

# New Jersey's Clean Energy Program

LGEA Exit Meeting for:  
*Bogota Board of Education*

September 9th, 2019



# INTRODUCTIONS

## *Bogota Board of Education*

- Damian Kennedy – Superintendent
  - Irfan Evcil – Business Administrator
  - Frank Messineo – Principal, Solutions Architecture
- 
- *NJ Clean Energy Program*
    - Aimee Lalonde – TRC Program Manager
    - Yagna Otia – TRC Auditor
    - Amanda Muench – TRC Account Manager
    - Mike Mandzik – TRC Outreach 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 Bogota Board of Education



# LGEA PROCESS

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

# SITE VISIT & UTILITY ANALYSIS

## Overview of Systems, Baseline & Existing Conditions:

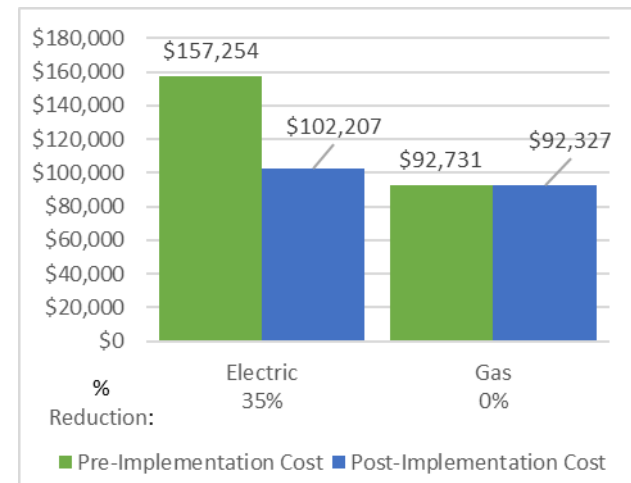
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Kitchen Equipment

## Utility Consumption:


- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## Sites Visited/Analyzed

- Bogota Board Offices
- Bogota Jr. and Sr. HS
- E. Roy Bixby Elementary School
- Lillian M Steen Elementary School
- Joseph Fiegel Field



# BENCHMARKING



**ENERGY STAR® Statement of Energy Performance**

**49**

ENERGY STAR® Score<sup>1</sup>

**BOGOTA JR./SR. HIGH SCHOOL**

Primary Property Type: K-12 School  
Gross Floor Area (ft<sup>2</sup>): 93,784  
Built: 1923

For Year Ending: February 28, 2019  
Date Generated: June 07, 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> BOGOTA JR./SR. HIGH SCHOOL 2 HENRY C. LUTHON PLACE BOGOTA, New Jersey 07803	<b>Property Owner</b> BOGOTA BOARD OF EDUCATION 1 HENRY C. LUTHIN PLACE BOGOTA, NJ 7803 ( ) - -	<b>Primary Contact</b> IRFAN EVCIL 1 HENRY C. LUTHIN PLACE BOGOTA, NJ 7803 201-777-4800 * 1004 ievcil@bogotaboee.com
Property ID: 6829511		

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

Energy Consumption and Energy Use Intensity (EUI)			
<b>Site EUI</b> 77.4 kBtu/ft <sup>2</sup>	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>	
	Electric - Grid (kBtu) 1,532,472 (21%)	National Median Site EUI (kBtu/ft <sup>2</sup> )	77.1
	Natural Gas (kBtu) 5,724,026 (79%)	National Median Source EUI (kBtu/ft <sup>2</sup> )	109.5
		% Diff from National Median Source EUI	0%
<b>Source EUI</b> 109.8 kBtu/ft <sup>2</sup>		<b>Annual Emissions</b>	
		Greenhouse Gas Emissions (Metric Tons CO <sub>2</sub> e/year)	450

**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
Bogota Board Offices	58
Bogota Jr. & Sr. High School	49
E. Roy Bixby Elementary School	34
Lillian M. Steen Elementary School	21
Joseph Fiegel Field	N/A

