

New Jersey's Clean Energy Program

LGEA Presentation

Hazlet Township Public Schools

November 9, 2020



INTRODUCTIONS

- *Hazlet Twp Public Schools*
 - Christopher Mullins – Business Administrator
 - Charlie Hildner – Facilities Director
 - Christopher Villa – Energy Specialist
- *NJ Clean Energy Program*
 - Aimee Lalonde – TRC Program Manager
 - Sarah Landis – TRC Auditor
 - Sarah Walters – TRC Account Manager
 - Tony O'Donnell – TRC Outreach Manager
 - Michelle Rossi – ESIP Coordinator (BPU)

AGENDA

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



LGEA PROCESS

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

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Energy Management System

Utility Consumption:

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

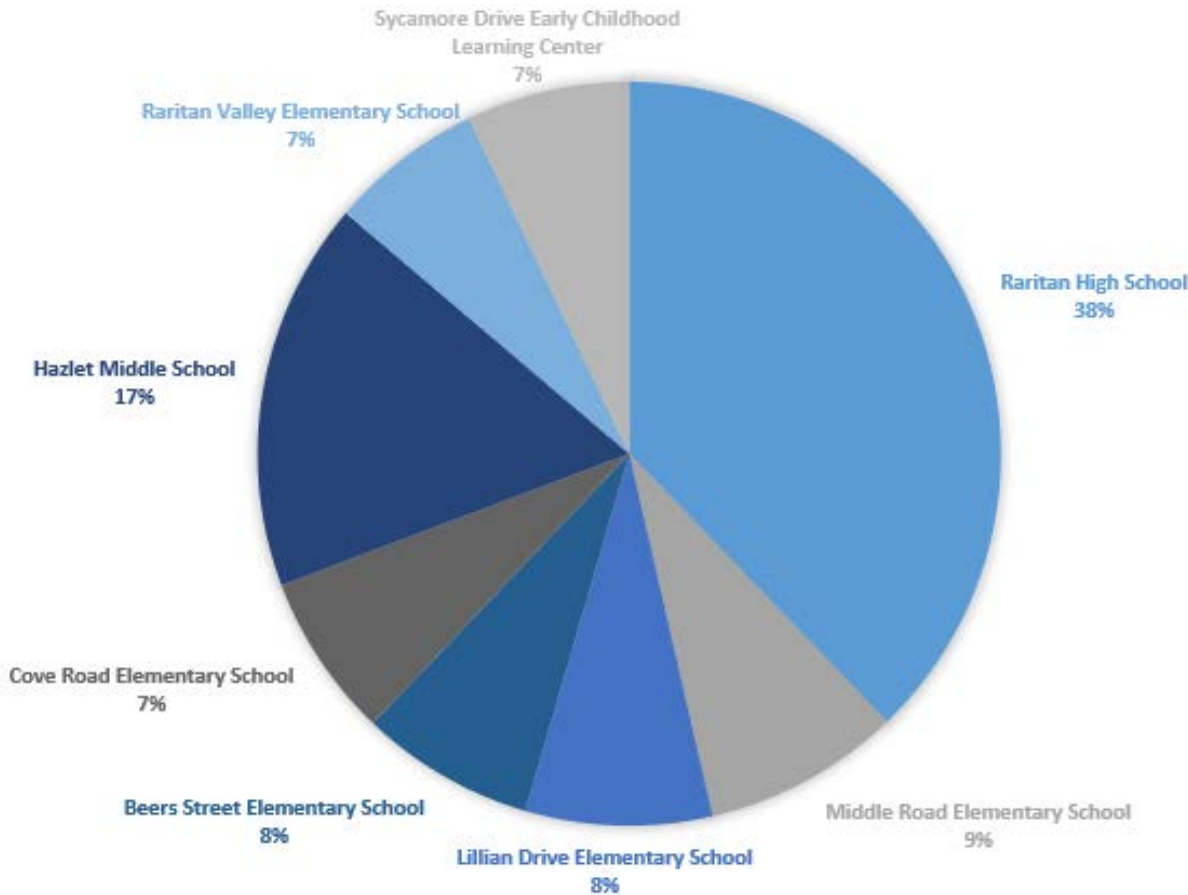
Sites Visited/Analyzed

- Raritan High School
- Hazlet Middle School
- Cove Road Elementary School
- Beers Street Elementary
- Middle Road Elementary School
- Lilian Drive Elementary School
- Raritan Valley Elementary School
- Sycamore Drive Early Childhood Learning Center

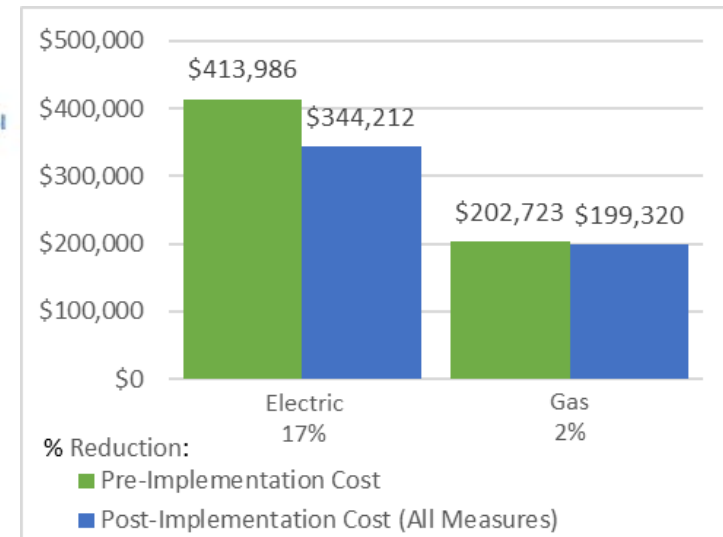


UTILITY BREAKOUT

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

ENERGY STAR® Statement of Energy Performance

73
ENERGY STAR® Score¹

Middle Road Elementary School
Primary Property Type: K-12 School
Gross Floor Area (ft²): 41,900
Built: 1956
For Year Ending: December 31, 2019
Date Generated: August 21, 2020

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

Property & Contact Information

Property Address Middle Road Elementary School 305 Middle Road Hazlet, New Jersey 07730	Property Owner Hazlet Township Public Schools 421 Middle Road Hazlet, NJ 07730 (732) 264-8402	Primary Contact Christopher Villa 421 Middle Road Hazlet, NJ 07730 (908) 415-1223 cvilla@hazlet.org
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Property ID: 11991350

Energy Consumption and Energy Use Intensity (EUI)

Site EUI 50.5 kBtu/ft ²	Annual Energy by Fuel	National Median Comparison
Source EUI 87 kBtu/ft ²	Natural Gas (Btu) 1,303,641 (62%)	National Median Site EUI (kBtu/ft ²) 65.5
	Electric Grid (kBtu) 812,290 (38%)	National Median Source EUI (kBtu/ft ²) 112.8
		% Diff from National Median Source EUI -23%
	Annual Emissions	
	Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 152	

Signature & Stamp of Verifying Professional

I, _____ (Name) verify that the above information is true and correct to the best of my knowledge.

