

New Jersey's Clean Energy Program

LGEA Presentation

Colts Neck Township School District

October 2, 2020



INTRODUCTIONS

- *Colts Neck Township School District*
 - MaryJane Garibay – Superintendent
 - Vincent Marasco – Business Administrator/ Board Secretary
 - Tom Giglio – Facility Manager
 - Kevin O'Connor – B&G Committee, Chairperson
 - Kathy Gizzo – B&G Committee, Board Member
 - Marian Castner – B&G Committee, Board Member
 - Michael Taylor – B&G Committee, Board Member
- *NJ Clean Energy Program*
 - Aimee Lalonde – TRC Program Manager
 - Aditya Saxena – TRC Auditor
 - Sarah Walters – TRC Account Manager
 - Tony O'Donnell – TRC Outreach Manager
 - Michelle Rossi – ESIP Coordinator (BPU)
 - Arif Welcher – Government/Business Manager (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 Colts Neck Twp SD



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
- Building Management Systems

Utility Consumption:

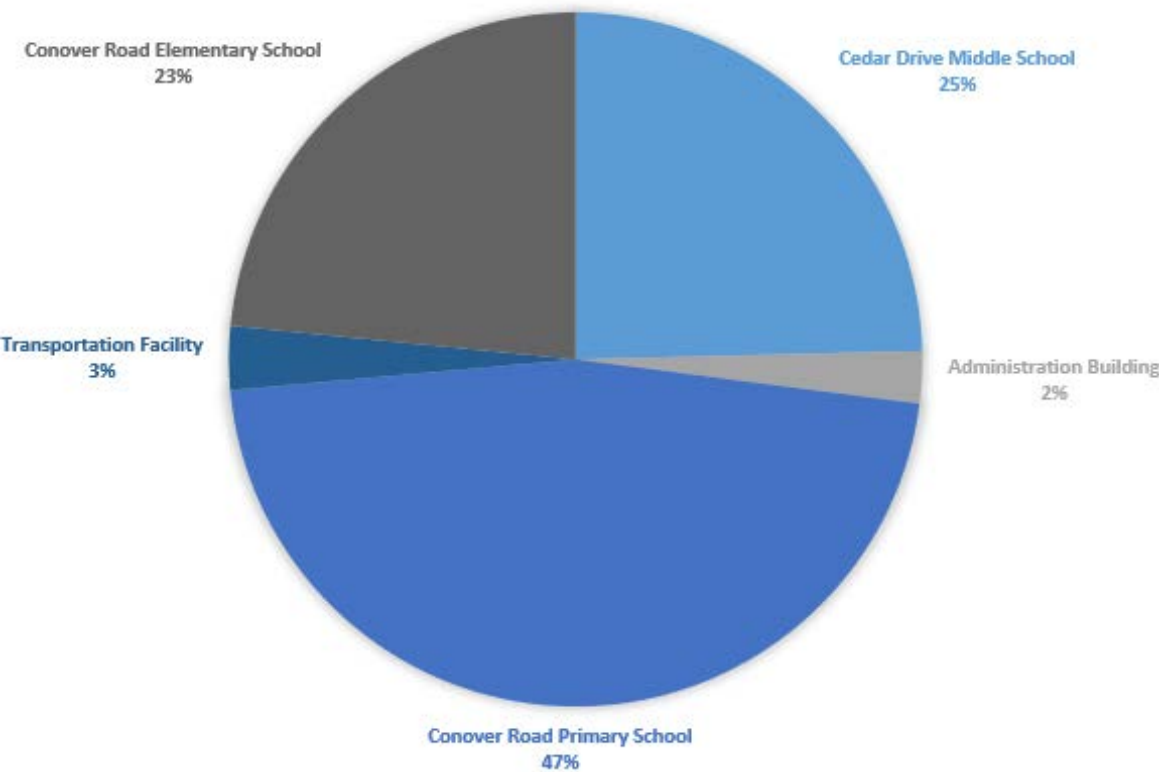
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

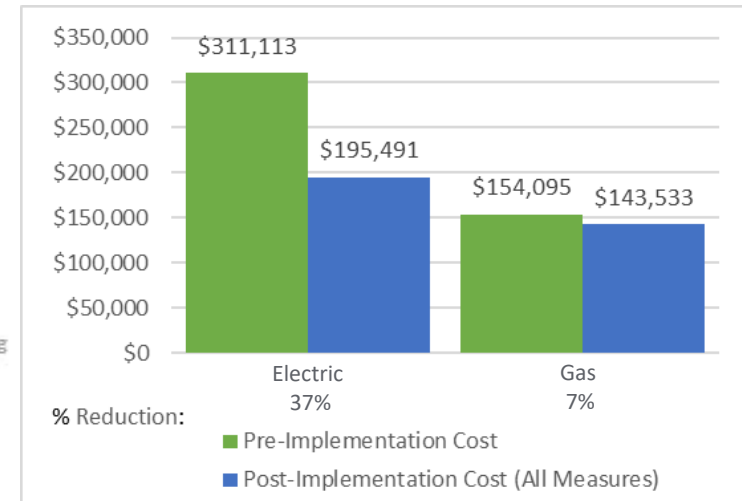
- Conover Road Elementary School
- Conover Road Primary School
- Cedar Drive Middle School
- Administration Building
- Transportation Facility

UTILITY BREAKOUT

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

ENERGY STAR® Statement of Energy Performance

42 Cedar Drive Middle School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 93,170
Built: 1963

For Year Ending: September 30, 2019
Date Generated: August 22, 2020

ENERGY STAR® Score¹

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
Cedar Drive Middle School 73 Cedar Drive Colts Neck, New Jersey 07722	Colts Neck Township Board of Education 73 Conover Road Colts Neck, NJ 07722 (732) 946-0055	NJ Clean Energy I-DEA Program 500 ROUTE 1 NORTH SUITE 404 WOODBRIDGE, NJ 07095 732-855-2864 amiller@trcsolutions.com

Property ID: 10189305

Energy Consumption and Energy Use Intensity (EUI)

