

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Upper Deerfield Township School District

TRC Energy Services

February 19, 2019

Introductions



Upper Deerfield Township School District

- Cherie Bratty – Assistant to Superintendent
- Bill Widen – Buildings & Grounds Supervisor

NJ Clean Energy Program

- Moussa Traore – TRC Auditor
- Sarah Walters – TRC Account Manager
- Gary Finger – Outreach Account Manager
- Mike Thulen – ESIP Coordinator

Agenda



- The audit process overview
- 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 Upper Deerfield Township School District

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
- Food Service and Refrigeration Systems

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

- Charles Seabrook School
- Woodruff School
- Elizabeth Moore School

Benchmarking



Woodruff School

ENERGY STAR® Statement of Energy Performance

28

Woodruff School

Primary Property Type: K-12 School
 Gross Floor Area (ft²): 63,500
 Built: 1975

For Year Ending: December 31, 2017
 Date Generated: September 24, 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 Woodruff School 1385 Highway 77 Seabrook, New Jersey 08302	Property Owner Upper Deerfield Township SD 1385 Highway 77 Seabrook, NJ 08302 () -	Primary Contact William Widen 1385 Highway 77 Seabrook, NJ 08302 856-455-2267 X4234 WIDENW@UDTS.ORG
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Property ID: 6334496

Energy Consumption and Energy Use Intensity (EUI)

Site EUI 56.3 kBtu/ft ²	Annual Energy by Fuel	National Median Comparison	
	Electric - Grid (kBtu) 2,377,162 (66%)	National Median Site EUI (kBtu/ft ²)	45.2
	Natural Gas (kBtu) 1,200,038 (34%)	National Median Source EUI (kBtu/ft ²)	100
		% Diff from National Median Source EUI	25%
Source EUI 124.7 kBtu/ft ²		Annual Emissions	
		Greenhouse Gas Emissions (Metric Tons CO2e/year)	305

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
Charles Seabrook School	21
Woodruff School	28
Elizabeth Moore School	29

