



LGEA Presentation

Paramus Public School District

October 29th, 2021

New Jersey's Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- Paramus Public School District
 - Brooke Bartley Business Administrator
 - Steve Campbell Buildings & Grounds Supervisor
- NJ Clean Energy Program
 - Sarah Walters LGEA Project Manager
 - Nick Nocco LGEA Project Auditor
 - Amanda Muench LGEA Account Manager
 - Michelle Rossi ESIP Coordinator (BPU)



Agenda

- The audit process overview
- Energy use & existing conditions
- Review of Energy Conservation Measures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- C&I Transition of EE Programs
- Questions regarding the draft audit report
- Next steps for Paramus Public School District



LGEA PROCESS



- Application Approval
- Initial Call
- Facility Interviews
- Audit
- Benchmarking & Analysis
- **Draft Reports**
- LGEA Presentation
- Final Reports

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Cooking/Refrigeration Equipment

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Solar Consumption and Costs

Sites Visited/Analyzed

- Paramus High School/BOE Building
 - FB Restrooms, Concession Stand, Maintenance Building
- East Brook Middle School
- West Brook Middle School
- Midland School
- Parkway School
- Ridge Ranch School
- Stony Lane School
- Memorial School



UTILITY BREAKOUT

program

Percent of Total Annual Energy Costs





Benchmarking



program



National Median Comparison	
National Median Site EUI (kBtu/ft ²)	82.3
National Median Source EUI (kBtu/ft ²)	114.5
% Diff from National Median Source EUI	7%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons	754
CO2e/year)	

Site Name	Energy Star Score
Paramus High School and Board of Education	57
East Brook Middle School	34
West Brook Middle School	43
Midland School	28
Parkway School	14
Ridge Ranch Elementary School	10
Stony Lane School	12
Memorial Elementary School	8

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.

Benchmarking





ALL OPPORTUNITIES



- Lighting Upgrades
- Lighting Control Measures
- Motor Upgrades
- Variable Frequency Drive (VFD) Measures
- Electric Unitary HVAC Measures
- Gas Heating (HVAC/Process) Replacement
- HVAC System Improvements
- Domestic Water Heating Upgrade
- Food Service & Refrigeration Measures
- Custom Measures



ALL OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO₂e Emissions Reduction (Ibs)
Lighting	Upgrades	238,333	31.2	-29.6	\$32,514	\$118,087	\$23,703	\$94,384	2.9	236,529
ECM 1	Install LED Fixtures	106,286	1.4	-1.2	\$14,069	\$61,277	\$9 <i>,</i> 750	\$51 <i>,</i> 527	3.7	106,893
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	161	0.1	0.0	\$24	\$162	\$21	\$141	6.0	158
ECM 3	Retrofit Fixtures with LED Lamps	131,886	29.8	-28.4	\$18,422	\$56,648	\$13,932	\$42,716	2.3	129,478
Lighting	Control Measures	389,474	70.4	-81.8	\$55,502	\$284,521	\$66,825	\$217,696	3.9	382,624
ECM 4	Install Occupancy Sensor Lighting Controls	342,613	62.2	-71.9	\$48,964	\$236,146	\$29,435	\$206,711	4.2	336,589
ECM 5	Install High/Low Lighting Controls	46,860	8.3	-9.9	\$6 <i>,</i> 538	\$48,375	\$37,390	\$10,985	1.7	46,034
Motor U	lpgrades	2,017	0.7	0.0	\$356	\$14,336	\$0	\$14,336	40.3	2,031
ECM 6	Premium Efficiency Motors	2,017	0.7	0.0	\$356	\$14,336	\$0	\$14,336	40.3	2,031
Variable	Frequency Drive (VFD) Measures	521,245	118.6	91.2	\$78,541	\$834,107	\$70,475	\$763,632	9.7	535,572
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	4,535	1.5	0.0	\$771	\$4,076	\$1,800	\$2,276	3.0	4,567
ECM 8	Install VFDs on Constant Volume (CV) Fans	335,250	91.9	0.0	\$49,646	\$328,766	\$42,225	\$286,541	5.8	337,594
ECM 9	Install VFDs on Heating Water Pumps	172,455	25.1	0.0	\$26,202	\$484,053	\$26,125	\$457 <i>,</i> 928	17.5	173,661
ECM 10	Install VFDs on Kitchen Hood Fan Motors	9 <i>,</i> 005	0.1	91.2	\$1,921	\$17,212	\$325	\$16,887	8.8	19,750
Electric	Unitary HVAC Measures	206,405	174.2	21.1	\$28,138	\$1,323,746	\$139,905	\$1,183,841	42.1	210,316
ECM 11	Install High Efficiency Air Conditioning Units	205,604	172.8	21.1	\$27,990	\$1,307,285	\$139,905	\$1,167,380	41.7	209,510
ECM 12	Install High Efficiency Heat Pumps	801	1.5	0.0	\$148	\$16,461	\$0	\$16,461	111.3	806