Site EUI 70 kBtu/ft ²	Annual Energy Use Intensity (EUI) Natural Gas (kBtu) 4,477,978 (69%) Electric - Grid (kBtu) 2,042,080 (31%)	National Median Comparison National Median Site EUI (kBtu/ft ²) 65.1 National Median Source EUI (kBtu/ft ²) 104 % Diff from National Median Source EUI 8%
Source EUI 111.8 kBtu/ft ²	Annual Emissions Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 445	

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)

Site EUI
70 kBtu/ft²

Source EUI
111.8 kBtu/ft²

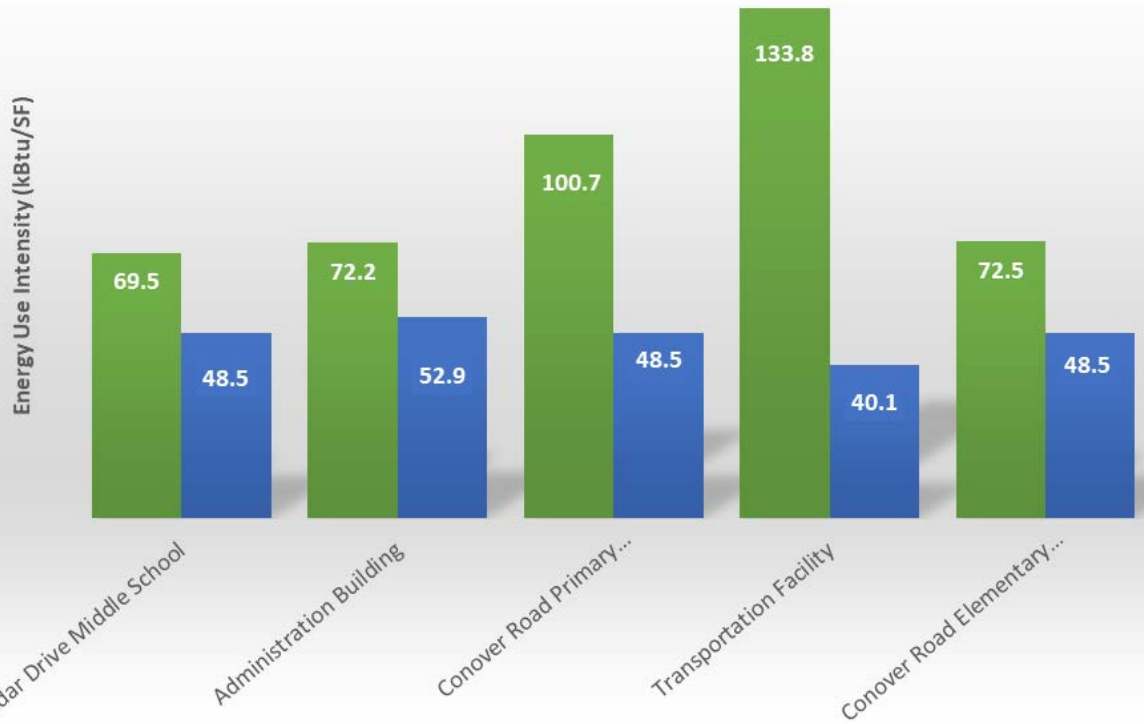
National Median Comparison

National Median Site EUI (kBtu/ft ²)	65.1
National Median Source EUI (kBtu/ft ²)	104
% Diff from National Median Source EUI	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

■ Site Energy Use Intensity (kBtu/SF) ■ National Median Energy Use Intensity (kBtu/SF)



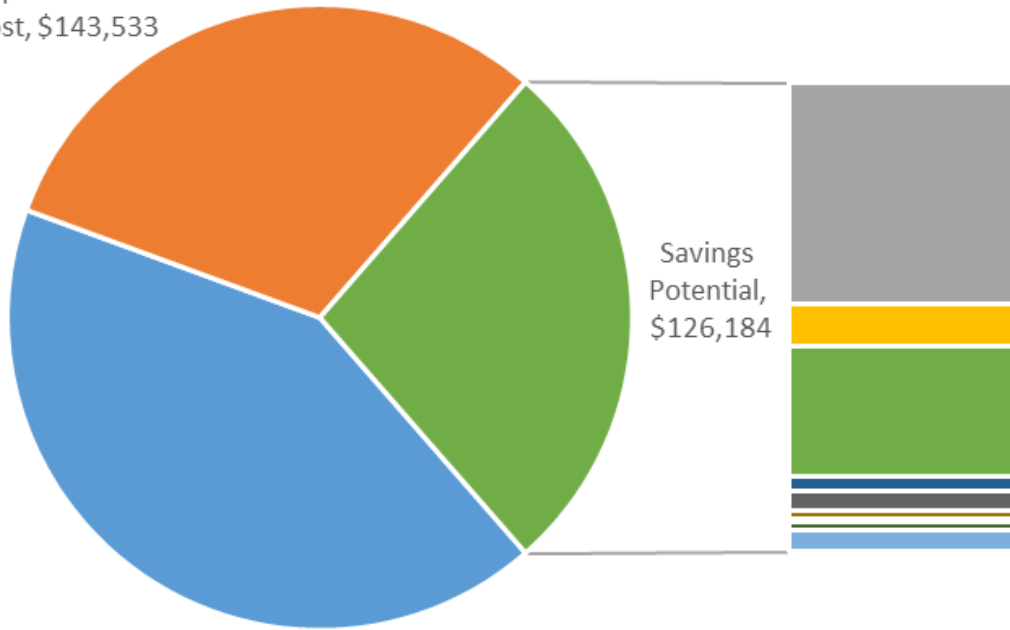
Site Name	ENERGY STAR® Score
Cedar Drive Middle School	42
Administration Building	67
Conover Road Primary School	19
Transportation Facility	N/A
Conover Road Elementary School	30



ALL OPPORTUNITIES

Savings Potential

Post-Implementation Fuel
Cost, \$143,533



Savings
Potential,
\$126,184

- Lighting Upgrades
- Lighting Control Measures
- 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

