

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Princeton Public Schools

TRC Energy Services

December 12, 2018

Introductions



Princeton Public Schools

- Steve Cochrane – Superintendent
- Stephanie Kennedy – Business Administrator
- Gary Weisman – Director of Plant/Operations
- Dafna Kendal – Facility Committee Chair
- Bill Hare – Committee Member

Spieze Architectural Group

- Scott Downie – Principal

NJ Clean Energy Program

- Brian DeLuca, CEM – TRC Program Manager
- Yagna Otia, CEM – TRC Auditor
- Elizabeth Ebinger – TRC Account Manager
- Arif Welcher, BPU Ombudsman
- Mike Thulen, ESIP Coordinator

Agenda

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**asures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for Princeton Public Schools

LGEA Process



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

Site Visit and Utility Analysis

Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- Food Service Equipment
- HVAC and Mechanical Systems

Utility Consumption:

- Electric Consumption and Costs
- Electric Demand and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

- Community Park Elementary School
- Johnson Park Elementary School
- Littlebrook Elementary School
- Riverside Elementary School
- John Witherspoon Middle School
- Princeton High School

Benchmarking

Littlebrook Elementary School

ENERGY STAR® Statement of Energy Performance

79
ENERGY STAR® Score¹

Littlebrook Elementary School
Primary Property Type: K-12 School
Gross Floor Area (ft²): 54,628
Built: 1957
For Year Ending: July 31, 2017
Date Generated: September 20, 2018

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Littlebrook Elementary School 39 Magnolia Lane, Princeton, New Jersey 08540	() - () - ()	() - () - ()

Property ID: 6546873

Energy Consumption and Energy Use Intensity (EUI)

Site EUI	Annual Energy by Fuel	National Median Comparison
28.7 kBtu/ft ²	Electric - Grid (kBtu) 1,266,602 (81%)	National Median Site EUI (kBtu/ft ²) 40.1
	Natural Gas (kBtu) 301,392 (19%)	National Median Source EUI (kBtu/ft ²) 98.7
		% Diff from National Median Source EUI -29%
Source EUI		Annual Emissions
70.7 kBtu/ft ²		Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 144

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
Community Park Elementary School	32
Johnson Park Elementary School	47
Littlebrook Elementary School	79
Riverside Elementary School	35
John Witherspoon Middle School	9
Princeton High School	30

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 – Part 1



Energy Conservation Measure	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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades	1,559,637	248.9	0.0	0.0	\$208,050	\$615,714	\$127,355	\$488,359	2.3	1,570,542
Install LED Fixtures	231,901	33.1	0.0	0.0	\$29,998	\$221,461	\$39,315	\$182,146	6.1	233,523
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	12,864	2.8	0.0	0.0	\$1,877	\$10,793	\$135	\$10,658	5.7	12,954
Retrofit Fixtures with LED Lamps	1,314,871	213.0	0.0	0.0	\$176,175	\$383,460	\$87,905	\$295,555	1.7	1,324,065
Lighting Control Measures	332,805	52.5	0.0	0.0	\$44,492	\$239,624	\$27,790	\$211,834	4.8	335,132
Install Occupancy Sensor Lighting Controls	280,882	45.3	0.0	0.0	\$37,751	\$230,624	\$27,790	\$202,834	5.4	282,846
Install High/Low Lighting Controls	51,923	7.2	0.0	0.0	\$6,740	\$9,000	\$0	\$9,000	1.3	52,286
Motor Upgrades	17,410	4.4	0.0	0.0	\$2,292	\$78,282	\$0	\$78,282	34.2	17,532
Premium Efficiency Motors	17,410	4.4	0.0	0.0	\$2,292	\$78,282	\$0	\$78,282	34.2	17,532
Variable Frequency Drive (VFD) Measures	510,024	105.3	0.0	0.0	\$67,313	\$271,206	\$35,968	\$235,238	3.5	513,590
Install VFD on Variable Air Volume (VAV) HVAC	79,568	29.1	0.0	0.0	\$10,328	\$39,890	\$8,688	\$31,202	3.0	80,124
Install VFDs on Constant Volume (CV) HVAC	136,387	39.0	0.0	0.0	\$17,578	\$130,543	\$23,680	\$106,863	6.1	137,340
Install VFDs on Hot Water Pumps	261,299	26.8	0.0	0.0	\$35,203	\$72,338	\$0	\$72,338	2.1	263,126
Install Boiler Draft Fan VFDs	14,855	8.3	0.0	0.0	\$1,895	\$10,389	\$3,600	\$6,789	3.6	14,959
Install VFDs on Boiler Feedwater Pumps	17,915	2.3	0.0	0.0	\$2,309	\$18,046	\$0	\$18,046	7.8	18,040
Electric Unitary HVAC Measures	181,031	108.0	0.0	0.0	\$24,064	\$748,766	\$28,236	\$720,530	29.9	182,297
Install High Efficiency Electric AC	171,365	100.6	0.0	0.0	\$22,772	\$688,638	\$25,798	\$662,840	29.1	172,563
Install High Efficiency Heat Pumps	9,666	7.4	0.0	0.0	\$1,292	\$60,127	\$2,438	\$57,689	44.6	9,734