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>259,387</b>	<b>74.2</b>	<b>-53.3</b>	<b>\$34,417</b>	<b>\$123,679</b>	<b>\$25,109</b>	<b>\$98,570</b>	<b>2.9</b>	<b>254,965</b>
Install LED Fixtures	38,359	8.6	-7.3	\$4,950	\$20,427	\$1,160	\$19,267	3.9	37,773
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	621	0.2	-0.1	\$80	\$271	\$36	\$235	3.0	610
Retrofit Fixtures with LED Lamps	220,407	65.5	-45.8	\$29,387	\$102,980	\$23,913	\$79,067	2.7	216,582
<b>Lighting Control Measures</b>	<b>46,679</b>	<b>11.7</b>	<b>-9.8</b>	<b>\$6,047</b>	<b>\$53,259</b>	<b>\$4,785</b>	<b>\$48,474</b>	<b>8.0</b>	<b>45,862</b>
Install Occupancy Sensor Lighting Controls	38,264	9.5	-8.0	\$4,914	\$37,734	\$4,785	\$32,949	6.7	37,595
Install High/Low Lighting Controls	8,414	2.2	-1.8	\$1,133	\$15,525	\$0	\$15,525	13.7	8,267
<b>Variable Frequency Drive (VFD) Measures</b>	<b>84,999</b>	<b>13.3</b>	<b>0.0</b>	<b>\$11,848</b>	<b>\$50,249</b>	<b>\$1,280</b>	<b>\$48,969</b>	<b>4.1</b>	<b>85,593</b>
Install VFDs on Constant Volume (CV) Fans	6,864	4.6	0.0	\$956	\$15,920	\$1,280	\$14,640	15.3	6,912
Install VFDs on Heating Water Pumps	78,135	8.7	0.0	\$10,891	\$34,328	\$0	\$34,328	3.2	78,681
<b>Gas Heating (HVAC/Process) Replacement</b>	<b>0</b>	<b>0.0</b>	<b>355.4</b>	<b>\$3,075</b>	<b>\$140,229</b>	<b>\$8,329</b>	<b>\$131,900</b>	<b>42.9</b>	<b>41,611</b>
Install High Efficiency Steam Boilers	0	0.0	355.4	\$3,075	\$140,229	\$8,329	\$131,900	42.9	41,611
<b>Domestic Water Heating Upgrade</b>	<b>15,891</b>	<b>0.0</b>	<b>142.8</b>	<b>\$3,488</b>	<b>\$34,456</b>	<b>\$1,173</b>	<b>\$33,283</b>	<b>9.5</b>	<b>32,718</b>
Install High Efficiency Gas-Fired Water Heater	0	0.0	34.6	\$299	\$33,574	\$1,173	\$32,401	108.3	4,050
Install Low-Flow DHW Devices	15,891	0.0	108.2	\$3,188	\$882	\$0	\$882	0.3	28,668
<b>Plug Load Equipment Control - Vending Machine</b>	<b>3,224</b>	<b>0.4</b>	<b>0.0</b>	<b>\$409</b>	<b>\$460</b>	<b>\$100</b>	<b>\$360</b>	<b>0.9</b>	<b>3,246</b>
Vending Machine Control	3,224	0.4	0.0	\$409	\$460	\$100	\$360	0.9	3,246
<b>TOTALS</b>	<b>410,179</b>	<b>99.6</b>	<b>435.1</b>	<b>\$59,283</b>	<b>\$402,331</b>	<b>\$40,776</b>	<b>\$361,555</b>	<b>6.1</b>	<b>463,996</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>259,387</b>	<b>74.2</b>	<b>-53.3</b>	<b>\$34,417</b>	<b>\$123,679</b>	<b>\$25,109</b>	<b>\$98,570</b>	<b>2.9</b>	<b>254,965</b>
ECM 1	Install LED Fixtures	38,359	8.6	-7.3	\$4,950	\$20,427	\$1,160	\$19,267	3.9	37,773
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	621	0.2	-0.1	\$80	\$271	\$36	\$235	3.0	610
ECM 3	Retrofit Fixtures with LED Lamps	220,407	65.5	-45.8	\$29,387	\$102,980	\$23,913	\$79,067	2.7	216,582
<b>Lighting Control Measures</b>		<b>43,852</b>	<b>11.1</b>	<b>-9.2</b>	<b>\$5,693</b>	<b>\$46,059</b>	<b>\$4,785</b>	<b>\$41,274</b>	<b>7.2</b>	<b>43,085</b>
ECM 4	Install Occupancy Sensor Lighting Controls	38,264	9.5	-8.0	\$4,914	\$37,734	\$4,785	\$32,949	6.7	37,595
ECM 5	Install High/Low Lighting Controls	5,588	1.6	-1.2	\$780	\$8,325	\$0	\$8,325	10.7	5,490
<b>Variable Frequency Drive (VFD) Measures</b>		<b>78,135</b>	<b>8.7</b>	<b>0.0</b>	<b>\$10,891</b>	<b>\$34,328</b>	<b>\$0</b>	<b>\$34,328</b>	<b>3.2</b>	<b>78,681</b>
ECM 6	Install VFDs on Heating Water Pumps	78,135	8.7	0.0	\$10,891	\$34,328	\$0	\$34,328	3.2	78,681
<b>Domestic Water Heating Upgrade</b>		<b>15,891</b>	<b>0.0</b>	<b>108.2</b>	<b>\$3,188</b>	<b>\$882</b>	<b>\$0</b>	<b>\$882</b>	<b>0.3</b>	<b>28,668</b>
ECM 7	Install Low-Flow DHW Devices	15,891	0.0	108.2	\$3,188	\$882	\$0	\$882	0.3	28,668
<b>Plug Load Equipment Control - Vending Machine</b>		<b>3,224</b>	<b>0.4</b>	<b>0.0</b>	<b>\$409</b>	<b>\$460</b>	<b>\$100</b>	<b>\$360</b>	<b>0.9</b>	<b>3,246</b>
ECM 8	Vending Machine Control	3,224	0.4	0.0	\$409	\$460	\$100	\$360	0.9	3,246
<b>TOTALS</b>		<b>400,488</b>	<b>94.3</b>	<b>45.8</b>	<b>\$54,599</b>	<b>\$205,408</b>	<b>\$29,994</b>	<b>\$175,414</b>	<b>3.2</b>	<b>408,645</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).