Post-Implementation Electric
Cost, \$195,491



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		514,407	153.1	-101.4	\$59,470	\$267,427	\$111,638	\$155,789	2.6	506,135
ECM 1	Install LED Fixtures	131,998	19.3	-23.9	\$15,258	\$89,603	\$26,800	\$62,803	4.1	130,124
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	8,920	3.0	-1.9	\$1,029	\$4,921	\$1,516	\$3,405	3.3	8,764
ECM 3	Retrofit Fixtures with LED Lamps	370,791	130.6	-75.0	\$42,871	\$170,369	\$83,322	\$87,047	2.0	364,597
ECM 4	Install LED Exit Signs	2,698	0.2	-0.6	\$312	\$2,535	\$0	\$2,535	8.1	2,651
Lighting Control Measures		97,897	22.8	-20.2	\$11,326	\$94,649	\$46,305	\$48,344	4.3	96,211
ECM 5	Install Occupancy Sensor Lighting Controls	61,450	17.2	-12.7	\$7,124	\$61,774	\$13,545	\$48,229	6.8	60,388
ECM 6	Install Daylight Dimming/Photocell Controls	576	0.3	0.0	\$68	\$250	\$250	\$0	0.0	580
ECM 7	Install High/Low Lighting Controls	35,871	5.4	-7.5	\$4,135	\$32,625	\$32,510	\$115	0.0	35,244
Variable Frequency Drive (VFD) Measures		287,813	73.4	141.4	\$35,180	\$319,917	\$66,500	\$253,417	7.2	306,384
ECM 8	Install VFDs on Constant Volume (CV) Fans	214,090	67.2	0.0	\$25,114	\$173,277	\$53,350	\$119,927	4.8	215,586
ECM 9	Install VFDs on Heating Water Pumps	65,527	6.1	0.0	\$7,684	\$136,557	\$12,400	\$124,157	16.2	65,985
ECM 10	Install VFDs on Kitchen Hood Fan Motors	8,196	0.1	141.4	\$2,383	\$10,084	\$750	\$9,334	3.9	24,812
Electric Unitary HVAC Measures		32,578	36.6	0.0	\$3,865	\$552,732	\$40,389	\$512,343	132.6	32,806
ECM 11	Install High Efficiency Air Conditioning Units	26,128	35.3	0.0	\$3,111	\$537,708	\$39,070	\$498,638	160.3	26,310
ECM 12	Install High Efficiency Heat Pumps	6,450	1.2	0.0	\$754	\$15,025	\$1,319	\$13,705	18.2	6,496
Gas Heating (HVAC/Process) Replacement		0	0.0	533.2	\$5,342	\$147,402	\$21,136	\$126,266	23.6	62,430
ECM 13	Install High Efficiency Hot Water Boilers	0	0.0	349.2	\$3,468	\$93,227	\$13,936	\$79,291	22.9	40,886
ECM 14	Install High Efficiency Furnaces	0	0.0	184.0	\$1,874	\$54,175	\$7,200	\$46,975	25.1	21,545

ALL OPPORTUNITIES

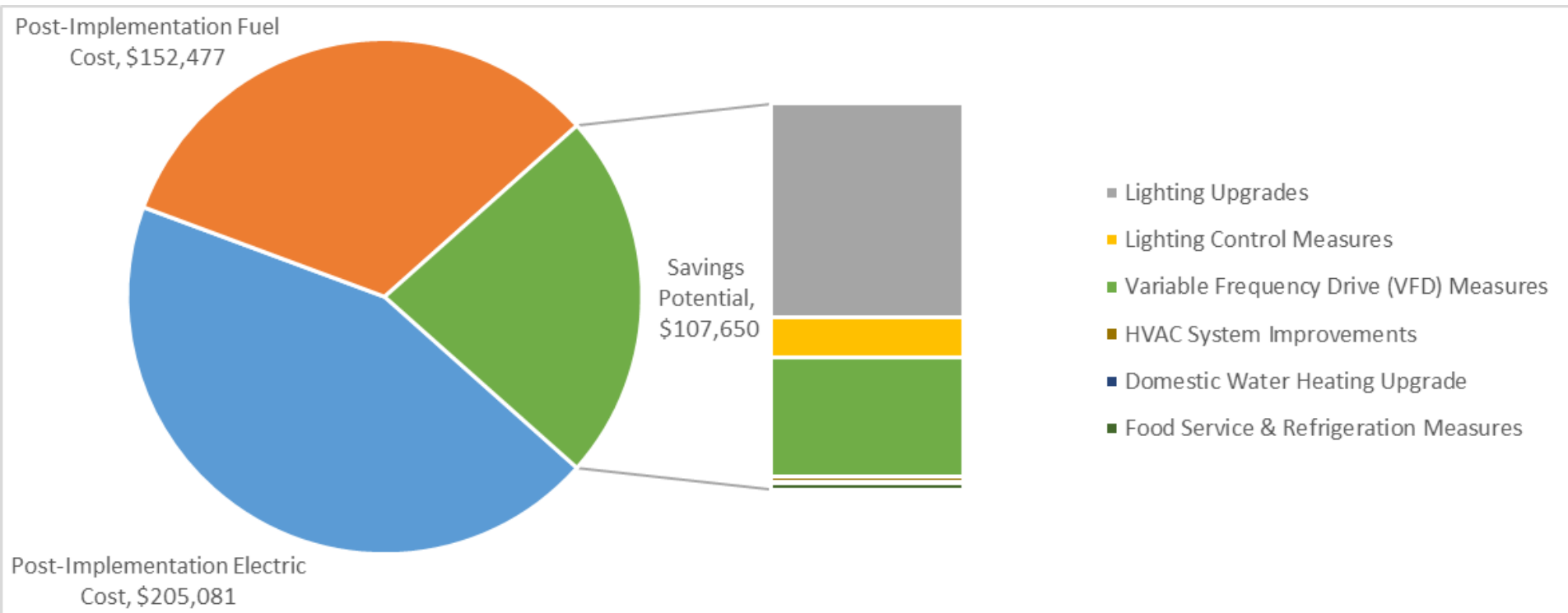
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
HVAC System Improvements		4,555	0.0	162.6	\$2,171	\$19,799	\$261	\$19,538	9.0	23,630
ECM 15	Install Occupancy-Controlled Thermostats	1,972	0.0	0.0	\$231	\$716	\$225	\$491	2.1	1,986
ECM 16	Implement Demand Control Ventilation (DCV)	2,478	0.0	162.6	\$1,925	\$19,032	\$0	\$19,032	9.9	21,539
ECM 17	Install Pipe Insulation	106	0.0	0.0	\$14	\$52	\$36	\$16	1.1	106
Domestic Water Heating Upgrade		711	0.0	48.6	\$574	\$1,262	\$837	\$425	0.7	6,403
ECM 18	Install Low-Flow DHW Devices	711	0.0	48.6	\$574	\$1,262	\$837	\$425	0.7	6,403
Food Service & Refrigeration Measures		21,095	2.3	0.0	\$2,472	\$15,132	\$1,640	\$13,492	5.5	21,242
ECM 19	Refrigerator/Freezer Case Electrically Commutated Motors	1,573	0.2	0.0	\$184	\$2,426	\$640	\$1,786	9.7	1,584
ECM 20	Refrigeration Display Case Doors or Covers	3,018	0.3	0.0	\$352	\$1,338	\$400	\$938	2.7	3,039
ECM 21	Refrigeration Controls	1,573	0.0	0.0	\$183	\$3,348	\$300	\$3,048	16.6	1,584
ECM 22	Replace Refrigeration Equipment	10,096	1.2	0.0	\$1,185	\$7,330	\$0	\$7,330	6.2	10,166
ECM 23	Vending Machine Control	4,836	0.6	0.0	\$568	\$690	\$300	\$390	0.7	4,869
Custom Measures		24,443	0.0	289.2	\$5,783	\$151,834	\$0	\$151,834	26.3	58,477
ECM 24	Installation of Energy Management System	24,443	0.0	289.2	\$5,783	\$151,834	\$0	\$151,834	26.3	58,477
TOTALS		983,499	288.2	1,053.4	\$126,184	\$1,570,155	\$288,706	\$1,281,449	10.2	1,113,718

