

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Metuchen Board of Education

TRC Energy Services

January 22, 2019

Introductions



Metuchen Board of Education

- Dr. Vincent Caputo – Superintendent
- Michael Harvier – Business Administrator
- Gerard Redmond – Supervisor of Buildings & Grounds
- Maryann Simms – Assistant to Supervisor of B&Gs

NJ Clean Energy Program

- Alex Klieverik – TRC Auditor
- Elizabeth Ebinger – TRC Account Manager
- Arif Welcher – BPU Ombudsman

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 Metuchen Board of Education

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
- HVAC and Mechanical Systems
- Plug Load Equipment

Sites Visited/Analyzed

- Moss School
- Edgar School
- Campbell School
- Metuchen High School

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Benchmarking



Metuchen High School

ENERGY STAR® Statement of Energy Performance

Metuchen High School
 Primary Property Type: K-12 School
 Gross Floor Area (ft²): 108,124
 Built: 1958
 For Year Ending: July 31, 2017
 Date Generated: October 30, 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 Metuchen High School 400 Grove Avenue Metuchen, New Jersey 08840	Property Owner Metuchen Board of Education 16 Simpson Place Metuchen, NJ 08840 () - () - ()	Primary Contact Michael Harvier 16 Simpson Place Metuchen, NJ 08840 732-321-8700 ext. 1011 maharvier@metboe.k12.nj.us

Property ID: 6399371

Energy Consumption and Energy Use Intensity (EUI)				
Site EUI 88.9 kBtu/ft²	Annual Energy by Fuel		National Median Comparison	
	Natural Gas (kBtu)	5,390,452 (56%)		National Median Site EUI (kBtu/ft²)
	Electric - Grid (kBtu)	4,219,268 (44%)		National Median Source EUI (kBtu/ft²)
			% Diff from National Median Source EUI	
			28%	
Source EUI 161.6 kBtu/ft²			Annual Emissions	
			Greenhouse Gas Emissions (Metric Tons CO2e/year)	
			714	

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
Moss School	13
Edgar School	19
Campbell School	13
Metuchen High School	25

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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades	489,152	111.0	0.0	\$71,866.74	\$293,693.79	\$54,240.00	\$239,453.79	3.3	492,573
Install LED Fixtures	41,025	11.4	0.0	\$6,357.31	\$96,580.28	\$10,005.00	\$86,575.28	13.6	41,311
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,170	0.6	0.0	\$346.22	\$1,072.56	\$120.00	\$952.56	2.8	2,185
Retrofit Fixtures with LED Lamps	445,695	99.0	0.0	\$65,124.18	\$195,823.69	\$44,115.00	\$151,708.69	2.3	448,812
Install LED Exit Signs	263	0.0	0.0	\$39.03	\$217.26	\$0.00	\$217.26	5.6	265
Lighting Control Measures	87,767	18.0	0.0	\$12,607.14	\$115,206.00	\$10,775.00	\$104,431.00	8.3	88,381
Install Occupancy Sensor Lighting Controls	73,440	15.8	0.0	\$10,619.43	\$96,506.00	\$9,175.00	\$87,331.00	8.2	73,954
Install Daylight Dimming Controls	2,327	0.4	0.0	\$324.55	\$8,500.00	\$1,600.00	\$6,900.00	21.3	2,343
Install High/Low Lighting Controls	12,000	1.9	0.0	\$1,663.16	\$10,200.00	\$0.00	\$10,200.00	6.1	12,084
Motor Upgrades	2,066	0.6	0.0	\$288.54	\$25,731.64	\$0.00	\$25,731.64	89.2	2,080
Premium Efficiency Motors	2,066	0.6	0.0	\$288.54	\$25,731.64	\$0.00	\$25,731.64	89.2	2,080
Variable Frequency Drive (VFD) Measures	127,026	29.4	0.0	\$19,156.81	\$80,510.00	\$10,600.00	\$69,910.00	3.6	127,914
Install VFDs on Constant Volume (CV) HVAC	85,644	23.8	0.0	\$13,396.88	\$59,128.80	\$10,600.00	\$48,528.80	3.6	86,243
Install VFDs on Hot Water Pumps	41,382	5.5	0.0	\$5,759.93	\$21,381.20	\$0.00	\$21,381.20	3.7	41,671
Electric Unitary HVAC Measures	40,985	25.6	0.0	\$5,710.62	\$177,429.25	\$8,526.00	\$168,903.25	29.6	41,272
Install High Efficiency Electric AC	40,752	25.3	0.0	\$5,678.39	\$175,030.07	\$8,434.00	\$166,596.07	29.3	41,037
Install High Efficiency Heat Pumps	233	0.3	0.0	\$32.23	\$2,399.18	\$92.00	\$2,307.18	71.6	234
Gas Heating (HVAC/Process) Replacement	0	0.0	398.6	\$3,410.12	\$98,106.19	\$10,544.00	\$87,562.19	25.7	46,667
Install High Efficiency Hot Water Boilers	0	0.0	398.6	\$3,410.12	\$98,106.19	\$10,544.00	\$87,562.19	25.7	46,667
Domestic Water Heating Upgrade	16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
Install High Efficiency Gas Water Heater	16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
Plug Load Equipment Control - Vending Machine	9,208	0.0	0.0	\$1,410.38	\$1,610.00	\$0.00	\$1,610.00	1.1	9,272
Vending Machine Control	9,208	0.0	0.0	\$1,410.38	\$1,610.00	\$0.00	\$1,610.00	1.1	9,272
TOTALS	772,889	186.0	341.6	\$116,364.31	\$798,065.87	\$94,885.00	\$703,180.87	6.0	818,294

