

# New Jersey's Clean Energy Program

LGEA Exit Meeting for:  
*Lacey Township Board of Education*

Smruti Srinivasan, TRC

September 26, 2017

# Meeting Setup

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***1) Dial the following:***

**1-877-304-9323**

***2) When prompted, enter the code below:***

**3587465#**

# Introductions

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- *Lacey Township School District*
  - Patrick DeGeorge
  - Teresa McCarron

## *NJ Clean Energy Program – TRC*

- Auditor: Smruti Srinivasan
- Case Manager: Amanda Muench
- Outreach Manager: Jim Friedl

# Agenda

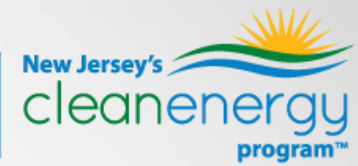
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- Overview of LGEA process (application to deliverable)
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for Lacey Township Board of Education

# Process to Draft Report

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- Application submitted to NJCEP
- Site Visit Performed
- Utility Analysis
- Baseline Condition
- Analysis
- Recommendations
- Report

# Buildings Audited



Building Name	Max. kW
Administration Building	19
Lacey Township High School	843
Lacey Township Middle School	447
Mill Pond Elementary School	217
Cedar Creek Elementary School	166
Forked River Elementary School	113
Lanoka Harbor Elementary School	103
Transportation Building	13