ALL OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Gas Heat	ting (HVAC/Process) Replacement	0	0.0	2,377.7	\$20,090	\$1,273,300	\$38,758	\$1,234,542	61.5	278,396
ECM 13	Install High Efficiency Hot Water Boilers	0	0.0	2,305.1	\$19,482	\$1,111,834	\$37,258	\$1,074,576	55.2	269,903
ECM 14	Install High Efficiency Steam Boilers	0	0.0	45.2	\$373	\$143,388	\$0	\$143,388	384.4	5,292
ECM 15	Install High Efficiency Furnaces	0	0.0	27.3	\$235	\$18,077	\$1,500	\$16,577	70.5	3,201
HVAC Sy	stem Improvements	9,597	0.0	364.0	\$4,381	\$21,496	\$1,018	\$20,478	4.7	52,287
ECM 16	Implement Demand Control Ventilation (DCV)	7,956	0.0	152.2	\$2,298	\$19,032	\$0	\$19,032	8.3	25,834
ECM 17	Install Pipe Insulation	1,641	0.0	211.8	\$2,082	\$2,464	\$1,018	\$1,446	0.7	26,454
Domesti	c Water Heating Upgrade	1,112	0.0	133.4	\$1,321	\$14,183	\$1,588	\$12,595	9.5	16,741
ECM 18	Install High Efficiency Gas-Fired Water Heater	0	0.0	34.2	\$283	\$12,943	\$697	\$12,246	43.3	4,010
ECM 19	Install Low-Flow DHW Devices	1,112	0.0	99.2	\$1,038	\$1,240	\$892	\$349	0.3	12,731
Food Se	rvice & Refrigeration Measures	24,608	2.5	0.0	\$3,524	\$12,315	\$1,425	\$10,890	3.1	24,780
ECM 20	Refrigerator/Freezer Case Electrically Commutated Motors	855	0.1	0.0	\$122	\$910	\$200	\$710	5.8	861
ECM 21	Refrigeration Controls	3,281	0.0	0.0	\$470	\$4 <i>,</i> 385	\$375	\$4,010	8.5	3,304
ECM 22	Replace Refrigeration Equipment	4,072	0.5	0.0	\$692	\$4,030	\$250	\$3,780	5.5	4,100
ECM 23	Vending Machine Control	16,400	1.9	0.0	\$2,240	\$2,990	\$600	\$2,390	1.1	16,515
Custom	Measures	362,568	0.0	3,467.5	\$78,048	\$278,157	\$0	\$278,157	3.6	771,103
ECM 24	Retro-Commissioning Study	362,568	0.0	3,467.5	\$78,048	\$278,157	\$0	\$278,157	3.6	771,103
	TOTALS	1,755,357	397.7	6,343.5	\$302,413	\$4,174,248	\$343,698	\$3,830,551	12.7	2,510,378

COST EFFECTIVE OPPORTUNITIES





Lighting Upgrades

- Lighting Control Measures
- Variable Frequency Drive (VFD) Measures
- HVAC System Improvements
- Domestic Water Heating Upgrade
- Food Service & Refrigeration Measures
- Custom Measures

