\$15,640	\$129,401	62.6	16,046
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>177</b>	<b>\$1,398</b>	<b>\$31,240</b>	<b>\$4,800</b>	<b>\$26,440</b>	<b>18.9</b>	<b>20,693</b>
ECM 12	Install High Efficiency Furnaces	No	0	0.0	177	\$1,398	\$31,240	\$4,800	\$26,440	18.9	20,693
<b>Domestic Water Heating Upgrade</b>			<b>36,000</b>	<b>10.8</b>	<b>-102</b>	<b>\$3,861</b>	<b>\$9,632</b>	<b>\$2,125</b>	<b>\$7,507</b>	<b>1.9</b>	<b>24,282</b>
ECM 13	Install Gas-Fired Booster Water Heater	Yes	36,000	10.8	-125	\$3,681	\$9,288	\$2,125	\$7,163	1.9	21,616
ECM 14	Install Low-Flow DHW Devices	Yes	0	0.0	23	\$180	\$344	\$0	\$344	1.9	2,667
<b>Food Service &amp; Refrigeration Measures</b>			<b>13,186</b>	<b>1.2</b>	<b>0</b>	<b>\$1,710</b>	<b>\$5,325</b>	<b>\$450</b>	<b>\$4,875</b>	<b>2.8</b>	<b>13,278</b>
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	4,915	0.6	0	\$638	\$1,517	\$200	\$1,317	2.1	4,949
ECM 16	Refrigeration Controls	Yes	5,047	0.2	0	\$655	\$3,348	\$150	\$3,198	4.9	5,082
ECM 17	Vending Machine Control	Yes	3,224	0.4	0	\$418	\$460	\$100	\$360	0.9	3,246
<b>Custom Measures</b>			<b>26,817</b>	<b>0.0</b>	<b>341</b>	<b>\$6,176</b>	<b>\$221,865</b>	<b>\$0</b>	<b>\$221,865</b>	<b>35.9</b>	<b>66,940</b>
ECM 18	Installation of an Energy Management System	No	26,817	0.0	341	\$6,176	\$221,865	\$0	\$221,865	35.9	66,940
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>254,414</b>	<b>69.4</b>	<b>-138</b>	<b>\$31,912</b>	<b>\$118,260</b>	<b>\$18,832</b>	<b>\$99,428</b>	<b>3.1</b>	<b>240,055</b>
<b>TOTALS (ALL MEASURES)</b>			<b>391,263</b>	<b>118.8</b>	<b>380</b>	<b>\$53,759</b>	<b>\$672,146</b>	<b>\$49,594</b>	<b>\$622,552</b>	<b>11.6</b>	<b>438,491</b>

# SOLAR ENERGY GENERATION POTENTIAL

	Warren Harding Elementary School	David Brearley Middle/High School
<i>Potential:</i>	<b>HIGH</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	324	464
<i>Electric Generation: (kWh per year)</i>	386,004	552,796
<i>Displaced Cost: (per year)</i>	\$55,370	\$71,710

## SREC Registration Program (SRP):

<http://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy>

## Community Solar Energy Pilot Program:

<http://njcleanenergy.com/renewable-energy/programs/community-solar>

# 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**
- **CTEEP (Customer Tailored Energy Efficiency Pilot)**
- 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)

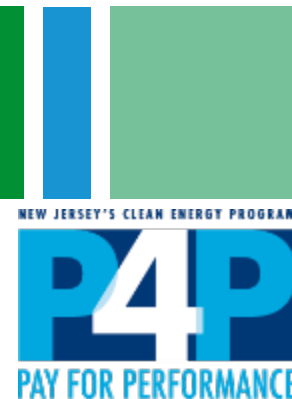
# RECOMMENDED NJCEP INCENTIVES PER BUILDING

Entity Name	Pay For Performance*	SmartStart	CTEEP
Warren Harding Elementary School	X	X	X
David Brearley High/Middle School	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***