# Recommended ECMs – All Buildings



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>1,306,357</b>	<b>271.6</b>	<b>0.0</b>	<b>\$116,925.88</b>	<b>\$899,470.87</b>	<b>\$77,630.00</b>	<b>\$821,840.87</b>	<b>7.0</b>	<b>1,315,492</b>
ECM 1	Install LED Fixtures	371,878	65.8	0.0	\$34,414.47	\$467,184.96	\$23,880.00	\$443,304.96	12.9	374,479
ECM 2	Retrofit Fixtures with LED Lamps	934,258	205.8	0.0	\$82,490.44	\$431,963.24	\$53,750.00	\$378,213.24	4.6	940,790
ECM 3	Install LED Exit Signs	221	0.0	0.0	\$20.97	\$322.67	\$0.00	\$322.67	15.4	223
<b>Lighting Control Measures</b>		<b>232,145</b>	<b>49.5</b>	<b>0.0</b>	<b>\$20,903.11</b>	<b>\$134,322.00</b>	<b>\$15,520.00</b>	<b>\$118,802.00</b>	<b>5.7</b>	<b>233,768</b>
ECM 4	Install Occupancy Sensor Lighting Controls	197,565	42.3	0.0	\$17,819.60	\$114,122.00	\$15,215.00	\$98,907.00	5.6	198,946
ECM 5	Install High/Low Lighting Controls	34,581	7.2	0.0	\$3,083.51	\$20,200.00	\$305.00	\$19,895.00	6.5	34,823
<b>Motor Upgrades</b>		<b>1,334</b>	<b>0.4</b>	<b>0.0</b>	<b>\$97.68</b>	<b>\$6,040.65</b>	<b>\$0.00</b>	<b>\$6,040.65</b>	<b>61.8</b>	<b>1,344</b>
ECM 6	Premium Efficiency Motors	1,334	0.4	0.0	\$97.68	\$6,040.65	\$0.00	\$6,040.65	61.8	1,344
<b>Variable Frequency Drive (VFD) Measures</b>		<b>105,020</b>	<b>17.4</b>	<b>0.0</b>	<b>\$9,671.03</b>	<b>\$45,700.41</b>	<b>\$2,935.00</b>	<b>\$42,765.41</b>	<b>4.4</b>	<b>105,754</b>
ECM 7	Install VFDs on Constant Volume (CV) HVAC	28,501	7.8	0.0	\$2,699.26	\$11,731.25	\$2,160.00	\$9,571.25	3.5	28,700
ECM 8	Install VFDs on Hot Water Pumps	69,867	7.3	0.0	\$6,484.90	\$27,685.66	\$0.00	\$27,685.66	4.3	70,356
ECM 9	Install Boiler Draft Fan VFDs	6,652	2.3	0.0	\$486.87	\$6,283.50	\$775.00	\$5,508.50	11.3	6,698
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>113.8</b>	<b>\$1,049.46</b>	<b>\$9,348.73</b>	<b>\$600.00</b>	<b>\$8,748.73</b>	<b>8.3</b>	<b>13,327</b>
ECM 10	Install Low-Intensity Infrared Heating	0	0.0	113.8	\$1,049.46	\$9,348.73	\$600.00	\$8,748.73	8.3	13,327
<b>HVAC System Improvements</b>		<b>7,524</b>	<b>0.0</b>	<b>200.0</b>	<b>\$2,446.16</b>	<b>\$21,111.68</b>	<b>\$0.00</b>	<b>\$21,111.68</b>	<b>8.6</b>	<b>30,994</b>
ECM 11	Install Programmable Thermostats	7,524	0.0	200.0	\$2,446.16	\$21,111.68	\$0.00	\$21,111.68	8.6	30,994
<b>Domestic Water Heating Upgrade</b>		<b>8,376</b>	<b>0.0</b>	<b>264.3</b>	<b>\$3,507.37</b>	<b>\$2,014.77</b>	<b>\$0.00</b>	<b>\$2,014.77</b>	<b>0.6</b>	<b>39,377</b>
ECM 12	Install Low-Flow Domestic Hot Water Devices	8,376	0.0	264.3	\$3,507.37	\$2,014.77	\$0.00	\$2,014.77	0.6	39,377
<b>Plug Load Equipment Control - Vending Machine</b>		<b>17,488</b>	<b>0.0</b>	<b>0.0</b>	<b>\$1,566.20</b>	<b>\$3,220.00</b>	<b>\$0.00</b>	<b>\$3,220.00</b>	<b>2.1</b>	<b>17,611</b>
ECM 13	Vending Machine Control	17,488	0.0	0.0	\$1,566.20	\$3,220.00	\$0.00	\$3,220.00	2.1	17,611
<b>TOTALS</b>		<b>1,678,245</b>	<b>338.9</b>	<b>578.1</b>	<b>\$156,166.89</b>	<b>\$1,121,229.11</b>	<b>\$96,685.00</b>	<b>\$1,024,544.11</b>	<b>6.6</b>	<b>1,757,666</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).

# Non-Recommended ECMs – All Buildings



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)**	CO2e Emissions Reduction (lbs)
<b>Electric Unitary HVAC Measures</b>		55,181	28.2	0.0	\$4,879.64	\$153,439.68	\$8,183.00	\$145,256.68	29.8	55,567
Install High Efficiency Electric AC	No	48,898	24.1	0.0	\$4,324.06	\$130,461.96	\$7,403.00	\$123,058.96	28.5	49,240
Install High Efficiency Packaged Terminal AC/HP	No	6,283	4.0	0.0	\$555.59	\$22,977.72	\$780.00	\$22,197.72	40.0	6,327
<b>Gas Heating (HVAC/Process) Replacement</b>		0	0.0	597.3	\$6,928.96	\$301,934.56	\$20,020.72	\$281,913.84	40.7	69,933
Install High Efficiency Hot Water Boilers	No	0	0.0	597.3	\$6,928.96	\$301,934.56	\$20,020.72	\$281,913.84	40.7	69,933
<b>TOTALS</b>		55,181	28.2	597.3	\$11,808.61	\$455,374.23	\$28,203.72	\$427,170.51	36.2	125,499

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# *(1) Administration Building*

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## **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

