

New Jersey's Clean Energy Program

LGEA Presentation

Edison Township Board of Education

June 3, 2020



INTRODUCTIONS

- *Edison Township BOE*
 - Daniel Michaud – Business Administrator
 - Kenneth Taylor – Buildings & Grounds Director
 - Diane Polizzano – Administrative Asst. to B&G
- *NJ Clean Energy Program*
 - Aimee Lalonde – TRC Program Manager
 - Kush Patel – TRC Auditor
 - Yagna Otia – TRC Auditor
 - Amanda Muench – TRC Account Manager
 - Tony O'Donnell – TRC Outreach Manager

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 okay cool

LGEA PROCESS

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



SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Food Service and Refrigeration Equipment

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

- Edison Education Center
- Buildings & Grounds Sheds
- Edison Early Learning Center
- Franklin D. Roosevelt School
- Benjamin Franklin School
- Lincoln School
- Lindeneau School
- James Madison Intermediate School
- James Madison Primary School
- Menlo Park School

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Food Service and Refrigeration Equipment

Utility Consumption:

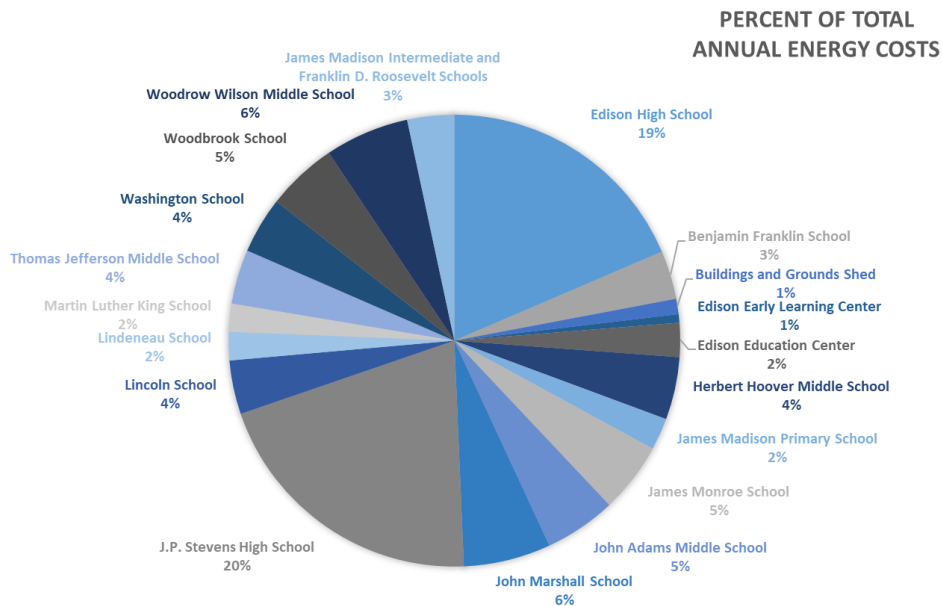
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

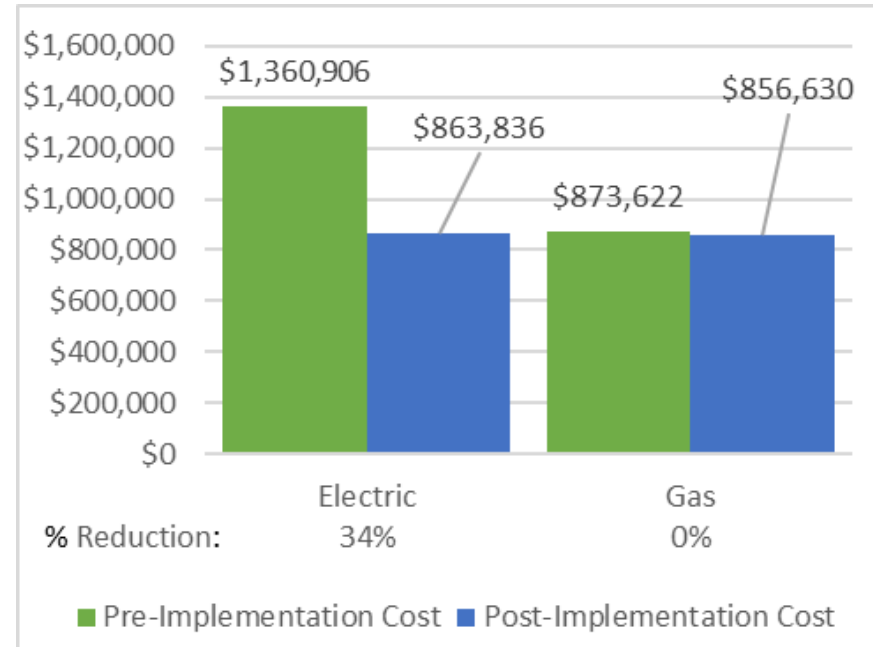
- Menlo Park School
- John Marshall School
- Martin Luther King School
- James Monroe School
- Washington School
- Woodbrook School
- John Adams Middle School
- Herbert Hoover Middle School
- Thomas Jefferson Middle School
- Woodrow Wilson Middle School
- Edison High School
- J.P. Stevens High School

UTILITY BREAKOUT


Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING



ENERGY STAR® Statement of Energy Performance

33
ENERGY STAR® Score¹

J.P. Stevens High School
Primary Property Type: K-12 School
Gross Floor Area (ft²): 220,500
Built: 1962

For Year Ending: April 30, 2019
Date Generated: February 20, 2020

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
J.P. Stevens High School 855 Grove Avenue Edison, New Jersey 08820	Edison Board of Education 312 Pierson Avenue Edison, NJ 08837	Daniel Michaud 312 Pierson Avenue Edison, NJ 08837 732-452-4905 daniel.michaud@edison.k12.nj.us

Property ID: 8744280

Energy Consumption and Energy Use Intensity (EUI)

Site EUI	Annual Energy by Fuel	National Median Comparison
93.5 kBtu/ft ²	Natural Gas (kBtu) 12,827,279 (83%) Electric - Grid (kBtu) 7,682,127 (37%)	National Median Site EUI (kBtu/ft ²) 80 National Median Source EUI (kBtu/ft ²) 136.2 % Diff from National Median Source EUI 17% Annual Emissions Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 1,465
Source EUI		
159.1 kBtu/ft ²		

Site EUI
93.5 kBtu/ft²

Source EUI
159.1 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft ²)	80
National Median Source EUI (kBtu/ft ²)	136.2
% Diff from National Median Source EUI	17%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO ₂ e/year)	1,465

Site Name	Energy Star Score
Edison High School	40
Benjamin Franklin School	24
Buildings and Grounds Shed	N/A
Edison Early Learning Center	59
Edison Education Center	80
Herbert Hoover Middle School	69
James Madison Primary School	47
James Monroe School	51
John Adams Middle School	62
John Marshall School	32
J.P. Stevens High School	33
Lincoln School	31
Lindeneau School	36
Martin Luther King School	52
Thomas Jefferson Middle School	38
Washington School	41
Woodbrook School	33
Woodrow Wilson Middle School	45
James Madison Intermediate and Franklin D. Roosevelt Schools	53