All Opportunities – Part 2



Energy Conservation Measure	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 ₂ e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement	0	0.0	1,117.9	1,117.9	\$10,122	\$697,814	\$14,196	\$683,618	67.5	130,892
Install High Efficiency Hot Water Boilers	0	0.0	814.2	814.2	\$7,329	\$458,815	\$0	\$458,815	62.6	95,331
Install High Efficiency Steam Boilers	0	0.0	303.7	303.7	\$2,793	\$238,998	\$14,196	\$224,802	80.5	35,561
HVAC System Improvements	99,486	22.4	0.0	0.0	\$13,137	\$22,100	\$7,500	\$14,600	1.1	100,182
Install Dual Enthalpy Outside Economizer Control	99,486	22.4	0.0	0.0	\$13,137	\$22,100	\$7,500	\$14,600	1.1	100,182
Domestic Water Heating Upgrade	0	0.0	355.0	355.0	\$2,986	\$1,628	\$0	\$1,628	0.5	41,561
Install Low-Flow Domestic Hot Water Devices	0	0.0	355.0	355.0	\$2,986	\$1,628	\$0	\$1,628	0.5	41,561
Food Service Equipment & Refrigeration Measures	32,619	3.6	59.3	59.3	\$5,057	\$63,744	\$2,800	\$60,944	12.1	39,788
Food Service Equipment Replacement	668	0.3	59.3	59.3	\$623	\$31,141	\$1,750	\$29,391	47.2	7,613
Dishwasher Replacement	19,235	2.2	0.0	0.0	\$2,791	\$18,859	\$700	\$18,159	6.5	19,370
Refrigerator/Freezer Case Electrically Commutated Motors	2,621	0.3	0.0	0.0	\$336	\$1,213	\$0	\$1,213	3.6	2,640
Refrigeration Controls	3,155	0.1	0.0	0.0	\$402	\$4,385	\$250	\$4,135	10.3	3,177
Replace Refrigeration Equipment	6,940	0.8	0.0	0.0	\$903	\$8,146	\$100	\$8,046	8.9	6,989
Plug Load Equipment Control - Vending Machine	21,800	0.0	0.0	0.0	\$2,892	\$4,370	\$0	\$4,370	1.5	21,953
Vending Machine Control	21,800	0.0	0.0	0.0	\$2,892	\$4,370	\$0	\$4,370	1.5	21,953
TOTALS	2,754,813	545.3	1,532.1	1,532.1	\$380,403	\$2,743,248	\$243,845	\$2,499,403	6.6	2,953,469

* - 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*



* Opportunities considered cost effective have a payback period less than 2/3rds of the useful life of the measure

Energy Conservation Measure		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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades		1,559,126	248.6	0.0	0.0	\$207,973	\$613,711	\$126,985	\$486,726	2.3	1,570,028
ECM 1	Install LED Fixtures	231,487	33.0	0.0	0.0	\$29,935	\$219,911	\$39,015	\$180,896	6.0	233,105
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	12,769	2.6	0.0	0.0	\$1,863	\$10,340	\$65	\$10,275	5.5	12,858
ECM 3	Retrofit Fixtures with LED Lamps	1,314,871	213.0	0.0	0.0	\$176,175	\$383,460	\$87,905	\$295,555	1.7	1,324,065
Lighting Control Measures		332,805	52.5	0.0	0.0	\$44,492	\$239,624	\$27,790	\$211,834	4.8	335,132
ECM 4	Install Occupancy Sensor Lighting Controls	280,882	45.3	0.0	0.0	\$37,751	\$230,624	\$27,790	\$202,834	5.4	282,846
ECM 5	Install High/Low Lighting Controls	51,923	7.2	0.0	0.0	\$6,740	\$9,000	\$0	\$9,000	1.3	52,286
Motor Upgrades		759	0.2	0.0	0.0	\$115	\$805	\$0	\$805	7.0	764
ECM 6	Premium Efficiency Motors	759	0.2	0.0	0.0	\$115	\$805	\$0	\$805	7.0	764
Variable Frequency Drive (VFD) Measures		501,766	102.4	0.0	0.0	\$66,121	\$247,795	\$35,968	\$211,828	3.2	505,274
ECM 7	Install VFD on Variable Air Volume (VAV) HVAC	75,331	27.6	0.0	0.0	\$9,713	\$29,553	\$8,688	\$20,865	2.1	75,858
ECM 8	Install VFDs on Constant Volume (CV) HVAC	136,387	39.0	0.0	0.0	\$17,578	\$130,543	\$23,680	\$106,863	6.1	137,340
ECM 9	Install VFDs on Hot Water Pumps	257,277	25.2	0.0	0.0	\$34,625	\$59,265	\$0	\$59,265	1.7	259,076
ECM 10	Install Boiler Draft Fan VFDs	14,855	8.3	0.0	0.0	\$1,895	\$10,389	\$3,600	\$6,789	3.6	14,959
ECM 11	Install VFDs on Boiler Feedwater Pumps	17,915	2.3	0.0	0.0	\$2,309	\$18,046	\$0	\$18,046	7.8	18,040
Electric Unitary HVAC Measures		91,466	53.3	0.0	0.0	\$11,874	\$106,806	\$5,466	\$101,340	8.5	92,106
ECM 12	Install High Efficiency Electric AC	91,466	53.3	0.0	0.0	\$11,874	\$106,806	\$5,466	\$101,340	8.5	92,106
HVAC System Improvements		14,368	3.2	0.0	0.0	\$1,871	\$3,300	\$1,250	\$2,050	1.1	14,469
ECM 13	Install Dual Enthalpy Outside Economizer Control	14,368	3.2	0.0	0.0	\$1,871	\$3,300	\$1,250	\$2,050	1.1	14,469
Domestic Water Heating Upgrade		0	0.0	355.0	355.0	\$2,986	\$1,628	\$0	\$1,628	0.5	41,561
ECM 14	Install Low-Flow Domestic Hot Water Devices	0	0.0	355.0	355.0	\$2,986	\$1,628	\$0	\$1,628	0.5	41,561
Food Service Equipment & Refrigeration Measures		28,196	3.2	0.0	0.0	\$3,945	\$23,955	\$700	\$23,255	5.9	28,393
ECM 15	Dishwasher Replacement	19,235	2.2	0.0	0.0	\$2,791	\$18,859	\$700	\$18,159	6.5	19,370
ECM 16	Refrigerator/Freezer Case Electrically Commutated Motors	2,621	0.3	0.0	0.0	\$336	\$1,213	\$0	\$1,213	3.6	2,640
ECM 17	Replace Refrigeration Equipment	6,339	0.7	0.0	0.0	\$817	\$3,882	\$0	\$3,882	4.8	6,383
Plug Load Equipment Control - Vending Machine		21,800	0.0	0.0	0.0	\$2,892	\$4,370	\$0	\$4,370	1.5	21,953
ECM 18	Vending Machine Control	21,800	0.0	0.0	0.0	\$2,892	\$4,370	\$0	\$4,370	1.5	21,953
TOTALS		2,550,286	463.4	355.0	355.0	\$342,268	\$1,241,993	\$198,159	\$1,043,834	3.0	2,609,679