COST EFFECTIVE OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades	238,333	31.2	-29.6	\$32,514	\$118,087	\$23,703	\$94,384	2.9	236,529
ECM 1	Install LED Fixtures	106,286	1.4	-1.2	\$14,069	\$61,277	\$9,750	\$51,527	3.7	106,893
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	161	0.1	0.0	\$24	\$162	\$21	\$141	6.0	158
ECM 3	Retrofit Fixtures with LED Lamps	131,886	29.8	-28.4	\$18,422	\$56,648	\$13,932	\$42,716	2.3	129,478
Lighting	Control Measures	389,474	70.4	-81.8	\$55,502	\$284,521	\$66,825	\$217,696	3.9	382,624
ECM 4	Install Occupancy Sensor Lighting Controls	342,613	62.2	-71.9	\$48,964	\$236,146	\$29,435	\$206,711	4.2	336,589
ECM 5	Install High/Low Lighting Controls	46,860	8.3	-9.9	\$6,538	\$48,375	\$37,390	\$10,985	1.7	46,034
Variable	Frequency Drive (VFD) Measures	452,894	105.5	91.2	\$70,281	\$409,361	\$54,775	\$354,586	5.0	466,743
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	4,535	1.5	0.0	\$771	\$4,076	\$1,800	\$2,276	3.0	4,567
ECM 8	Install VFDs on Constant Volume (CV) Fans	335,250	91.9	0.0	\$49,646	\$328,766	\$42,225	\$286,541	5.8	337,594
ECM 9	Install VFDs on Heating Water Pumps	104,104	12.0	0.0	\$17,943	\$59,307	\$10,425	\$48,882	2.7	104,832
ECM 10	Install VFDs on Kitchen Hood Fan Motors	9,005	0.1	91.2	\$1,921	\$17,212	\$325	\$16,887	8.8	19,750
HVAC S	ystem Improvements	9,597	0.0	364.0	\$4,381	\$21,496	\$1,018	\$20,478	4.7	52,287
ECM 16	Implement Demand Control Ventilation (DCV)	7,956	0.0	152.2	\$2,298	\$19,032	\$0	\$19,032	8.3	25,834
ECM 17	Install Pipe Insulation	1,641	0.0	211.8	\$2,082	\$2,464	\$1,018	\$1,446	0.7	26,454
Domest	ic Water Heating Upgrade	1,112	0.0	99.2	\$1,038	\$1,240	\$892	\$349	0.3	12,731
ECM 18	Install High Efficiency Gas-Fired Water Heater	0	0.0	0.0	\$0	\$0	\$0	\$0	0.0	0
ECM 19	Install Low-Flow DHW Devices	1,112	0.0	99.2	\$1,038	\$1,240	\$892	\$349	0.3	12,731
Food Se	rvice & Refrigeration Measures	24,608	2.5	0.0	\$3,524	\$12,315	\$1,425	\$10,890	3.1	24,780
ECM 20	Refrigerator/Freezer Case Electrically Commutated Motors	855	0.1	0.0	\$122	\$910	\$200	\$710	5.8	861
ECM 21	Refrigeration Controls	3,281	0.0	0.0	\$470	\$4,385	\$375	\$4,010	8.5	3,304
ECM 22	Replace Refrigeration Equipment	4,072	0.5	0.0	\$692	\$4,030	\$250	\$3,780	5.5	4,100
ECM 23	Vending Machine Control	16,400	1.9	0.0	\$2,240	\$2,990	\$600	\$2,390	1.1	16,515
	TOTALS	1,478,585	209.7	3,910.5	\$245,288	\$1,125,178	\$148,638	\$976,540	4.0	1,946,796

* - All incentives presented in this table are included as placesholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs

PARAMUS HIGH SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	l Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		98,606	3.4	-5	\$12,622	\$45,273	\$6,769	\$38,504	3.1	98,741
ECM 1	Install LED Fixtures	Yes	75,962	0.0	0	\$9,754	\$37,942	\$5,550	\$32,392	3.3	76,493
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	85	0.1	0	\$11	\$98	\$15	\$83	7.7	83
ECM 3	Retrofit Fixtures with LED Lamps	Yes	22,558	3.3	-5	\$2,857	\$7,233	\$1,204	\$6,029	2.1	22,164
Lighting	Control Measures		195,959	26.9	-41	\$24,820	\$109,461	\$29,040	\$80,421	3.2	192,533
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	169,513	23.0	-35	\$21,470	\$85,836	\$10,825	\$75,011	3.5	166,551
ECM 5	Install High/Low Lighting Controls	Yes	26,445	3.9	-6	\$3,349	\$23,625	\$18,215	\$5,410	1.6	25,983
Variable	e Frequency Drive (VFD) Measures		167,135	38.1	91	\$22,227	\$194,163	\$12,925	\$181,238	8.2	178,987
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	153,043	37.1	0	\$19,652	\$165,299	\$12,000	\$153,299	7.8	154,113
ECM 7	Install VFDs on Heating Water Pumps	No	5,088	0.9	0	\$653	\$11,652	\$600	\$11,052	16.9	5,124
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	9,005	0.1	91	\$1,921	\$17,212	\$325	\$16,887	8.8	19,750
Unitary	HVAC Measures		65,028	40.8	0	\$8,350	\$286,075	\$15,999	\$270,076	32.3	65,483
ECM 9	Install High Efficiency Air Conditioning Units	No	65,028	40.8	0	\$8,350	\$286,075	\$15,999	\$270,076	32.3	65,483
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	333	\$2,789	\$172,210	\$0	\$172,210	61.7	38,936
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	333	\$2,789	\$172,210	\$0	\$172,210	61.7	38,936
HVAC S	ystem Improvements		7,956	0.0	197	\$2,676	\$19,329	\$84	\$19,245	7.2	31,105
ECM 11	Implement Demand Control Ventilation (DCV)	Yes	7,956	0.0	152	\$2,298	\$19,032	\$0	\$19,032	8.3	25,834
ECM 12	Install Pipe Insulation	Yes	0	0.0	45	\$378	\$297	\$84	\$213	0.6	5,272
Domest	ic Water Heating Upgrade		0	0.0	22	\$183	\$330	\$184	\$146	0.8	2,555
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	22	\$183	\$330	\$184	\$146	0.8	2,555
Food Se	rvice & Refrigeration Measures		11,565	1.3	0	\$1,485	\$2,300	\$400	\$1,900	1.3	11,646
ECM 14	Vending Machine Control	Yes	11,565	1.3	0	\$1,485	\$2,300	\$400	\$1,900	1.3	11,646
Custom	Measures		217,866	0.0	1,758	\$42,716	\$99,371	\$0	\$99,371	2.3	425,175
ECM 15	Retro-Commissioning Study	Yes	217,866	0.0	1,758	\$42,716	\$99,371	\$0	\$99,371	2.3	425,175
	TOTALS (COST EFFECTIVE MEASURES)		693,998	68.8	2,022	\$106,075	\$458,574	\$48,802	\$409,772	3.9	935,619
	TOTALS (ALL MEASURES)		764,114	110.5	2,355	\$117,868	\$928,510	\$65,401	\$863,109	7.3	1,045,161