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

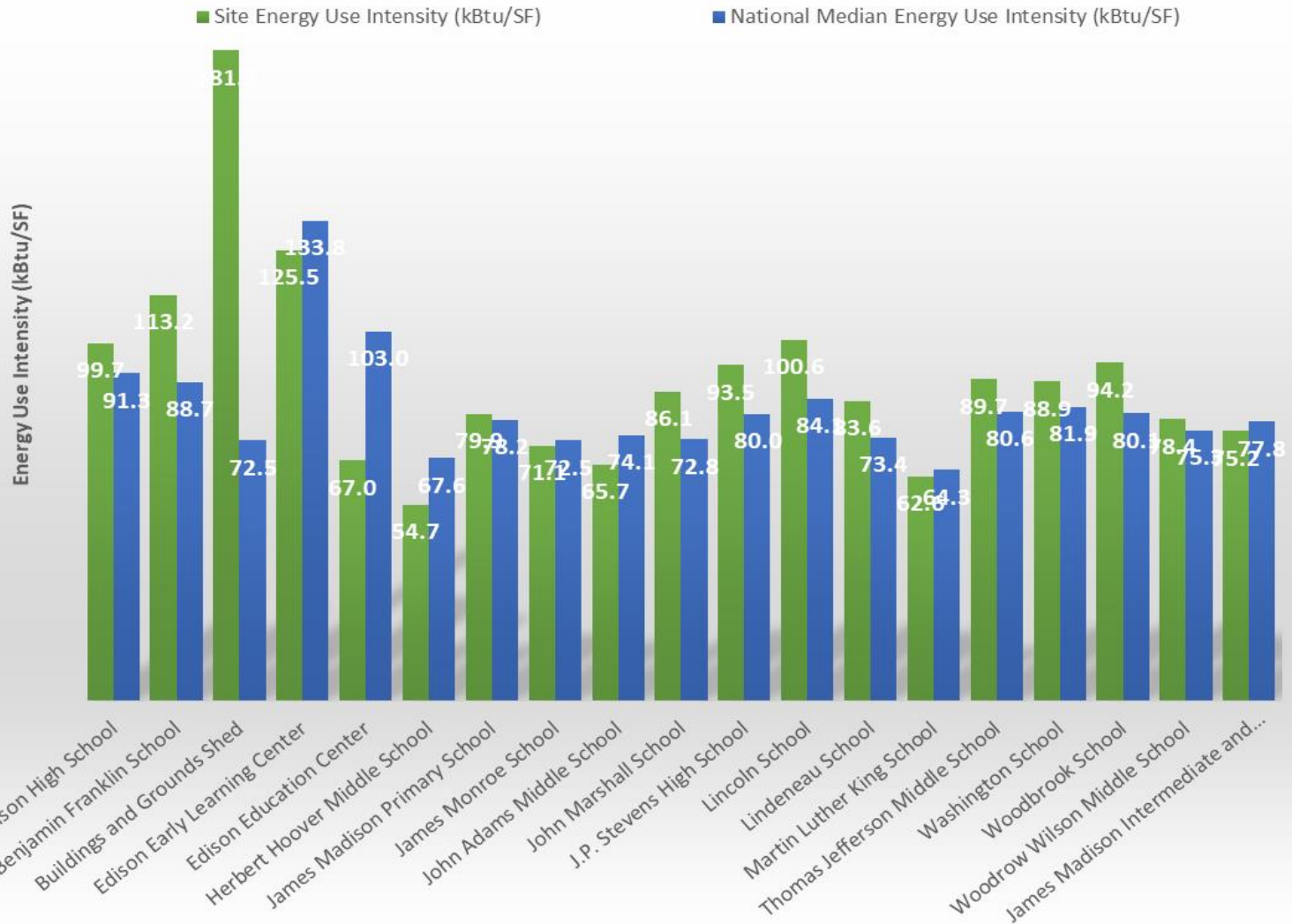
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Professional Engineer or Registered Architect Stamp (if applicable)



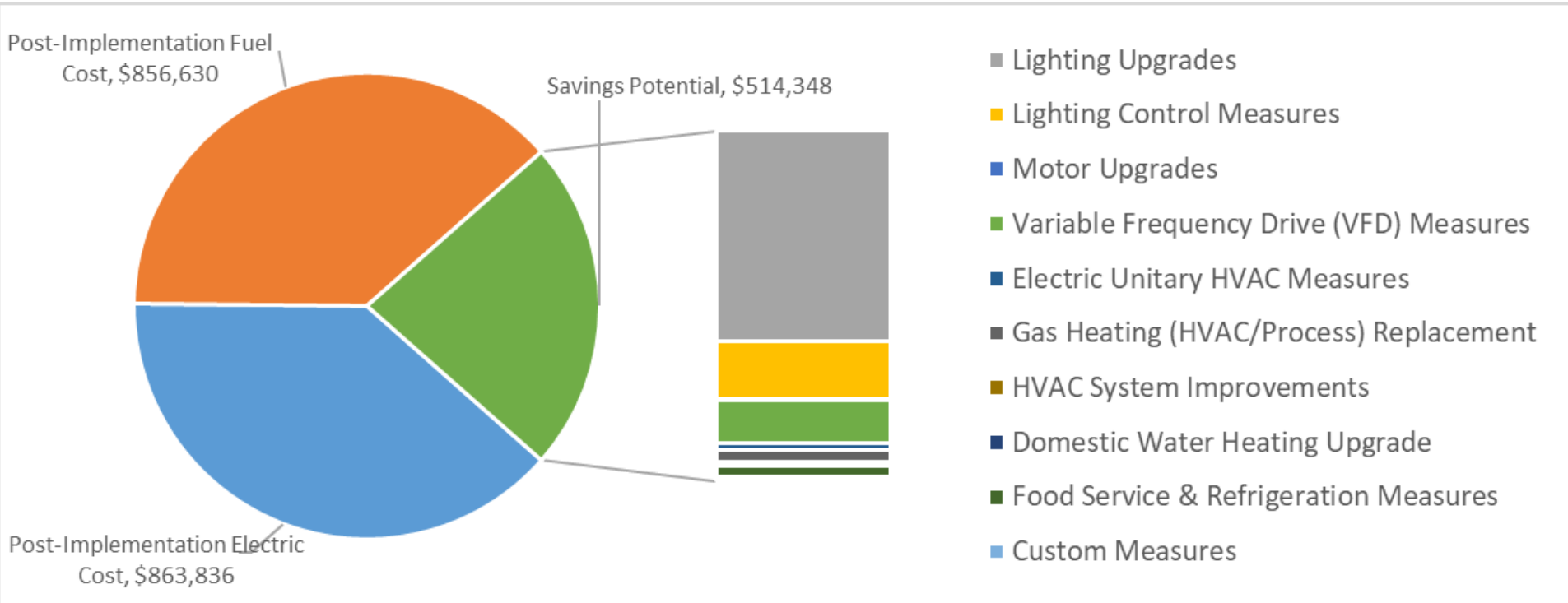
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

BENCHMARKING



ALL OPPORTUNITIES

Savings Potential



ALL OPPORTUNITIES

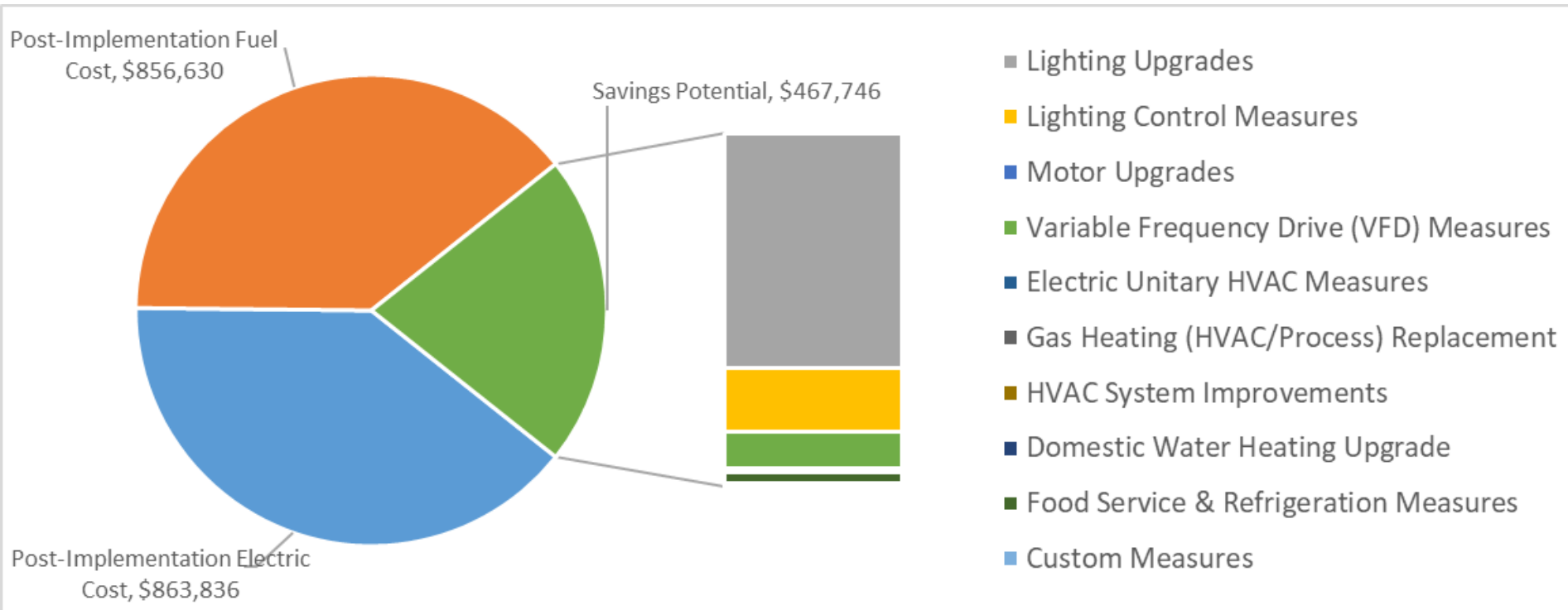
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		2,473,255	450.4	-480.8	\$309,820	\$1,026,292	\$434,973	\$591,319	1.9	2,434,249
ECM 1	Install LED Fixtures	240,453	14.7	-16.7	\$31,364	\$325,981	\$69,517	\$256,464	8.2	240,174
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	17,314	4.2	-2.4	\$2,313	\$8,356	\$2,302	\$6,054	2.6	17,150
ECM 3	Retrofit Fixtures with LED Lamps	2,215,488	431.5	-461.7	\$276,143	\$691,955	\$363,154	\$328,801	1.2	2,176,925
Lighting Control Measures		674,800	128.2	-141.5	\$84,793	\$608,920	\$210,360	\$398,560	4.7	662,956
ECM 4	Install Occupancy Sensor Lighting Controls	587,191	114.3	-123.5	\$73,870	\$501,425	\$118,675	\$382,750	5.2	576,840
ECM 5	Install Daylight Dimming/Photocell Controls	2,279	0.0	0.0	\$329	\$3,600	\$0	\$3,600	10.9	2,295
ECM 6	Install High/Low Lighting Controls	85,330	13.9	-18.0	\$10,594	\$103,895	\$91,685	\$12,210	1.2	83,821
Motor Upgrades		13,404	3.8	0.0	\$1,095	\$70,001	\$0	\$70,001	64.0	13,498
ECM 7	Premium Efficiency Motors	13,404	3.8	0.0	\$1,095	\$70,001	\$0	\$70,001	64.0	13,498
Variable Frequency Drive (VFD) Measures		456,391	110.4	112.1	\$63,324	\$720,275	\$108,250	\$612,025	9.7	472,707
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	45,083	12.9	0.0	\$6,917	\$37,689	\$9,300	\$28,389	4.1	45,398
ECM 9	Install VFDs on Constant Volume (CV) Fans	191,965	49.5	0.0	\$27,821	\$267,424	\$28,600	\$238,824	8.6	193,307
ECM 10	Install VFDs on Heating Water Pumps	148,035	20.0	0.0	\$18,017	\$323,920	\$43,500	\$280,420	15.6	149,070
ECM 11	Install Boiler Draft Fan VFDs	59,115	25.0	0.0	\$7,833	\$65,222	\$22,200	\$43,022	5.5	59,528
ECM 12	Install VFDs on Boiler Feedwater Pumps	855	0.4	0.0	\$133	\$6,361	\$200	\$6,161	46.2	861
ECM 13	Install Air Compressors with VFDs	4,369	2.6	0.0	\$676	\$12,889	\$4,150	\$8,739	12.9	4,399
ECM 14	Install VFDs on Kitchen Hood Fan Motors	6,970	0.0	112.1	\$1,927	\$6,771	\$300	\$6,471	3.4	20,143
Electric Unitary HVAC Measures		76,293	46.4	0.0	\$9,240	\$391,629	\$38,001	\$353,628	38.3	76,827
ECM 15	Install High Efficiency Air Conditioning Units	66,199	42.1	0.0	\$7,905	\$365,838	\$36,023	\$329,815	41.7	66,661
ECM 16	Install High Efficiency Heat Pumps	10,094	4.3	0.0	\$1,335	\$25,791	\$1,978	\$23,813	17.8	10,165