## **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

# (1) Administration 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>13,715</b>	<b>3.5</b>	<b>0.0</b>	<b>\$1,781.59</b>	<b>\$11,475.47</b>	<b>\$980.00</b>	<b>\$10,495.47</b>	<b>5.9</b>	<b>13,811</b>
ECM 1	Install LED Fixtures	Yes	6,657	1.0	0.0	\$864.73	\$6,198.40	\$125.00	\$6,073.40	7.0	6,703
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,058	2.4	0.0	\$916.86	\$5,277.07	\$855.00	\$4,422.07	4.8	7,108
<b>Lighting Control Measures</b>			<b>1,530</b>	<b>0.5</b>	<b>0.0</b>	<b>\$198.75</b>	<b>\$2,488.00</b>	<b>\$665.00</b>	<b>\$1,823.00</b>	<b>9.2</b>	<b>1,541</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,225	0.4	0.0	\$159.08	\$2,088.00	\$360.00	\$1,728.00	10.9	1,233
ECM 4	Install High/Low Lighting Controls	Yes	305	0.1	0.0	\$39.67	\$400.00	\$305.00	\$95.00	2.4	308
<b>TOTALS</b>			<b>15,245</b>	<b>4.0</b>	<b>0.0</b>	<b>\$1,980.34</b>	<b>\$13,963.47</b>	<b>\$1,645.00</b>	<b>\$12,318.47</b>	<b>6.2</b>	<b>15,352</b>

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## *(2) Lacey Township High School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## (2) Lacey Township 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>765,601</b>	<b>116.0</b>	<b>0.0</b>	<b>\$72,608.75</b>	<b>\$378,332.63</b>	<b>\$39,900.00</b>	<b>\$338,432.63</b>	<b>4.7</b>	<b>770,954</b>
ECM 1	Install LED Fixtures	Yes	231,495	35.3	0.0	\$21,954.77	\$210,392.48	\$16,570.00	\$193,822.48	8.8	233,114
ECM 2	Retrofit Fixtures with LED Lamps	Yes	533,884	80.7	0.0	\$50,633.00	\$167,617.49	\$23,330.00	\$144,287.49	2.8	537,617
ECM 3	Install LED Exit Signs	Yes	221	0.0	0.0	\$20.97	\$322.67	\$0.00	\$322.67	15.4	223
<b>Lighting Control Measures</b>			<b>142,333</b>	<b>21.5</b>	<b>0.0</b>	<b>\$13,498.68</b>	<b>\$45,488.00</b>	<b>\$4,950.00</b>	<b>\$40,538.00</b>	<b>3.0</b>	<b>143,328</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	119,752	18.1	0.0	\$11,357.16	\$37,688.00	\$4,950.00	\$32,738.00	2.9	120,589
ECM 5	Install High/Low Lighting Controls	Yes	22,581	3.4	0.0	\$2,141.51	\$7,800.00	\$0.00	\$7,800.00	3.6	22,738
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>97.0</b>	<b>\$990.68</b>	<b>\$580.77</b>	<b>\$0.00</b>	<b>\$580.77</b>	<b>0.6</b>	<b>11,357</b>
ECM 6	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	97.0	\$990.68	\$580.77	\$0.00	\$580.77	0.6	11,357
<b>Plug Load Equipment Control - Vending Machine</b>			<b>8,744</b>	<b>0.0</b>	<b>0.0</b>	<b>\$829.29</b>	<b>\$1,610.00</b>	<b>\$0.00</b>	<b>\$1,610.00</b>	<b>1.9</b>	<b>8,805</b>
ECM 7	Vending Machine Control	Yes	8,744	0.0	0.0	\$829.29	\$1,610.00	\$0.00	\$1,610.00	1.9	8,805
<b>TOTALS</b>			<b>916,678</b>	<b>137.5</b>	<b>97.0</b>	<b>\$87,927.40</b>	<b>\$426,011.40</b>	<b>\$44,850.00</b>	<b>\$381,161.40</b>	<b>4.3</b>	<b>934,444</b>

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\*\* - Simple Payback Period is based on net measure costs (i.e. after incentives).