# BOGOTA BOARD OFFICES

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>4,056</b>	<b>1.6</b>	<b>-1</b>	<b>\$924</b>	<b>\$4,596</b>	<b>\$765</b>	<b>\$3,831</b>	<b>4.1</b>	<b>4,014</b>
ECM 1	Install LED Fixtures	Yes	1,177	0.2	0	\$270	\$2,898	\$300	\$2,598	9.6	1,186
ECM 2	Retrofit Fixtures with LED Lamps	Yes	2,879	1.5	-1	\$654	\$1,698	\$465	\$1,233	1.9	2,829
<b>Lighting Control Measures</b>			<b>370</b>	<b>0.2</b>	<b>0</b>	<b>\$84</b>	<b>\$573</b>	<b>\$60</b>	<b>\$513</b>	<b>6.1</b>	<b>364</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	247	0.1	0	\$56	\$348	\$60	\$288	5.1	243
ECM 4	Install High/Low Lighting Controls	Yes	123	0.1	0	\$28	\$225	\$0	\$225	8.0	121
<b>Domestic Water Heating Upgrade</b>			<b>417</b>	<b>0.0</b>	<b>0</b>	<b>\$96</b>	<b>\$14</b>	<b>\$0</b>	<b>\$14</b>	<b>0.1</b>	<b>420</b>
ECM 5	Install Low-Flow DHW Devices	Yes	417	0.0	0	\$96	\$14	\$0	\$14	0.1	420
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>4,844</b>	<b>1.8</b>	<b>-1</b>	<b>\$1,104</b>	<b>\$5,183</b>	<b>\$825</b>	<b>\$4,358</b>	<b>3.9</b>	<b>4,798</b>
<b>TOTALS (ALL MEASURES)</b>			<b>4,844</b>	<b>1.8</b>	<b>-1</b>	<b>\$1,104</b>	<b>\$5,183</b>	<b>\$825</b>	<b>\$4,358</b>	<b>3.9</b>	<b>4,798</b>