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)
Gas Heating (HVAC/Process) Replacement		0	0.0	2,000.8	\$17,943	\$848,198	\$42,572	\$805,625	44.9	234,266
ECM 17	Install High Efficiency Hot Water Boilers	0	0.0	1,547.1	\$13,787	\$650,353	\$11,554	\$638,799	46.3	181,151
ECM 18	Install High Efficiency Steam Boilers	0	0.0	158.1	\$1,511	\$147,864	\$17,566	\$130,298	86.2	18,515
ECM 19	Install High Efficiency Furnaces	0	0.0	295.5	\$2,645	\$49,981	\$13,453	\$36,528	13.8	34,601
HVAC System Improvements		3,971	0.0	52.4	\$962	\$16,545	\$140	\$16,405	17.0	10,132
ECM 20	Implement Demand Control Ventilation (DCV)	3,547	0.0	33.8	\$760	\$16,313	\$0	\$16,313	21.5	7,523
ECM 21	Install Pipe Insulation	424	0.0	18.6	\$202	\$232	\$140	\$92	0.5	2,608
Domestic Water Heating Upgrade		12,585	0.0	353.2	\$4,910	\$74,807	\$10,148	\$64,659	13.2	54,031
ECM 22	Install High Efficiency Gas-Fired Water Heater	0	0.0	100.7	\$925	\$70,749	\$6,090	\$64,659	69.9	11,794
ECM 23	Install Low-Flow DHW Devices	12,585	0.0	252.5	\$3,985	\$4,058	\$4,058	\$0	0.0	42,238
Food Service & Refrigeration Measures		129,647	12.7	0.0	\$16,541	\$86,448	\$11,570	\$74,878	4.5	130,553
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	11,286	1.1	0.0	\$1,509	\$8,796	\$2,320	\$6,476	4.3	11,365
ECM 25	Refrigeration Controls	19,455	0.4	0.0	\$2,664	\$23,185	\$2,600	\$20,585	7.7	19,591
ECM 26	Replace Refrigeration Equipment	45,070	5.1	0.0	\$5,756	\$43,657	\$3,550	\$40,107	7.0	45,385
ECM 27	Vending Machine Control	53,835	6.1	0.0	\$6,612	\$10,810	\$3,100	\$7,710	1.2	54,212
Custom Measures		63,102	0.0	0.0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
ECM 28	Upgrading to Heat Pump System	63,102	0.0	0.0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
TOTALS		3,903,448	751.9	1,896.2	\$514,348	\$3,903,114	\$856,015	\$3,047,100	5.9	4,152,762

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		2,472,673	450.4	-480.8	\$309,773	\$1,025,326	\$434,573	\$590,753	1.9	2,433,663
ECM 1	Install LED Fixtures	239,871	14.7	-16.7	\$31,317	\$325,015	\$69,117	\$255,898	8.2	239,587
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	17,314	4.2	-2.4	\$2,313	\$8,356	\$2,302	\$6,054	2.6	17,150
ECM 3	Retrofit Fixtures with LED Lamps	2,215,488	431.5	-461.7	\$276,143	\$691,955	\$363,154	\$328,801	1.2	2,176,925
Lighting Control Measures		674,800	128.2	-141.5	\$84,793	\$608,920	\$210,360	\$398,560	4.7	662,956
ECM 4	Install Occupancy Sensor Lighting Controls	587,191	114.3	-123.5	\$73,870	\$501,425	\$118,675	\$382,750	5.2	576,840
ECM 5	Install Daylight Dimming/Photocell Controls	2,279	0.0	0.0	\$329	\$3,600	\$0	\$3,600	10.9	2,295
ECM 6	Install High/Low Lighting Controls	85,330	13.9	-18.0	\$10,594	\$103,895	\$91,685	\$12,210	1.2	83,821
Motor Upgrades		1,062	0.3	0.0	\$87	\$948	\$0	\$948	11.0	1,070
ECM 7	Premium Efficiency Motors	1,062	0.3	0.0	\$87	\$948	\$0	\$948	11.0	1,070
Variable Frequency Drive (VFD) Measures		320,485	82.8	112.1	\$47,808	\$356,024	\$75,100	\$280,924	5.9	335,851
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	40,938	11.8	0.0	\$6,271	\$30,442	\$8,900	\$21,542	3.4	41,224
ECM 9	Install VFDs on Constant Volume (CV) Fans	155,074	40.8	0.0	\$23,809	\$199,037	\$23,600	\$175,437	7.4	156,158
ECM 10	Install VFDs on Heating Water Pumps	61,430	7.7	0.0	\$8,180	\$67,209	\$20,300	\$46,909	5.7	61,859
ECM 11	Install Boiler Draft Fan VFDs	52,473	20.2	0.0	\$7,070	\$43,066	\$18,000	\$25,066	3.5	52,840
ECM 13	Install Air Compressors with VFDs	3,601	2.4	0.0	\$552	\$9,499	\$4,000	\$5,499	10.0	3,627
ECM 14	Install VFDs on Kitchen Hood Fan Motors	6,970	0.0	112.1	\$1,927	\$6,771	\$300	\$6,471	3.4	20,143
Gas Heating (HVAC/Process) Replacement		0	0.0	90.0	\$783	\$10,876	\$2,400	\$8,476	10.8	10,538
ECM 19	Install High Efficiency Furnaces	0	0.0	90.0	\$783	\$10,876	\$2,400	\$8,476	10.8	10,538

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)
HVAC System Improvements		424	0.0	18.6	\$202	\$232	\$140	\$92	0.5	2,608
ECM 21	Install Pipe Insulation	424	0.0	18.6	\$202	\$232	\$140	\$92	0.5	2,608
Domestic Water Heating Upgrade		12,585	0.0	252.5	\$3,985	\$4,058	\$4,058	\$0	0.0	42,238
ECM 23	Install Low-Flow DHW Devices	12,585	0.0	252.5	\$3,985	\$4,058	\$4,058	\$0	0.0	42,238
Food Service & Refrigeration Measures		110,450	10.8	0.0	\$14,595	\$57,133	\$8,670	\$48,463	3.3	111,222
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	11,286	1.1	0.0	\$1,509	\$8,796	\$2,320	\$6,476	4.3	11,365
ECM 25	Refrigeration Controls	16,284	0.3	0.0	\$2,350	\$17,644	\$2,050	\$15,594	6.6	16,398
ECM 26	Replace Refrigeration Equipment	29,045	3.3	0.0	\$4,124	\$19,883	\$1,200	\$18,683	4.5	29,248
ECM 27	Vending Machine Control	53,835	6.1	0.0	\$6,612	\$10,810	\$3,100	\$7,710	1.2	54,212
Custom Measures		63,102	0.0	0.0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
ECM 28	Upgrading to Heat Pump System	63,102	0.0	0.0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
TOTALS		3,655,582	672.5	-149.1	\$467,746	\$2,123,517	\$735,301	\$1,388,216	3.0	3,663,688