## *(3) Lacey Township Middle School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

### (3) Lacey Township Middle 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>156,808</b>	<b>43.5</b>	<b>0.0</b>	<b>\$15,548.43</b>	<b>\$183,373.89</b>	<b>\$18,110.00</b>	<b>\$165,263.89</b>	<b>10.6</b>	<b>157,904</b>
ECM 1	Install LED Fixtures	Yes	53,530	12.4	0.0	\$5,307.86	\$102,564.60	\$2,935.00	\$99,629.60	18.8	53,905
ECM 2	Retrofit Fixtures with LED Lamps	Yes	103,277	31.2	0.0	\$10,240.57	\$80,809.29	\$15,175.00	\$65,634.29	6.4	103,999
<b>Lighting Control Measures</b>			<b>32,432</b>	<b>9.8</b>	<b>0.0</b>	<b>\$3,215.83</b>	<b>\$22,232.00</b>	<b>\$2,680.00</b>	<b>\$19,552.00</b>	<b>6.1</b>	<b>32,659</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	30,017	9.1	0.0	\$2,976.35	\$19,832.00	\$2,680.00	\$17,152.00	5.8	30,227
ECM 4	Install High/Low Lighting Controls	Yes	2,415	0.7	0.0	\$239.48	\$2,400.00	\$0.00	\$2,400.00	10.0	2,432
<b>Variable Frequency Drive (VFD) Measures</b>			<b>69,491</b>	<b>9.5</b>	<b>0.0</b>	<b>\$6,890.44</b>	<b>\$17,863.05</b>	<b>\$1,200.00</b>	<b>\$16,663.05</b>	<b>2.4</b>	<b>69,977</b>
ECM 5	Install VFDs on Constant Volume (CV) HVAC	Yes	16,682	4.4	0.0	\$1,654.09	\$5,194.45	\$1,200.00	\$3,994.45	2.4	16,798
ECM 6	Install VFDs on Hot Water Pumps	Yes	52,809	5.1	0.0	\$5,236.35	\$12,668.60	\$0.00	\$12,668.60	2.4	53,178
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>62.7</b>	<b>\$655.93</b>	<b>\$365.67</b>	<b>\$0.00</b>	<b>\$365.67</b>	<b>0.6</b>	<b>7,341</b>
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	62.7	\$655.93	\$365.67	\$0.00	\$365.67	0.6	7,341
<b>Plug Load Equipment Control - Vending Machine</b>			<b>3,909</b>	<b>0.0</b>	<b>0.0</b>	<b>\$387.57</b>	<b>\$920.00</b>	<b>\$0.00</b>	<b>\$920.00</b>	<b>2.4</b>	<b>3,936</b>
ECM 8	Vending Machine Control	Yes	3,909	0.0	0.0	\$387.57	\$920.00	\$0.00	\$920.00	2.4	3,936
<b>TOTALS</b>			<b>262,639</b>	<b>62.8</b>	<b>62.7</b>	<b>\$26,698.20</b>	<b>\$224,754.61</b>	<b>\$21,990.00</b>	<b>\$202,764.61</b>	<b>7.6</b>	<b>271,816</b>

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\*\* - Simple Payback Period is based on net measure costs (i.e. after incentives).