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

EAST BROOK MIDDLE SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		7,001	1.2	-1	\$1,194	\$2,135	\$546	\$1,589	1.3	6,885
ECM 1	Retrofit Fixtures with LED Lamps	Yes	7,001	1.2	-1	\$1,194	\$2,135	\$546	\$1,589	1.3	6,885
Lighting	Control Measures		64,896	11.1	-14	\$11,062	\$38,391	\$6,295	\$32,096	2.9	63,761
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	62,627	10.7	-13	\$10,676	\$35,916	\$4,440	\$31,476	2.9	61,532
ECM 3	Install High/Low Lighting Controls	Yes	2,269	0.3	0	\$387	\$2,475	\$1,855	\$620	1.6	2,229
Motor L	Jpgrades		353	0.2	0	\$61	\$2,605	\$0	\$2,605	42.9	355
ECM 4	Premium Efficiency Motors	No	353	0.2	0	\$61	\$2,605	\$0	\$2,605	42.9	355
Variable	Frequency Drive (VFD) Measures		187,243	33.2	0	\$32,237	\$85,830	\$13,550	\$72,280	2.2	188,552
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	101,406	24.9	0	\$17,459	\$54,506	\$9,350	\$45,156	2.6	102,115
ECM 6	Install VFDs on Heating Water Pumps	Yes	85,837	8.3	0	\$14,778	\$31,324	\$4,200	\$27,124	1.8	86,437
Unitary	HVAC Measures		22,991	38.9	3	\$3,981	\$244,958	\$17,745	\$227,213	57.1	23,477
ECM 7	Install High Efficiency Air Conditioning Units	No	22,789	38.6	3	\$3,946	\$239,421	\$17,745	\$221,676	56.2	23,274
ECM 8	Install High Efficiency Heat Pumps	No	202	0.3	0	\$35	\$5,537	\$0	\$5,537	159.5	203
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	775	\$6,299	\$306,895	\$0	\$306,895	48.7	90,757
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	775	\$6,299	\$306,895	\$0	\$306,895	48.7	90,757
HVAC S	stem Improvements		0	0.0	14	\$112	\$158	\$44	\$114	1.0	1,618
ECM 10	Install Pipe Insulation	Yes	0	0.0	14	\$112	\$158	\$44	\$114	1.0	1,618
Domest	ic Water Heating Upgrade		0	0.0	11	\$89	\$165	\$92	\$73	0.8	1,278
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	11	\$89	\$165	\$92	\$73	0.8	1,278
Food Se	rvice & Refrigeration Measures		4,881	0.4	0	\$840	\$2,956	\$265	\$2,691	3.2	4,915
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	328	0.0	0	\$56	\$303	\$40	\$263	4.7	330
ECM 13	Refrigeration Controls	Yes	1,329	0.0	0	\$229	\$2,193	\$125	\$2,068	9.0	1,339
ECM 14	Vending Machine Control	Yes	3,224	0.4	0	\$555	\$460	\$100	\$360	0.6	3,246
Custom	Measures		32,396	0.0	277	\$7,830	\$40,590	\$0	\$40,590	5.2	65,086
ECM 15	Retro-Commissioning Study	Yes	32,396	0.0	277	\$7,830	\$40,590	\$0	\$40,590	5.2	65,086
	TOTALS (COST EFFECTIVE MEASURES)		296,417	45.9	287	\$53,364	\$170,225	\$20,792	\$149,433	2.8	332,095
	TOTALS (ALL MEASURES)		319,761	85.1	1,065	\$63,704	\$724,684	\$38,537	\$686,146	10.8	446,684