* - 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).

Community Park 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			98,652	23.7	0.0	\$14,316.67	\$41,165.52	\$10,475.00	\$30,690.52	2.1	99,342
ECM 1	Install LED Fixtures	Yes	1,047	0.5	0.0	\$151.96	\$1,192.32	\$30.00	\$1,162.32	7.6	1,054
ECM 2	Retrofit Fixtures with LED Lamps	Yes	97,605	23.2	0.0	\$14,164.71	\$39,973.20	\$10,445.00	\$29,528.20	2.1	98,288
Lighting Control Measures			18,362	4.3	0.0	\$2,664.67	\$18,990.00	\$1,935.00	\$17,055.00	6.4	18,490
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	18,362	4.3	0.0	\$2,664.67	\$18,990.00	\$1,935.00	\$17,055.00	6.4	18,490
Motor Upgrades			211	0.1	0.0	\$30.67	\$5,481.92	\$0.00	\$5,481.92	178.7	213
	Premium Efficiency Motors	No	211	0.1	0.0	\$30.67	\$5,481.92	\$0.00	\$5,481.92	178.7	213
Variable Frequency Drive (VFD) Measures			39,734	5.1	0.0	\$5,766.26	\$20,725.96	\$0.00	\$20,725.96	3.6	40,012
	Install VFD on Variable Air Volume (VAV) HVAC	No	4,237	1.5	0.0	\$614.82	\$10,337.06	\$0.00	\$10,337.06	16.8	4,266
ECM 4	Install VFDs on Hot Water Pumps	Yes	35,497	3.6	0.0	\$5,151.44	\$10,388.90	\$0.00	\$10,388.90	2.0	35,745
Electric Unitary HVAC Measures			24,741	14.7	0.0	\$3,590.51	\$83,672.88	\$4,646.00	\$79,026.88	22.0	24,914
	Install High Efficiency Electric AC	No	24,741	14.7	0.0	\$3,590.51	\$83,672.88	\$4,646.00	\$79,026.88	22.0	24,914
Gas Heating (HVAC/Process) Replacement			0	0.0	91.2	\$809.64	\$85,538.39	\$5,080.80	\$80,457.59	99.4	10,678
	Install High Efficiency Steam Boilers	No	0	0.0	91.2	\$809.64	\$85,538.39	\$5,080.80	\$80,457.59	99.4	10,678
HVAC System Improvements			3,432	0.8	0.0	\$498.06	\$2,000.00	\$1,000.00	\$1,000.00	2.0	3,456
	Install Dual Enthalpy Outside Economizer Control	No	3,432	0.8	0.0	\$498.06	\$2,000.00	\$1,000.00	\$1,000.00	2.0	3,456
Domestic Water Heating Upgrade			0	0.0	47.0	\$417.33	\$272.46	\$0.00	\$272.46	0.7	5,504
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	47.0	\$417.33	\$272.46	\$0.00	\$272.46	0.7	5,504
Food Service Equipment & Refrigeration Measures			19,903	2.5	59.3	\$3,414.67	\$50,000.34	\$2,450.00	\$47,550.34	13.9	26,983
	Food Service Equipment Replacement	No	668	0.3	59.3	\$623.21	\$31,140.96	\$1,750.00	\$29,390.96	47.2	7,613
ECM 6	Dishwasher Replacement	Yes	19,235	2.2	0.0	\$2,791.46	\$18,859.38	\$700.00	\$18,159.38	6.5	19,370
Plug Load Equipment Control - Vending Machine			1,954	0.0	0.0	\$283.62	\$460.00	\$0.00	\$460.00	1.6	1,968
ECM 7	Vending Machine Control	Yes	1,954	0.0	0.0	\$283.62	\$460.00	\$0.00	\$460.00	1.6	1,968
TOTALS FOR HIGH PRIORITY MEASURES			173,701	33.8	47.0	\$25,625.19	\$90,136.26	\$13,110.00	\$77,026.26	3.0	180,419
TOTALS FOR ALL EVALUATED MEASURES			206,990	51.0	197.5	\$31,792.12	\$308,307.47	\$25,586.80	\$282,720.67	8.9	231,559

* - 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).