## *(4) Mill Pond Elementary School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

# (4) Mill Pond Elementary 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>			161,489	40.3	0.0	\$8,900.08	\$140,227.41	\$5,930.00	\$134,297.41	15.1	162,618
ECM 1	Install LED Fixtures	Yes	40,921	5.3	0.0	\$2,255.24	\$68,846.27	\$60.00	\$68,786.27	30.5	41,207
ECM 2	Retrofit Fixtures with LED Lamps	Yes	120,568	34.9	0.0	\$6,644.84	\$71,381.13	\$5,870.00	\$65,511.13	9.9	121,411
<b>Lighting Control Measures</b>			24,611	7.3	0.0	\$1,356.40	\$23,500.00	\$2,660.00	\$20,840.00	15.4	24,784
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	20,981	6.2	0.0	\$1,156.31	\$20,100.00	\$2,660.00	\$17,440.00	15.1	21,128
ECM 4	Install High/Low Lighting Controls	Yes	3,631	1.1	0.0	\$200.09	\$3,400.00	\$0.00	\$3,400.00	17.0	3,656
<b>Gas Heating (HVAC/Process) Replacement</b>			0	0.0	265.0	\$2,692.19	\$178,515.26	\$15,000.00	\$163,515.26	60.7	31,033
	Install High Efficiency Hot Water Boilers	No	0	0.0	265.0	\$2,692.19	\$178,515.26	\$15,000.00	\$163,515.26	60.7	31,033
<b>HVAC System Improvements</b>			7,524	0.0	200.0	\$2,446.16	\$21,111.68	\$0.00	\$21,111.68	8.6	30,994
ECM 5	Install Programmable Thermostats	Yes	7,524	0.0	200.0	\$2,446.16	\$21,111.68	\$0.00	\$21,111.68	8.6	30,994
<b>Domestic Water Heating Upgrade</b>			0	0.0	35.0	\$356.00	\$329.82	\$0.00	\$329.82	0.9	4,104
ECM 6	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	35.0	\$356.00	\$329.82	\$0.00	\$329.82	0.9	4,104
<b>Plug Load Equipment Control - Vending Machine</b>			1,612	0.0	0.0	\$88.83	\$230.00	\$0.00	\$230.00	2.6	1,623
ECM 7	Vending Machine Control	Yes	1,612	0.0	0.0	\$88.83	\$230.00	\$0.00	\$230.00	2.6	1,623
<b>Custom Measures</b>			0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0
<b>TOTAL RECOMMENDED MEASURES</b>			195,236	47.6	235.0	\$13,147.48	\$185,398.91	\$8,590.00	\$176,808.91	13.4	224,122
<b>TOTAL ALL MEASURES</b>			195,236	47.6	500.1	\$15,839.67	\$363,914.17	\$23,590.00	\$340,324.17	21.5	255,156

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\*\* - Simple Payback Period is based on net measure costs (i.e. after incentives).