* - 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 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		461,161	102.1	0.0	\$67,306.34	\$210,495.42	\$45,635.00	\$164,860.42	2.4	464,385
ECM 1	Install LED Fixtures	13,033	2.4	0.0	\$1,796.91	\$13,381.91	\$1,400.00	\$11,981.91	6.7	13,124
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,170	0.6	0.0	\$346.22	\$1,072.56	\$120.00	\$952.56	2.8	2,185
ECM 3	Retrofit Fixtures with LED Lamps	445,695	99.0	0.0	\$65,124.18	\$195,823.69	\$44,115.00	\$151,708.69	2.3	448,812
ECM 4	Install LED Exit Signs	263	0.0	0.0	\$39.03	\$217.26	\$0.00	\$217.26	5.6	265
Lighting Control Measures		87,342	18.0	0.0	\$12,545.94	\$109,206.00	\$9,695.00	\$99,511.00	7.9	87,952
ECM 5	Install Occupancy Sensor Lighting Controls	73,440	15.8	0.0	\$10,619.43	\$96,506.00	\$9,175.00	\$87,331.00	8.2	73,954
ECM 6	Install Daylight Dimming Controls	1,902	0.3	0.0	\$263.35	\$2,500.00	\$520.00	\$1,980.00	7.5	1,915
ECM 7	Install High/Low Lighting Controls	12,000	1.9	0.0	\$1,663.16	\$10,200.00	\$0.00	\$10,200.00	6.1	12,084
Motor Upgrades		2,066	0.6	0.0	\$288.54	\$25,731.64	\$0.00	\$25,731.64	89.2	2,080
ECM 8	Premium Efficiency Motors	2,066	0.6	0.0	\$288.54	\$25,731.64	\$0.00	\$25,731.64	89.2	2,080
Variable Frequency Drive (VFD) Measures		127,026	29.4	0.0	\$19,156.81	\$80,510.00	\$10,600.00	\$69,910.00	3.6	127,914
ECM 9	Install VFDs on Constant Volume (CV) HVAC	85,644	23.8	0.0	\$13,396.88	\$59,128.80	\$10,600.00	\$48,528.80	3.6	86,243
ECM 10	Install VFDs on Hot Water Pumps	41,382	5.5	0.0	\$5,759.93	\$21,381.20	\$0.00	\$21,381.20	3.7	41,671
Domestic Water Heating Upgrade		16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
ECM 11	Install High Efficiency Gas Water Heater	16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
Plug Load Equipment Control - Vending Machine		9,208	0.0	0.0	\$1,410.38	\$1,610.00	\$0.00	\$1,610.00	1.1	9,272
ECM 12	Vending Machine Control	9,208	0.0	0.0	\$1,410.38	\$1,610.00	\$0.00	\$1,610.00	1.1	9,272
TOTALS		703,487	151.3	-56.9	\$102,621.97	\$433,332.06	\$66,130.00	\$367,202.06	3.6	701,740