# BOGOTA JR. & SR. HS

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>149,980</b>	<b>35.0</b>	<b>-31</b>	<b>\$18,744</b>	<b>\$52,088</b>	<b>\$9,759</b>	<b>\$42,329</b>	<b>2.3</b>	<b>147,357</b>
ECM 1	Install LED Fixtures	Yes	34,876	8.1	-7	\$4,359	\$13,666	\$460	\$13,206	3.0	34,266
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	466	0.1	0	\$58	\$202	\$26	\$176	3.0	458
ECM 3	Retrofit Fixtures with LED Lamps	Yes	114,638	26.7	-24	\$14,327	\$38,220	\$9,273	\$28,947	2.0	112,633
<b>Lighting Control Measures</b>			<b>32,883</b>	<b>7.7</b>	<b>-7</b>	<b>\$4,110</b>	<b>\$36,638</b>	<b>\$3,755</b>	<b>\$32,883</b>	<b>8.0</b>	<b>32,308</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	30,056	7.0	-6	\$3,756	\$29,438	\$3,755	\$25,683	6.8	29,530
ECM 5	Install High/Low Lighting Controls	No	2,827	0.7	-1	\$353	\$7,200	\$0	\$7,200	20.4	2,777
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>355</b>	<b>\$3,075</b>	<b>\$140,229</b>	<b>\$8,329</b>	<b>\$131,900</b>	<b>42.9</b>	<b>41,611</b>
ECM 6	Install High Efficiency Steam Boilers	No	0	0.0	355	\$3,075	\$140,229	\$8,329	\$131,900	42.9	41,611
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>143</b>	<b>\$1,235</b>	<b>\$33,846</b>	<b>\$1,173</b>	<b>\$32,674</b>	<b>26.4</b>	<b>16,716</b>
ECM 7	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	35	\$299	\$33,574	\$1,173	\$32,401	108.3	4,050
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	108	\$936	\$272	\$0	\$272	0.3	12,666
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,224</b>	<b>0.4</b>	<b>0</b>	<b>\$409</b>	<b>\$460</b>	<b>\$100</b>	<b>\$360</b>	<b>0.9</b>	<b>3,246</b>
ECM 9	Vending Machine Control	Yes	3,224	0.4	0	\$409	\$460	\$100	\$360	0.9	3,246
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>183,259</b>	<b>42.3</b>	<b>71</b>	<b>\$23,845</b>	<b>\$82,258</b>	<b>\$13,614</b>	<b>\$68,644</b>	<b>2.9</b>	<b>192,800</b>
<b>TOTALS (ALL MEASURES)</b>			<b>186,086</b>	<b>43.0</b>	<b>460</b>	<b>\$27,573</b>	<b>\$263,261</b>	<b>\$23,116</b>	<b>\$240,145</b>	<b>8.7</b>	<b>241,238</b>

# E. ROY BIXBY SCHOOL

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>56,525</b>	<b>18.5</b>	<b>-11</b>	<b>\$7,782</b>	<b>\$32,855</b>	<b>\$6,858</b>	<b>\$25,997</b>	<b>3.3</b>	<b>55,606</b>
ECM 1	Install LED Fixtures	Yes	2,306	0.3	0	\$322	\$3,864	\$400	\$3,464	10.8	2,322
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	154	0.0	0	\$21	\$69	\$10	\$59	2.8	152
ECM 3	Retrofit Fixtures with LED Lamps	Yes	54,065	18.1	-11	\$7,439	\$28,922	\$6,448	\$22,474	3.0	53,133
<b>Lighting Control Measures</b>			<b>7,209</b>	<b>2.0</b>	<b>-2</b>	<b>\$992</b>	<b>\$11,437</b>	<b>\$685</b>	<b>\$10,752</b>	<b>10.8</b>	<b>7,083</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	3,146	0.9	-1	\$433	\$5,362	\$685	\$4,677	10.8	3,091
ECM 5	Install High/Low Lighting Controls	Yes	4,062	1.1	-1	\$559	\$6,075	\$0	\$6,075	10.9	3,991
<b>Variable Frequency Drive (VFD) Measures</b>			<b>34,822</b>	<b>4.5</b>	<b>0</b>	<b>\$4,857</b>	<b>\$17,164</b>	<b>\$0</b>	<b>\$17,164</b>	<b>3.5</b>	<b>35,066</b>
ECM 6	Install VFDs on Heating Water Pumps	Yes	34,822	4.5	0	\$4,857	\$17,164	\$0	\$17,164	3.5	35,066
<b>Domestic Water Heating Upgrade</b>			<b>5,390</b>	<b>0.0</b>	<b>0</b>	<b>\$752</b>	<b>\$301</b>	<b>\$0</b>	<b>\$301</b>	<b>0.4</b>	<b>5,427</b>
ECM 7	Install Low-Flow DHW Devices	Yes	5,390	0.0	0	\$752	\$301	\$0	\$301	0.4	5,427
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>103,945</b>	<b>24.9</b>	<b>-13</b>	<b>\$14,383</b>	<b>\$61,757</b>	<b>\$7,543</b>	<b>\$54,214</b>	<b>3.8</b>	<b>103,182</b>
<b>TOTALS (ALL MEASURES)</b>			<b>103,945</b>	<b>24.9</b>	<b>-13</b>	<b>\$14,383</b>	<b>\$61,757</b>	<b>\$7,543</b>	<b>\$54,214</b>	<b>3.8</b>	<b>103,182</b>