EDISON EDUCATION 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 Reduction (lbs)
Lighting Upgrades			70,953	15.3	-13	\$9,626	\$25,159	\$10,508	\$14,651	1.5	69,961
ECM 1	Install LED Fixtures	Yes	4,271	0.0	0	\$587	\$2,906	\$150	\$2,756	4.7	4,301
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	5,957	0.1	0	\$818	\$1,589	\$380	\$1,209	1.5	5,997
ECM 3	Retrofit Fixtures with LED Lamps	Yes	60,724	15.2	-13	\$8,221	\$20,664	\$9,978	\$10,686	1.3	59,662
Lighting Control Measures			16,173	4.0	-3	\$2,189	\$30,915	\$7,855	\$23,060	10.5	15,890
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	13,163	3.2	-3	\$1,782	\$24,840	\$3,710	\$21,130	11.9	12,933
ECM 5	Install High/Low Lighting Controls	Yes	3,010	0.7	-1	\$407	\$6,075	\$4,145	\$1,930	4.7	2,957
Variable Frequency Drive (VFD) Measures			18,397	4.2	0	\$2,527	\$32,837	\$1,800	\$31,037	12.3	18,525
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	18,397	4.2	0	\$2,527	\$32,837	\$1,800	\$31,037	12.3	18,525
Electric Unitary HVAC Measures			29,935	13.4	0	\$4,112	\$102,713	\$8,472	\$94,240	22.9	30,145
ECM 7	Install High Efficiency Air Conditioning Units	No	21,023	10.3	0	\$2,888	\$88,317	\$7,368	\$80,949	28.0	21,170
ECM 8	Install High Efficiency Heat Pumps	No	8,912	3.1	0	\$1,224	\$14,395	\$1,104	\$13,291	10.9	8,975
Gas Heating (HVAC/Process) Replacement			0	0.0	85	\$798	\$17,129	\$7,200	\$9,929	12.4	9,913
ECM 9	Install High Efficiency Furnaces	No	0	0.0	85	\$798	\$17,129	\$7,200	\$9,929	12.4	9,913
Domestic Water Heating Upgrade			0	0.0	15	\$142	\$2,123	\$233	\$1,890	13.3	1,767
ECM 10	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	3	\$26	\$2,030	\$140	\$1,890	72.7	323
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	12	\$116	\$93	\$93	\$0	0.0	1,444
Food Service & Refrigeration Measures			3,909	0.4	0	\$537	\$920	\$200	\$720	1.3	3,936
ECM 12	Vending Machine Control	Yes	3,909	0.4	0	\$537	\$920	\$200	\$720	1.3	3,936
TOTALS (COST EFFECTIVE MEASURES)			91,034	19.7	-4	\$12,468	\$57,087	\$18,656	\$38,431	3.1	91,231
TOTALS (ALL MEASURES)			139,366	37.3	84	\$19,930	\$211,795	\$36,268	\$175,526	8.8	150,137

* - 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).



BUILDING & GROUNDS SHEDS

#	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			29,841	6.3	-7	\$2,597	\$8,999	\$6,277	\$2,721	1.0	29,273
ECM 1	Install LED Fixtures	Yes	16,588	3.5	-4	\$1,444	\$5,271	\$4,447	\$823	0.6	16,278
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,816	0.6	-1	\$245	\$825	\$240	\$585	2.4	2,762
ECM 3	Retrofit Fixtures with LED Lamps	Yes	10,436	2.2	-2	\$908	\$2,903	\$1,590	\$1,313	1.4	10,234
Lighting Control Measures			5,584	1.2	-1	\$486	\$6,345	\$3,295	\$3,050	6.3	5,476
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,867	0.6	-1	\$249	\$3,870	\$1,120	\$2,750	11.0	2,811
ECM 5	Install High/Low Lighting Controls	Yes	2,718	0.6	-1	\$236	\$2,475	\$2,175	\$300	1.3	2,665
Electric Unitary HVAC Measures			1,098	0.5	0	\$98	\$2,992	\$368	\$2,624	26.8	1,106
ECM 6	Install High Efficiency Air Conditioning Units	No	1,098	0.5	0	\$98	\$2,992	\$368	\$2,624	26.8	1,106
Gas Heating (HVAC/Process) Replacement			0	0.0	8	\$73	\$653	\$653	\$0	0.0	899
ECM 7	Install High Efficiency Furnaces	No	0	0.0	8	\$73	\$653	\$653	\$0	0.0	899
Domestic Water Heating Upgrade			556	0.0	0	\$50	\$29	\$29	\$0	0.0	560
ECM 8	Install Low-Flow DHW Devices	Yes	556	0.0	0	\$50	\$29	\$29	\$0	0.0	560
TOTALS (COST EFFECTIVE MEASURES)			35,981	7.5	-8	\$3,133	\$15,372	\$9,601	\$5,771	1.8	35,309
TOTALS (ALL MEASURES)			37,080	8.1	0	\$3,304	\$19,017	\$10,622	\$8,396	2.5	37,314

* - 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).

EDISON EARLY LEARNING

#	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			18,920	3.1	-4	\$1,502	\$5,822	\$3,060	\$2,762	1.8	18,610
ECM 1	Install LED Fixtures	No	583	0.0	0	\$47	\$966	\$400	\$566	12.0	587
ECM 2	Retrofit Fixtures with LED Lamps	Yes	18,337	3.1	-4	\$1,455	\$4,856	\$2,660	\$2,196	1.5	18,023
Lighting Control Measures			4,817	0.8	-1	\$382	\$2,880	\$940	\$1,940	5.1	4,733
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	4,398	0.7	-1	\$349	\$2,430	\$490	\$1,940	5.6	4,321
ECM 4	Install High/Low Lighting Controls	Yes	419	0.1	0	\$33	\$450	\$450	\$0	0.0	411
Motor Upgrades			320	0.1	0	\$26	\$948	\$0	\$948	36.4	323
ECM 5	Premium Efficiency Motors	No	320	0.1	0	\$26	\$948	\$0	\$948	36.4	323
Variable Frequency Drive (VFD) Measures			1,438	0.3	0	\$117	\$2,756	\$100	\$2,656	22.7	1,448
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	1,438	0.3	0	\$117	\$2,756	\$100	\$2,656	22.7	1,448
Electric Unitary HVAC Measures			10,298	3.9	0	\$837	\$32,292	\$3,496	\$28,796	34.4	10,370
ECM 7	Install High Efficiency Air Conditioning Units	No	10,298	3.9	0	\$837	\$32,292	\$3,496	\$28,796	34.4	10,370
Gas Heating (HVAC/Process) Replacement			0	0.0	66	\$620	\$19,939	\$2,400	\$17,539	28.3	7,700
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	44	\$410	\$17,560	\$1,600	\$15,960	38.9	5,094
ECM 9	Install High Efficiency Furnaces	No	0	0.0	22	\$210	\$2,379	\$800	\$1,579	7.5	2,606
HVAC System Improvements			0	0.0	4	\$36	\$43	\$24	\$19	0.5	451
ECM 10	Install Pipe Insulation	Yes	0	0.0	4	\$36	\$43	\$24	\$19	0.5	451
Domestic Water Heating Upgrade			0	0.0	6	\$54	\$86	\$86	\$0	0.0	667
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$54	\$86	\$86	\$0	0.0	667
TOTALS (COST EFFECTIVE MEASURES)			23,154	3.9	5	\$1,927	\$7,866	\$3,710	\$4,156	2.2	23,874
TOTALS (ALL MEASURES)			35,793	8.2	71	\$3,574	\$64,767	\$10,106	\$54,661	15.3	44,301

* - 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).