Johnson Park 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			120,318	26.4	0.0	\$17,861.00	\$63,716.01	\$10,390.00	\$53,326.01	3.0	121,159
ECM 1	Install LED Fixtures	Yes	8,339	1.9	0.0	\$1,237.95	\$13,555.16	\$0.00	\$13,555.16	10.9	8,398
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	10,499	2.2	0.0	\$1,558.59	\$9,342.28	\$0.00	\$9,342.28	6.0	10,573
ECM 3	Retrofit Fixtures with LED Lamps	Yes	101,479	22.2	0.0	\$15,064.46	\$40,818.56	\$10,390.00	\$30,428.56	2.0	102,189
Lighting Control Measures			28,196	6.1	0.0	\$4,185.72	\$20,166.00	\$2,520.00	\$17,646.00	4.2	28,394
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	28,196	6.1	0.0	\$4,185.72	\$20,166.00	\$2,520.00	\$17,646.00	4.2	28,394
Motor Upgrades			1,418	0.3	0.0	\$210.56	\$4,855.68	\$0.00	\$4,855.68	23.1	1,428
	Premium Efficiency Motors	No	1,418	0.3	0.0	\$210.56	\$4,855.68	\$0.00	\$4,855.68	23.1	1,428
Variable Frequency Drive (VFD) Measures			35,728	3.7	0.0	\$5,303.74	\$10,388.90	\$0.00	\$10,388.90	2.0	35,978
ECM 5	Install VFDs on Hot Water Pumps	Yes	35,728	3.7	0.0	\$5,303.74	\$10,388.90	\$0.00	\$10,388.90	2.0	35,978
Electric Unitary HVAC Measures			9,792	4.9	0.0	\$1,453.61	\$12,479.28	\$506.00	\$11,973.28	8.2	9,860
ECM 6	Install High Efficiency Electric AC	Yes	9,792	4.9	0.0	\$1,453.61	\$12,479.28	\$506.00	\$11,973.28	8.2	9,860
Gas Heating (HVAC/Process) Replacement			0	0.0	123.6	\$1,182.59	\$77,699.73	\$4,615.20	\$73,084.53	61.8	14,476
	Install High Efficiency Steam Boilers	No	0	0.0	123.6	\$1,182.59	\$77,699.73	\$4,615.20	\$73,084.53	61.8	14,476
HVAC System Improvements			1,798	0.4	0.0	\$266.87	\$1,000.00	\$500.00	\$500.00	1.9	1,810
ECM 7	Install Dual Enthalpy Outside Economizer Control	Yes	1,798	0.4	0.0	\$266.87	\$1,000.00	\$500.00	\$500.00	1.9	1,810
Domestic Water Heating Upgrade			0	0.0	45.2	\$432.47	\$207.93	\$0.00	\$207.93	0.5	5,294
ECM 8	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	45.2	\$432.47	\$207.93	\$0.00	\$207.93	0.5	5,294
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$239.28	\$230.00	\$0.00	\$230.00	1.0	1,623
ECM 9	Vending Machine Control	Yes	1,612	0.0	0.0	\$239.28	\$230.00	\$0.00	\$230.00	1.0	1,623
TOTALS FOR HIGH PRIORITY MEASURES			197,443	41.4	45.2	\$29,742.68	\$108,188.12	\$13,916.00	\$94,272.12	3.2	204,118
TOTALS FOR ALL EVALUATED MEASURES			198,862	41.7	168.8	\$31,135.83	\$190,743.53	\$18,531.20	\$172,212.33	5.5	220,022

* - 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).