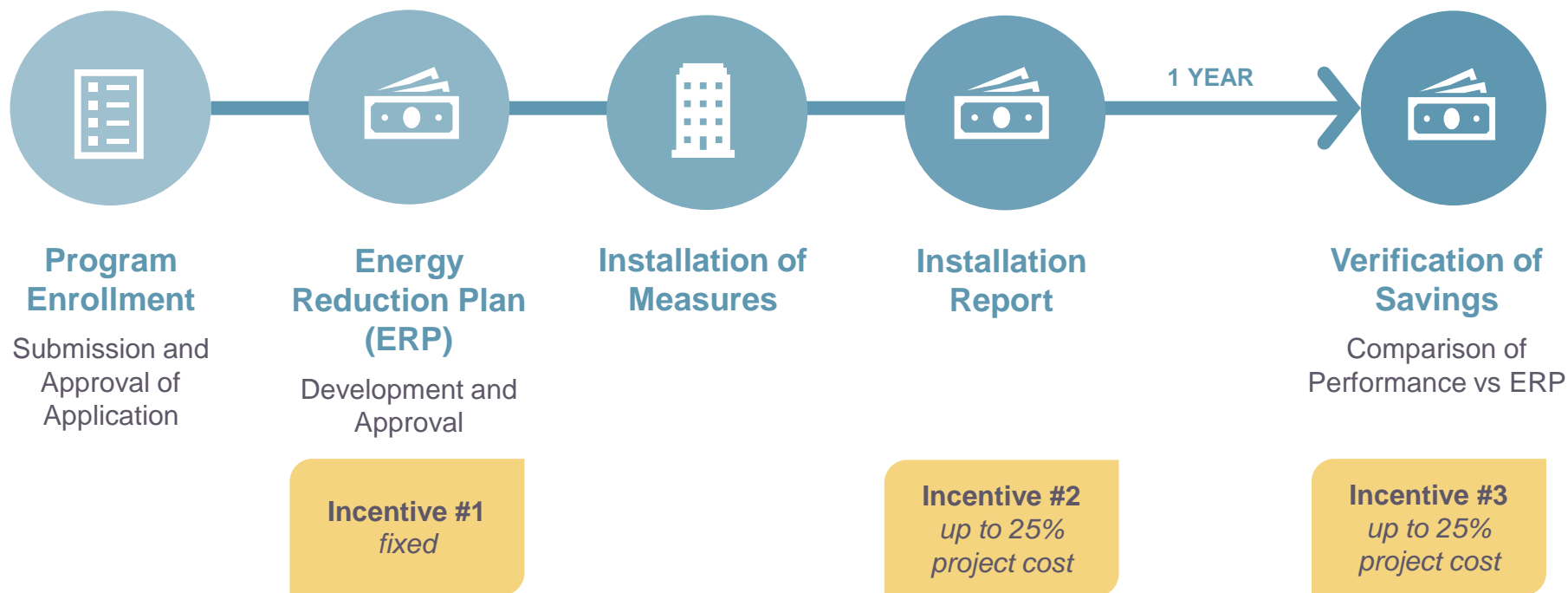
**Incentives:**

- 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 80% for UEZ/OZ/ MUNI/**K-12 Public Schools** up to \$4MM per entity annually
  - Incentive #2 & #3 are double for UEZ/OZ/ MUNI/**K-12 Public Schools**



# 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 a// 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-dwon 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)

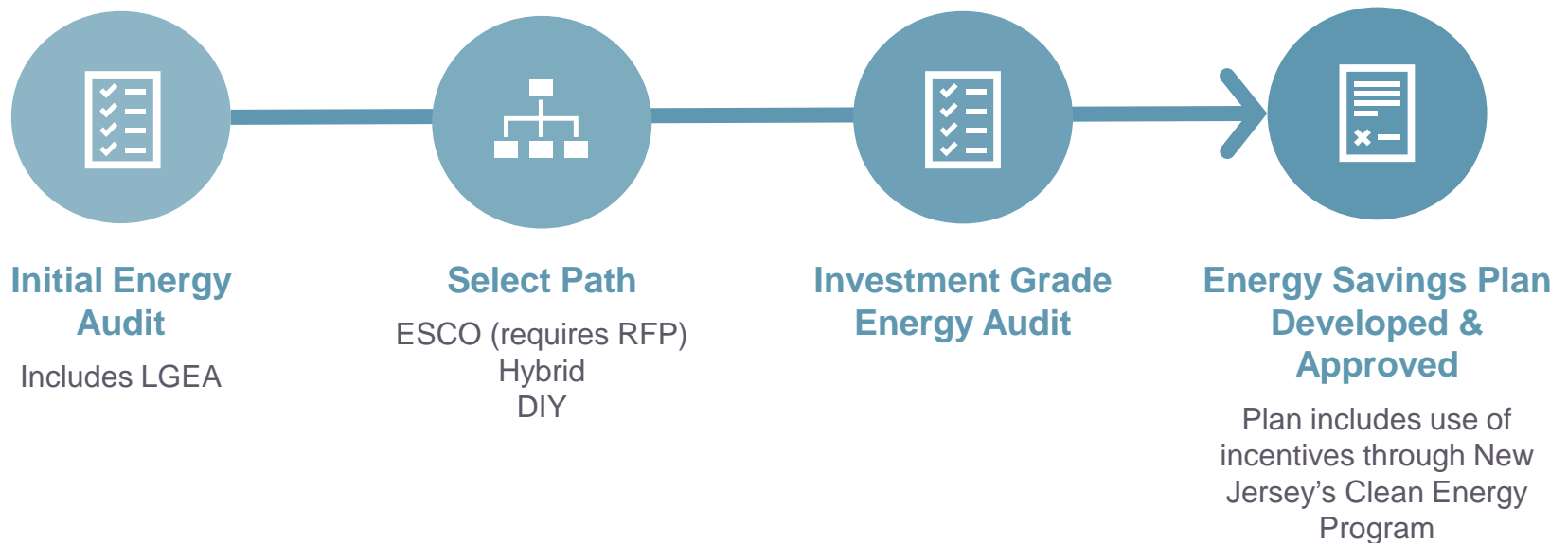
**SAME INCENTIVE  
VALUES AS  
SMARTSTART**

# 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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# FOR MORE INFORMATION

**Visit** [NJCleanEnergy.com](http://NJCleanEnergy.com)

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# QUESTIONS