## *(5) Cedar Creek Elementary School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## (5) Cedar Creek Elementary 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>89,157</b>	<b>27.0</b>	<b>0.0</b>	<b>\$7,884.13</b>	<b>\$95,483.69</b>	<b>\$7,415.00</b>	<b>\$88,068.69</b>	<b>11.2</b>	<b>89,780</b>
ECM 1	Install LED Fixtures	Yes	13,308	7.0	0.0	\$1,176.83	\$52,542.85	\$3,530.00	\$49,012.85	41.6	13,401
ECM 2	Retrofit Fixtures with LED Lamps	Yes	75,849	20.0	0.0	\$6,707.30	\$42,940.84	\$3,885.00	\$39,055.84	5.8	76,379
<b>Lighting Control Measures</b>			<b>14,098</b>	<b>3.7</b>	<b>0.0</b>	<b>\$1,246.66</b>	<b>\$14,606.00</b>	<b>\$1,585.00</b>	<b>\$13,021.00</b>	<b>10.4</b>	<b>14,196</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	11,600	3.1	0.0	\$1,025.77	\$11,806.00	\$1,585.00	\$10,221.00	10.0	11,681
ECM 4	Install High/Low Lighting Controls	Yes	2,498	0.7	0.0	\$220.89	\$2,800.00	\$0.00	\$2,800.00	12.7	2,515
<b>Variable Frequency Drive (VFD) Measures</b>			<b>11,819</b>	<b>3.4</b>	<b>0.0</b>	<b>\$1,045.17</b>	<b>\$6,536.80</b>	<b>\$960.00</b>	<b>\$5,576.80</b>	<b>5.3</b>	<b>11,902</b>
ECM 5	Install VFDs on Constant Volume (CV) HVAC	Yes	11,819	3.4	0.0	\$1,045.17	\$6,536.80	\$960.00	\$5,576.80	5.3	11,902
<b>Electric Unitary HVAC Measures</b>			<b>55,181</b>	<b>28.2</b>	<b>0.0</b>	<b>\$4,879.64</b>	<b>\$153,439.68</b>	<b>\$8,183.00</b>	<b>\$145,256.68</b>	<b>29.8</b>	<b>55,567</b>
	Install High Efficiency Electric AC	No	48,898	24.1	0.0	\$4,324.06	\$130,461.96	\$7,403.00	\$123,058.96	28.5	49,240
	Install High Efficiency Packaged Terminal AC/HP	No	6,283	4.0	0.0	\$555.59	\$22,977.72	\$780.00	\$22,197.72	40.0	6,327
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>34.0</b>	<b>\$338.53</b>	<b>\$236.61</b>	<b>\$0.00</b>	<b>\$236.61</b>	<b>0.7</b>	<b>3,983</b>
ECM 6	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	34.0	\$338.53	\$236.61	\$0.00	\$236.61	0.7	3,983
<b>Plug Load Equipment Control - Vending Machine</b>			<b>1,612</b>	<b>0.0</b>	<b>0.0</b>	<b>\$142.53</b>	<b>\$230.00</b>	<b>\$0.00</b>	<b>\$230.00</b>	<b>1.6</b>	<b>1,623</b>
ECM 7	Vending Machine Control	Yes	1,612	0.0	0.0	\$142.53	\$230.00	\$0.00	\$230.00	1.6	1,623
<b>TOTALS (Recommended)</b>			<b>116,686</b>	<b>34.2</b>	<b>34.0</b>	<b>\$10,657.02</b>	<b>\$117,093.10</b>	<b>\$9,960.00</b>	<b>\$107,133.10</b>	<b>10.1</b>	<b>121,485</b>
<b>TOTALS (All Evaluated)</b>			<b>171,867</b>	<b>62.3</b>	<b>34.0</b>	<b>\$15,536.66</b>	<b>\$270,532.78</b>	<b>\$18,143.00</b>	<b>\$252,389.78</b>	<b>16.2</b>	<b>177,051</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).

## *(6) Forked River Elementary School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## (6) Forked River Elementary 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>45,504</b>	<b>18.0</b>	<b>0.0</b>	<b>\$3,875.01</b>	<b>\$40,626.77</b>	<b>\$2,670.00</b>	<b>\$37,956.77</b>	<b>9.8</b>	<b>45,822</b>
ECM 1	Install LED Fixtures	Yes	8,764	1.2	0.0	\$746.36	\$9,536.77	\$420.00	\$9,116.77	12.2	8,826
ECM 2	Retrofit Fixtures with LED Lamps	Yes	36,739	16.8	0.0	\$3,128.66	\$31,090.00	\$2,250.00	\$28,840.00	9.2	36,996
<b>Lighting Control Measures</b>			<b>6,853</b>	<b>3.1</b>	<b>0.0</b>	<b>\$583.59</b>	<b>\$10,258.00</b>	<b>\$1,215.00</b>	<b>\$9,043.00</b>	<b>15.5</b>	<b>6,901</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	5,915	2.7	0.0	\$503.71	\$9,258.00	\$1,215.00	\$8,043.00	16.0	5,956
ECM 4	Install High/Low Lighting Controls	Yes	938	0.4	0.0	\$79.88	\$1,000.00	\$0.00	\$1,000.00	12.5	945
<b>Domestic Water Heating Upgrade</b>			<b>8,376</b>	<b>0.0</b>	<b>0.0</b>	<b>\$713.29</b>	<b>\$164.91</b>	<b>\$0.00</b>	<b>\$164.91</b>	<b>0.2</b>	<b>8,435</b>
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	8,376	0.0	0.0	\$713.29	\$164.91	\$0.00	\$164.91	0.2	8,435
<b>TOTALS</b>			<b>60,732</b>	<b>21.1</b>	<b>0.0</b>	<b>\$5,171.89</b>	<b>\$51,049.68</b>	<b>\$3,885.00</b>	<b>\$47,164.68</b>	<b>9.1</b>	<b>61,157</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).