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

West Brook Middle School

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		4,058	0.1	0	\$502	\$3,590	\$678	\$2,912	5.8	4,079
ECM 1	Install LED Fixtures	Yes	3,758	0.0	0	\$465	\$3,336	\$650	\$2,686	5.8	3,784
ECM 2	Retrofit Fixtures with LED Lamps	Yes	300	0.1	0	\$37	\$254	\$28	\$226	6.2	294
Lighting	Control Measures		29,595	9.2	-6	\$3,610	\$39,487	\$6,010	\$33,477	9.3	29,078
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	28,392	8.8	-6	\$3,463	\$37,912	\$4,785	\$33,127	9.6	27,895
ECM 4	Install High/Low Lighting Controls	Yes	1,204	0.4	0	\$147	\$1,575	\$1,225	\$350	2.4	1,183
Variable	Frequency Drive (VFD) Measures		89,269	27.9	0	\$11,051	\$457,308	\$24,850	\$432,458	39.1	89,893
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	33,543	17.5	0	\$4,152	\$63,225	\$15,450	\$47,775	11.5	33,778
ECM 6	Install VFDs on Heating Water Pumps	No	55,726	10.4	0	\$6,898	\$394,084	\$9,400	\$384,684	55.8	56,115
Unitary	HVAC Measures		94,040	78.4	0	\$11,642	\$637,984	\$94,643	\$543,341	46.7	94,698
ECM 7	Install High Efficiency Air Conditioning Units	No	94,040	78.4	0	\$11,642	\$637,984	\$94,643	\$543,341	46.7	94,698
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	443	\$3,836	\$344,146	\$0	\$344,146	89.7	51,873
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	443	\$3,836	\$344,146	\$0	\$344,146	89.7	51,873
HVAC Sy	rstem Improvements		0	0.0	7	\$61	\$58	\$36	\$22	0.4	819
ECM 9	Install Pipe Insulation	Yes	0	0.0	7	\$61	\$58	\$36	\$22	0.4	819
Domest	ic Water Heating Upgrade		0	0.0	9	\$78	\$136	\$136	\$0	0.0	1,056
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	9	\$78	\$136	\$136	\$0	0.0	1,056
Food Se	rvice & Refrigeration Measures		4,090	0.3	0	\$506	\$3,029	\$510	\$2,519	5.0	4,119
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	527	0.1	0	\$65	\$607	\$160	\$447	6.8	531
ECM 12	Refrigeration Controls	Yes	1,952	0.0	0	\$242	\$2,193	\$250	\$1,943	8.0	1,965
ECM 13	Vending Machine Control	Yes	1,612	0.2	0	\$200	\$230	\$100	\$130	0.7	1,623
Custom	Measures		68,201	0.0	377	\$11,704	\$65,000	\$0	\$65,000	5.6	112,770
ECM 14	Retro-Commissioning Study	Yes	68,201	0.0	377	\$11,704	\$65,000	\$0	\$65,000	5.6	112,770
	TOTALS (COST EFFECTIVE MEASURES)		139,488	27.1	386	\$20,613	\$174,525	\$22,820	\$151,705	7.4	185,698
	TOTALS (ALL MEASURES)		289,254	115.8	829	\$42,989	\$1,550,739	\$126,863	\$1,423,876	33.1	388,384

* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

MIDLAND SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		713	0.2	0	\$125	\$650	\$121	\$529	4.2	700
ECM 1	Retrofit Fixtures with LED Lamps	Yes	713	0.2	0	\$125	\$650	\$121	\$529	4.2	700
Lighting	Control Measures		20,019	3.8	-4	\$3,499	\$17,450	\$4,420	\$13,030	3.7	19,669
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	15,974	3.1	-3	\$2,792	\$12,950	\$1,515	\$11,435	4.1	15,695
ECM 3	Install High/Low Lighting Controls	Yes	4,044	0.6	-1	\$707	\$4,500	\$2,905	\$1,595	2.3	3,974
Motor L	Jpgrades		1,587	0.3	0	\$280	\$10,309	\$0	\$10,309	36.8	1,598
ECM 4	Premium Efficiency Motors	No	1,587	0.3	0	\$280	\$10,309	\$0	\$10,309	36.8	1,598
Variable	Frequency Drive (VFD) Measures		31,098	8.4	0	\$5,494	\$31,802	\$5,750	\$26,052	4.7	31,316
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	26,620	6.6	0	\$4,703	\$22,325	\$3,750	\$18,575	3.9	26,806
ECM 6	Install VFDs on Heating Water Pumps	Yes	4,479	1.8	0	\$791	\$9,476	\$2,000	\$7,476	9.4	4,510
Unitary	HVAC Measures		2,180	2.4	5	\$431	\$32,219	\$2,314	\$29 <i>,</i> 905	69.5	2,789
ECM 7	Install High Efficiency Air Conditioning Units	No	2,180	2.4	5	\$431	\$32,219	\$2,314	\$29,905	69.5	2,789
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	128	\$1,142	\$107,768	\$8,055	\$99,713	87.3	14,936
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	128	\$1,142	\$107,768	\$8,055	\$99,713	87.3	14,936
HVAC S	stem Improvements		0	0.0	12	\$106	\$108	\$30	\$78	0.7	1,391
ECM 9	Install Pipe Insulation	Yes	0	0.0	12	\$106	\$108	\$30	\$78	0.7	1,391
Domest	ic Water Heating Upgrade		0	0.0	10	\$93	\$158	\$88	\$70	0.7	1,222
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$93	\$158	\$88	\$70	0.7	1,222
Custom	Measures		7,326	0.0	108	\$2,265	\$13,563	\$0	\$13,563	6.0	20,073
ECM 11	Retro-Commissioning Study	Yes	7,326	0.0	108	\$2,265	\$13,563	\$0	\$13,563	6.0	20,073
	TOTALS		62,923	15.1	259	\$13,436	\$214,027	\$20,778	\$193,249	14.4	93,695