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Moss 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			44,490	11.1	0.0	\$6,402.42	\$21,791.35	\$5,200.00	\$16,591.35	2.6	44,801
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	262	0.2	0.0	\$37.72	\$257.39	\$0.00	\$257.39	6.8	264
ECM 2	Retrofit Fixtures with LED Lamps	Yes	44,175	10.9	0.0	\$6,357.15	\$21,461.55	\$5,200.00	\$16,261.55	2.6	44,484
ECM 3	Install LED Exit Signs	Yes	53	0.0	0.0	\$7.56	\$72.42	\$0.00	\$72.42	9.6	53
Lighting Control Measures			10,626	2.4	0.0	\$1,529.19	\$16,988.00	\$2,165.00	\$14,823.00	9.7	10,700
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	7,940	2.0	0.0	\$1,142.59	\$8,988.00	\$1,085.00	\$7,903.00	6.9	7,995
	Install Daylight Dimming Controls	No	425	0.1	0.0	\$61.20	\$6,000.00	\$1,080.00	\$4,920.00	80.4	428
ECM 5	Install High/Low Lighting Controls	Yes	2,261	0.3	0.0	\$325.40	\$2,000.00	\$0.00	\$2,000.00	6.1	2,277
Motor Upgrades			706	0.2	0.0	\$101.60	\$3,684.24	\$0.00	\$3,684.24	36.3	711
ECM 6	Premium Efficiency Motors	Yes	706	0.2	0.0	\$101.60	\$3,684.24	\$0.00	\$3,684.24	36.3	711
Variable Frequency Drive (VFD) Measures			14,071	2.6	0.0	\$2,024.97	\$13,103.40	\$800.00	\$12,303.40	6.1	14,170
ECM 7	Install VFDs on Constant Volume (CV) HVAC	Yes	4,118	1.4	0.0	\$592.67	\$6,551.70	\$800.00	\$5,751.70	9.7	4,147
ECM 8	Install VFDs on Hot Water Pumps	Yes	9,953	1.3	0.0	\$1,432.29	\$6,551.70	\$0.00	\$6,551.70	4.6	10,022
Electric Unitary HVAC Measures			9,043	5.0	0.0	\$1,301.43	\$36,240.10	\$2,054.00	\$34,186.10	26.3	9,107
	Install High Efficiency Electric AC	No	9,043	5.0	0.0	\$1,301.43	\$36,240.10	\$2,054.00	\$34,186.10	26.3	9,107
Gas Heating (HVAC/Process) Replacement			0	0.0	398.6	\$3,410.12	\$98,106.19	\$10,544.00	\$87,562.19	25.7	46,667
	Install High Efficiency Hot Water Boilers	No	0	0.0	398.6	\$3,410.12	\$98,106.19	\$10,544.00	\$87,562.19	25.7	46,667
Domestic Water Heating Upgrade			16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
ECM 9	Install High Efficiency Gas Water Heater	Yes	16,685	1.4	-56.9	\$1,913.96	\$5,779.00	\$200.00	\$5,579.00	2.9	10,136
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$231.96	\$230.00	\$0.00	\$230.00	1.0	1,623
ECM 10	Vending Machine Control	Yes	1,612	0.0	0.0	\$231.96	\$230.00	\$0.00	\$230.00	1.0	1,623
TOTALS FOR HIGH PRIORITY MEASURES			87,764	17.6	-56.9	\$12,142.90	\$55,575.99	\$7,285.00	\$48,290.99	4.0	81,712
TOTALS FOR ALL EVALUATED MEASURES			97,233	22.7	341.6	\$16,915.65	\$195,922.28	\$20,963.00	\$174,959.28	10.3	137,914

* - 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.