* - 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		514,367	152.9	-101.4	\$59,465	\$267,191	\$111,558	\$155,633	2.6	506,096
ECM 1	Install LED Fixtures	131,998	19.3	-23.9	\$15,258	\$89,603	\$26,800	\$62,803	4.1	130,124
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	8,880	2.8	-1.9	\$1,024	\$4,684	\$1,436	\$3,248	3.2	8,724
ECM 3	Retrofit Fixtures with LED Lamps	370,791	130.6	-75.0	\$42,871	\$170,369	\$83,322	\$87,047	2.0	364,597
ECM 4	Install LED Exit Signs	2,698	0.2	-0.6	\$312	\$2,535	\$0	\$2,535	8.1	2,651
Lighting Control Measures		97,897	22.8	-20.2	\$11,326	\$94,649	\$46,305	\$48,344	4.3	96,211
ECM 5	Install Occupancy Sensor Lighting Controls	61,450	17.2	-12.7	\$7,124	\$61,774	\$13,545	\$48,229	6.8	60,388
ECM 6	Install Daylight Dimming/Photocell Controls	576	0.3	0.0	\$68	\$250	\$250	\$0	0.0	580
ECM 7	Install High/Low Lighting Controls	35,871	5.4	-7.5	\$4,135	\$32,625	\$32,510	\$115	0.0	35,244
Variable Frequency Drive (VFD) Measures		272,083	71.5	141.4	\$33,312	\$251,199	\$59,300	\$191,899	5.8	290,544
ECM 8	Install VFDs on Constant Volume (CV) Fans	214,090	67.2	0.0	\$25,114	\$173,277	\$53,350	\$119,927	4.8	215,586
ECM 9	Install VFDs on Heating Water Pumps	49,797	4.2	0.0	\$5,815	\$67,838	\$5,200	\$62,638	10.8	50,145
ECM 10	Install VFDs on Kitchen Hood Fan Motors	8,196	0.1	141.4	\$2,383	\$10,084	\$750	\$9,334	3.9	24,812
HVAC System Improvements		2,681	0.0	93.1	\$1,258	\$6,205	\$261	\$5,944	4.7	13,598
ECM 15	Install Occupancy-Controlled Thermostats	1,972	0.0	0.0	\$231	\$716	\$225	\$491	2.1	1,986
ECM 16	Implement Demand Control Ventilation (DCV)	603	0.0	93.1	\$1,013	\$5,438	\$0	\$5,438	5.4	11,507
ECM 17	Install Pipe Insulation	106	0.0	0.0	\$14	\$52	\$36	\$16	1.1	106
Domestic Water Heating Upgrade		711	0.0	48.6	\$574	\$1,262	\$837	\$425	0.7	6,403
ECM 18	Install Low-Flow DHW Devices	711	0.0	48.6	\$574	\$1,262	\$837	\$425	0.7	6,403
Food Service & Refrigeration Measures		14,606	1.7	0.0	\$1,715	\$6,028	\$700	\$5,328	3.1	14,708
ECM 20	Refrigeration Display Case Doors or Covers	3,018	0.3	0.0	\$352	\$1,338	\$400	\$938	2.7	3,039
ECM 22	Replace Refrigeration Equipment	6,753	0.8	0.0	\$795	\$4,000	\$0	\$4,000	5.0	6,800
ECM 23	Vending Machine Control	4,836	0.6	0.0	\$568	\$690	\$300	\$390	0.7	4,869
TOTALS		902,345	248.9	161.5	\$107,650	\$626,533	\$218,961	\$407,572	3.8	927,560