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	415,488	76.8	0.0	\$59,392.46	\$246,767.26	\$41,220.00	\$205,547.26	3.5	418,393
Install LED Fixtures	135,193	22.1	0.0	\$19,379.66	\$146,449.85	\$18,650.00	\$127,799.85	6.6	136,138
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	47,847	9.1	0.0	\$6,958.00	\$18,228.01	\$2,400.00	\$15,828.01	2.3	48,182
Retrofit Fixtures with LED Lamps	232,264	45.5	0.0	\$33,028.16	\$81,872.15	\$20,170.00	\$61,702.15	1.9	233,888
Install LED Exit Signs	184	0.0	0.0	\$26.64	\$217.25	\$0.00	\$217.25	8.2	185
Lighting Control Measures	68,493	13.2	0.0	\$9,753.03	\$50,980.00	\$4,660.00	\$46,320.00	4.7	68,972
Install Occupancy Sensor Lighting Controls	60,577	11.7	0.0	\$8,630.38	\$37,150.00	\$4,660.00	\$32,490.00	3.8	61,001
Install High/Low Lighting Controls	7,915	1.5	0.0	\$1,122.65	\$13,830.00	\$0.00	\$13,830.00	12.3	7,971
Motor Upgrades	1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
Premium Efficiency Motors	1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
Variable Frequency Drive (VFD) Measures	76,396	10.5	0.0	\$10,936.85	\$47,512.35	\$800.00	\$46,712.35	4.3	76,930
Install VFDs on Constant Volume (CV) HVAC	4,118	1.4	0.0	\$610.22	\$3,807.95	\$800.00	\$3,007.95	4.9	4,147
Install VFDs on Chilled Water Pumps	36,757	4.0	0.0	\$5,292.78	\$17,372.10	\$0.00	\$17,372.10	3.3	37,014
Install VFDs on Hot Water Pumps	35,521	5.2	0.0	\$5,033.85	\$26,332.30	\$0.00	\$26,332.30	5.2	35,769
Electric Unitary HVAC Measures	3,101	5.0	0.0	\$449.19	\$96,901.71	\$5,438.00	\$91,463.71	203.6	3,123
Install High Efficiency Electric AC	3,101	5.0	0.0	\$449.19	\$96,901.71	\$5,438.00	\$91,463.71	203.6	3,123
Electric Chiller Replacement	106,641	113.4	0.0	\$15,344.18	\$346,209.46	\$31,050.00	\$315,159.46	20.5	107,387
Install High Efficiency Chillers	106,641	113.4	0.0	\$15,344.18	\$346,209.46	\$31,050.00	\$315,159.46	20.5	107,387
Gas Heating (HVAC/Process) Replacement	0	0.0	205.5	\$2,505.85	\$139,562.13	\$15,513.88	\$124,048.25	49.5	24,061
Install High Efficiency Hot Water Boilers	0	0.0	184.4	\$2,249.61	\$132,946.19	\$13,913.88	\$119,032.31	52.9	21,596
Install High Efficiency Furnaces	0	0.0	21.1	\$256.24	\$6,615.94	\$1,600.00	\$5,015.94	19.6	2,465
HVAC System Improvements	1,086	0.0	109.4	\$1,498.75	\$4,382.76	\$0.00	\$4,382.76	2.9	13,905
Implement Demand Control Ventilation	1,086	0.0	99.0	\$1,371.93	\$4,078.26	\$0.00	\$4,078.26	3.0	12,685
Install Pipe Insulation	0	0.0	10.4	\$126.82	\$304.50	\$0.00	\$304.50	2.4	1,220
Domestic Water Heating Upgrade	0	0.0	21.5	\$264.64	\$23,086.89	\$798.00	\$22,288.89	84.2	2,523
Install High Efficiency Gas Water Heater	0	0.0	18.2	\$223.58	\$23,058.21	\$798.00	\$22,260.21	99.6	2,128
Install Low-Flow Domestic Hot Water Devices	0	0.0	3.4	\$41.06	\$28.68	\$0.00	\$28.68	0.7	395
Food Service Equipment & Refrigeration Measures	4,646	0.4	515.3	\$7,008.81	\$23,420.58	\$1,010.00	\$22,410.58	3.2	65,018
Dishwasher Replacement	1,752	0.2	515.3	\$6,600.12	\$18,859.38	\$700.00	\$18,159.38	2.8	62,103
Refrigerator/Freezer Case Electrically Commutated Motors	1,640	0.1	0.0	\$227.10	\$1,213.20	\$160.00	\$1,053.20	4.6	1,652
Refrigeration Controls	1,254	0.0	0.0	\$181.59	\$3,348.00	\$150.00	\$3,198.00	17.6	1,263
Plug Load Equipment Control - Vending Machine	8,402	0.0	0.0	\$1,209.73	\$1,380.00	\$0.00	\$1,380.00	1.1	8,460
Vending Machine Control	8,402	0.0	0.0	\$1,209.73	\$1,380.00	\$0.00	\$1,380.00	1.1	8,460
TOTALS	685,763	219.8	851.8	\$108,582.26	\$984,312.74	\$100,489.88	\$883,822.86	8.1	790,291