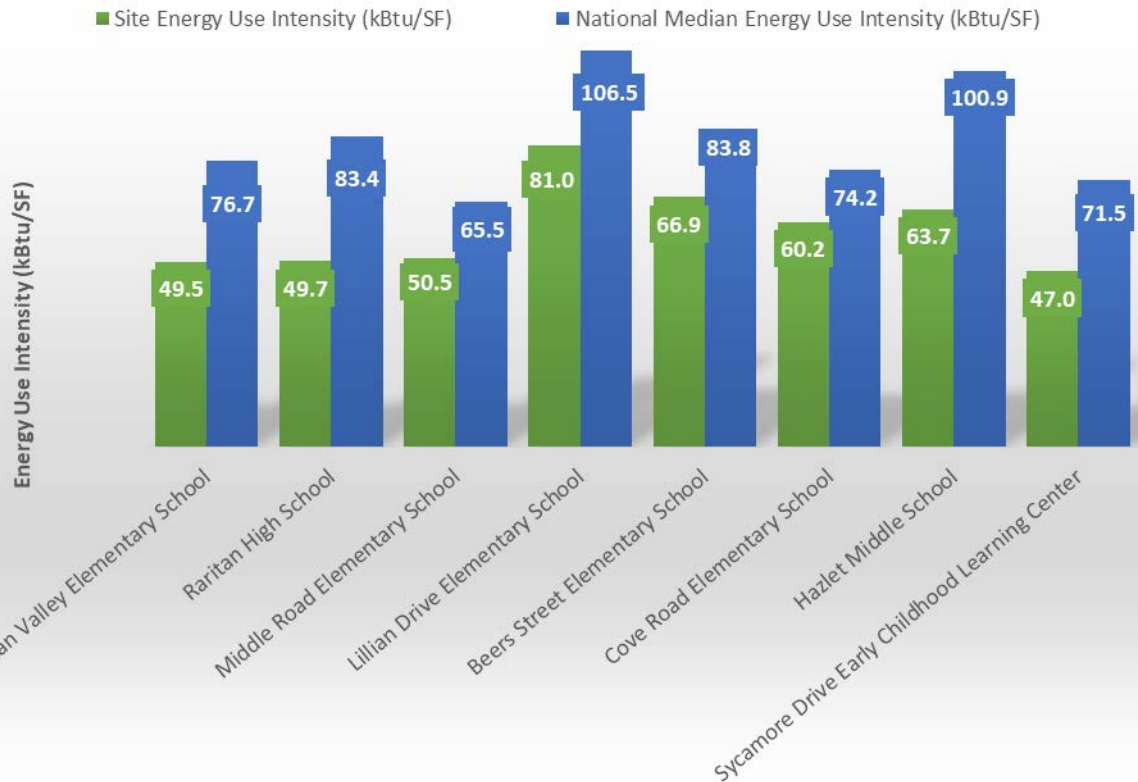
LP Signature: _____ Date: _____

Licensed Professional

Professional Engineer or Registered Architect Stamp (if applicable)

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

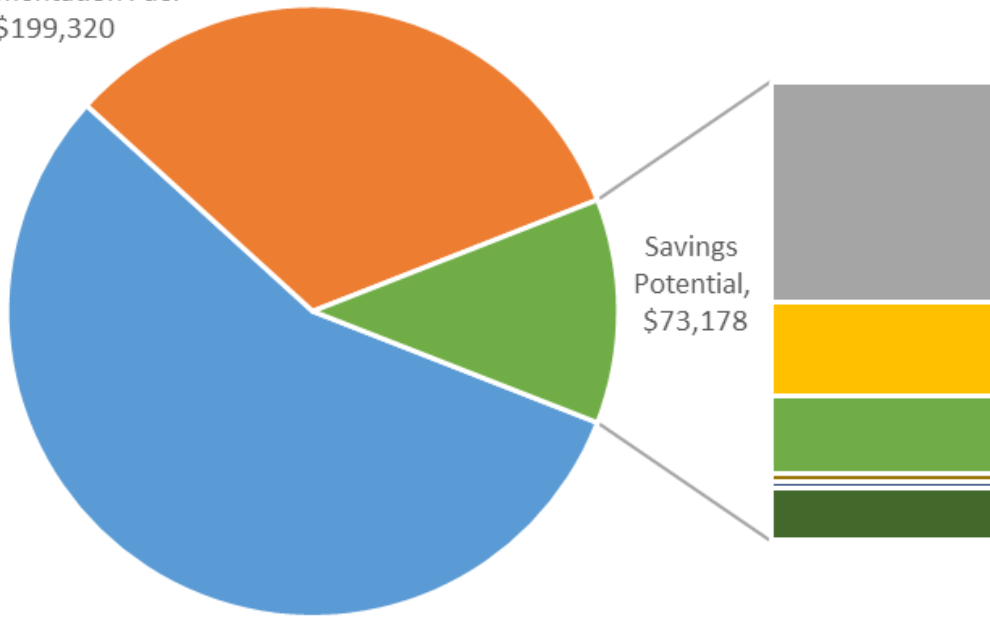


Site Name	ENERGY STAR [®] Score
Raritan Valley Elementary School	86
Raritan High School	88
Middle Road Elementary School	73
Lillian Drive Elementary School	75
Beers Street Elementary School	72
Cove Road Elementary School	69
Hazlet Middle School	87
Sycamore Drive Early Childhood Learning Center	N/A