CONOVER RD. ELEMENTARY 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			127,443	47.1	-26	\$14,873	\$77,646	\$28,510	\$49,136	3.3	125,254
ECM 1	Install LED Fixtures	Yes	40,122	8.0	-8	\$4,684	\$25,355	\$3,300	\$22,055	4.7	39,447
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,577	0.9	-1	\$301	\$1,831	\$524	\$1,307	4.3	2,532
ECM 3	Retrofit Fixtures with LED Lamps	Yes	83,279	38.1	-17	\$9,718	\$49,084	\$24,686	\$24,398	2.5	81,836
ECM 4	Install LED Exit Signs	Yes	1,465	0.1	0	\$171	\$1,376	\$0	\$1,376	8.1	1,439
Lighting Control Measures			24,031	5.7	-5	\$2,804	\$25,138	\$11,500	\$13,638	4.9	23,611
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	18,701	4.8	-4	\$2,182	\$17,938	\$4,400	\$13,538	6.2	18,374
ECM 6	Install High/Low Lighting Controls	Yes	5,330	1.0	-1	\$622	\$7,200	\$7,100	\$100	0.2	5,237
Variable Frequency Drive (VFD) Measures			76,594	17.9	78	\$9,890	\$117,142	\$17,700	\$99,442	10.1	86,286
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	58,176	15.9	0	\$6,911	\$45,413	\$10,350	\$35,063	5.1	58,583
ECM 8	Install VFDs on Heating Water Pumps	No	15,730	1.9	0	\$1,869	\$68,718	\$7,200	\$61,518	32.9	15,840
ECM 9	Install VFDs on Kitchen Hood Fan Motors	Yes	2,688	0.0	78	\$1,110	\$3,010	\$150	\$2,860	2.6	11,863
Electric Unitary HVAC Measures			4,644	5.7	0	\$552	\$47,812	\$4,860	\$42,952	77.9	4,676
ECM 10	Install High Efficiency Air Conditioning Units	No	4,644	5.7	0	\$552	\$47,812	\$4,860	\$42,952	77.9	4,676
Gas Heating (HVAC/Process) Replacement			0	0.0	115	\$1,167	\$33,986	\$800	\$33,186	28.4	13,519
ECM 11	Install High Efficiency Furnaces	No	0	0.0	115	\$1,167	\$33,986	\$800	\$33,186	28.4	13,519
HVAC System Improvements			603	0.0	93	\$1,013	\$5,438	\$0	\$5,438	5.4	11,507
ECM 12	Implement Demand Control Ventilation (DCV)	Yes	603	0.0	93	\$1,013	\$5,438	\$0	\$5,438	5.4	11,507
Domestic Water Heating Upgrade			0	0.0	17	\$169	\$344	\$230	\$114	0.7	1,961
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	17	\$169	\$344	\$230	\$114	0.7	1,961
Food Service & Refrigeration Measures			4,813	0.5	0	\$572	\$2,180	\$100	\$2,080	3.6	4,847
ECM 14	Replace Refrigeration Equipment	Yes	3,201	0.4	0	\$380	\$1,950	\$0	\$1,950	5.1	3,223
ECM 15	Vending Machine Control	Yes	1,612	0.2	0	\$191	\$230	\$100	\$130	0.7	1,623
Custom Measures			6,772	0.0	206	\$2,885	\$89,985	\$0	\$89,985	31.2	30,909
ECM 16	Installation of an Energy Management System	No	6,772	0.0	206	\$2,885	\$89,985	\$0	\$89,985	31.2	30,909
TOTALS (COST EFFECTIVE MEASURES)			217,754	69.4	157	\$27,452	\$159,169	\$50,840	\$108,329	3.9	237,624
TOTALS (ALL MEASURES)			244,899	77.0	478	\$33,925	\$399,670	\$63,700	\$335,971	9.9	302,569

CONOVER RD. PRIMARY 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			233,689	42.4	-46	\$26,835	\$113,232	\$46,970	\$66,262	2.5	229,963
ECM 1	Install LED Fixtures	Yes	85,626	10.9	-15	\$9,847	\$63,009	\$22,800	\$40,209	4.1	84,437
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	5,732	1.4	-1	\$657	\$1,894	\$640	\$1,254	1.9	5,632
ECM 3	Retrofit Fixtures with LED Lamps	Yes	142,331	30.2	-29	\$16,330	\$48,330	\$23,530	\$24,800	1.5	139,895
Lighting Control Measures			44,148	7.3	-9	\$5,064	\$36,678	\$20,970	\$15,708	3.1	43,376
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	21,294	4.4	-4	\$2,442	\$20,028	\$4,320	\$15,708	6.4	20,921
ECM 5	Install High/Low Lighting Controls	Yes	22,855	2.9	-5	\$2,621	\$16,650	\$16,650	\$0	0.0	22,455
Variable Frequency Drive (VFD) Measures			162,296	36.1	42	\$19,367	\$148,086	\$32,800	\$115,286	6.0	168,315
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	109,026	31.9	0	\$12,732	\$76,435	\$27,200	\$49,235	3.9	109,788
ECM 7	Install VFDs on Heating Water Pumps	Yes	49,797	4.2	0	\$5,815	\$67,838	\$5,200	\$62,638	10.8	50,145
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	3,473	0.1	42	\$820	\$3,812	\$400	\$3,412	4.2	8,381
Electric Unitary HVAC Measures			16,385	23.7	0	\$1,913	\$434,992	\$28,598	\$406,394	212.4	16,499
ECM 9	Install High Efficiency Air Conditioning Units	No	16,385	23.7	0	\$1,913	\$434,992	\$28,598	\$406,394	212.4	16,499
Gas Heating (HVAC/Process) Replacement			0	0.0	349	\$3,468	\$93,227	\$13,936	\$79,291	22.9	40,886
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	349	\$3,468	\$93,227	\$13,936	\$79,291	22.9	40,886
ECM 11	Implement Demand Control Ventilation (DCV)	No	1,875	0.0	37	\$587	\$8,157	\$0	\$8,157	13.9	6,232
Domestic Water Heating Upgrade			0	0.0	18	\$175	\$531	\$359	\$171	1.0	2,059
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	18	\$175	\$531	\$359	\$171	1.0	2,059
Food Service & Refrigeration Measures			5,938	0.7	0	\$693	\$5,077	\$500	\$4,577	6.6	5,980
ECM 13	Refrigerator/Freezer Case Electrically Commutated Motors	No	983	0.1	0	\$115	\$1,517	\$400	\$1,117	9.7	990
ECM 14	Replace Refrigeration Equipment	No	3,343	0.4	0	\$390	\$3,330	\$0	\$3,330	8.5	3,367
ECM 15	Vending Machine Control	Yes	1,612	0.2	0	\$188	\$230	\$100	\$130	0.7	1,623
TOTALS (COST EFFECTIVE MEASURES)			441,746	86.0	4	\$51,628	\$298,757	\$101,199	\$197,558	3.8	445,336
TOTALS (ALL MEASURES)			464,332	110.3	391	\$58,102	\$839,980	\$144,133	\$695,846	12.0	513,310