* - 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 of 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		415,488	76.8	0.0	\$59,392.46	\$246,767.26	\$41,220.00	\$205,547.26	3.5	418,393
ECM 1	Install LED Fixtures	135,193	22.1	0.0	\$19,379.66	\$146,449.85	\$18,650.00	\$127,799.85	6.6	136,138
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	47,847	9.1	0.0	\$6,958.00	\$18,228.01	\$2,400.00	\$15,828.01	2.3	48,182
ECM 3	Retrofit Fixtures with LED Lamps	232,264	45.5	0.0	\$33,028.16	\$81,872.15	\$20,170.00	\$61,702.15	1.9	233,888
ECM 4	Install LED Exit Signs	184	0.0	0.0	\$26.64	\$217.25	\$0.00	\$217.25	8.2	185
Lighting Control Measures		68,493	13.2	0.0	\$9,753.03	\$50,980.00	\$4,660.00	\$46,320.00	4.7	68,972
ECM 5	Install Occupancy Sensor Lighting Controls	60,577	11.7	0.0	\$8,630.38	\$37,150.00	\$4,660.00	\$32,490.00	3.8	61,001
ECM 6	Install High/Low Lighting Controls	7,915	1.5	0.0	\$1,122.65	\$13,830.00	\$0.00	\$13,830.00	12.3	7,971
Motor Upgrades		1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
ECM 7	Premium Efficiency Motors	1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
Variable Frequency Drive (VFD) Measures		76,396	10.5	0.0	\$10,936.85	\$47,512.35	\$800.00	\$46,712.35	4.3	76,930
ECM 8	Install VFDs on Constant Volume (CV) HVAC	4,118	1.4	0.0	\$610.22	\$3,807.95	\$800.00	\$3,007.95	4.9	4,147
ECM 9	Install VFDs on Chilled Water Pumps	36,757	4.0	0.0	\$5,292.78	\$17,372.10	\$0.00	\$17,372.10	3.3	37,014
ECM 10	Install VFDs on Hot Water Pumps	35,521	5.2	0.0	\$5,033.85	\$26,332.30	\$0.00	\$26,332.30	5.2	35,769
Electric Chiller Replacement		67,934	64.3	0.0	\$9,738.41	\$203,424.28	\$18,000.00	\$185,424.28	19.0	68,409
ECM 11	Install High Efficiency Chillers	67,934	64.3	0.0	\$9,738.41	\$203,424.28	\$18,000.00	\$185,424.28	19.0	68,409
Gas Heating (HVAC/Process) Replacement		0	0.0	148.6	\$1,808.30	\$65,716.57	\$6,169.88	\$59,546.69	32.9	17,396
ECM 12	Install High Efficiency Hot Water Boilers	0	0.0	148.6	\$1,808.30	\$65,716.57	\$6,169.88	\$59,546.69	32.9	17,396
HVAC System Improvements		1,086	0.0	109.4	\$1,498.75	\$4,382.76	\$0.00	\$4,382.76	2.9	13,905
ECM 13	Implement Demand Control Ventilation	1,086	0.0	99.0	\$1,371.93	\$4,078.26	\$0.00	\$4,078.26	3.0	12,685
ECM 14	Install Pipe Insulation	0	0.0	10.4	\$126.82	\$304.50	\$0.00	\$304.50	2.4	1,220
Domestic Water Heating Upgrade		0	0.0	3.4	\$41.06	\$28.68	\$0.00	\$28.68	0.7	395
ECM 15	Install Low-Flow Domestic Hot Water Devices	0	0.0	3.4	\$41.06	\$28.68	\$0.00	\$28.68	0.7	395
Food Service Equipment & Refrigeration Measures		4,646	0.4	515.3	\$7,008.81	\$23,420.58	\$1,010.00	\$22,410.58	3.2	65,018
ECM 16	Dishwasher Replacement	1,752	0.2	515.3	\$6,600.12	\$18,859.38	\$700.00	\$18,159.38	2.8	62,103
ECM 17	Refrigerator/Freezer Case Electrically Commutated Motors	1,640	0.1	0.0	\$227.10	\$1,213.20	\$160.00	\$1,053.20	4.6	1,652
ECM 18	Refrigeration Controls	1,254	0.0	0.0	\$181.59	\$3,348.00	\$150.00	\$3,198.00	17.6	1,263
Plug Load Equipment Control - Vending Machine		8,402	0.0	0.0	\$1,209.73	\$1,380.00	\$0.00	\$1,380.00	1.1	8,460
ECM 19	Vending Machine Control	8,402	0.0	0.0	\$1,209.73	\$1,380.00	\$0.00	\$1,380.00	1.1	8,460
TOTALS		643,954	165.7	776.7	\$101,606.17	\$647,722.08	\$71,859.88	\$575,862.20	5.7	739,398

* - 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).