ALL OPPORTUNITIES

Savings Potential

Post-Implementation Fuel
Cost, \$199,320



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

Post-Implementation Electric
Cost, \$344,212



ALL OPPORTUNITIES

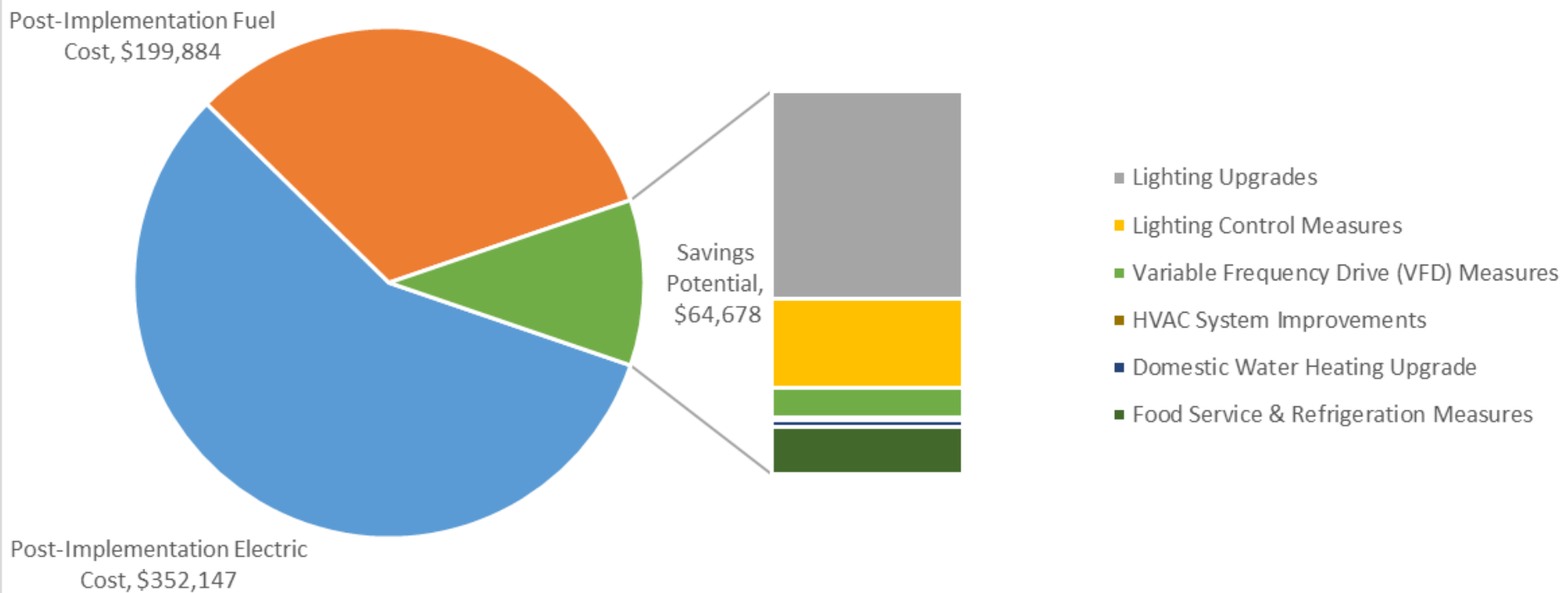
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Reduction (lbs)
Lighting Upgrades		246,957	75.0	-41.7	\$35,187	\$123,986	\$55,944	\$68,042	1.9	243,804
ECM 1	Install LED Fixtures	46,796	0.0	0.0	\$6,881	\$16,086	\$2,200	\$13,886	2.0	47,123
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	148	0.1	0.0	\$20	\$152	\$30	\$122	6.2	145
ECM 3	Retrofit Fixtures with LED Lamps	200,014	74.9	-41.6	\$28,287	\$107,749	\$53,714	\$54,035	1.9	196,536
Lighting Control Measures		104,734	25.1	-21.9	\$14,967	\$94,106	\$50,130	\$43,976	2.9	102,902
ECM 4	Install Occupancy Sensor Lighting Controls	64,423	18.8	-13.5	\$9,239	\$53,381	\$13,460	\$39,921	4.3	63,296
ECM 5	Install High/Low Lighting Controls	40,311	6.3	-8.4	\$5,728	\$40,725	\$36,670	\$4,055	0.7	39,606
Motor Upgrades		240	0.1	0.0	\$38	\$1,553	\$0	\$1,553	41.0	241
ECM 6	Premium Efficiency Motors	240	0.1	0.0	\$38	\$1,553	\$0	\$1,553	41.0	241
Variable Frequency Drive (VFD) Measures		65,740	24.1	211.1	\$12,211	\$199,162	\$19,850	\$179,312	14.7	90,915
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	9,854	4.7	0.0	\$1,650	\$25,575	\$4,500	\$21,075	12.8	9,923
ECM 8	Install VFDs on Constant Volume (CV) Fans	39,768	17.9	0.0	\$5,580	\$132,906	\$10,500	\$122,406	21.9	40,046
ECM 9	Install VFDs on Heating Water Pumps	6,919	1.1	0.0	\$1,028	\$13,544	\$3,800	\$9,744	9.5	6,967
ECM 10	Install VFDs on Kitchen Hood Fan Motors	9,198	0.4	211.1	\$3,953	\$27,137	\$1,050	\$26,087	6.6	33,978
HVAC System Improvements		5,134	0.0	46.6	\$1,268	\$21,961	\$140	\$21,821	17.2	10,624
ECM 11	Implement Demand Control Ventilation (DCV)	1,732	0.0	45.0	\$815	\$21,751	\$0	\$21,751	26.7	7,012
ECM 12	Install Pipe Insulation	3,402	0.0	1.6	\$453	\$211	\$140	\$71	0.2	3,612
Domestic Water Heating Upgrade		368	0.0	78.3	\$1,066	\$1,484	\$1,484	\$0	0.0	9,537
ECM 13	Install Low-Flow DHW Devices	368	0.0	78.3	\$1,066	\$1,484	\$1,484	\$0	0.0	9,537
Food Service & Refrigeration Measures		56,873	5.9	0.0	\$8,440	\$42,492	\$5,560	\$36,932	4.4	57,270
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	4,192	0.5	0.0	\$616	\$5,156	\$1,360	\$3,796	6.2	4,222
ECM 15	Refrigeration Controls	6,828	0.2	0.0	\$1,022	\$13,911	\$1,300	\$12,611	12.3	6,876
ECM 16	Replace Refrigeration Equipment	28,021	3.2	0.0	\$4,130	\$19,745	\$1,800	\$17,945	4.3	28,217
ECM 17	Vending Machine Control	17,831	2.0	0.0	\$2,672	\$3,680	\$1,100	\$2,580	1.0	17,956
TOTALS		480,045	130.2	272.4	\$73,178	\$484,745	\$133,108	\$351,637	4.8	515,294