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Edgar 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			146,607	34.1	0.0	\$20,301.92	\$67,206.95	\$15,120.00	\$52,086.95	2.6	147,632
ECM 1	Install LED Fixtures	Yes	9,179	1.9	0.0	\$1,271.07	\$9,518.05	\$1,000.00	\$8,518.05	6.7	9,243
ECM 2	Retrofit Fixtures with LED Lamps	Yes	137,428	32.1	0.0	\$19,030.85	\$57,688.90	\$14,120.00	\$43,568.90	2.3	138,389
Lighting Control Measures			33,697	7.5	0.0	\$4,666.30	\$45,446.00	\$3,915.00	\$41,531.00	8.9	33,933
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	27,338	6.5	0.0	\$3,785.76	\$38,146.00	\$3,395.00	\$34,751.00	9.2	27,529
ECM 4	Install Daylight Dimming Controls	Yes	1,902	0.3	0.0	\$263.35	\$2,500.00	\$520.00	\$1,980.00	7.5	1,915
ECM 5	Install High/Low Lighting Controls	Yes	4,457	0.8	0.0	\$617.19	\$4,800.00	\$0.00	\$4,800.00	7.8	4,488
Motor Upgrades			687	0.1	0.0	\$95.08	\$2,307.58	\$0.00	\$2,307.58	24.3	691
ECM 6	Premium Efficiency Motors	Yes	687	0.1	0.0	\$95.08	\$2,307.58	\$0.00	\$2,307.58	24.3	691
Variable Frequency Drive (VFD) Measures			26,877	4.4	0.0	\$3,721.82	\$12,810.35	\$1,200.00	\$11,610.35	3.1	27,064
ECM 7	Install VFDs on Constant Volume (CV) HVAC	Yes	7,448	2.0	0.0	\$1,031.44	\$5,194.45	\$1,200.00	\$3,994.45	3.9	7,500
ECM 8	Install VFDs on Hot Water Pumps	Yes	19,428	2.5	0.0	\$2,690.38	\$7,615.90	\$0.00	\$7,615.90	2.8	19,564
Electric Unitary HVAC Measures			25,091	16.5	0.0	\$3,474.58	\$114,956.04	\$4,954.00	\$110,002.04	31.7	25,267
	Install High Efficiency Electric AC	No	24,858	16.2	0.0	\$3,442.35	\$112,556.86	\$4,862.00	\$107,694.86	31.3	25,032
	Install High Efficiency Heat Pumps	No	233	0.3	0.0	\$32.23	\$2,399.18	\$92.00	\$2,307.18	71.6	234
Plug Load Equipment Control - Vending Machine			2,418	0.0	0.0	\$334.81	\$460.00	\$0.00	\$460.00	1.4	2,435
ECM 9	Vending Machine Control	Yes	2,418	0.0	0.0	\$334.81	\$460.00	\$0.00	\$460.00	1.4	2,435
TOTALS FOR HIGH PRIORITY MEASURES			210,285	46.2	0.0	\$29,119.92	\$128,230.88	\$20,235.00	\$107,995.88	3.7	211,755
TOTALS FOR ALL EVALUATED MEASURES			235,376	62.7	0.0	\$32,594.50	\$243,186.91	\$25,189.00	\$217,997.91	6.7	237,021

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Campbell 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			128,224	23.3	0.0	\$17,493.12	\$50,525.61	\$11,440.00	\$39,085.61	2.2	129,120
ECM 1	Install LED Fixtures	Yes	3,854	0.5	0.0	\$525.84	\$3,863.86	\$400.00	\$3,463.86	6.6	3,881
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	86	0.1	0.0	\$11.75	\$137.55	\$20.00	\$117.55	10.0	87
ECM 3	Retrofit Fixtures with LED Lamps	Yes	124,178	22.7	0.0	\$16,941.18	\$46,451.79	\$11,020.00	\$35,431.79	2.1	125,046
ECM 4	Install LED Exit Signs	Yes	105	0.0	0.0	\$14.34	\$72.42	\$0.00	\$72.42	5.0	106
Lighting Control Measures			25,148	4.4	0.0	\$3,430.79	\$24,348.00	\$2,520.00	\$21,828.00	6.4	25,323
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	19,866	3.7	0.0	\$2,710.22	\$20,948.00	\$2,520.00	\$18,428.00	6.8	20,005
ECM 6	Install High/Low Lighting Controls	Yes	5,282	0.8	0.0	\$720.57	\$3,400.00	\$0.00	\$3,400.00	4.7	5,319
Motor Upgrades			673	0.2	0.0	\$91.86	\$2,307.58	\$0.00	\$2,307.58	25.1	678
ECM 7	Premium Efficiency Motors	Yes	673	0.2	0.0	\$91.86	\$2,307.58	\$0.00	\$2,307.58	25.1	678
Variable Frequency Drive (VFD) Measures			23,174	4.8	0.0	\$3,161.49	\$18,034.00	\$1,800.00	\$16,234.00	5.1	23,336
ECM 8	Install VFDs on Constant Volume (CV) HVAC	Yes	11,173	3.0	0.0	\$1,524.23	\$10,820.40	\$1,800.00	\$9,020.40	5.9	11,251
ECM 9	Install VFDs on Hot Water Pumps	Yes	12,001	1.8	0.0	\$1,637.26	\$7,213.60	\$0.00	\$7,213.60	4.4	12,085
Electric Unitary HVAC Measures			6,851	4.1	0.0	\$934.61	\$26,233.11	\$1,518.00	\$24,715.11	26.4	6,899
	Install High Efficiency Electric AC	No	6,851	4.1	0.0	\$934.61	\$26,233.11	\$1,518.00	\$24,715.11	26.4	6,899
TOTALS FOR HIGH PRIORITY MEASURES			177,218	32.8	0.0	\$24,177.26	\$95,215.19	\$15,760.00	\$79,455.19	3.3	178,457
TOTALS FOR ALL EVALUATED MEASURES			184,069	36.8	0.0	\$25,111.87	\$121,448.30	\$17,278.00	\$104,170.30	4.1	185,356