## *(7) Lanoka Harbor Elementary School*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

# (7) Lanoka Harbor Elementary 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>58,702</b>	<b>19.9</b>	<b>0.0</b>	<b>\$4,296.65</b>	<b>\$35,265.97</b>	<b>\$2,310.00</b>	<b>\$32,955.97</b>	<b>7.7</b>	<b>59,112</b>
ECM 1	Install LED Fixtures	Yes	2,767	0.4	0.0	\$202.55	\$2,998.80	\$20.00	\$2,978.80	14.7	2,787
ECM 2	Retrofit Fixtures with LED Lamps	Yes	55,934	19.5	0.0	\$4,094.10	\$32,267.17	\$2,290.00	\$29,977.17	7.3	56,325
<b>Lighting Control Measures</b>			<b>9,436</b>	<b>3.3</b>	<b>0.0</b>	<b>\$690.68</b>	<b>\$14,476.00</b>	<b>\$1,580.00</b>	<b>\$12,896.00</b>	<b>18.7</b>	<b>9,502</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	7,223	2.5	0.0	\$528.68	\$12,076.00	\$1,580.00	\$10,496.00	19.9	7,274
ECM 4	Install High/Low Lighting Controls	Yes	2,213	0.8	0.0	\$161.99	\$2,400.00	\$0.00	\$2,400.00	14.8	2,229
<b>Motor Upgrades</b>			<b>1,334</b>	<b>0.4</b>	<b>0.0</b>	<b>\$97.68</b>	<b>\$6,040.65</b>	<b>\$0.00</b>	<b>\$6,040.65</b>	<b>61.8</b>	<b>1,344</b>
ECM 5	Premium Efficiency Motors	Yes	1,334	0.4	0.0	\$97.68	\$6,040.65	\$0.00	\$6,040.65	61.8	1,344
<b>Variable Frequency Drive (VFD) Measures</b>			<b>23,710</b>	<b>4.4</b>	<b>0.0</b>	<b>\$1,735.42</b>	<b>\$21,300.56</b>	<b>\$775.00</b>	<b>\$20,525.56</b>	<b>11.8</b>	<b>23,875</b>
ECM 6	Install VFDs on Hot Water Pumps	Yes	17,058	2.2	0.0	\$1,248.55	\$15,017.06	\$0.00	\$15,017.06	12.0	17,177
ECM 7	Install Boiler Draft Fan VFDs	Yes	6,652	2.3	0.0	\$486.87	\$6,283.50	\$775.00	\$5,508.50	11.3	6,698
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>332.2</b>	<b>\$4,236.78</b>	<b>\$123,419.30</b>	<b>\$5,020.72</b>	<b>\$118,398.58</b>	<b>27.9</b>	<b>38,899</b>
	Install High Efficiency Hot Water Boilers	No	0	0.0	332.2	\$4,236.78	\$123,419.30	\$5,020.72	\$118,398.58	27.9	38,899
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>35.5</b>	<b>\$452.94</b>	<b>\$336.99</b>	<b>\$0.00</b>	<b>\$336.99</b>	<b>0.7</b>	<b>4,159</b>
ECM 8	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	35.5	\$452.94	\$336.99	\$0.00	\$336.99	0.7	4,159
<b>Plug Load Equipment Control - Vending Machine</b>			<b>1,612</b>	<b>0.0</b>	<b>0.0</b>	<b>\$117.98</b>	<b>\$230.00</b>	<b>\$0.00</b>	<b>\$230.00</b>	<b>1.9</b>	<b>1,623</b>
ECM 9	Vending Machine Control	Yes	1,612	0.0	0.0	\$117.98	\$230.00	\$0.00	\$230.00	1.9	1,623
<b>TOTAL RECOMMENDED MEASURES</b>			<b>94,794</b>	<b>28.0</b>	<b>35.5</b>	<b>\$7,391.34</b>	<b>\$77,650.16</b>	<b>\$4,665.00</b>	<b>\$72,985.16</b>	<b>9.9</b>	<b>99,615</b>
<b>TOTAL FOR ALL MEASURES</b>			<b>94,794</b>	<b>28.0</b>	<b>367.7</b>	<b>\$11,628.12</b>	<b>\$201,069.46</b>	<b>\$9,685.72</b>	<b>\$191,383.74</b>	<b>16.5</b>	<b>138,514</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).