* - 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

Savings Potential



COST EFFECTIVE 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		246,957	75.0	-41.7	\$35,187	\$123,986	\$55,944	\$68,042	1.9	243,804
ECM 1	Install LED Fixtures	46,796	0.0	0.0	\$6,881	\$16,086	\$2,200	\$13,886	2.0	47,123
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	148	0.1	0.0	\$20	\$152	\$30	\$122	6.2	145
ECM 3	Retrofit Fixtures with LED Lamps	200,014	74.9	-41.6	\$28,287	\$107,749	\$53,714	\$54,035	1.9	196,536
Lighting Control Measures		104,734	25.1	-21.9	\$14,967	\$94,106	\$50,130	\$43,976	2.9	102,902
ECM 4	Install Occupancy Sensor Lighting Controls	64,423	18.8	-13.5	\$9,239	\$53,381	\$13,460	\$39,921	4.3	63,296
ECM 5	Install High/Low Lighting Controls	40,311	6.3	-8.4	\$5,728	\$40,725	\$36,670	\$4,055	0.7	39,606
Variable Frequency Drive (VFD) Measures		16,117	1.5	211.1	\$4,981	\$40,681	\$4,850	\$35,831	7.2	40,945
ECM 9	Install VFDs on Heating Water Pumps	6,919	1.1	0.0	\$1,028	\$13,544	\$3,800	\$9,744	9.5	6,967
ECM 10	Install VFDs on Kitchen Hood Fan Motors	9,198	0.4	211.1	\$3,953	\$27,137	\$1,050	\$26,087	6.6	33,978
HVAC System Improvements		3,402	0.0	1.6	\$453	\$211	\$140	\$71	0.2	3,612
ECM 12	Install Pipe Insulation	3,402	0.0	1.6	\$453	\$211	\$140	\$71	0.2	3,612
Domestic Water Heating Upgrade		368	0.0	78.3	\$1,066	\$1,484	\$1,484	\$0	0.0	9,537
ECM 13	Install Low-Flow DHW Devices	368	0.0	78.3	\$1,066	\$1,484	\$1,484	\$0	0.0	9,537
Food Service & Refrigeration Measures		54,119	5.8	0.0	\$8,024	\$31,930	\$4,560	\$27,370	3.4	54,498
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	4,192	0.5	0.0	\$616	\$5,156	\$1,360	\$3,796	6.2	4,222
ECM 15	Refrigeration Controls	4,075	0.1	0.0	\$606	\$3,348	\$300	\$3,048	5.0	4,104
ECM 16	Replace Refrigeration Equipment	28,021	3.2	0.0	\$4,130	\$19,745	\$1,800	\$17,945	4.3	28,217
ECM 17	Vending Machine Control	17,831	2.0	0.0	\$2,672	\$3,680	\$1,100	\$2,580	1.0	17,956
TOTALS		425,698	107.4	227.4	\$64,678	\$292,397	\$117,108	\$175,289	2.7	455,298

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RARITAN HIGH SCHOOL

#	Energy Conservation Measure	Cost Effective?	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			145,108	33.0	-21	\$21,313	\$61,575	\$26,902	\$34,673	1.6	143,615
ECM 1	Install LED Fixtures	Yes	42,667	0.0	0	\$6,341	\$10,361	\$1,200	\$9,161	1.4	42,965
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	18	0.0	0	\$3	\$101	\$20	\$81	30.8	18
ECM 3	Retrofit Fixtures with LED Lamps	Yes	102,423	33.0	-21	\$14,969	\$51,113	\$25,682	\$25,431	1.7	100,632
Lighting Control Measures			61,943	14.2	-13	\$9,053	\$46,802	\$23,855	\$22,947	2.5	60,860
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	40,688	11.4	-9	\$5,947	\$28,352	\$7,420	\$20,932	3.5	39,976
ECM 5	Install High/Low Lighting Controls	Yes	21,255	2.8	-4	\$3,106	\$18,450	\$16,435	\$2,015	0.6	20,884
Motor Upgrades			122	0.0	0	\$18	\$784	\$0	\$784	43.4	122
ECM 6	Premium Efficiency Motors	No	122	0.0	0	\$18	\$784	\$0	\$784	43.4	122
Variable Frequency Drive (VFD) Measures			27,667	9.7	78	\$5,035	\$61,243	\$9,950	\$51,293	10.2	37,018
ECM 7	Install VFDs on Constant Volume (CV) Fans	No	17,928	8.6	0	\$2,664	\$44,308	\$6,000	\$38,308	14.4	18,053
ECM 8	Install VFDs on Heating Water Pumps	Yes	6,919	1.1	0	\$1,028	\$13,544	\$3,800	\$9,744	9.5	6,967
ECM 9	Install VFDs on Kitchen Hood Fan Motors	Yes	2,821	0.0	78	\$1,343	\$3,391	\$150	\$3,241	2.4	11,997
HVAC System Improvements			636	0.0	23	\$364	\$10,890	\$8	\$10,882	29.9	3,308
ECM 10	Implement Demand Control Ventilation (DCV)	No	636	0.0	21	\$345	\$10,875	\$0	\$10,875	31.5	3,123
ECM 11	Install Pipe Insulation	Yes	0	0.0	2	\$19	\$14	\$8	\$6	0.3	186
Domestic Water Heating Upgrade			0	0.0	13	\$153	\$208	\$208	\$0	0.0	1,520
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	13	\$153	\$208	\$208	\$0	0.0	1,520
Food Service & Refrigeration Measures			30,699	3.1	0	\$4,562	\$17,394	\$2,640	\$14,754	3.2	30,914
ECM 13	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	2,096	0.3	0	\$312	\$2,426	\$640	\$1,786	5.7	2,111
ECM 14	Refrigeration Controls	Yes	4,075	0.1	0	\$606	\$3,348	\$300	\$3,048	5.0	4,104
ECM 15	Replace Refrigeration Equipment	Yes	16,247	1.9	0	\$2,415	\$9,780	\$1,200	\$8,580	3.6	16,360
ECM 16	Vending Machine Control	Yes	8,281	0.9	0	\$1,231	\$1,840	\$500	\$1,340	1.1	8,339
TOTALS (COST EFFECTIVE MEASURES)			247,490	51.5	58	\$37,471	\$142,928	\$57,563	\$85,365	2.3	256,058
TOTALS (ALL MEASURES)			266,175	60.1	80	\$40,498	\$198,896	\$63,563	\$135,333	3.3	277,356

* - All incentives presented in this table are based on NJ SmartStart 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).

HAZLET MIDDLE SCHOOL

#	Energy Conservation Measure	Cost Effective?	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			18,311	3.5	-4	\$3,021	\$5,292	\$2,744	\$2,548	0.8	18,001
ECM 1	Retrofit Fixtures with LED Lamps	Yes	18,311	3.5	-4	\$3,021	\$5,292	\$2,744	\$2,548	0.8	18,001
Lighting Control Measures			9,795	1.6	-2	\$1,615	\$10,731	\$4,645	\$6,086	3.8	9,624
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	5,944	1.0	-1	\$980	\$6,906	\$1,510	\$5,396	5.5	5,840
ECM 3	Install High/Low Lighting Controls	Yes	3,851	0.6	-1	\$635	\$3,825	\$3,135	\$690	1.1	3,784
Motor Upgrades			118	0.0	0	\$20	\$769	\$0	\$769	38.9	119
ECM 4	Premium Efficiency Motors	No	118	0.0	0	\$20	\$769	\$0	\$769	38.9	119
Variable Frequency Drive (VFD) Measures			11,555	4.7	37	\$2,382	\$32,194	\$4,800	\$27,394	11.5	15,985
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	No	9,854	4.7	0	\$1,650	\$25,575	\$4,500	\$21,075	12.8	9,923
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	1,701	0.0	37	\$732	\$6,619	\$300	\$6,319	8.6	6,062
HVAC System Improvements			1,096	0.0	24	\$470	\$10,875	\$0	\$10,875	23.1	3,889
ECM 7	Implement Demand Control Ventilation (DCV)	No	1,096	0.0	24	\$470	\$10,875	\$0	\$10,875	23.1	3,889
Domestic Water Heating Upgrade			0	0.0	9	\$112	\$258	\$258	\$0	0.0	1,085
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	9	\$112	\$258	\$258	\$0	0.0	1,085
Food Service & Refrigeration Measures			11,552	1.2	0	\$1,934	\$9,693	\$1,020	\$8,673	4.5	11,633
ECM 9	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	786	0.1	0	\$132	\$1,213	\$320	\$893	6.8	792
ECM 10	Refrigeration Controls	No	1,476	0.0	0	\$247	\$3,867	\$400	\$3,467	14.0	1,487
ECM 11	Replace Refrigeration Equipment	Yes	4,575	0.5	0	\$766	\$3,463	\$0	\$3,463	4.5	4,607
ECM 12	Vending Machine Control	Yes	4,715	0.5	0	\$789	\$1,150	\$300	\$850	1.1	4,748
TOTALS (COST EFFECTIVE MEASURES)			39,883	6.3	41	\$7,166	\$28,727	\$8,567	\$20,160	2.8	44,918
TOTALS (ALL MEASURES)			52,428	11.0	64	\$9,553	\$69,813	\$13,467	\$56,346	5.9	60,337