Charles Seabrook 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			159,630	28.6	0.0	\$22,102.03	\$111,186.49	\$19,845.00	\$91,341.49	4.1	160,747
ECM 1	Install LED Fixtures	Yes	46,604	7.2	0.0	\$6,452.73	\$69,592.17	\$9,500.00	\$60,092.17	9.3	46,930
ECM 2	Retrofit Fixtures with LED Lamps	Yes	113,026	21.5	0.0	\$15,649.30	\$41,594.32	\$10,345.00	\$31,249.32	2.0	113,816
Lighting Control Measures			30,975	5.7	0.0	\$4,288.70	\$24,030.00	\$2,100.00	\$21,930.00	5.1	31,191
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	26,552	4.9	0.0	\$3,676.32	\$16,200.00	\$2,100.00	\$14,100.00	3.8	26,738
ECM 4	Install High/Low Lighting Controls	Yes	4,423	0.9	0.0	\$612.37	\$7,830.00	\$0.00	\$7,830.00	12.8	4,454
Variable Frequency Drive (VFD) Measures			30,162	3.8	0.0	\$4,176.17	\$19,655.10	\$0.00	\$19,655.10	4.7	30,373
ECM 5	Install VFDs on Chilled Water Pumps	Yes	9,682	1.2	0.0	\$1,340.60	\$6,551.70	\$0.00	\$6,551.70	4.9	9,750
ECM 6	Install VFDs on Hot Water Pumps	Yes	20,480	2.6	0.0	\$2,835.57	\$13,103.40	\$0.00	\$13,103.40	4.6	20,623
Electric Unitary HVAC Measures			1,061	0.9	0.0	\$146.83	\$43,285.98	\$1,910.00	\$41,375.98	281.8	1,068
	Install High Efficiency Electric AC	No	1,061	0.9	0.0	\$146.83	\$43,285.98	\$1,910.00	\$41,375.98	281.8	1,068
Electric Chiller Replacement			33,697	22.6	0.0	\$4,665.55	\$81,369.71	\$7,200.00	\$74,169.71	15.9	33,932
ECM 7	Install High Efficiency Chillers	Yes	33,697	22.6	0.0	\$4,665.55	\$81,369.71	\$7,200.00	\$74,169.71	15.9	33,932
Gas Heating (HVAC/Process) Replacement			0	0.0	169.6	\$2,064.54	\$72,332.51	\$7,769.88	\$64,562.63	31.3	19,861
ECM 8	Install High Efficiency Hot Water Boilers	Yes	0	0.0	148.6	\$1,808.30	\$65,716.57	\$6,169.88	\$59,546.69	32.9	17,396
	Install High Efficiency Furnaces	No	0	0.0	21.1	\$256.24	\$6,615.94	\$1,600.00	\$5,015.94	19.6	2,465
HVAC System Improvements			605	0.0	19.4	\$320.11	\$3,023.34	\$0.00	\$3,023.34	9.4	2,883
ECM 9	Implement Demand Control Ventilation	Yes	605	0.0	9.0	\$193.28	\$2,718.84	\$0.00	\$2,718.84	14.1	1,663
ECM 10	Install Pipe Insulation	Yes	0	0.0	10.4	\$126.82	\$304.50	\$0.00	\$304.50	2.4	1,220
Domestic Water Heating Upgrade			0	0.0	3.4	\$41.06	\$28.68	\$0.00	\$28.68	0.7	395
ECM 11	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	3.4	\$41.06	\$28.68	\$0.00	\$28.68	0.7	395
Food Service Equipment & Refrigeration Measures			1,640	0.1	0.0	\$227.10	\$1,213.20	\$160.00	\$1,053.20	4.6	1,652
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,640	0.1	0.0	\$227.10	\$1,213.20	\$160.00	\$1,053.20	4.6	1,652
Plug Load Equipment Control - Vending Machine			1,954	0.0	0.0	\$270.60	\$460.00	\$0.00	\$460.00	1.7	1,968
ECM 13	Vending Machine Control	Yes	1,954	0.0	0.0	\$270.60	\$460.00	\$0.00	\$460.00	1.7	1,968
TOTALS FOR HIGH PRIORITY MEASURES			258,663	60.9	171.4	\$37,899.61	\$306,683.09	\$35,474.88	\$271,208.21	7.2	280,537
TOTALS FOR ALL EVALUATED MEASURES			259,724	61.8	192.4	\$38,302.68	\$356,585.02	\$38,984.88	\$317,600.14	8.3	284,070