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

PARKWAY SCHOOL

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades	51,286	13.3	-9	\$4,737	\$30,848	\$6,909	\$23,939	5.1	50,574
ECM 1	Install LED Fixtures	10,470	0.9	-1	\$978	\$10,188	\$1,650	\$8,538	8.7	10,470
ECM 2	Retrofit Fixtures with LED Lamps	40,817	12.4	-9	\$3,759	\$20,661	\$5,259	\$15,402	4.1	40,105
Lighting	Control Measures	17,678	5.4	-4	\$1,628	\$20,578	\$5,430	\$15,148	9.3	17,369
ECM 3	Install Occupancy Sensor Lighting Controls	13,638	4.2	-3	\$1,256	\$16,528	\$2,105	\$14,423	11.5	13,400
ECM 4	Install High/Low Lighting Controls	4,040	1.2	-1	\$372	\$4,050	\$3,325	\$725	1.9	3,969
HVAC S	ystem Improvements	0	0.0	7	\$62	\$72	\$40	\$32	0.5	840
ECM 8	Install Pipe Insulation	0	0.0	7	\$62	\$72	\$40	\$32	0.5	840
Domest	ic Water Heating Upgrade	0	0.0	29	\$256	\$222	\$222	\$0	0.0	3,444
ECM 9	Install Low-Flow DHW Devices	0	0.0	29	\$256	\$222	\$222	\$0	0.0	3,444
Custom	Measures	12,551	0.0	194	\$2,867	\$18,200	\$0	\$18,200	6.3	35,367
ECM 10	Retro-Commissioning Study	12,551	0.0	194	\$2,867	\$18,200	\$0	\$18,200	6.3	35,367
	TOTALS	81,515	18.7	218	\$9,550	\$69,921	\$12,601	\$57,319	6.0	107,594

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

RIDGE RANCH SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting	y Upgrades		2,011	0.2	0	\$353	\$918	\$206	\$712	2.0	2,007
ECM 1	Install LED Fixtures	Yes	1,296	0.0	0	\$229	\$824	\$200	\$624	2.7	1,306
ECM 2	Retrofit Fixtures with LED Lamps	Yes	714	0.2	0	\$125	\$94	\$6	\$88	0.7	702
Lighting	control Measures		21,943	6.0	-5	\$3 <i>,</i> 832	\$22,412	\$5,450	\$16,962	4.4	21,559
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	19,450	5.3	-4	\$3,396	\$18,362	\$2,235	\$16,127	4.7	19,110
ECM 4	Install High/Low Lighting Controls	Yes	2,493	0.7	-1	\$435	\$4,050	\$3,215	\$835	1.9	2,449
Variable	e Frequency Drive (VFD) Measures		22,049	5.2	0	\$3,888	\$28,557	\$1,700	\$26,857	6.9	22,204
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	17,405	4.9	0	\$3,069	\$19,527	\$1,475	\$18,052	5.9	17,527
ECM 6	Install VFDs on Heating Water Pumps	Yes	4,644	0.3	0	\$819	\$9 <i>,</i> 030	\$225	\$8,805	10.8	4,676
Unitary	HVAC Measures		6,629	4.8	2	\$1,189	\$27,466	\$1,440	\$26,026	21.9	6,957
ECM 7	Install High Efficiency Air Conditioning Units	No	6,629	4.8	2	\$1,189	\$27,466	\$1,440	\$26,026	21.9	6,957
Gas Hea	ating (HVAC/Process) Replacement		0	0.0	59	\$483	\$155,049	\$1,000	\$154,049	319.0	6,852
ECM 8	Install High Efficiency Steam Boilers	No	0	0.0	45	\$373	\$143,388	\$0	\$143,388	384.4	5,292
ECM 9	Install High Efficiency Furnaces	No	0	0.0	13	\$110	\$11,661	\$1,000	\$10,661	97.0	1,560
HVAC S	ystem Improvements		0	0.0	6	\$47	\$47	\$12	\$35	0.7	668
ECM 10	Install Pipe Insulation	Yes	0	0.0	6	\$47	\$47	\$12	\$35	0.7	668
Domest	ic Water Heating Upgrade		0	0.0	40	\$330	\$13,029	\$745	\$12,284	37.3	4,677
ECM 11	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	34	\$283	\$12,943	\$697	\$12,246	43.3	4,010
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$47	\$86	\$48	\$38	0.8	667
Custom	Measures		6,016	0.0	366	\$4,082	\$16,251	\$0	\$16,251	4.0	48,924
ECM 13	Retro-Commissioning Study	Yes	6,016	0.0	366	\$4,082	\$16,251	\$0	\$16,251	4.0	48,924
	TOTALS (COST EFFECTIVE MEASURES)		52,019	11.4	373	\$12,249	\$68,272	\$7,416	\$60,856	5.0	96,028
	TOTALS (ALL MEASURES)		58,648	16.2	468	\$14,204	\$263,730	\$10,553	\$253,177	17.8	113,847