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

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COVE ROAD ELEMENTARY

#	Energy Conservation Measure	Cost Effective?	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			9,398	2.8	-2	\$1,227	\$4,725	\$2,536	\$2,189	1.8	9,234
ECM 1	Retrofit Fixtures with LED Lamps	Yes	9,398	2.8	-2	\$1,227	\$4,725	\$2,536	\$2,189	1.8	9,234
Lighting Control Measures			5,816	1.5	-1	\$759	\$5,812	\$3,185	\$2,627	3.5	5,715
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	3,039	1.0	-1	\$397	\$2,662	\$710	\$1,952	4.9	2,985
ECM 3	Install High/Low Lighting Controls	Yes	2,778	0.5	-1	\$363	\$3,150	\$2,475	\$675	1.9	2,729
Variable Frequency Drive (VFD) Measures			781	0.1	16	\$305	\$3,051	\$100	\$2,951	9.7	2,617
ECM 4	Install VFDs on Kitchen Hood Fan Motors	Yes	781	0.1	16	\$305	\$3,051	\$100	\$2,951	9.7	2,617
Domestic Water Heating Upgrade			0	0.0	8	\$102	\$136	\$136	\$0	0.0	931
ECM 5	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$102	\$136	\$136	\$0	0.0	931
Food Service & Refrigeration Measures			4,106	0.4	0	\$547	\$6,394	\$830	\$5,564	10.2	4,135
ECM 6	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	\$35	\$303	\$80	\$223	6.4	264
ECM 7	Refrigeration Controls	No	319	0.0	0	\$43	\$1,674	\$150	\$1,524	35.8	321
ECM 8	Replace Refrigeration Equipment	Yes	3,525	0.4	0	\$470	\$4,417	\$600	\$3,817	8.1	3,550
TOTALS (COST EFFECTIVE MEASURES)			19,782	4.8	20	\$2,898	\$18,444	\$6,637	\$11,807	4.1	22,310
TOTALS (ALL MEASURES)			20,101	4.8	20	\$2,940	\$20,118	\$6,787	\$13,331	4.5	22,632

* - All incentives presented in this table are based on NJ SmartStart 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).

BEERS STREET ELEMENTARY

#	Energy Conservation Measure	Cost Effective?	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			9,783	6.0	-2	\$1,218	\$6,228	\$3,032	\$3,196	2.6	9,612
ECM 1	Retrofit Fixtures with LED Lamps	Yes	9,783	6.0	-2	\$1,218	\$6,228	\$3,032	\$3,196	2.6	9,612
Lighting Control Measures			2,311	0.6	0	\$288	\$3,806	\$2,330	\$1,476	5.1	2,271
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	1,175	0.4	0	\$146	\$2,006	\$530	\$1,476	10.1	1,154
ECM 3	Install High/Low Lighting Controls	Yes	1,136	0.2	0	\$141	\$1,800	\$1,800	\$0	0.0	1,116
Variable Frequency Drive (VFD) Measures			3,014	1.0	16	\$569	\$14,200	\$600	\$13,600	23.9	4,866
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	2,233	0.9	0	\$284	\$11,444	\$500	\$10,944	38.6	2,249
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	781	0.1	16	\$285	\$2,756	\$100	\$2,656	9.3	2,617
HVAC System Improvements			3,197	0.0	0	\$406	\$179	\$120	\$59	0.1	3,220
ECM 6	Install Pipe Insulation	Yes	3,197	0.0	0	\$406	\$179	\$120	\$59	0.1	3,220
Domestic Water Heating Upgrade			368	0.0	7	\$131	\$165	\$165	\$0	0.0	1,204
ECM 7	Install Low-Flow DHW Devices	Yes	368	0.0	7	\$131	\$165	\$165	\$0	0.0	1,204
Food Service & Refrigeration Measures			582	0.0	0	\$74	\$1,977	\$230	\$1,747	23.7	586
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	\$33	\$303	\$80	\$223	6.7	264
ECM 9	Refrigeration Controls	No	319	0.0	0	\$41	\$1,674	\$150	\$1,524	37.6	322
TOTALS (COST EFFECTIVE MEASURES)			16,702	6.7	20	\$2,362	\$13,437	\$5,827	\$7,610	3.2	19,187
TOTALS (ALL MEASURES)			19,255	7.6	20	\$2,686	\$26,555	\$6,477	\$20,078	7.5	21,758

* - All incentives presented in this table are based on NJ SmartStart 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).

MIDDLE ROAD ELEMENTARY

#	Energy Conservation Measure	Cost Effective?	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			10,940	5.2	-2	\$1,425	\$5,171	\$2,128	\$3,043	2.1	10,759
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	130	0.0	0	\$17	\$51	\$10	\$41	2.4	127
ECM 2	Retrofit Fixtures with LED Lamps	Yes	10,810	5.2	-2	\$1,409	\$5,121	\$2,118	\$3,003	2.1	10,631
Lighting Control Measures			4,735	0.9	-1	\$616	\$5,400	\$4,330	\$1,070	1.7	4,652
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,005	0.2	0	\$131	\$1,350	\$280	\$1,070	8.2	987
ECM 4	Install High/Low Lighting Controls	Yes	3,730	0.7	-1	\$485	\$4,050	\$4,050	\$0	0.0	3,664
Variable Frequency Drive (VFD) Measures			7,373	2.8	16	\$1,247	\$26,840	\$1,350	\$25,490	20.4	9,256
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	6,548	2.7	0	\$875	\$23,790	\$1,250	\$22,540	25.8	6,594
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	824	0.1	16	\$372	\$3,051	\$100	\$2,951	7.9	2,661
Domestic Water Heating Upgrade			0	0.0	10	\$168	\$172	\$172	\$0	0.0	1,176
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$168	\$172	\$172	\$0	0.0	1,176
Food Service & Refrigeration Measures			1,612	0.2	0	\$215	\$230	\$100	\$130	0.6	1,623
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$215	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			18,111	6.4	22	\$2,797	\$14,024	\$6,830	\$7,194	2.6	20,872
TOTALS (ALL MEASURES)			24,659	9.1	22	\$3,673	\$37,814	\$8,080	\$29,734	8.1	27,466

* - All incentives presented in this table are based on NJ SmartStart 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).