BENJAMIN FRANKLIN 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			91,322	18.9	-19	\$11,407	\$32,544	\$16,512	\$16,032	1.4	89,784
ECM 1	Install LED Fixtures	Yes	1,563	0.0	0	\$198	\$2,415	\$1,000	\$1,415	7.2	1,574
ECM 2	Retrofit Fixtures with LED Lamps	Yes	89,758	18.9	-19	\$11,209	\$30,129	\$15,512	\$14,617	1.3	88,210
Lighting Control Measures			24,792	5.2	-5	\$3,096	\$23,265	\$8,010	\$15,255	4.9	24,358
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	21,471	4.5	-4	\$2,681	\$18,090	\$4,060	\$14,030	5.2	21,096
ECM 4	Install High/Low Lighting Controls	Yes	3,320	0.7	-1	\$415	\$5,175	\$3,950	\$1,225	3.0	3,262
Variable Frequency Drive (VFD) Measures			8,580	1.0	0	\$1,085	\$34,359	\$3,600	\$30,759	28.3	8,640
ECM 5	Install VFDs on Heating Water Pumps	No	8,580	1.0	0	\$1,085	\$34,359	\$3,600	\$30,759	28.3	8,640
Electric Unitary HVAC Measures			3,676	0.9	0	\$465	\$5,625	\$0	\$5,625	12.1	3,701
ECM 6	Install High Efficiency Air Conditioning Units	No	3,676	0.9	0	\$465	\$5,625	\$0	\$5,625	12.1	3,701
Domestic Water Heating Upgrade			0	0.0	19	\$146	\$143	\$143	\$0	0.0	2,222
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	19	\$146	\$143	\$143	\$0	0.0	2,222
Food Service & Refrigeration Measures			8,888	1.0	0	\$1,124	\$6,599	\$100	\$6,499	5.8	8,950
ECM 8	Replace Refrigeration Equipment	Yes	7,276	0.8	0	\$920	\$6,369	\$0	\$6,369	6.9	7,327
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$204	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			125,002	25.1	-5	\$15,772	\$62,551	\$24,765	\$37,786	2.4	125,315
TOTALS (ALL MEASURES)			137,257	27.0	-5	\$17,322	\$102,535	\$28,365	\$74,170	4.3	137,656

* - 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).



LINCOLN 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			70,955	12.7	-15	\$9,630	\$35,950	\$16,842	\$19,108	2.0	69,666
ECM 1	Install LED Fixtures	Yes	1,997	0.0	0	\$275	\$7,728	\$1,600	\$6,128	22.3	2,011
ECM 2	Retrofit Fixtures with LED Lamps	Yes	68,957	12.7	-15	\$9,355	\$28,222	\$15,242	\$12,980	1.4	67,655
Lighting Control Measures			17,450	3.4	-4	\$2,366	\$21,879	\$7,405	\$14,474	6.1	17,102
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,651	3.0	-4	\$2,122	\$18,054	\$4,090	\$13,964	6.6	15,338
ECM 4	Install High/Low Lighting Controls	Yes	1,800	0.3	0	\$244	\$3,825	\$3,315	\$510	2.1	1,764
Gas Heating (HVAC/Process) Replacement			0	0.0	158	\$1,511	\$147,864	\$17,566	\$130,298	86.2	18,515
ECM 5	Install High Efficiency Steam Boilers	No	0	0.0	158	\$1,511	\$147,864	\$17,566	\$130,298	86.2	18,515
Domestic Water Heating Upgrade			0	0.0	23	\$223	\$7,257	\$1,163	\$6,095	27.3	2,731
ECM 6	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	11	\$103	\$6,935	\$840	\$6,095	59.3	1,260
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	13	\$120	\$323	\$323	\$0	0.0	1,471
Food Service & Refrigeration Measures			5,577	0.6	0	\$768	\$11,721	\$1,100	\$10,621	13.8	5,616
ECM 8	Replace Refrigeration Equipment	No	3,965	0.5	0	\$546	\$11,491	\$1,000	\$10,491	19.2	3,993
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$222	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			90,017	16.3	-7	\$12,338	\$58,382	\$24,670	\$33,712	2.7	89,862
TOTALS (ALL MEASURES)			93,982	16.7	162	\$14,498	\$224,671	\$44,075	\$180,596	12.5	113,630

* - 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).



LINDENEAU 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			54,866	8.8	-12	\$4,366	\$30,513	\$12,682	\$17,831	4.1	53,885
ECM 1	Install LED Fixtures	Yes	4,176	0.0	0	\$340	\$10,401	\$1,780	\$8,621	25.4	4,205
ECM 2	Retrofit Fixtures with LED Lamps	Yes	50,691	8.8	-12	\$4,026	\$20,112	\$10,902	\$9,210	2.3	49,680
Lighting Control Measures			18,166	3.0	-4	\$1,443	\$14,648	\$5,150	\$9,498	6.6	17,804
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,113	2.6	-3	\$1,200	\$11,998	\$3,000	\$8,998	7.5	14,812
ECM 4	Install High/Low Lighting Controls	Yes	3,054	0.4	-1	\$243	\$2,650	\$2,150	\$500	2.1	2,993
Motor Upgrades			1,062	0.3	0	\$86	\$948	\$0	\$948	11.0	1,070
ECM 5	Premium Efficiency Motors	Yes	1,062	0.3	0	\$86	\$948	\$0	\$948	11.0	1,070
Variable Frequency Drive (VFD) Measures			6,476	0.7	0	\$527	\$10,778	\$950	\$9,828	18.6	6,521
ECM 6	Install VFDs on Heating Water Pumps	No	6,476	0.7	0	\$527	\$10,778	\$950	\$9,828	18.6	6,521
Electric Unitary HVAC Measures			363	0.2	0	\$30	\$1,089	\$0	\$1,089	36.9	365
ECM 7	Install High Efficiency Air Conditioning Units	No	363	0.2	0	\$30	\$1,089	\$0	\$1,089	36.9	365
Food Service & Refrigeration Measures			1,612	0.2	0	\$131	\$230	\$100	\$130	1.0	1,623
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$131	\$230	\$100	\$130	1.0	1,623
TOTALS (COST EFFECTIVE MEASURES)			75,707	12.2	-16	\$6,026	\$46,339	\$17,932	\$28,407	4.7	74,382
TOTALS (ALL MEASURES)			82,545	13.1	-16	\$6,583	\$58,206	\$18,882	\$39,324	6.0	81,268

* - 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).

FDR SCHOOL & JAMES MADISON

INTERMEDIATE

#	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			100,777	17.7	-20	\$8,951	\$32,543	\$15,286	\$17,257	1.9	99,147
ECM 1	Install LED Fixtures	Yes	1,456	0.0	0	\$132	\$4,830	\$1,000	\$3,830	29.0	1,467
ECM 2	Retrofit Fixtures with LED Lamps	Yes	99,320	17.7	-20	\$8,819	\$27,713	\$14,286	\$13,427	1.5	97,681
Lighting Control Measures			34,145	6.5	-7	\$3,029	\$22,722	\$7,165	\$15,557	5.1	33,548
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	31,956	6.1	-7	\$2,835	\$20,472	\$5,140	\$15,332	5.4	31,397
ECM 4	Install High/Low Lighting Controls	Yes	2,189	0.3	0	\$194	\$2,250	\$2,025	\$225	1.2	2,151
Variable Frequency Drive (VFD) Measures			11,709	1.3	0	\$1,061	\$12,036	\$4,000	\$8,036	7.6	11,791
ECM 5	Install VFDs on Heating Water Pumps	Yes	11,709	1.3	0	\$1,061	\$12,036	\$4,000	\$8,036	7.6	11,791
HVAC System Improvements			424	0.0	0	\$38	\$23	\$16	\$7	0.2	427
ECM 6	Install Pipe Insulation	Yes	424	0.0	0	\$38	\$23	\$16	\$7	0.2	427
Domestic Water Heating Upgrade			2,650	0.0	7	\$301	\$272	\$272	\$0	0.0	3,446
ECM 7	Install Low-Flow DHW Devices	Yes	2,650	0.0	7	\$301	\$272	\$272	\$0	0.0	3,446
Food Service & Refrigeration Measures			1,612	0.2	0	\$146	\$230	\$100	\$130	0.9	1,623
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$146	\$230	\$100	\$130	0.9	1,623
Custom Measures			63,102	0.0	0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
ECM 9	Upgrading to Heat Pump System	Yes	63,102	0.0	0	\$5,720	\$60,000	\$0	\$60,000	10.5	63,543
TOTALS (COST EFFECTIVE MEASURES)			214,418	25.7	-20	\$19,248	\$127,827	\$26,839	\$100,988	5.2	213,526
TOTALS (ALL MEASURES)			214,418	25.7	-20	\$19,248	\$127,827	\$26,839	\$100,988	5.2	213,526

* - 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).