CEDAR DRIVE 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			134,587	55.3	-27	\$15,431	\$65,122	\$31,350	\$33,772	2.2	132,334
ECM 1	Install LED Fixtures	Yes	3,245	0.4	0	\$374	\$540	\$0	\$540	1.4	3,214
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	571	0.5	0	\$65	\$959	\$272	\$687	10.5	561
ECM 3	Retrofit Fixtures with LED Lamps	Yes	129,538	54.2	-26	\$14,850	\$62,464	\$31,078	\$31,386	2.1	127,347
ECM 4	Install LED Exit Signs	Yes	1,233	0.1	0	\$141	\$1,159	\$0	\$1,159	8.2	1,212
Lighting Control Measures			25,683	7.7	-5	\$2,943	\$26,244	\$11,160	\$15,084	5.1	25,233
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	18,615	6.3	-4	\$2,133	\$18,594	\$3,510	\$15,084	7.1	18,290
ECM 6	Install High/Low Lighting Controls	Yes	7,067	1.4	-1	\$810	\$7,650	\$7,650	\$0	0.0	6,944
Variable Frequency Drive (VFD) Measures			48,923	19.4	22	\$5,924	\$54,689	\$16,000	\$38,689	6.5	51,783
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	46,888	19.4	0	\$5,471	\$51,428	\$15,800	\$35,628	6.5	47,216
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	2,035	0.0	22	\$453	\$3,261	\$200	\$3,061	6.8	4,567
Electric Unitary HVAC Measures			6,719	2.5	0	\$784	\$29,893	\$2,291	\$27,602	35.2	6,766
ECM 9	Install High Efficiency Air Conditioning Units	No	2,121	1.5	0	\$248	\$18,994	\$1,196	\$17,798	71.9	2,136
ECM 10	Install High Efficiency Heat Pumps	No	4,598	1.0	0	\$537	\$10,899	\$1,095	\$9,804	18.3	4,630
Gas Heating (HVAC/Process) Replacement			0	0.0	41	\$411	\$8,293	\$1,600	\$6,693	16.3	4,808
ECM 11	Install High Efficiency Furnaces	No	0	0.0	41	\$411	\$8,293	\$1,600	\$6,693	16.3	4,808
HVAC System Improvements			0	0.0	32	\$325	\$5,438	\$0	\$5,438	16.7	3,800
ECM 12	Implement Demand Control Ventilation (DCV)	No	0	0.0	32	\$325	\$5,438	\$0	\$5,438	16.7	3,800
Domestic Water Heating Upgrade			0	0.0	14	\$143	\$330	\$213	\$117	0.8	1,667
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	14	\$143	\$330	\$213	\$117	0.8	1,667
Food Service & Refrigeration Measures			10,344	1.0	0	\$1,207	\$7,876	\$1,040	\$6,836	5.7	10,416
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	No	590	0.1	0	\$69	\$910	\$240	\$670	9.7	594
ECM 15	Refrigeration Display Case Doors or Covers	Yes	3,018	0.3	0	\$352	\$1,338	\$400	\$938	2.7	3,039
ECM 16	Refrigeration Controls	No	1,573	0.0	0	\$183	\$3,348	\$300	\$3,048	16.6	1,584
ECM 17	Replace Refrigeration Equipment	Yes	3,551	0.4	0	\$414	\$2,050	\$0	\$2,050	4.9	3,576
ECM 18	Vending Machine Control	Yes	1,612	0.2	0	\$188	\$230	\$100	\$130	0.7	1,623
Custom Measures			17,671	0.0	83	\$2,898	\$61,849	\$0	\$61,849	21.3	27,567
ECM 19	Installation of an Energy Management System	No	17,671	0.0	83	\$2,898	\$61,849	\$0	\$61,849	21.3	27,567
TOTALS (COST EFFECTIVE MEASURES)			217,374	83.3	3	\$25,396	\$150,002	\$59,223	\$90,780	3.6	219,256
TOTALS (ALL MEASURES)			243,927	85.9	160	\$30,067	\$259,733	\$63,654	\$196,079	6.5	264,375