LILIAN DRIVE ELEMENTARY

#	Energy Conservation Measure	Cost Effective?	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			13,775	6.9	-3	\$1,886	\$7,547	\$3,754	\$3,793	2.0	13,534
ECM 1	Retrofit Fixtures with LED Lamps	Yes	13,775	6.9	-3	\$1,886	\$7,547	\$3,754	\$3,793	2.0	13,534
Lighting Control Measures			6,054	1.4	-1	\$829	\$6,975	\$4,525	\$2,450	3.0	5,948
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	2,894	0.8	-1	\$396	\$2,925	\$700	\$2,225	5.6	2,843
ECM 3	Install High/Low Lighting Controls	Yes	3,160	0.6	-1	\$433	\$4,050	\$3,825	\$225	0.5	3,105
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	5,682	2.3	0	\$791	\$23,554	\$1,200	\$22,354	28.3	5,721
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	742	0.1	15	\$269	\$2,756	\$100	\$2,656	9.9	2,495
HVAC System Improvements			205	0.0	0	\$29	\$17	\$12	\$5	0.2	207
ECM 6	Install Pipe Insulation	Yes	205	0.0	0	\$29	\$17	\$12	\$5	0.2	207
Domestic Water Heating Upgrade			0	0.0	6	\$64	\$129	\$129	\$0	0.0	680
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$64	\$129	\$129	\$0	0.0	680
Food Service & Refrigeration Measures			2,193	0.2	0	\$305	\$2,207	\$330	\$1,877	6.1	2,208
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	\$36	\$303	\$80	\$223	6.1	264
ECM 9	Refrigeration Controls	No	319	0.0	0	\$44	\$1,674	\$150	\$1,524	34.3	321
ECM 10	Vending Machine Control	Yes	1,612	0.2	0	\$224	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			22,650	8.6	17	\$3,337	\$17,958	\$8,700	\$9,258	2.8	24,750
TOTALS (ALL MEASURES)			28,651	11.0	17	\$4,172	\$43,187	\$10,050	\$33,137	7.9	30,793

* - All incentives presented in this table are based on NJ SmartStart 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).

RARITAN VALLEY ELEMENTARY

#	Energy Conservation Measure	Cost Effective?	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			8,382	3.9	-1	\$1,084	\$8,363	\$2,096	\$6,267	5.8	8,336
ECM 1	Install LED Fixtures	Yes	4,129	0.0	0	\$540	\$5,725	\$1,000	\$4,725	8.8	4,158
ECM 2	Retrofit Fixtures with LED Lamps	Yes	4,253	3.9	-1	\$545	\$2,638	\$1,096	\$1,542	2.8	4,178
Lighting Control Measures			2,602	0.5	-1	\$333	\$3,105	\$2,080	\$1,025	3.1	2,556
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	650	0.1	0	\$83	\$1,080	\$280	\$800	9.6	639
ECM 4	Install High/Low Lighting Controls	Yes	1,951	0.3	0	\$250	\$2,025	\$1,800	\$225	0.9	1,917
Variable Frequency Drive (VFD) Measures			4,780	1.6	18	\$848	\$20,221	\$900	\$19,321	22.8	6,950
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	3,934	1.6	0	\$514	\$17,464	\$800	\$16,664	32.4	3,961
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	846	0.1	18	\$334	\$2,756	\$100	\$2,656	8.0	2,988
Domestic Water Heating Upgrade			0	0.0	10	\$126	\$186	\$186	\$0	0.0	1,209
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$126	\$186	\$186	\$0	0.0	1,209
Food Service & Refrigeration Measures			4,255	0.5	0	\$556	\$4,062	\$230	\$3,832	6.9	4,285
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	\$34	\$303	\$80	\$223	6.5	264
ECM 9	Refrigeration Controls	No	319	0.0	0	\$42	\$1,674	\$150	\$1,524	36.5	321
ECM 10	Replace Refrigeration Equipment	Yes	3,674	0.4	0	\$480	\$2,085	\$0	\$2,085	4.3	3,700
TOTALS (COST EFFECTIVE MEASURES)			15,765	4.9	27	\$2,392	\$16,799	\$4,542	\$12,257	5.1	19,053
TOTALS (ALL MEASURES)			20,018	6.4	27	\$2,948	\$35,938	\$5,492	\$30,445	10.3	23,336

* - All incentives presented in this table are based on NJ SmartStart 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).

SYCAMORE DRIVE EARLY CHILDHOOD LEARNING CENTER

#	Energy Conservation Measure	Cost Effective?	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			31,261	13.6	-7	\$4,013	\$25,085	\$12,752	\$12,333	3.1	30,714
ECM 1	Retrofit Fixtures with LED Lamps	Yes	31,261	13.6	-7	\$4,013	\$25,085	\$12,752	\$12,333	3.1	30,714
Lighting Control Measures			11,478	4.4	-2	\$1,473	\$11,475	\$5,180	\$6,295	4.3	11,277
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	9,029	3.9	-2	\$1,159	\$8,100	\$2,030	\$6,070	5.2	8,871
ECM 3	Install High/Low Lighting Controls	Yes	2,449	0.6	-1	\$314	\$3,375	\$3,150	\$225	0.7	2,406
Variable Frequency Drive (VFD) Measures			4,146	1.9	16	\$766	\$15,102	\$850	\$14,252	18.6	6,007
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	3,444	1.8	0	\$452	\$12,346	\$750	\$11,596	25.6	3,468
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	703	0.1	16	\$314	\$2,756	\$100	\$2,656	8.5	2,539
Domestic Water Heating Upgrade			0	0.0	15	\$209	\$229	\$229	\$0	0.0	1,732
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	15	\$209	\$229	\$229	\$0	0.0	1,732
Food Service & Refrigeration Measures			1,874	0.2	0	\$246	\$533	\$180	\$353	1.4	1,887
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	\$34	\$303	\$80	\$223	6.5	264
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$212	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			45,315	18.3	21	\$6,255	\$40,079	\$18,441	\$21,637	3.5	48,149
TOTALS (ALL MEASURES)			48,759	20.2	21	\$6,708	\$52,425	\$19,191	\$33,233	5.0	51,617

* - All incentives presented in this table are based on NJ SmartStart 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