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Metuchen High School

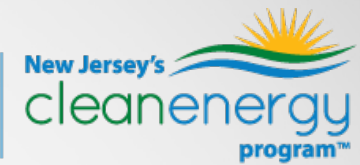


Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			169,832	42.6	0.0	\$27,669.27	\$154,169.85	\$22,480.00	\$131,689.85	4.8	171,019
	Install LED Fixtures	No	27,991	9.0	0.0	\$4,560.40	\$83,198.37	\$8,605.00	\$74,593.37	16.4	28,187
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,821	0.3	0.0	\$296.75	\$677.62	\$100.00	\$577.62	1.9	1,834
ECM 2	Retrofit Fixtures with LED Lamps	Yes	139,914	33.3	0.0	\$22,795.00	\$70,221.44	\$13,775.00	\$56,446.44	2.5	140,892
ECM 3	Install LED Exit Signs	Yes	105	0.0	0.0	\$17.13	\$72.42	\$0.00	\$72.42	4.2	106
Lighting Control Measures			18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
Motor Upgrades			0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
ECM 5	Premium Efficiency Motors	Yes	0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
Variable Frequency Drive (VFD) Measures			62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
Plug Load Equipment Control - Vending Machine			5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
ECM 7	Vending Machine Control	Yes	5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
TOTALS FOR HIGH PRIORITY MEASURES			228,220	54.8	0.0	\$37,181.88	\$154,309.97	\$22,850.00	\$131,459.97	3.5	229,815
TOTALS FOR ALL EVALUATED MEASURES			256,211	63.8	0.0	\$41,742.27	\$237,508.34	\$31,455.00	\$206,053.34	4.9	258,003

* - 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).

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

Solar Energy Generation Potential



	Moss School	Edgar School	Campbell School	Metuchen HS
<i>Potential:</i>	MEDIUM	MEDIUM	LOW	MEDIUM
<i>System Potential: (kW)</i>	80	162	200	284
<i>Electric Generation: (kWh per year)</i>	60,196	121,896	150,489	213,694
<i>Displaced Cost: (per year)</i>	\$5,240	\$10,600	\$13,090	\$18,590

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>

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



Metuchen BOE	Pay For Performance	Direct Install	SmartStart	CTEEP
Moss School		X	X	X
Edgar School		X	X	X
Campbell School		X	X	X
Metuchen HS	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

www.NJCleanEnergy/P4P

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

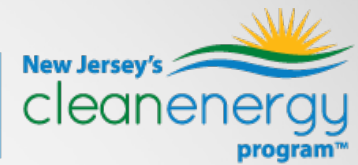


Incentive #1: Energy Reduction Plan			
Incentive Amount:		\$0.15	per sq ft
Minimum Incentive:		\$3,750	
Maximum Incentive:		\$25,000	or 50% of facility annual energy cost
Incentive #2: Installation of Recommended Measures			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 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

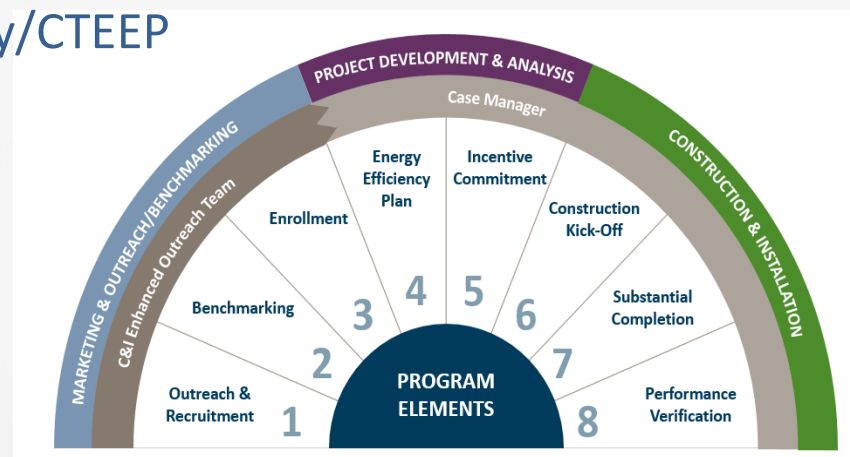
CTEEP: Overview



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.

www.NJCleanEnergy/CTEEP



Recommended NJCEP Incentives per Building



Metuchen BOE	Pay For Performance	Direct Install	SmartStart	CTEEP
Moss School		X	X	X
Edgar School		X	X	X
Campbell School		X	X	X
Metuchen HS	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

Office: 609-777-3338

Cell: 732-330-2419

ESIP@bpu.nj.gov

Questions



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FOR MORE INFORMATION

Visit NJCleanEnergy.com

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