ADMINISTRATION BUILDING

#	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			9,661	5.5	-2	\$1,271	\$7,995	\$3,708	\$4,287	3.4	9,495
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	No	40	0.2	0	\$5	\$237	\$80	\$157	29.8	39
ECM 2	Retrofit Fixtures with LED Lamps	Yes	9,621	5.3	-2	\$1,266	\$7,758	\$3,628	\$4,130	3.3	9,455
Lighting Control Measures			2,968	1.6	-1	\$390	\$5,721	\$2,350	\$3,371	8.6	2,916
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,349	1.4	0	\$309	\$4,596	\$1,240	\$3,356	10.9	2,308
ECM 4	Install High/Low Lighting Controls	Yes	619	0.2	0	\$81	\$1,125	\$1,110	\$15	0.2	608
Electric Unitary HVAC Measures			2,978	4.3	0	\$399	\$35,909	\$4,416	\$31,493	79.0	2,999
ECM 5	Install High Efficiency Air Conditioning Units	No	2,978	4.3	0	\$399	\$35,909	\$4,416	\$31,493	79.0	2,999
Gas Heating (HVAC/Process) Replacement			0	0.0	27	\$295	\$11,896	\$4,800	\$7,096	24.0	3,218
ECM 6	Install High Efficiency Furnaces	No	0	0.0	27	\$295	\$11,896	\$4,800	\$7,096	24.0	3,218
HVAC System Improvements			106	0.0	0	\$14	\$52	\$36	\$16	1.1	106
ECM 7	Install Pipe Insulation	Yes	106	0.0	0	\$14	\$52	\$36	\$16	1.1	106
Domestic Water Heating Upgrade			245	0.0	0	\$33	\$14	\$11	\$3	0.1	247
ECM 8	Install Low-Flow DHW Devices	Yes	245	0.0	0	\$33	\$14	\$11	\$3	0.1	247
TOTALS (COST EFFECTIVE MEASURES)			12,940	6.9	-3	\$1,703	\$13,545	\$6,025	\$7,520	4.4	12,724
TOTALS (ALL MEASURES)			15,958	11.4	25	\$2,403	\$61,588	\$15,321	\$46,266	19.3	18,981

* - 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).

TRANSPORTATION FACILITY

#	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			9,026	2.9	0	\$1,059	\$3,432	\$1,100	\$2,332	2.2	9,089
ECM 1	Install LED Fixtures	Yes	3,005	0.0	0	\$353	\$700	\$700	\$0	0.0	3,026
ECM 2	Retrofit Fixtures with LED Lamps	Yes	6,021	2.9	0	\$707	\$2,732	\$400	\$2,332	3.3	6,063
Lighting Control Measures			1,068	0.5	0	\$125	\$868	\$325	\$543	4.3	1,075
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	492	0.2	0	\$58	\$618	\$75	\$543	9.4	495
ECM 4	Install Daylight Dimming Controls	Yes	576	0.3	0	\$68	\$250	\$250	\$0	0.0	580
Electric Unitary HVAC Measures			1,852	0.3	0	\$217	\$4,126	\$224	\$3,901	17.9	1,865
ECM 5	Install High Efficiency Heat Pumps	No	1,852	0.3	0	\$217	\$4,126	\$224	\$3,901	17.9	1,865
HVAC System Improvements			1,972	0.0	0	\$231	\$716	\$225	\$491	2.1	1,986
ECM 6	Install Occupancy-Controlled Thermostats	Yes	1,972	0.0	0	\$231	\$716	\$225	\$491	2.1	1,986
Domestic Water Heating Upgrade			466	0.0	0	\$55	\$43	\$24	\$19	0.3	469
ECM 7	Install Low-Flow DHW Devices	Yes	466	0.0	0	\$55	\$43	\$24	\$19	0.3	469
TOTALS (COST EFFECTIVE MEASURES)			12,531	3.4	0	\$1,471	\$5,059	\$1,674	\$3,385	2.3	12,619
TOTALS (ALL MEASURES)			14,383	3.6	0	\$1,688	\$9,185	\$1,898	\$7,287	4.3	14,484

* - 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**
- **Installation of an Energy Management System**
- **Electric Submeter**
- **Upgrade to a Heat Pump System**
- **VFD to Control Fixed Head Pump Motors**

SOLAR ENERGY GENERATION POTENTIAL

	Conover Rd. ES	Conover Rd. PS	Cedar Dr. MS
<i>Potential:</i>	HIGH	HIGH	HIGH
<i>System Potential: (kW)</i>	110	278	95
<i>Electric Generation: (kWh per year)</i>	131,051	331,201	113,180
<i>Displaced Cost: (per year)</i>	\$15,570	\$38,680	\$13,210

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

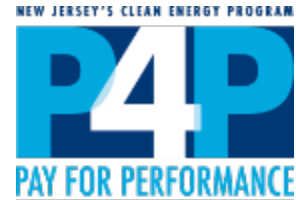
Colts Neck School District	Pay For Performance	Direct Install	SmartStart	CTEEP
Conover Rd Elementary School	X		X	X
Conover Rd Primary School	X		X	X
Cedar Dr Middle School	X	X	X	X
Administration Building		X	X	X
Transportation Facility		X	X	X

**Light X indicates that the building isn't currently qualified for the program but has the potential to meet the requirements.*