## *(8) Transportation Building*

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### **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

### **Utility Consumption:**

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

## (8) Transportation 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>			15,383	3.5	0.0	\$2,031.23	\$14,685.04	\$315.00	\$14,370.04	7.1	15,491
ECM 1	Install LED Fixtures	Yes	14,435	3.2	0.0	\$1,906.12	\$14,104.79	\$220.00	\$13,884.79	7.3	14,536
ECM 2	Retrofit Fixtures with LED Lamps	Yes	948	0.3	0.0	\$125.11	\$580.25	\$95.00	\$485.25	3.9	954
<b>Lighting Control Measures</b>			852	0.2	0.0	\$112.54	\$1,274.00	\$185.00	\$1,089.00	9.7	858
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	852	0.2	0.0	\$112.54	\$1,274.00	\$185.00	\$1,089.00	9.7	858
<b>Gas Heating (HVAC/Process) Replacement</b>			0	0.0	113.8	\$1,049.46	\$9,348.73	\$600.00	\$8,748.73	8.3	13,327
ECM 4	Install Low-Intensity Infrared Heating	Yes	0	0.0	113.8	\$1,049.46	\$9,348.73	\$600.00	\$8,748.73	8.3	13,327
<b>TOTALS</b>			16,235	3.7	113.8	\$3,193.24	\$25,307.77	\$1,100.00	\$24,207.77	7.6	29,675

\* - 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).



## *Some Energy Efficient Practices*

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- 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*

# PROGRAM PORTFOLIO



## ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit,  
Institutional and Multifamily

## PROGRAMS

### Equipment Rebates:

- Retrofit – Existing Buildings
- New Construction
- Direct Install – Small Business
- Large Energy Users

### Whole Buildings:

- Pay for Performance Existing Buildings
- Pay for Performance New Construction

### Energy Generation:

- Combined Heat and Power (CHP) and Fuel Cells

# Recommended NJCEP Incentives

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## ➤ Direct Install

### **Hutchinson Mechanical Services**

Ed Hutchinson

856-429-5828 x215

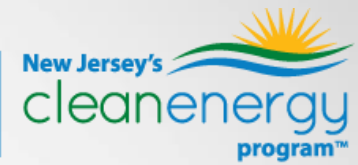
[edhutchinson@hutchbiz.com](mailto:edhutchinson@hutchbiz.com)

## ➤ Pay for Performance (P4P)

## ➤ SmartStart Buildings (i.e Retrofit – Existing Buildings)

# Energy Savings Improvement Program (ESIP)

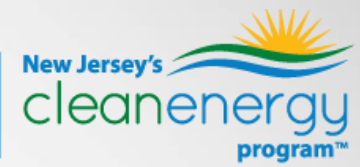
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- Program administered directly by BPU
- Provides alternative financing option for energy savings projects at public institutions.
- Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract.
- Does not count as debt or require voter approval or referendum.
- Requires an audit as 1<sup>st</sup> step (LGEA satisfied this requirement)

# Questions

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# FOR MORE INFORMATION

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

**Call** (866) NJSMART

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