Littlebrook 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			100,473	21.5	0.0	\$14,423.25	\$40,142.43	\$10,425.00	\$29,717.43	2.1	101,176
ECM 1	Install LED Fixtures	Yes	2,440	0.7	0.0	\$350.33	\$3,752.83	\$900.00	\$2,852.83	8.1	2,458
	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	No	96	0.2	0.0	\$13.73	\$453.41	\$70.00	\$383.41	27.9	96
ECM 2	Retrofit Fixtures with LED Lamps	Yes	97,937	20.7	0.0	\$14,059.18	\$35,936.20	\$9,455.00	\$26,481.20	1.9	98,622
Lighting Control Measures			24,270	5.0	0.0	\$3,484.04	\$25,458.00	\$3,155.00	\$22,303.00	6.4	24,440
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	24,270	5.0	0.0	\$3,484.04	\$25,458.00	\$3,155.00	\$22,303.00	6.4	24,440
Variable Frequency Drive (VFD) Measures			10,436	7.8	0.0	\$1,498.11	\$23,894.01	\$3,487.50	\$20,406.51	13.6	10,509
ECM 4	Install VFD on Variable Air Volume (VAV) HVAC	Yes	6,414	6.3	0.0	\$920.74	\$10,820.40	\$3,487.50	\$7,332.90	8.0	6,459
	Install VFDs on Hot Water Pumps	No	4,022	1.5	0.0	\$577.36	\$13,073.61	\$0.00	\$13,073.61	22.6	4,050
Gas Heating (HVAC/Process) Replacement			0	0.0	88.9	\$800.34	\$75,760.26	\$4,500.00	\$71,260.26	89.0	10,408
	Install High Efficiency Steam Boilers	No	0	0.0	88.9	\$800.34	\$75,760.26	\$4,500.00	\$71,260.26	89.0	10,408
Domestic Water Heating Upgrade			0	0.0	73.7	\$663.63	\$229.44	\$0.00	\$229.44	0.3	8,630
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	73.7	\$663.63	\$229.44	\$0.00	\$229.44	0.3	8,630
Food Service Equipment & Refrigeration Measures			601	0.1	0.0	\$86.30	\$4,263.70	\$100.00	\$4,163.70	48.2	605
	Replace Refrigeration Equipment	No	601	0.1	0.0	\$86.30	\$4,263.70	\$100.00	\$4,163.70	48.2	605
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$231.39	\$230.00	\$0.00	\$230.00	1.0	1,623
ECM 6	Vending Machine Control	Yes	1,612	0.0	0.0	\$231.39	\$230.00	\$0.00	\$230.00	1.0	1,623
TOTALS FOR HIGH PRIORITY MEASURES			132,673	32.7	73.7	\$19,709.31	\$76,426.87	\$16,997.50	\$59,429.37	3.0	142,231
TOTALS FOR ALL EVALUATED MEASURES			137,392	34.4	162.6	\$21,187.05	\$169,977.85	\$21,667.50	\$148,310.35	7.0	157,390

* - 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).

Riverside 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			91,394	18.4	0.0	\$13,891.23	\$38,056.30	\$9,945.00	\$28,111.30	2.0	92,033
	Install LED Fixtures	No	415	0.2	0.0	\$63.03	\$1,549.76	\$300.00	\$1,249.76	19.8	418
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	613	0.1	0.0	\$93.24	\$437.15	\$65.00	\$372.15	4.0	618
ECM 2	Retrofit Fixtures with LED Lamps	Yes	90,365	18.1	0.0	\$13,734.96	\$36,069.38	\$9,580.00	\$26,489.38	1.9	90,997
Lighting Control Measures			21,738	4.3	0.0	\$3,304.01	\$23,302.00	\$2,875.00	\$20,427.00	6.2	21,890
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	18,873	3.8	0.0	\$2,868.57	\$22,102.00	\$2,875.00	\$19,227.00	6.7	19,005
ECM 4	Install High/Low Lighting Controls	Yes	2,865	0.6	0.0	\$435.44	\$1,200.00	\$0.00	\$1,200.00	2.8	2,885
Motor Upgrades			759	0.2	0.0	\$115.36	\$804.84	\$0.00	\$804.84	7.0	764
ECM 5	Premium Efficiency Motors	Yes	759	0.2	0.0	\$115.36	\$804.84	\$0.00	\$804.84	7.0	764
Variable Frequency Drive (VFD) Measures			17,749	3.6	0.0	\$2,697.67	\$10,388.90	\$0.00	\$10,388.90	3.9	17,873
ECM 6	Install VFDs on Hot Water Pumps	Yes	17,749	3.6	0.0	\$2,697.67	\$10,388.90	\$0.00	\$10,388.90	3.9	17,873
Electric Unitary HVAC Measures			10,595	6.6	0.0	\$1,610.43	\$63,052.48	\$2,846.00	\$60,206.48	37.4	10,669
	Install High Efficiency Electric AC	No	8,591	5.1	0.0	\$1,305.76	\$49,438.72	\$2,294.00	\$47,144.72	36.1	8,651
	Install High Efficiency Heat Pumps	No	2,004	1.5	0.0	\$304.67	\$13,613.76	\$552.00	\$13,061.76	42.9	2,019
HVAC System Improvements			10,403	2.3	0.0	\$1,581.18	\$5,250.00	\$2,500.00	\$2,750.00	1.7	10,476
	Install Dual Enthalpy Outside Economizer Control	No	10,403	2.3	0.0	\$1,581.18	\$5,250.00	\$2,500.00	\$2,750.00	1.7	10,476
Domestic Water Heating Upgrade			0	0.0	58.8	\$412.67	\$265.29	\$0.00	\$265.29	0.6	6,890
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	58.8	\$412.67	\$265.29	\$0.00	\$265.29	0.6	6,890
TOTALS FOR HIGH PRIORITY MEASURES			131,224	26.4	58.8	\$20,357.92	\$71,267.56	\$12,520.00	\$58,747.56	2.9	139,032
TOTALS FOR ALL EVALUATED MEASURES			152,637	35.4	58.8	\$23,612.56	\$141,119.80	\$18,166.00	\$122,953.80	5.2	160,594

* - 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).