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

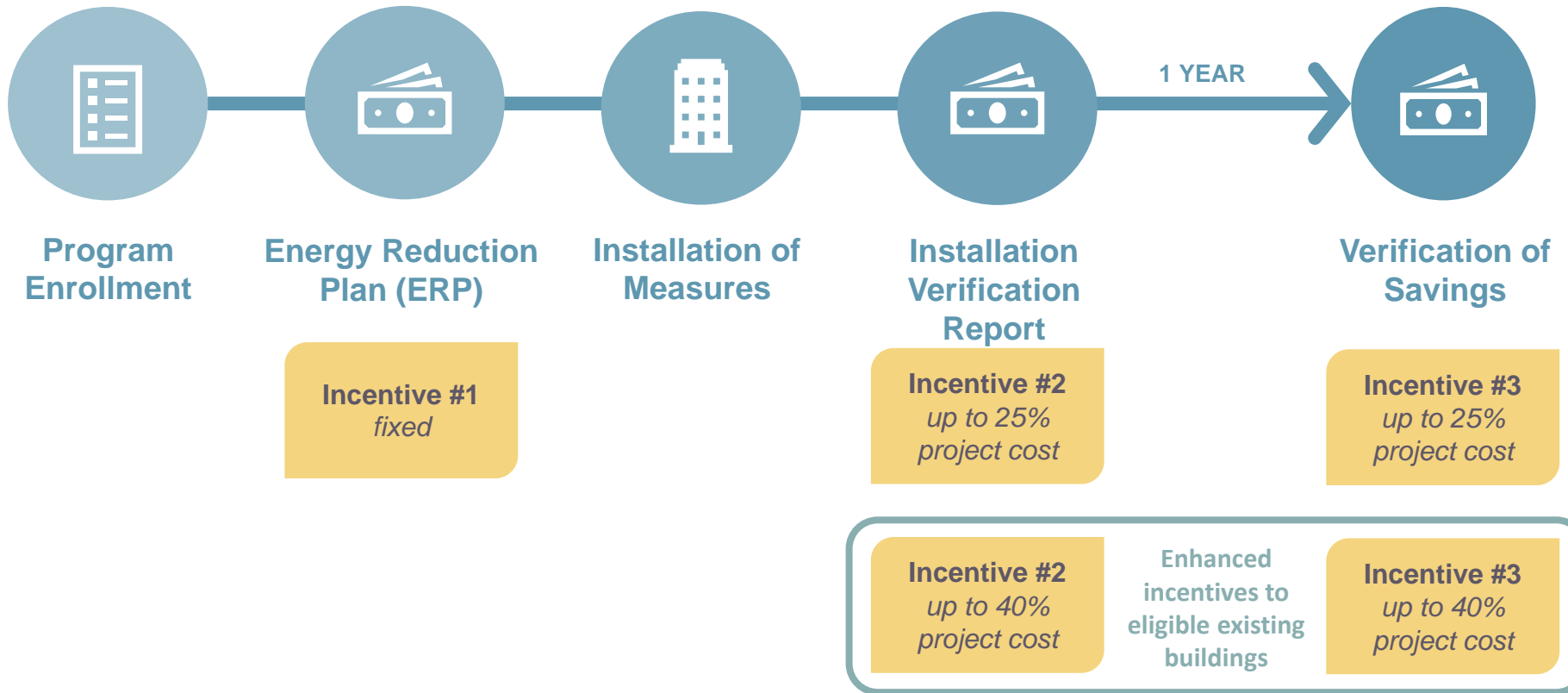
About: Customer choose from a network of pre-approved *Participating Partners*

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



DIRECT INSTALL: FINANCING OPTION

- 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.
- For measures that may not qualify for Direct Install, NJNG also offers financing options for SmartStart that will cover up to \$130,000 per year.



- Questions? Contact:

Jerry Ryan

Energy Efficiency Ops. Manager
New Jersey Natural Gas
732-433-4362 (cell)
732 378 4920 (office)
jryan@njng.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:

- \$250,000 fiscal year entity cap
- 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



SMARTSTART & CTEEP: FINANCING OPTION

- 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
732-433-4362 (cell)
732 378 4920 (office)
jryan@njng.com

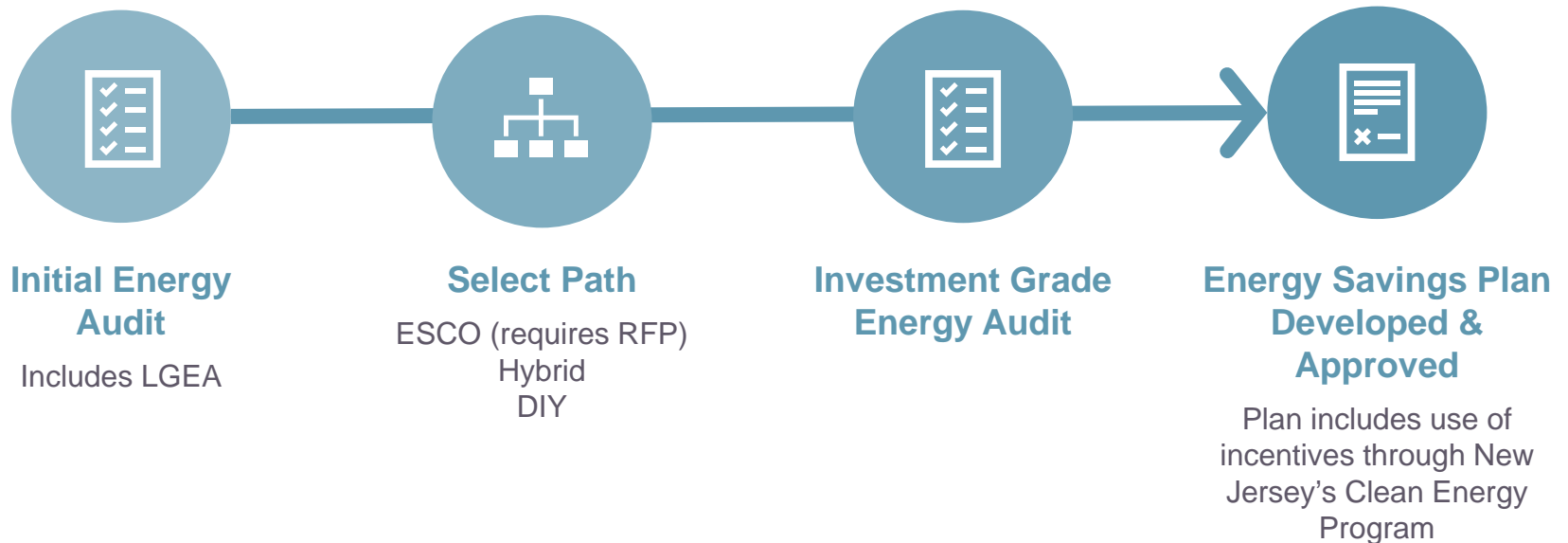
FINANCING MECHANISM: ESIP

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

Michelle Rossi

ESIP Coordinator

ESIP@bpu.nj.gov

o: 609.633.9641

c: 609.915.0903

FOR MORE INFORMATION

NJ Clean Energy Program

Aimee Lalonde – LGEA Program Manager

ALalonde@trccompanies.com

(347) 913-2422

Aditya Saxena – LGEA Auditor

ASaxena@trccompanies.com

(732) 425-4147

Sarah Walters – LGEA Account Manager

SWalters@trccompanies.com

(732) 589-7372

Tony O'Donnell – Outreach Account Manager

AODonnell@trccompanies.com

(732) 259-4938



QUESTIONS