MEASURES FOR FUTURE CONSIDERATION

- **Retro-Commissioning Study**
- **Install High Efficiency Energy Recovery Units (ERUs)**

SOLAR ENERGY GENERATION POTENTIAL

	HS	MS	Cove	Beers	Middle Rd	Raritan Valley	ECC
<i>Potential:</i>	HIGH	HIGH	Medium	Medium	HIGH	Medium	HIGH
<i>System Potential: (kW)</i>	215	118	79	78	120	78	71
<i>Electric Generation: (kWh per year)</i>	256,145	140,582	59,443	58,691	90,295	58,691	84,587
<i>Displaced Cost: (per year)</i>	\$38,070	\$23,540	\$7,920	\$7,450	\$12,070	\$7,670	\$11,110

Transition Incentive (TI) Program:

<https://www.njcleanenergy.com/renewable-energy/programs/transition-incentive-program>

Community Solar Energy Pilot Program:

<http://www.NJCleanEnergy.com/CommunitySolar>



CLEAN ENERGY PROGRAM PORTFOLIO

ELIGIBLE SECTORS

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

INCENTIVE PROGRAMS

Equipment Rebates:

- **SmartStart**
- **Customer Tailored Energy Efficiency Pilot (CTEEP)**
- **Direct Install**
- Large Energy Users

Whole Buildings:

- Pay for Performance

Energy Generation:

- Combined Heat and Power – Fuel Cells

OTHER PROGRAMS

Renewable Energy Generation:

- **Transition Incentive (TI) Program**
- **Community Solar**

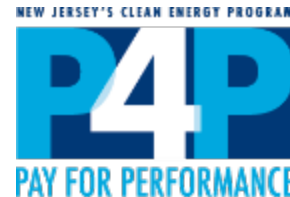
RECOMMENDED NJCEP INCENTIVES PER BUILDING

Hazlet Township Public Schools	Pay For Performance	Direct Install	SmartStart	CTEEP
Raritan High School	X		X	X
Hazlet Middle School		X	X	X
Cove Rd Elementary School		X	X	X
Beers St Elementary School		X	X	X
Middle Rd Elementary School		X	X	X
Lilian Dr Elementary School		X	X	X
Raritan Valley Elementary School		X	X	X
Sycamore Dr Early Childhood Learning Center		X	X	X

Buildings marked with a lighter X do not quite meet the requirements of the current P4P program. P4P should be evaluated again once project planning is underway.

PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



What is P4P: Comprehensive, whole-building approach to saving energy in existing or new facilities.

Qualifications: Annual peak demand 200 kW+ in the previous year for existing buildings

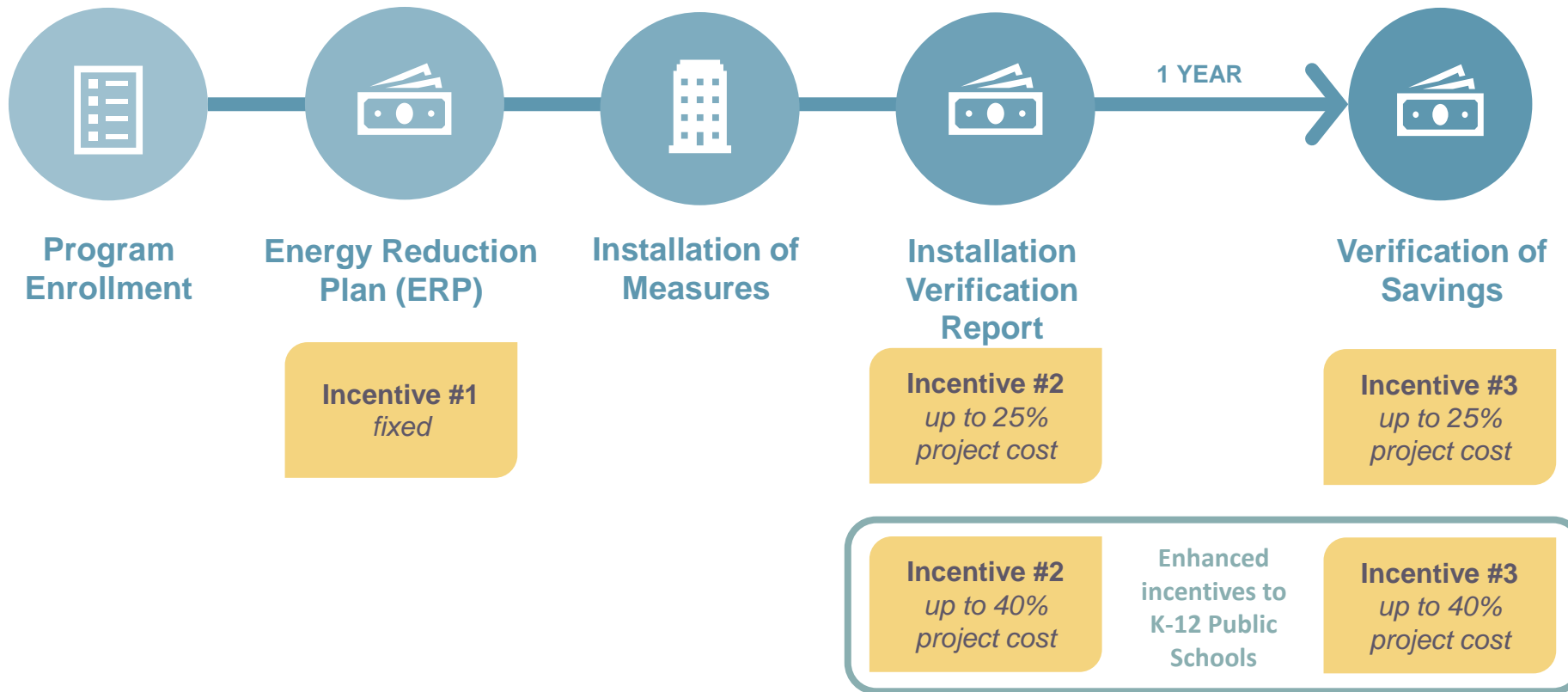
About: Customer choose from a network of pre-approved *Participating Partners*

Incentives:

- Incentives paid in *three* installments
 - Up to \$2MM per project((\$4MM entity cap/year)
 - \$1 million for electric measures
 - \$1 million for gas measures
 - Up to 50% of project cost (or **80%** for UEZ/OZ/Local Govt./ **K-12 Public Schools**) up to \$2MM per project / \$4MM per entity annually

PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



DIRECT INSTALL

NJCleanEnergy.com/DI



What is DI: Turn-key retrofit program to replace outdated and inefficient equipment, including lighting, HVAC, refrigeration, etc.