# LILLIAN M. STEEN SCHOOL

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	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>45,462</b>	<b>17.9</b>	<b>\$6,251</b>	<b>\$32,604</b>	<b>\$7,350</b>	<b>\$25,254</b>	<b>4.0</b>	<b>44,679</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	45,462	17.9	\$6,251	\$32,604	\$7,350	\$25,254	4.0	44,679
<b>Lighting Control Measures</b>			<b>6,132</b>	<b>1.9</b>	<b>\$843</b>	<b>\$4,495</b>	<b>\$265</b>	<b>\$4,230</b>	<b>5.0</b>	<b>6,025</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	4,731	1.5	\$650	\$2,470	\$265	\$2,205	3.4	4,648
ECM 3	Install High/Low Lighting Controls	Yes	1,402	0.4	\$193	\$2,025	\$0	\$2,025	10.5	1,377
<b>Motor Upgrades</b>			<b>0</b>	<b>0.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>0.0</b>	<b>0</b>
ECM 0	Premium Efficiency Motors	Yes	0	0.0	\$0	\$0	\$0	\$0	0.0	0
<b>Variable Frequency Drive (VFD) Measures</b>			<b>50,176</b>	<b>8.8</b>	<b>\$6,991</b>	<b>\$33,085</b>	<b>\$1,280</b>	<b>\$31,805</b>	<b>4.5</b>	<b>50,527</b>
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	6,864	4.6	\$956	\$15,920	\$1,280	\$14,640	15.3	6,912
ECM 5	Install VFDs on Heating Water Pumps	Yes	43,312	4.2	\$6,034	\$17,164	\$0	\$17,164	2.8	43,615
<b>Domestic Water Heating Upgrade</b>			<b>10,084</b>	<b>0.0</b>	<b>\$1,405</b>	<b>\$294</b>	<b>\$0</b>	<b>\$294</b>	<b>0.2</b>	<b>10,155</b>
ECM 6	Install Low-Flow DHW Devices	Yes	10,084	0.0	\$1,405	\$294	\$0	\$294	0.2	10,155
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>104,991</b>	<b>24.0</b>	<b>\$14,534</b>	<b>\$54,557</b>	<b>\$7,615</b>	<b>\$46,942</b>	<b>3.2</b>	<b>104,474</b>
<b>TOTALS (ALL MEASURES)</b>			<b>111,855</b>	<b>28.6</b>	<b>\$15,490</b>	<b>\$70,477</b>	<b>\$8,895</b>	<b>\$61,582</b>	<b>4.0</b>	<b>111,386</b>

# JOSEPH FIEGEL FIELD

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>3,363</b>	<b>1.3</b>	<b>-1</b>	<b>\$716</b>	<b>\$1,537</b>	<b>\$377</b>	<b>\$1,160</b>	<b>1.6</b>	<b>3,308</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	3,363	1.3	-1	\$716	\$1,537	\$377	\$1,160	1.6	3,308
<b>Lighting Control Measures</b>			<b>85</b>	<b>0.0</b>	<b>0</b>	<b>\$18</b>	<b>\$116</b>	<b>\$20</b>	<b>\$96</b>	<b>5.3</b>	<b>83</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	85	0.0	0	\$18	\$116	\$20	\$96	5.3	83
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>3,448</b>	<b>1.3</b>	<b>-1</b>	<b>\$734</b>	<b>\$1,653</b>	<b>\$397</b>	<b>\$1,256</b>	<b>1.7</b>	<b>3,392</b>
<b>TOTALS (ALL MEASURES)</b>			<b>3,448</b>	<b>1.3</b>	<b>-1</b>	<b>\$734</b>	<b>\$1,653</b>	<b>\$397</b>	<b>\$1,256</b>	<b>1.7</b>	<b>3,392</b>



# SOLAR ENERGY GENERATION POTENTIAL

	Jr. & Sr. HS	Bixby ES	Lillian Steen School
<i>Potential:</i>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	120	92	102
<i>Electric Generation: (kWh per year)</i>	142,965	109,606	121,520
<i>Displaced Cost: (per year)</i>	\$18,130	\$15,290	\$16,930

**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 – Fuel Cells

## OTHER PROGRAMS

### Renewable Energy Generation:

- **SREC Registration Program (SRP)**
- **Community Solar**





# RECOMMENDED NJCEP INCENTIVES PER BUILDING

Bogota Board of Education	Direct Install	SmartStart	CTEEP
Bogota Board Offices	X	X	X
Bogota Jr. & Sr. High School	X	X	X
E. Roy Bixby Elementary School	X	X	X
Lillian M. Steen Elementary School	X	X	X
Joseph Fiegel Field	X	X	X