John Witherspoon 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			386,507	59.5	0.0	\$49,311.23	\$135,554.59	\$26,710.00	\$108,844.59	2.2	389,210
ECM 1	Install LED Fixtures	Yes	88,665	13.1	0.0	\$11,312.01	\$50,308.60	\$8,835.00	\$41,473.60	3.7	89,285
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,656	0.3	0.0	\$211.26	\$560.48	\$0.00	\$560.48	2.7	1,667
ECM 3	Retrofit Fixtures with LED Lamps	Yes	296,186	46.1	0.0	\$37,787.96	\$84,685.51	\$17,875.00	\$66,810.51	1.8	298,257
Lighting Control Measures			84,133	12.9	0.0	\$10,733.83	\$61,320.00	\$6,945.00	\$54,375.00	5.1	84,721
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	70,356	10.8	0.0	\$8,976.16	\$57,720.00	\$6,945.00	\$50,775.00	5.7	70,848
ECM 5	Install High/Low Lighting Controls	Yes	13,777	2.1	0.0	\$1,757.67	\$3,600.00	\$0.00	\$3,600.00	2.0	13,873
Motor Upgrades			472	0.2	0.0	\$60.18	\$11,646.09	\$0.00	\$11,646.09	193.5	475
	Premium Efficiency Motors	No	472	0.2	0.0	\$60.18	\$11,646.09	\$0.00	\$11,646.09	193.5	475
Variable Frequency Drive (VFD) Measures			252,076	43.9	0.0	\$32,160.31	\$57,219.15	\$8,800.00	\$48,419.15	1.5	253,839
ECM 6	Install VFD on Variable Air Volume (VAV) HVAC	Yes	68,917	21.3	0.0	\$8,792.61	\$18,732.10	\$5,200.00	\$13,532.10	1.5	69,399
ECM 7	Install VFDs on Hot Water Pumps	Yes	168,304	14.3	0.0	\$21,472.48	\$28,098.15	\$0.00	\$28,098.15	1.3	169,481
ECM 8	Install Boiler Draft Fan VFDs	Yes	14,855	8.3	0.0	\$1,895.22	\$10,388.90	\$3,600.00	\$6,788.90	3.6	14,959
Electric Unitary HVAC Measures			81,674	48.4	0.0	\$10,420.10	\$94,326.34	\$4,960.00	\$89,366.34	8.6	82,245
ECM 9	Install High Efficiency Electric AC	Yes	81,674	48.4	0.0	\$10,420.10	\$94,326.34	\$4,960.00	\$89,366.34	8.6	82,245
Gas Heating (HVAC/Process) Replacement			0	0.0	814.2	\$7,328.99	\$458,815.38	\$0.00	\$458,815.38	62.6	95,331
	Install High Efficiency Hot Water Boilers	No	0	0.0	814.2	\$7,328.99	\$458,815.38	\$0.00	\$458,815.38	62.6	95,331
HVAC System Improvements			12,571	2.8	0.0	\$1,603.78	\$2,300.00	\$750.00	\$1,550.00	1.0	12,659
ECM 10	Install Dual Enthalpy Outside Economizer Control	Yes	12,571	2.8	0.0	\$1,603.78	\$2,300.00	\$750.00	\$1,550.00	1.0	12,659
Domestic Water Heating Upgrade			0	0.0	52.3	\$470.46	\$279.63	\$0.00	\$279.63	0.6	6,119
ECM 11	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	52.3	\$470.46	\$279.63	\$0.00	\$279.63	0.6	6,119
Food Service Equipment & Refrigeration Measures			4,465	0.2	0.0	\$569.68	\$4,991.81	\$250.00	\$4,741.81	8.3	4,496
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,311	0.2	0.0	\$167.22	\$606.60	\$0.00	\$606.60	3.6	1,320
	Refrigeration Controls	No	3,155	0.1	0.0	\$402.46	\$4,385.21	\$250.00	\$4,135.21	10.3	3,177
Plug Load Equipment Control - Vending Machine			3,224	0.0	0.0	\$411.28	\$460.00	\$0.00	\$460.00	1.1	3,246
ECM 13	Vending Machine Control	Yes	3,224	0.0	0.0	\$411.28	\$460.00	\$0.00	\$460.00	1.1	3,246
TOTALS FOR HIGH PRIORITY MEASURES			821,495	167.7	52.3	\$105,278.21	\$352,066.31	\$48,165.00	\$303,901.31	2.9	833,359
TOTALS FOR ALL EVALUATED MEASURES			825,122	167.9	866.4	\$113,069.84	\$826,912.99	\$48,415.00	\$778,497.99	6.9	932,341

* - 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).