Qualifications: Average electric peak demand <200 kW in the previous 12 months

- About:**
- Pre-approved participating contractors provide support and process paperwork
 - Incentives paid directly to the contractor
 - Fast project turnaround time (4-6 months)

- Incentives:**
- \$125,000 incentive funding per project/building ([\\$250K](#) UEZ/OZ/Local Govt./[K-12 Public Schools](#)), or
 - \$250,000 entity cap ([\\$4MM](#) UEZ/OZ/Local Govt./[K-12 Public Schools](#))

DIRECT INSTALL

NJCleanEnergy.com/DI

Facilities in Urban Enterprise Zones (UEZ), Opportunity Zones (OZ), Local Governments, and K-12 public schools:

INCENTIVE FUNDING

Up to **80%** of installed cost is paid directly to the contractor

CUSTOMER

20% of installed cost

All other eligible facilities:

INCENTIVE FUNDING

Up to **70%** of installed cost is paid directly to the contractor

CUSTOMER

30% of installed cost



DIRECT INSTALL

NJCleanEnergy.com/DI

Participating Contractor

Hutchinson Mechanical Services

Pete Hatton

856-429-5828 x259

petehatton@hutchbiz.com



SMARTSTART

NJCleanEnergy.com/SSB

What is SSB: Individual high efficiency equipment rebates for new construction, renovation, remodeling, equipment replacement

Qualifications:

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

About:

- Prescriptive and custom designed measures
- Pre-approval required only for lighting projects with incentives >\$100,000 and all custom projects
- For measures not requiring pre-approval, applications must be submitted to the program within one year of purchase.

Incentives:

- Prescriptive: \$500,000 cap for each electric or gas account
- Custom, lesser of the following:
 - \$0.16/kWh and/or \$1.60/Therm saved annually
 - 50% of incremental installed cost
 - Buy-down to 1 year payback based on incremental cost and savings



SMARTSTART

NJCleanEnergy.com/SSB



PRESCRIPTIVE INCENTIVES

- Electric Chillers
- Gas Cooling
- Electric Unitary HVAC
- Ground Source Heat Pumps
- Gas Heating
- Variable Frequency Drives
- Gas Water Heating
- Lighting/Lighting Controls
- Refrigeration Doors
- Refrigeration Controls
- Food Service Equipment
- Refrigerator/Freezer Motors

DOUBLE INCENTIVES

for OZ/UEZ, local government (munis & counties), K-12 public school, or designated as affordable housing



CUSTOM INCENTIVES

- New or innovative technologies proven to be cost-effective and not listed as prescriptive
- Must meet code for retrofit projects or exceed code for new construction
- Project pre and post inspection required



CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

NJCleanEnergy.com/CTEEP

What is CTEEP: A streamlined/single application process for participants submitting multiple different technology types.

Qualifications:

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

About:

- On site assistance available
- Additional technical incentive available to offset soft costs associated with developing and planning custom projects

Incentives:

- Up to \$500,000 for each electric or gas account
- Technical assistance incentives for custom project evaluation (up to \$10K)

**SAME INCENTIVE
VALUES AS
SMARTSTART**

CTEEP: CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

NJCleanEnergy.com/CTEEP



**SAME INCENTIVE
VALUES AS
SMARTSTART**



DIRECT INSTALL, SMARTSTART, & CTEEP: FINANCING OPTION

- **Direct Install:** Eligible NJNG customers can finance the remaining 30 percent balance at 0% APR through the “SAVEGREEN Project® On-Bill Repayment Program” (OBRP) for 36 months.
- NJNG provides 0% financing options that will cover up to \$130,000 per year.
- 10 year term-repayments made on regular monthly gas bill
- Need to review project with NJNG to confirm project qualifies.
- The SAVEGREEN program can help with a consultation to discuss your Commercial Energy Efficiency Project.



- Questions? Contact:

Jerry Ryan

Energy Efficiency Ops. Manager
New Jersey Natural Gas
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732 378 4920 (office)
jryan@njng.com

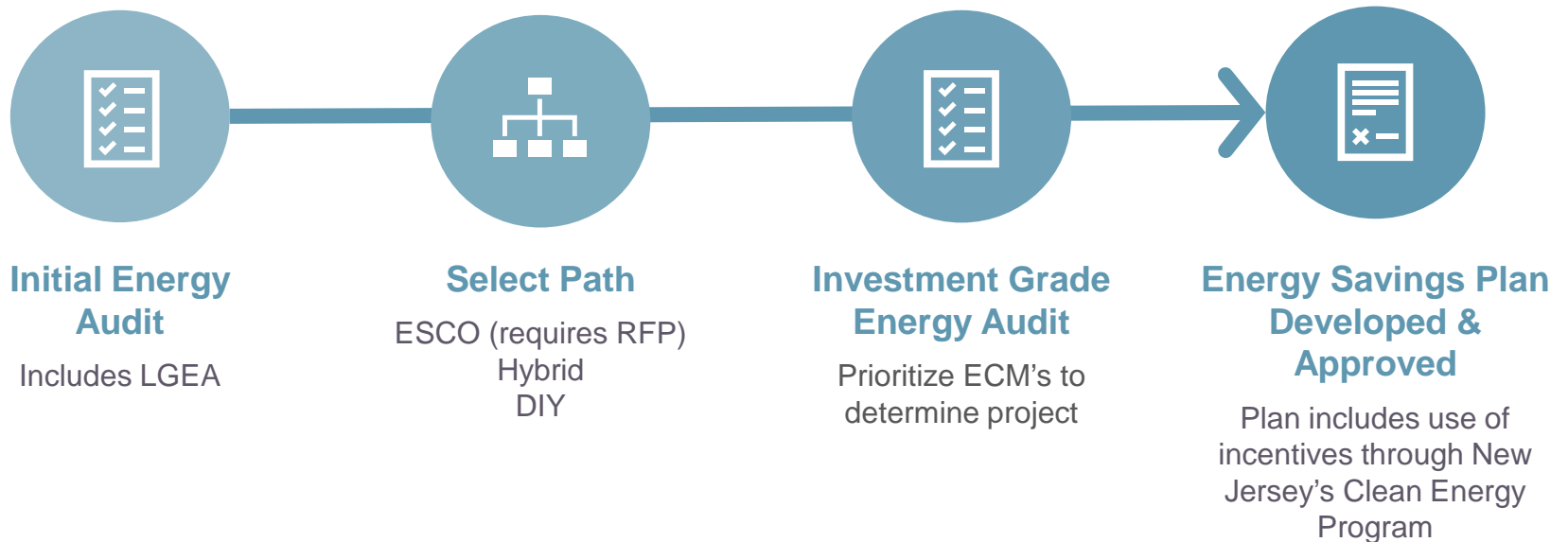
FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Provides alternative financing for energy savings projects at public institutions
- Administered directly by the NJBPU
- Project is paid for with the value of its own energy savings
- 15 or 20-year repayment term
- NJCEP incentives/rebates are layered within an ESIP
- No upfront capital expenses
- Doesn't require voter approval



FINANCING MECHANISM: ESIP



ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

FOR MORE INFORMATION

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QUESTIONS