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

STONY LANE SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting	; Upgrades		21,831	2.4	-3	\$4,094	\$7,338	\$1,472	\$5,866	1.4	21,620
ECM 1	Install LED Fixtures	Yes	6,986	0.0	0	\$1,319	\$3,804	\$550	\$3,254	2.5	7,035
ECM 2	Retrofit Fixtures with LED Lamps	Yes	14,845	2.4	-3	\$2,775	\$3,534	\$922	\$2,612	0.9	14,585
Lighting	Control Measures		22,902	4.6	-5	\$4,281	\$11,702	\$3,645	\$8,057	1.9	22,501
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	19,133	4.0	-4	\$3,577	\$8,552	\$1,090	\$7,462	2.1	18,799
ECM 4	Install High/Low Lighting Controls	Yes	3,768	0.6	-1	\$704	\$3,150	\$2,555	\$595	0.8	3,702
Motor I	Jpgrades		77	0.1	0	\$15	\$1,422	\$0	\$1,422	97.8	78
ECM 5	Premium Efficiency Motors	No	77	0.1	0	\$15	\$1,422	\$0	\$1,422	97.8	78
Variable	e Frequency Drive (VFD) Measures		3,233	1.0	0	\$610	\$3,884	\$200	\$3,684	6.0	3,256
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	3,233	1.0	0	\$610	\$3,884	\$200	\$3,684	6.0	3,256
Unitary	HVAC Measures		704	1.3	0	\$133	\$12,088	\$0	\$12,088	90.9	709
ECM 7	Install High Efficiency Air Conditioning Units	No	105	0.1	0	\$20	\$1,165	\$0	\$1,165	58.7	106
ECM 8	Install High Efficiency Heat Pumps	No	599	1.1	0	\$113	\$10,924	\$0	\$10,924	96.5	603
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	14	\$125	\$6,416	\$500	\$5,916	47.3	1,642
ECM 9	Install High Efficiency Furnaces	No	0	0.0	14	\$125	\$6,416	\$500	\$5,916	47.3	1,642
HVAC S	ystem Improvements		0	0.0	2	\$19	\$26	\$8	\$18	0.9	253
ECM 10	Install Pipe Insulation	Yes	0	0.0	2	\$19	\$26	\$8	\$18	0.9	253
Domest	ic Water Heating Upgrade		0	0.0	3	\$30	\$50	\$28	\$22	0.7	389
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$30	\$50	\$28	\$22	0.7	389
Custom	Measures		4,129	0.0	262	\$3,114	\$10,745	\$0	\$10,745	3.5	34,784
ECM 12	Retro-Commissioning Study	Yes	4,129	0.0	262	\$3,114	\$10,745	\$0	\$10,745	3.5	34,784
	TOTALS (COST EFFECTIVE MEASURES)		52,095	7.9	259	\$12,149	\$33,745	\$5,353	\$28,392	2.3	82,803
	TOTALS (ALL MEASURES)		52,876	9.3	273	\$12,422	\$53,671	\$5,853	\$47,818	3.8	85,231