# 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
  - \$4 MM 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**

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

**CUSTOMER**

20% of installed cost

All other eligible facilities:

**INCENTIVE FUNDING**

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

**CUSTOMER**

30% of installed cost



# DIRECT INSTALL

NJCleanEnergy.com/DI

## Participating Contractor

**Lime Energy**

Chris Fornicola

732-427-7278

[chris.fornicola@lime-energy.com](mailto:chris.fornicola@lime-energy.com)



# DIRECT INSTALL: FINANCING OPTION

- Eligible NJNG customers can finance the remaining 30 percent balance at 0% APR through the “SAVEGREEN Project® On-Bill Repayment Program” (OBRP) for 36 months.
- For measures that may not qualify for Direct Install, NJNG also offers financing options for SmartStart that will cover up to \$130,000 per year.



- Questions? Contact:

**Jerry Ryan**

Energy Efficiency Ops. Manager  
New Jersey Natural Gas  
732-433-4362 (cell)  
732 378 4920 (office)  
jryan@njng.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**



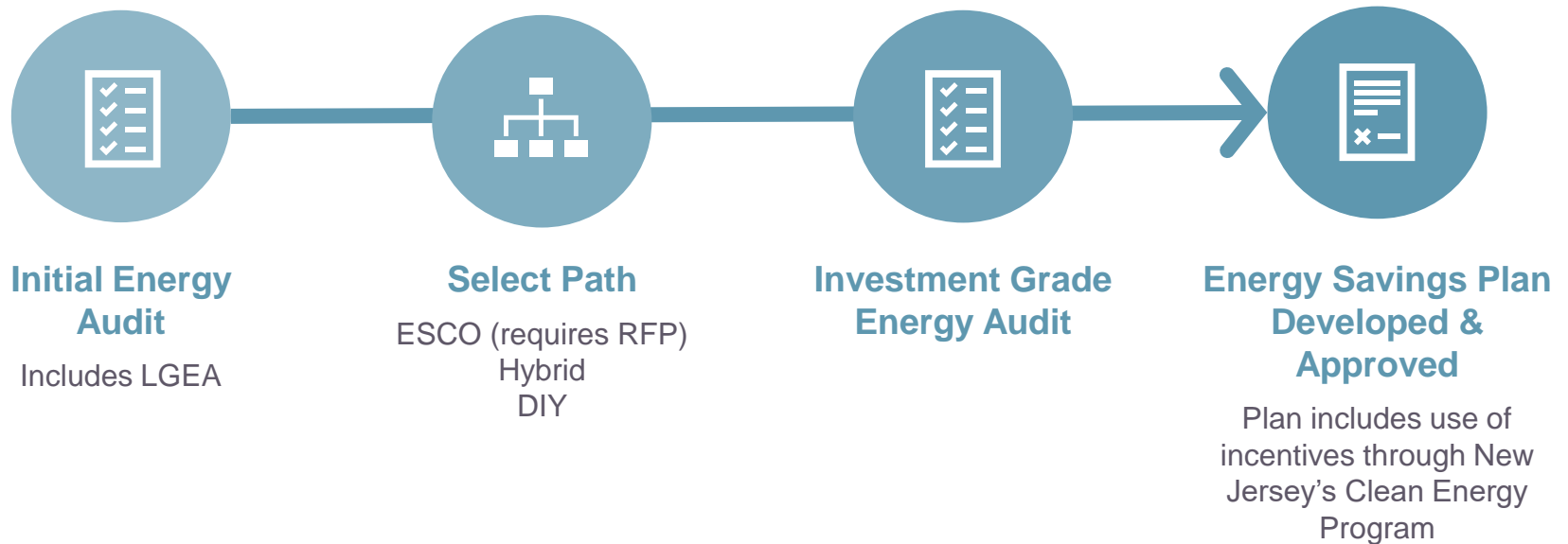
# FINANCING MECHANISM: ESIP

## 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

**Michelle Rossi**

ESIP Coordinator

Office: 609-633-9641

ESIP@bpu.nj.gov



# FOR MORE INFORMATION

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

**Call** (732) 855-0033

**Mike Mandzik**

Regional Outreach Manager

732.570.7534

[mmandzik@trccompanies.com](mailto:mmandzik@trccompanies.com)



# QUESTIONS