Princeton 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			762,293	99.5	0.0	\$98,246.27	\$297,079.38	\$59,410.00	\$237,669.38	2.4	767,623
ECM 1	Install LED Fixtures	Yes	130,995	16.8	0.0	\$16,882.96	\$151,102.01	\$29,250.00	\$121,852.01	7.2	131,911
ECM 2	Retrofit Fixtures with LED Lamps	Yes	631,298	82.7	0.0	\$81,363.31	\$145,977.37	\$30,160.00	\$115,817.37	1.4	635,712
Lighting Control Measures			156,106	19.8	0.0	\$20,119.40	\$90,388.00	\$10,360.00	\$80,028.00	4.0	157,198
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	120,825	15.3	0.0	\$15,572.24	\$86,188.00	\$10,360.00	\$75,828.00	4.9	121,670
ECM 4	Install High/Low Lighting Controls	Yes	35,281	4.5	0.0	\$4,547.16	\$4,200.00	\$0.00	\$4,200.00	0.9	35,528
Motor Upgrades			14,550	3.6	0.0	\$1,875.23	\$55,493.51	\$0.00	\$55,493.51	29.6	14,652
	Premium Efficiency Motors	No	14,550	3.6	0.0	\$1,875.23	\$55,493.51	\$0.00	\$55,493.51	29.6	14,652
Variable Frequency Drive (VFD) Measures			154,302	41.2	0.0	\$19,886.82	\$148,589.00	\$23,680.00	\$124,909.00	6.3	155,381
ECM 5	Install VFDs on Constant Volume (CV) HVAC	Yes	136,387	39.0	0.0	\$17,577.87	\$130,543.10	\$23,680.00	\$106,863.10	6.1	137,340
ECM 6	Install VFDs on Boiler Feedwater Pumps	Yes	17,915	2.3	0.0	\$2,308.95	\$18,045.90	\$0.00	\$18,045.90	7.8	18,040
Electric Unitary HVAC Measures			54,228	33.5	0.0	\$6,989.09	\$495,234.64	\$15,278.00	\$479,956.64	68.7	54,608
	Install High Efficiency Electric AC	No	46,567	27.6	0.0	\$6,001.62	\$448,720.96	\$13,392.00	\$435,328.96	72.5	46,892
	Install High Efficiency Heat Pumps	No	7,662	5.9	0.0	\$987.48	\$46,513.68	\$1,886.00	\$44,627.68	45.2	7,715
HVAC System Improvements			71,283	16.1	0.0	\$9,187.14	\$11,550.00	\$2,750.00	\$8,800.00	1.0	71,781
	Install Dual Enthalpy Outside Economizer Control	No	71,283	16.1	0.0	\$9,187.14	\$11,550.00	\$2,750.00	\$8,800.00	1.0	71,781
Domestic Water Heating Upgrade			0	0.0	77.9	\$589.15	\$372.84	\$0.00	\$372.84	0.6	9,125
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	77.9	\$589.15	\$372.84	\$0.00	\$372.84	0.6	9,125
Food Service Equipment & Refrigeration Measures			7,650	0.9	0.0	\$985.91	\$4,488.60	\$0.00	\$4,488.60	4.6	7,703
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,311	0.2	0.0	\$168.92	\$606.60	\$0.00	\$606.60	3.6	1,320
ECM 9	Replace Refrigeration Equipment	Yes	6,339	0.7	0.0	\$816.99	\$3,882.00	\$0.00	\$3,882.00	4.8	6,383
Plug Load Equipment Control - Vending Machine			13,398	0.0	0.0	\$1,726.82	\$2,990.00	\$0.00	\$2,990.00	1.7	13,492
ECM 10	Vending Machine Control	Yes	13,398	0.0	0.0	\$1,726.82	\$2,990.00	\$0.00	\$2,990.00	1.7	13,492
TOTALS FOR HIGH PRIORITY MEASURES			1,093,749	161.5	77.9	\$141,554.38	\$543,907.82	\$93,450.00	\$450,457.82	3.2	1,110,521
TOTALS FOR ALL EVALUATED MEASURES			1,233,811	214.7	77.9	\$159,605.84	\$1,106,185.97	\$111,478.00	\$994,707.97	6.2	1,251,562

* - 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).

Solar Energy Generation Potential



	Community Park Elementary School	Johnson Park Elementary School	Littlebrook Elementary School	Riverside Elementary School	John Witherspoon Elementary School	Princeton High School
<i>Potential:</i>	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
<i>System Potential:</i>	120	151	106	107	393	488
<i>Electric Generation:</i>	142,965	179,897	126,285	127,477	468,208	581,389
<i>Displaced Cost:</i>	\$12,440	\$15,650	\$10,990	\$11,090	\$40,730	\$50,580
<i>Installed Cost:</i>	\$312,000	\$392,600	\$303,200	\$278,200	\$1,532,700	\$1,268,800

For more information on the SREC Registration Program (SRP) please visit:

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

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)

* eligible programs are highlighted in yellow

Recommended NJCEP Incentives per Building



Princeton Public Schools	Pay For Performance	Direct Install	SmartStart	CTEEP
Community Park Elementary School		X	X	X
Johnson Park Elementary School		X	X	X
Littlebrook Elementary School		X	X	X
Riverside Elementary School		X	X	X
John Witherspoon Elementary School	X		X	X
Princeton High School	X		X	X

Pay for Performance: Overview



- Comprehensive, whole-building approach to saving energy in existing or new facilities
- Qualification based on energy consumption, energy savings and measure types
- Customer chooses from network of pre-approved ***Participating Partners***
- Incentives paid in three installments at milestones
 - Incentives up to \$2MM per project (\$4MM entity cap/year)
 - \$1 million for electric measures
 - \$1 million for gas measures
 - Incentives up to 50% of total project cost

Pay for Performance: Process



Submittal and
Approval of
Application

Development
and Approval of
Energy
Reduction Plan
(ERP)