* - 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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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			185,257	34.4	0.0	\$26,829.60	\$97,493.27	\$16,505.00	\$80,988.27	3.0	186,552
ECM 1	Install LED Fixtures	Yes	59,521	11.1	0.0	\$8,620.02	\$56,270.76	\$8,750.00	\$47,520.76	5.5	59,937
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	39,310	7.3	0.0	\$5,693.04	\$15,332.17	\$1,930.00	\$13,402.17	2.4	39,585
ECM 3	Retrofit Fixtures with LED Lamps	Yes	86,242	16.0	0.0	\$12,489.90	\$25,673.10	\$5,825.00	\$19,848.10	1.6	86,845
ECM 4	Install LED Exit Signs	Yes	184	0.0	0.0	\$26.64	\$217.25	\$0.00	\$217.25	8.2	185
Lighting Control Measures			28,301	5.2	0.0	\$4,098.68	\$18,426.00	\$1,965.00	\$16,461.00	4.0	28,499
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	26,145	4.8	0.0	\$3,786.38	\$15,626.00	\$1,965.00	\$13,661.00	3.6	26,327
ECM 6	Install High/Low Lighting Controls	Yes	2,156	0.4	0.0	\$312.30	\$2,800.00	\$0.00	\$2,800.00	9.0	2,172
Motor Upgrades			1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
ECM 7	Premium Efficiency Motors	Yes	1,511	0.5	0.0	\$218.77	\$4,109.60	\$0.00	\$4,109.60	18.8	1,521
Variable Frequency Drive (VFD) Measures			26,818	3.7	0.0	\$3,883.88	\$14,427.20	\$0.00	\$14,427.20	3.7	27,005
ECM 8	Install VFDs on Chilled Water Pumps	Yes	17,749	1.8	0.0	\$2,570.42	\$7,213.60	\$0.00	\$7,213.60	2.8	17,873
ECM 9	Install VFDs on Hot Water Pumps	Yes	9,069	1.9	0.0	\$1,313.46	\$7,213.60	\$0.00	\$7,213.60	5.5	9,133
Electric Chiller Replacement			38,707	49.1	0.0	\$5,605.77	\$142,785.18	\$13,050.00	\$129,735.18	23.1	38,978
	Install High Efficiency Chillers	No	38,707	49.1	0.0	\$5,605.77	\$142,785.18	\$13,050.00	\$129,735.18	23.1	38,978
Food Service Equipment & Refrigeration Measures			1,254	0.0	0.0	\$181.59	\$3,348.00	\$150.00	\$3,198.00	17.6	1,263
ECM 10	Refrigeration Controls	Yes	1,254	0.0	0.0	\$181.59	\$3,348.00	\$150.00	\$3,198.00	17.6	1,263
Plug Load Equipment Control - Vending Machine			4,836	0.0	0.0	\$700.30	\$690.00	\$0.00	\$690.00	1.0	4,869
ECM 11	Vending Machine Control	Yes	4,836	0.0	0.0	\$700.30	\$690.00	\$0.00	\$690.00	1.0	4,869
TOTALS FOR HIGH PRIORITY MEASURES			247,976	43.8	0.0	\$35,912.81	\$138,494.07	\$18,620.00	\$119,874.07	3.3	249,709
TOTALS FOR ALL EVALUATED MEASURES			286,683	93.0	0.0	\$41,518.58	\$281,279.25	\$31,670.00	\$249,609.25	6.0	288,688