JAMES MADISON 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			91,727	16.5	-16	\$7,748	\$51,576	\$18,746	\$32,830	4.2	90,457
ECM 1	Install LED Fixtures	Yes	13,634	0.0	0	\$1,174	\$25,426	\$5,240	\$20,186	17.2	13,729
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	56	0.0	0	\$5	\$49	\$6	\$43	9.0	55
ECM 3	Retrofit Fixtures with LED Lamps	Yes	78,038	16.5	-16	\$6,569	\$26,101	\$13,500	\$12,601	1.9	76,673
Lighting Control Measures			19,302	4.1	-4	\$1,625	\$20,136	\$8,055	\$12,081	7.4	18,964
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	16,451	3.5	-3	\$1,385	\$16,086	\$4,090	\$11,996	8.7	16,163
ECM 5	Install High/Low Lighting Controls	Yes	2,851	0.6	-1	\$240	\$4,050	\$3,965	\$85	0.4	2,801
Electric Unitary HVAC Measures			4,392	1.3	0	\$378	\$21,979	\$2,895	\$19,084	50.5	4,422
ECM 6	Install High Efficiency Air Conditioning Units	No	4,392	1.3	0	\$378	\$21,979	\$2,895	\$19,084	50.5	4,422
Domestic Water Heating Upgrade			0	0.0	5	\$46	\$65	\$65	\$0	0.0	588
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	5	\$46	\$65	\$65	\$0	0.0	588
Food Service & Refrigeration Measures			2,828	0.2	0	\$244	\$1,140	\$340	\$800	3.3	2,848
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,217	0.0	0	\$105	\$910	\$240	\$670	6.4	1,225
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$139	\$230	\$100	\$130	0.9	1,623
TOTALS (COST EFFECTIVE MEASURES)			113,858	20.7	-15	\$9,663	\$72,916	\$27,206	\$45,711	4.7	112,857
TOTALS (ALL MEASURES)			118,249	22.0	-15	\$10,041	\$94,895	\$30,101	\$64,795	6.5	117,280

* - 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).

JOHN MARSHALL 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			133,617	28.4	-25	\$21,376	\$73,215	\$28,542	\$44,673	2.1	131,668
ECM 1	Install LED Fixtures	Yes	41,015	5.8	-5	\$6,581	\$37,926	\$10,480	\$27,446	4.2	40,679
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,407	0.6	0	\$225	\$836	\$260	\$576	2.6	1,382
ECM 3	Retrofit Fixtures with LED Lamps	Yes	91,195	22.0	-19	\$14,570	\$34,452	\$17,802	\$16,650	1.1	89,606
Lighting Control Measures			26,769	6.4	-6	\$4,277	\$31,954	\$10,800	\$21,154	4.9	26,301
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	23,298	5.6	-5	\$3,722	\$26,554	\$5,950	\$20,604	5.5	22,890
ECM 5	Install High/Low Lighting Controls	Yes	3,471	0.8	-1	\$555	\$5,400	\$4,850	\$550	1.0	3,410
Variable Frequency Drive (VFD) Measures			22,194	2.8	0	\$3,586	\$28,843	\$5,100	\$23,743	6.6	22,349
ECM 6	Install VFDs on Heating Water Pumps	No	21,427	2.6	0	\$3,462	\$25,453	\$4,950	\$20,503	5.9	21,577
ECM 7	Install Air Compressors with VFDs	No	767	0.2	0	\$124	\$3,391	\$150	\$3,241	26.1	773
Gas Heating (HVAC/Process) Replacement			0	0.0	372	\$3,233	\$70,107	\$12,354	\$57,753	17.9	43,515
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	282	\$2,450	\$59,231	\$9,954	\$49,277	20.1	32,977
ECM 9	Install High Efficiency Furnaces	Yes	0	0.0	90	\$783	\$10,876	\$2,400	\$8,476	10.8	10,538
Domestic Water Heating Upgrade			0	0.0	10	\$85	\$251	\$251	\$0	0.0	1,144
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$85	\$251	\$251	\$0	0.0	1,144
Food Service & Refrigeration Measures			5,200	0.3	0	\$840	\$5,310	\$820	\$4,490	5.3	5,236
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	786	0.1	0	\$127	\$1,213	\$320	\$893	7.0	792
ECM 12	Refrigeration Controls	Yes	2,801	0.0	0	\$453	\$3,867	\$400	\$3,467	7.7	2,821
ECM 13	Vending Machine Control	Yes	1,612	0.2	0	\$260	\$230	\$100	\$130	0.5	1,623
TOTALS (COST EFFECTIVE MEASURES)			165,586	35.1	70	\$27,360	\$121,605	\$42,813	\$78,792	2.9	174,886
TOTALS (ALL MEASURES)			187,780	37.9	351	\$33,396	\$209,680	\$57,867	\$151,813	4.5	230,212

* - 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).

MARTIN LUTHER KING 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			92,014	19.2	-17	\$6,961	\$66,544	\$23,730	\$42,814	6.2	90,716
ECM 1	Install LED Fixtures	Yes	12,690	0.0	0	\$981	\$35,210	\$7,400	\$27,810	28.4	12,779
ECM 2	Retrofit Fixtures with LED Lamps	Yes	79,324	19.2	-17	\$5,980	\$31,335	\$16,330	\$15,005	2.5	77,937
Lighting Control Measures			20,747	4.9	-4	\$1,564	\$27,066	\$7,895	\$19,171	12.3	20,384
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	19,094	4.5	-4	\$1,439	\$23,916	\$5,210	\$18,706	13.0	18,760
ECM 4	Install High/Low Lighting Controls	Yes	1,654	0.4	0	\$125	\$3,150	\$2,685	\$465	3.7	1,625
Motor Upgrades			759	0.3	0	\$59	\$948	\$0	\$948	16.2	764
ECM 5	Premium Efficiency Motors	No	759	0.3	0	\$59	\$948	\$0	\$948	16.2	764
Variable Frequency Drive (VFD) Measures			6,564	1.0	0	\$507	\$8,152	\$3,600	\$4,552	9.0	6,610
ECM 6	Install VFDs on Heating Water Pumps	Yes	6,564	1.0	0	\$507	\$8,152	\$3,600	\$4,552	9.0	6,610
Electric Unitary HVAC Measures			2,684	1.4	0	\$207	\$18,454	\$2,291	\$16,163	77.9	2,703
ECM 7	Install High Efficiency Air Conditioning Units	No	2,684	1.4	0	\$207	\$18,454	\$2,291	\$16,163	77.9	2,703
Domestic Water Heating Upgrade			0	0.0	8	\$71	\$201	\$201	\$0	0.0	915
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$71	\$201	\$201	\$0	0.0	915
Food Service & Refrigeration Measures			2,828	0.2	0	\$219	\$1,140	\$340	\$800	3.7	2,848
ECM 9	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,217	0.0	0	\$94	\$910	\$240	\$670	7.1	1,225
ECM 10	Vending Machine Control	Yes	1,612	0.2	0	\$125	\$230	\$100	\$130	1.0	1,623
TOTALS (COST EFFECTIVE MEASURES)			122,154	25.3	-13	\$9,322	\$103,103	\$35,766	\$67,338	7.2	121,474
TOTALS (ALL MEASURES)			125,597	26.9	-13	\$9,588	\$122,505	\$38,057	\$84,448	8.8	124,941

* - 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).

JAMES MONROE 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			6,745	0.0	0	\$948	\$6,514	\$1,400	\$5,114	5.4	6,792
ECM 1	Install LED Fixtures	Yes	6,745	0.0	0	\$948	\$6,514	\$1,400	\$5,114	5.4	6,792
Lighting Control Measures			189	0.0	0	\$26	\$270	\$70	\$200	7.6	186
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	189	0.0	0	\$26	\$270	\$70	\$200	7.6	186
Food Service & Refrigeration Measures			6,115	0.4	0	\$860	\$5,613	\$900	\$4,713	5.5	6,157
ECM 3	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,311	0.2	0	\$184	\$1,517	\$400	\$1,117	6.1	1,320
ECM 4	Refrigeration Controls	Yes	3,192	0.1	0	\$449	\$3,867	\$400	\$3,467	7.7	3,215
ECM 5	Vending Machine Control	Yes	1,612	0.2	0	\$227	\$230	\$100	\$130	0.6	1,623
TOTALS (COST EFFECTIVE MEASURES)			13,049	0.4	0	\$1,834	\$12,397	\$2,370	\$10,027	5.5	13,136
TOTALS (ALL MEASURES)			13,049	0.4	0	\$1,834	\$12,397	\$2,370	\$10,027	5.5	13,136

* - 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).