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

Memorial School

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting Upgrades			52,828	10.4	-11	\$8,888	\$27,335	\$7,002	\$20,333	2.3	51,922
ECM 1	Install LED Fixtures	Yes	7,814	0.5	-1	\$1,324	\$5,183	\$1,150	\$4,033	3.0	7,805
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	76	0.0	0	\$13	\$65	\$6	\$59	4.6	75
ECM 3	Retrofit Fixtures with LED Lamps	Yes	44,938	9.9	-10	\$7,551	\$22,087	\$5,846	\$16,241	2.2	44,042
Lighting Control Measures			16,483	3.6	-4	\$2,770	\$25,040	\$6,535	\$18,505	6.7	16,154
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	13,885	3.0	-3	\$2,333	\$20,090	\$2,440	\$17,650	7.6	13,608
ECM 5	Install High/Low Lighting Controls	Yes	2,598	0.6	-1	\$436	\$4,950	\$4,095	\$855	2.0	2,546
Variable Frequency Drive (VFD) Measures			13,679	3.1	0	\$2,326	\$13,553	\$5,800	\$7,753	3.3	13,775
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	Yes	4,535	1.5	0	\$771	\$4,076	\$1,800	\$2,276	3.0	4,567
ECM 7	Install VFDs on Heating Water Pumps	Yes	9,144	1.6	0	\$1,555	\$9 <i>,</i> 476	\$4,000	\$5 <i>,</i> 476	3.5	9,208
Unitary HVAC Measures			12,191	6.2	11	\$2,165	\$67,497	\$6,606	\$60,891	28.1	13,544
ECM 8	Install High Efficiency Air Conditioning Units	No	12,191	6.2	11	\$2,165	\$67,497	\$6,606	\$60,891	28.1	13,544
Gas Heating (HVAC/Process) Replacement			0	0.0	252	\$2,158	\$64,281	\$11,783	\$52,498	24.3	29,550
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	252	\$2,158	\$64,281	\$11,783	\$52,498	24.3	29,550
HVAC S	ystem Improvements		1,641	0.0	119	\$1,297	\$1,699	\$764	\$935	0.7	15,592
ECM 10	Install Pipe Insulation	Yes	1,641	0.0	119	\$1,297	\$1,699	\$764	\$935	0.7	15,592
Domestic Water Heating Upgrade			1,112	0.0	9	\$262	\$93	\$93	\$0	0.0	2,120
ECM 11	Install Low-Flow DHW Devices	Yes	1,112	0.0	9	\$262	\$93	\$93	\$0	0.0	2,120
Food Se	rvice & Refrigeration Measures		4,072	0.5	0	\$692	\$4,030	\$250	\$3,780	5.5	4,100
ECM 12	Replace Refrigeration Equipment	Yes	4,072	0.5	0	\$692	\$4,030	\$250	\$3,780	5.5	4,100
Custom	Measures		14,082	0.0	126	\$3,470	\$14,437	\$0	\$14,437	4.2	28,925
ECM 13 Retro-Commissioning Study Ye		Yes	14,082	0.0	126	\$3,470	\$14,437	\$0	\$14,437	4.2	28,925
TOTALS (COST EFFECTIVE MEASURES)			103,897	17.6	239	\$19,704	\$86,187	\$20,444	\$65,743	3.3	132,588
TOTALS (ALL MEASURES)			116,088	23.8	502	\$24,026	\$217,965	\$38,833	\$179,131	7.5	175,681

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

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

	Paramus HS	East Brook MS	West Brook MS	Midland School	Parkway School	Ridge Ranch School	Stony Lane School
Potential:	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH	MEDIUM
System Potential: (kW)	500	268	226	83	131	124	99
Electric Generation: (kWh per year)	595,685	319,287	269,250	62,453	156,070	147,730	74,492
Displaced Cost: (per year)	\$76,490	\$54,970	\$33,330	\$11,030	\$14,660	\$26,050	\$14,070

Successor Solar Incentive Program

https://www.njcleanenergy.com/renewableenergy/programs/susi-program **Community Solar Energy Pilot Program**

http://www.NJCleanEnergy.com/ CommunitySolar



FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting NJ ESIP
- Financing Mechanism that allows state entities to make energy efficiency improvements without impacting their budgets
- Administered by the NJBPU
- Project is paid for with the value of its own energy savings
- 15 or 20 year self-funding loan
- Recent Energy Efficiency Transition
 - NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Pandemic Relief Funds
- No upfront capital expenses
- No referendum or impact to tax payers





FINANCING MECHANISM: ESIP





Energy SAVINGS Improvement Program

FOR MORE INFORMATION

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NJCEP COMMERCIAL & INDUSTRIAL PROGRAMS

https://www.njcleanenergy.com/transition



Programs run by investor-owned utility companies

Name

UTILITY RUN ENERGY EFFICIENCY PROGRAMS

PRESCRIPTIVE & CUSTOM REBATES:

- Individual high efficiency equipment rebates for renovation, remodeling, and equipment replacement
- Flexibility to do a little or a lot
- No size requirement

DIRECT INSTALL:

- Turn-key retrofit program to replace outdated and inefficient equipment including, lighting, HVAC, refrigeration, etc.
- The facility must have an average electric peak demand <200kW in the previous year to qualify



- **ENGINEERED SOLUTIONS:**
- Comprehensive, whole-building approach to saving energy
- The facility must have an average electric peak demand <200kW in the previous year to qualify

SCHOOL & SMALL BUSINESS ENERGY EFFICIENCY STIMULUS PROGRAM NJClean Energy.com/SSBEE

ABOUT Provides grants to ensure facilities have functional HVAC systems that are tested, adjusted, and, if necessary or cost effective, repaired, upgraded or replaced to improve performance. *(SSB-VEEVR)*

Provides grants to replace noncompliant plumbing fixtures and appliances that fail to meet water efficiency standards. *(SSB-NPFA)*

REQUIREMENTS Assessment verified by a Certified Energy Auditor or TAB Technician and proof of noncompliant equipment.

INCENTIVEGrants shall provide no more than 75% of the approved project cost up
to \$5 million.





FOR MORE INFORMATION

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