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Elizabeth Moore 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			70,601	13.7	0.0	\$10,460.83	\$38,087.49	\$4,870.00	\$33,217.49	3.2	71,094
ECM 1	Install LED Fixtures	Yes	29,068	3.8	0.0	\$4,306.91	\$20,586.92	\$400.00	\$20,186.92	4.7	29,271
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	8,537	1.8	0.0	\$1,264.96	\$2,895.84	\$470.00	\$2,425.84	1.9	8,597
ECM 3	Retrofit Fixtures with LED Lamps	Yes	32,996	8.1	0.0	\$4,888.96	\$14,604.73	\$4,000.00	\$10,604.73	2.2	33,226
Lighting Control Measures			9,217	2.2	0.0	\$1,365.66	\$8,524.00	\$595.00	\$7,929.00	5.8	9,281
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	7,881	1.9	0.0	\$1,167.68	\$5,324.00	\$595.00	\$4,729.00	4.0	7,936
ECM 5	Install High/Low Lighting Controls	Yes	1,336	0.3	0.0	\$197.98	\$3,200.00	\$0.00	\$3,200.00	16.2	1,345
Variable Frequency Drive (VFD) Measures			19,416	3.1	0.0	\$2,876.81	\$13,430.05	\$800.00	\$12,630.05	4.4	19,551
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	4,118	1.4	0.0	\$610.22	\$3,807.95	\$800.00	\$3,007.95	4.9	4,147
ECM 7	Install VFDs on Chilled Water Pumps	Yes	9,326	1.0	0.0	\$1,381.76	\$3,606.80	\$0.00	\$3,606.80	2.6	9,391
ECM 8	Install VFDs on Hot Water Pumps	Yes	5,972	0.8	0.0	\$884.82	\$6,015.30	\$0.00	\$6,015.30	6.8	6,013
Electric Unitary HVAC Measures			2,041	4.1	0.0	\$302.35	\$53,615.73	\$3,528.00	\$50,087.73	165.7	2,055
	Install High Efficiency Electric AC	No	2,041	4.1	0.0	\$302.35	\$53,615.73	\$3,528.00	\$50,087.73	165.7	2,055
Electric Chiller Replacement			34,237	41.7	0.0	\$5,072.86	\$122,054.57	\$10,800.00	\$111,254.57	21.9	34,476
ECM 9	Install High Efficiency Chillers	Yes	34,237	41.7	0.0	\$5,072.86	\$122,054.57	\$10,800.00	\$111,254.57	21.9	34,476
Gas Heating (HVAC/Process) Replacement			0	0.0	35.9	\$441.31	\$67,229.62	\$7,744.00	\$59,485.62	134.8	4,200
	Install High Efficiency Hot Water Boilers	No	0	0.0	35.9	\$441.31	\$67,229.62	\$7,744.00	\$59,485.62	134.8	4,200
HVAC System Improvements			481	0.0	90.0	\$1,178.65	\$1,359.42	\$0.00	\$1,359.42	1.2	11,022
ECM 10	Implement Demand Control Ventilation	Yes	481	0.0	90.0	\$1,178.65	\$1,359.42	\$0.00	\$1,359.42	1.2	11,022
Domestic Water Heating Upgrade			0	0.0	18.2	\$223.58	\$23,058.21	\$798.00	\$22,260.21	99.6	2,128
	Install High Efficiency Gas Water Heater	No	0	0.0	18.2	\$223.58	\$23,058.21	\$798.00	\$22,260.21	99.6	2,128
Food Service Equipment & Refrigeration Measures			1,752	0.2	515.3	\$6,600.12	\$18,859.38	\$700.00	\$18,159.38	2.8	62,103
ECM 11	Dishwasher Replacement	Yes	1,752	0.2	515.3	\$6,600.12	\$18,859.38	\$700.00	\$18,159.38	2.8	62,103
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$238.83	\$230.00	\$0.00	\$230.00	1.0	1,623
ECM 12	Vending Machine Control	Yes	1,612	0.0	0.0	\$238.83	\$230.00	\$0.00	\$230.00	1.0	1,623
TOTALS FOR HIGH PRIORITY MEASURES			137,315	60.9	605.3	\$27,793.75	\$202,544.91	\$17,765.00	\$184,779.91	6.6	209,152
TOTALS FOR ALL EVALUATED MEASURES			139,356	65.1	659.4	\$28,760.99	\$346,448.47	\$29,835.00	\$316,613.47	11.0	217,534