WASHINGTON 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			65,873	13.9	-13	\$10,149	\$28,540	\$12,472	\$16,068	1.6	64,858
ECM 1	Install LED Fixtures	Yes	5,301	0.0	0	\$827	\$7,702	\$1,610	\$6,092	7.4	5,338
ECM 2	Retrofit Fixtures with LED Lamps	Yes	60,572	13.9	-13	\$9,322	\$20,838	\$10,862	\$9,976	1.1	59,519
Lighting Control Measures			16,889	3.8	-4	\$2,599	\$28,390	\$9,520	\$18,870	7.3	16,594
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,570	3.5	-3	\$2,396	\$24,570	\$6,090	\$18,480	7.7	15,297
ECM 4	Install High/Low Lighting Controls	Yes	1,320	0.3	0	\$203	\$3,820	\$3,430	\$390	1.9	1,297
Variable Frequency Drive (VFD) Measures			7,594	2.5	0	\$1,184	\$20,698	\$900	\$19,798	16.7	7,647
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	No	4,145	1.2	0	\$646	\$7,246	\$400	\$6,846	10.6	4,174
ECM 6	Install Boiler Draft Fan VFDs	No	2,594	0.9	0	\$404	\$7,091	\$300	\$6,791	16.8	2,612
ECM 7	Install VFDs on Boiler Feedwater Pumps	No	855	0.4	0	\$133	\$6,361	\$200	\$6,161	46.2	861
Domestic Water Heating Upgrade			1,472	0.0	6	\$284	\$136	\$136	\$0	0.0	2,136
ECM 8	Install Low-Flow DHW Devices	Yes	1,472	0.0	6	\$284	\$136	\$136	\$0	0.0	2,136
Food Service & Refrigeration Measures			3,663	0.4	0	\$571	\$2,882	\$100	\$2,782	4.9	3,689
ECM 9	Replace Refrigeration Equipment	No	2,051	0.2	0	\$320	\$2,652	\$0	\$2,652	8.3	2,066
ECM 10	Vending Machine Control	Yes	1,612	0.2	0	\$251	\$230	\$100	\$130	0.5	1,623
TOTALS (COST EFFECTIVE MEASURES)			85,846	17.9	-11	\$13,283	\$57,296	\$22,228	\$35,068	2.6	85,211
TOTALS (ALL MEASURES)			95,491	20.6	-11	\$14,787	\$80,647	\$23,128	\$57,518	3.9	94,923

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

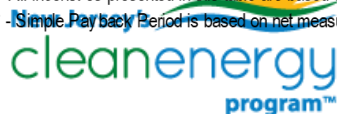
** - Simple Payback Period is based on net measure costs (i.e. after incentives).

WOODBROOK 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			96,297	21.2	-19	\$8,829	\$38,931	\$17,902	\$21,029	2.4	94,702
ECM 1	Install LED Fixtures	Yes	3,667	0.0	0	\$343	\$6,446	\$500	\$5,946	17.3	3,693
ECM 2	Retrofit Fixtures with LED Lamps	Yes	92,630	21.2	-19	\$8,486	\$32,485	\$17,402	\$15,083	1.8	91,010
Lighting Control Measures			25,341	5.5	-5	\$2,322	\$21,825	\$7,955	\$13,870	6.0	24,898
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	22,880	5.0	-5	\$2,096	\$17,550	\$4,130	\$13,420	6.4	22,480
ECM 4	Install High/Low Lighting Controls	Yes	2,461	0.5	-1	\$225	\$4,275	\$3,825	\$450	2.0	2,418
Motor Upgrades			3,256	1.3	0	\$305	\$16,785	\$0	\$16,785	55.1	3,279
ECM 5	Premium Efficiency Motors	No	3,256	1.3	0	\$305	\$16,785	\$0	\$16,785	55.1	3,279
Variable Frequency Drive (VFD) Measures			18,916	2.5	60	\$2,336	\$85,326	\$4,550	\$80,776	34.6	26,068
ECM 6	Install VFDs on Heating Water Pumps	No	13,541	1.6	0	\$1,267	\$74,844	\$4,100	\$70,744	55.8	13,635
ECM 7	Install Boiler Draft Fan VFDs	No	2,743	0.9	0	\$257	\$7,091	\$300	\$6,791	26.5	2,762
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	2,633	0.0	60	\$812	\$3,391	\$150	\$3,241	4.0	9,671
Electric Unitary HVAC Measures			2,753	3.1	0	\$258	\$21,221	\$874	\$20,347	79.0	2,773
ECM 9	Install High Efficiency Air Conditioning Units	No	1,571	1.9	0	\$147	\$9,825	\$0	\$9,825	66.8	1,582
ECM 10	Install High Efficiency Heat Pumps	No	1,182	1.2	0	\$111	\$11,396	\$874	\$10,522	95.1	1,190
HVAC System Improvements			1,439	0.0	34	\$453	\$8,157	\$0	\$8,157	18.0	5,401
ECM 11	Implement Demand Control Ventilation (DCV)	No	1,439	0.0	34	\$453	\$8,157	\$0	\$8,157	18.0	5,401
Domestic Water Heating Upgrade			0	0.0	26	\$242	\$194	\$194	\$0	0.0	3,000
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	26	\$242	\$194	\$194	\$0	0.0	3,000
Food Service & Refrigeration Measures			4,327	0.2	0	\$405	\$4,097	\$500	\$3,597	8.9	4,358
ECM 13	Refrigeration Controls	No	2,715	0.1	0	\$254	\$3,867	\$400	\$3,467	13.6	2,734
ECM 14	Vending Machine Control	Yes	1,612	0.2	0	\$151	\$230	\$100	\$130	0.9	1,623
TOTALS (COST EFFECTIVE MEASURES)			125,883	26.9	61	\$12,356	\$64,570	\$26,301	\$38,269	3.1	133,895
TOTALS (ALL MEASURES)			152,329	33.8	95	\$15,149	\$196,535	\$31,975	\$164,560	10.9	164,478

* - 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).



JOHN ADAMS 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			137,001	30.3	-27	\$17,710	\$54,882	\$27,810	\$27,072	1.5	134,805
ECM 1	Install LED Fixtures	Yes	8,264	0.0	0	\$1,083	\$8,445	\$3,210	\$5,235	4.8	8,314
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	62	0.3	0	\$8	\$413	\$120	\$293	36.4	61
ECM 3	Retrofit Fixtures with LED Lamps	Yes	128,675	30.0	-27	\$16,619	\$46,024	\$24,480	\$21,544	1.3	126,430
Lighting Control Measures			37,901	8.6	-8	\$4,895	\$34,830	\$11,235	\$23,595	4.8	37,238
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	32,759	7.7	-7	\$4,231	\$28,080	\$5,950	\$22,130	5.2	32,186
ECM 5	Install High/Low Lighting Controls	Yes	5,142	0.9	-1	\$664	\$6,750	\$5,285	\$1,465	2.2	5,053
Variable Frequency Drive (VFD) Measures			7,368	3.4	0	\$966	\$11,364	\$3,750	\$7,614	7.9	7,420
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	1,154	0.4	0	\$151	\$3,391	\$150	\$3,241	21.4	1,162
ECM 7	Install Boiler Draft Fan VFDs	Yes	6,214	3.0	0	\$815	\$7,974	\$3,600	\$4,374	5.4	6,258
Domestic Water Heating Upgrade			0	0.0	37	\$340	\$18,383	\$2,648	\$15,735	46.3	4,309
ECM 8	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	24	\$226	\$18,290	\$2,555	\$15,735	69.6	2,864
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	12	\$114	\$93	\$93	\$0	0.0	1,444
Food Service & Refrigeration Measures			14,230	1.6	0	\$1,865	\$9,811	\$1,630	\$8,181	4.4	14,329
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	328	0.0	0	\$43	\$303	\$80	\$223	5.2	330
ECM 11	Refrigeration Controls	No	456	0.0	0	\$60	\$1,674	\$150	\$1,524	25.5	459
ECM 12	Replace Refrigeration Equipment	Yes	9,538	1.1	0	\$1,250	\$6,914	\$1,200	\$5,714	4.6	9,604
ECM 13	Vending Machine Control	Yes	3,909	0.4	0	\$512	\$920	\$200	\$720	1.4	3,936
TOTALS (COST EFFECTIVE MEASURES)			194,890	43.5	-23	\$25,339	\$105,916	\$44,218	\$61,697	2.4	193,615
TOTALS (ALL MEASURES)			196,500	43.9	2	\$25,776	\$129,270	\$47,073	\$82,197	3.2	198,101

* - 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).