Installation of
Recommended
Measures

Submittal and
Approval of
As-Built ERP and
Cx Report

Post
Construction
Verification of
Savings

Incentive #1
*fixed between
\$3,750-\$25,000*

Incentive #2
*up to 25%
project cost*

Incentive #3
*up to 25%
project cost*

1 year

Pay for Performance: Details

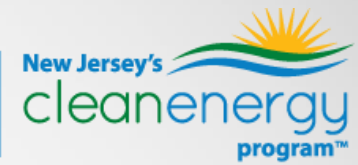


Incentive #1: Energy Reduction Plan			
Incentive Amount:		\$0.15	per sq ft
Minimum Incentive:		\$3,750	
Maximum Incentive:		\$25,000	or 50% of facility annual energy cost
Incentive #2: Installation of Recommended Measures			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15 % savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost
Incentive #3: Post-Construction Benchmarking Report			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15% savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost

Direct Install: Overview

- Turn-key retrofit program to replace outdated and inefficient equipment, including lighting, HVAC, refrigeration, etc.
- Open to Small to Mid-Sized Commercial and Industrial facilities with an average electric demand ≤ 200 kW
- Provides incentives of up to 70% of the installed cost
- Incentives are paid directly to the contractor
 - Customer only pays remaining 30% of installed cost
 - \$125,000 project/building cap
 - \$250,000 per entity cap (up to \$500,000 if using ESIP)
- Participating contractors provide support and process all paperwork
- Fast turnaround time: Average length of time for job completion (4-6 months)

Direct Install:



Participating Contractor

Tri-State Light & Energy, Inc.

Alan Rhode

610-789-1900 x226

asr@tsle.com

SmartStart: Overview

- Two types of incentives for high efficiency equipment installation:
 - Prescriptive
 - Custom
- Project Categories:
 - New Construction
 - Renovation
 - Remodeling
 - Equipment Replacement
- Project pre-approval required for lighting and custom measures
- Incentives up to \$500,000 per electric account & \$500,000 per natural gas account
- Specific incentives and individual applications for Lighting, HVAC, VFDs, Refrigeration, Controls and more!

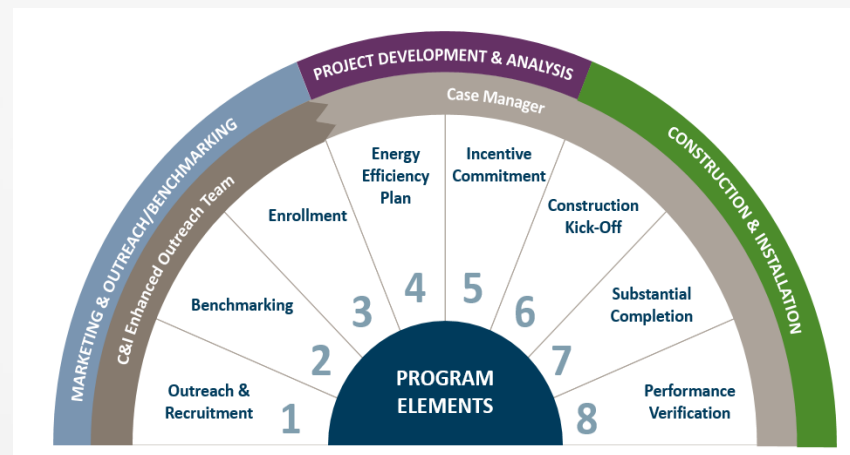
www.NJCleanEnergy/SSB

CTEEP: Overview



Customer Tailored Energy Efficiency Pilot (CTEEP)

- Provide customers with **on-site assistance** to discuss project opportunities and program incentives.
- A **single application** submission streamlines multiple prescriptive and custom measures.
- Provide **technical assistance incentives** to help offset soft costs associated with developing and planning an energy efficiency project.
- Incentives up to \$250,000 entity cap.



Recommended NJCEP Incentives per Building



Princeton Public Schools	Pay For Performance	Direct Install	SmartStart	CTEEP
Community Park Elementary School		X	X	X
Johnson Park Elementary School		X	X	X
Littlebrook Elementary School		X	X	X
Riverside Elementary School		X	X	X
John Witherspoon Elementary School	X		X	X
Princeton High School	X		X	X

Energy Savings Improvement Program (ESIP)

- Provides alternative financing 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/require voter approval.
- Requires an audit as 1st step (LGEA satisfies requirement)
- ESIP participation question on LGEA application
- Program administered directly by BPU

ESIP Process

New Jersey's Clean Energy Program Interaction

Initial Energy Audit completed
for entity building(s)

Local Government Energy Audit
(LGEA) may be used to meet
this requirement

Entity issues ESIP RFP (previously
approved by BPU) and selects ESCO
or DIY approach

Investment Grade Energy Audit completed
and Energy Savings Plan (ESP)
developed

P4P Energy Reduction Plan (ERP),
Direct Install, or SmartStart application
recommended submittal time frame

Third party review of ESP

Review and approval of ESP
by Board of Public Utilities (BPU)

Entity adopts ESP,
determines guarantee

FOR MORE INFORMATION

ESIP

Mike Thulen

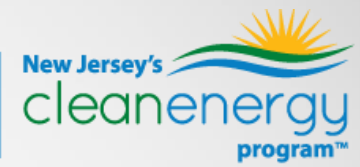
ESIP Coordinator

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Questions



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