* - 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



	Charles Seabrook School	Woodruff School	Elizabeth Moore School
<i>Potential:</i>	HIGH	HIGH	HIGH
<i>System Potential: (kW)</i>	206	242	117
<i>Electric Generation: (kWh per year)</i>	245,422	288,312	139,391
<i>Displaced Cost: (per year)</i>	\$21,350	\$25,080	\$12,130

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



<i>Upper Deerfield Township Schools</i>	Pay For Performance	Direct Install	SmartStart	CTEEP
Charles Seabrook School	X		X	X
Woodruff School			X	X
Elizabeth Moore 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

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

Direct Install: Financing Option



The State of NJ pays:

- 70% of all qualified upgrades
- Up to \$125,000

South Jersey Gas will finance:

- Remaining 30%
- 0% financing
- For 3 years
- Up to \$53,571



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

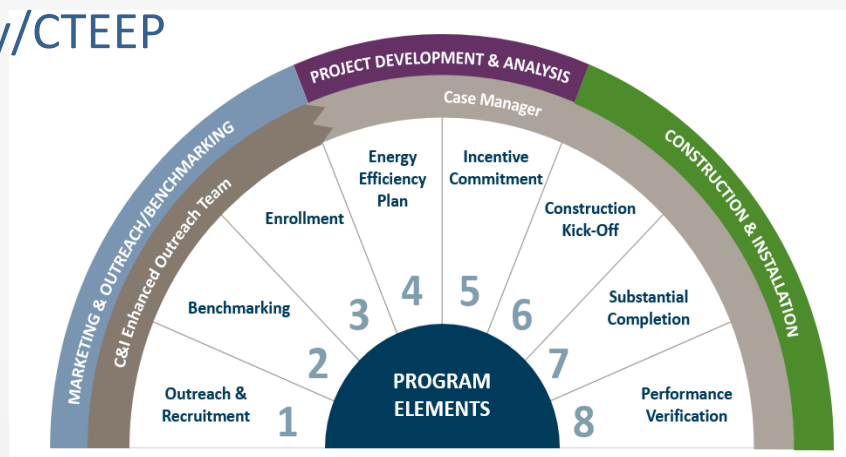
CTEEP: Overview



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



SmartStart, CTEEP & P4P:



Financing Option

- 0% Financing
- Up to \$130,000 for 10 years
- SJG can help guide you through the process

Contact:

Bruce Grossman – Program Manager

South Jersey Gas

#1 South Jersey Plaza

Folsom, NJ 08037

Phone: 609-561-9000, ext. 4271



Recommended NJCEP Incentives per Building



<i>Upper Deerfield Township Schools</i>	Pay For Performance	Direct Install	SmartStart	CTEEP
Charles Seabrook School	X		X	X
Woodruff School			X	X
Elizabeth Moore 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

Office: 609-777-3338

Cell: 732-330-2419

ESIP@bpu.nj.gov

Questions



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FOR MORE INFORMATION

Visit NJCleanEnergy.com

Call (866) NJSMART

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