HERBERT HOOVER 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			162,390	35.5	-32	\$12,103	\$61,189	\$30,356	\$30,833	2.5	159,786
ECM 1	Install LED Fixtures	Yes	9,459	0.0	0	\$724	\$6,902	\$1,840	\$5,062	7.0	9,525
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	110	0.1	0	\$8	\$237	\$56	\$181	22.2	108
ECM 3	Retrofit Fixtures with LED Lamps	Yes	152,822	35.4	-32	\$11,372	\$54,050	\$28,460	\$25,590	2.3	150,154
Lighting Control Measures			43,820	9.9	-9	\$3,261	\$43,605	\$14,850	\$28,755	8.8	43,053
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	36,485	8.8	-8	\$2,715	\$36,180	\$8,960	\$27,220	10.0	35,847
ECM 5	Install High/Low Lighting Controls	Yes	7,335	1.1	-2	\$546	\$7,425	\$5,890	\$1,535	2.8	7,207
Motor Upgrades			4,573	1.0	0	\$350	\$12,402	\$0	\$12,402	35.4	4,605
ECM 6	Premium Efficiency Motors	No	4,573	1.0	0	\$350	\$12,402	\$0	\$12,402	35.4	4,605
Variable Frequency Drive (VFD) Measures			48,722	12.7	0	\$3,728	\$95,224	\$11,950	\$83,274	22.3	49,063
ECM 7	Install VFDs on Constant Volume (CV) Fans	No	15,902	3.9	0	\$1,217	\$29,404	\$2,950	\$26,454	21.7	16,013
ECM 8	Install VFDs on Heating Water Pumps	No	21,282	3.6	0	\$1,628	\$55,638	\$4,800	\$50,838	31.2	21,430
ECM 9	Install Boiler Draft Fan VFDs	Yes	11,539	5.3	0	\$883	\$10,182	\$4,200	\$5,982	6.8	11,619
Electric Unitary HVAC Measures			5,131	5.5	0	\$393	\$53,199	\$5,552	\$47,647	121.4	5,167
ECM 10	Install High Efficiency Air Conditioning Units	No	5,131	5.5	0	\$393	\$53,199	\$5,552	\$47,647	121.4	5,167
Gas Heating (HVAC/Process) Replacement			0	0.0	251	\$2,523	\$114,721	\$0	\$114,721	45.5	29,382
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	251	\$2,523	\$114,721	\$0	\$114,721	45.5	29,382
Domestic Water Heating Upgrade			0	0.0	65	\$656	\$18,598	\$2,863	\$15,735	24.0	7,642
ECM 12	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	24	\$246	\$18,290	\$2,555	\$15,735	64.0	2,864
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	41	\$410	\$308	\$308	\$0	0.0	4,778
Food Service & Refrigeration Measures			14,139	1.5	0	\$1,082	\$10,573	\$1,700	\$8,873	8.2	14,238
ECM 14	Refrigeration Controls	Yes	564	0.0	0	\$43	\$252	\$150	\$102	2.4	568
ECM 15	Replace Refrigeration Equipment	No	10,009	1.1	0	\$766	\$9,631	\$1,350	\$8,281	10.8	10,078
ECM 16	Vending Machine Control	Yes	3,566	0.4	0	\$273	\$690	\$200	\$490	1.8	3,591
TOTALS (COST EFFECTIVE MEASURES)			221,879	51.0	0	\$16,973	\$116,226	\$50,064	\$66,162	3.9	223,396
TOTALS (ALL MEASURES)			278,775	66.1	275	\$24,096	\$409,511	\$67,271	\$342,240	14.2	312,937

* - 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).

THOMAS JEFFERSON 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			140,924	31.3	-27	\$10,795	\$57,522	\$27,620	\$29,902	2.8	138,730
ECM 1	Install LED Fixtures	Yes	11,467	0.1	0	\$897	\$9,738	\$2,480	\$7,259	8.1	11,537
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	531	0.1	0	\$41	\$257	\$80	\$177	4.4	522
ECM 3	Retrofit Fixtures with LED Lamps	Yes	128,926	31.1	-27	\$9,857	\$47,526	\$25,060	\$22,466	2.3	126,671
Lighting Control Measures			39,573	9.2	-8	\$3,026	\$45,405	\$14,920	\$30,485	10.1	38,881
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	35,583	8.3	-7	\$2,721	\$37,530	\$8,330	\$29,200	10.7	34,960
ECM 5	Install High/Low Lighting Controls	Yes	3,990	0.9	-1	\$305	\$7,875	\$6,590	\$1,285	4.2	3,920
Motor Upgrades			3,433	0.9	0	\$269	\$37,969	\$0	\$37,969	141.3	3,457
ECM 6	Premium Efficiency Motors	No	3,433	0.9	0	\$269	\$37,969	\$0	\$37,969	141.3	3,457
Variable Frequency Drive (VFD) Measures			1,305	3.0	0	\$102	\$7,974	\$3,600	\$4,374	42.8	1,315
ECM 7	Install Boiler Draft Fan VFDs	No	1,305	3.0	0	\$102	\$7,974	\$3,600	\$4,374	42.8	1,315
Electric Unitary HVAC Measures			956	1.0	0	\$75	\$6,184	\$0	\$6,184	82.7	962
ECM 8	Install High Efficiency Air Conditioning Units	No	956	1.0	0	\$75	\$6,184	\$0	\$6,184	82.7	962
Gas Heating (HVAC/Process) Replacement			0	0.0	483	\$4,182	\$172,073	\$0	\$172,073	41.2	56,519
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	483	\$4,182	\$172,073	\$0	\$172,073	41.2	56,519
HVAC System Improvements			0	0.0	10	\$90	\$108	\$60	\$48	0.5	1,216
ECM 10	Install Pipe Insulation	Yes	0	0.0	10	\$90	\$108	\$60	\$48	0.5	1,216
Domestic Water Heating Upgrade			0	0.0	20	\$169	\$251	\$251	\$0	0.0	2,288
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	20	\$169	\$251	\$251	\$0	0.0	2,288
Food Service & Refrigeration Measures			7,676	0.8	0	\$601	\$1,632	\$550	\$1,082	1.8	7,729
ECM 12	Refrigeration Controls	Yes	543	0.0	0	\$43	\$252	\$150	\$102	2.4	547
ECM 13	Vending Machine Control	Yes	7,132	0.8	0	\$558	\$1,380	\$400	\$980	1.8	7,182
TOTALS (COST EFFECTIVE MEASURES)			188,172	41.4	-6	\$14,680	\$104,918	\$43,401	\$61,517	4.2	188,843
TOTALS (ALL MEASURES)			193,867	46.3	477	\$19,308	\$329,118	\$47,001	\$282,118	14.6	251,097

* - 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).

WOODROW WILSON 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			158,895	28.3	-32	\$19,096	\$53,947	\$26,404	\$27,543	1.4	156,311
ECM 1	Install LED Fixtures	Yes	6,553	0.0	0	\$800	\$7,597	\$2,160	\$5,437	6.8	6,599
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	292	0.4	0	\$35	\$619	\$180	\$439	12.5	287
ECM 3	Retrofit Fixtures with LED Lamps	Yes	152,050	27.9	-32	\$18,261	\$45,731	\$24,064	\$21,667	1.2	149,425
Lighting Control Measures			43,480	7.6	-9	\$5,223	\$35,000	\$12,865	\$22,135	4.2	42,742
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	33,326	6.3	-7	\$4,002	\$27,000	\$6,160	\$20,840	5.2	32,743
ECM 5	Install Daylight Dimming/PhotoCell Controls	Yes	921	0.0	0	\$112	\$800	\$0	\$800	7.1	927
ECM 6	Install High/Low Lighting Controls	Yes	9,233	1.2	-2	\$1,109	\$7,200	\$6,705	\$495	0.4	9,072
Variable Frequency Drive (VFD) Measures			29,974	5.8	0	\$3,658	\$60,789	\$7,000	\$53,789	14.7	30,183
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	14,673	3.0	0	\$1,791	\$5,152	\$2,200	\$2,952	1.6	14,776
ECM 8	Install VFDs on Heating Water Pumps	No	15,301	2.9	0	\$1,867	\$55,638	\$4,800	\$50,838	27.2	15,408
HVAC System Improvements			775	0.0	0	\$95	\$2,719	\$0	\$2,719	28.8	780
ECM 9	Implement Demand Control Ventilation (DCV)	No	775	0.0	0	\$95	\$2,719	\$0	\$2,719	28.8	780
Domestic Water Heating Upgrade			1,529	0.0	10	\$284	\$237	\$237	\$0	0.0	2,762
ECM 10	Install Low-Flow DHW Devices	Yes	1,529	0.0	10	\$284	\$237	\$237	\$0	0.0	2,762
Food Service & Refrigeration Measures			6,148	0.6	0	\$750	\$3,274	\$590	\$2,684	3.6	6,191
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,186	0.1	0	\$145	\$910	\$240	\$670	4.6	1,195
ECM 12	Refrigeration Controls	Yes	1,396	0.0	0	\$170	\$1,674	\$150	\$1,524	8.9	1,405
ECM 13	Vending Machine Control	Yes	3,566	0.4	0	\$435	\$690	\$200	\$490	1.1	3,591
TOTALS (COST EFFECTIVE MEASURES)			224,726	39.4	-30	\$27,145	\$97,609	\$42,296	\$55,314	2.0	222,782
TOTALS (ALL MEASURES)			240,801	42.3	-30	\$29,106	\$155,966	\$47,096	\$108,871	3.7	238,969

* - 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).

EDISON 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			317,799	60.8	-63	\$50,217	\$120,335	\$59,184	\$61,151	1.2	312,637
ECM 1	Install LED Fixtures	Yes	16,374	0.9	-1	\$2,607	\$24,498	\$8,200	\$16,298	6.3	16,386
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,250	0.4	0	\$197	\$669	\$190	\$479	2.4	1,228
ECM 3	Retrofit Fixtures with LED Lamps	Yes	300,175	59.5	-62	\$47,412	\$95,168	\$50,794	\$44,374	0.9	295,022
Lighting Control Measures			99,056	19.2	-20	\$15,646	\$84,801	\$30,255	\$54,546	3.5	97,357
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	82,111	17.3	-17	\$12,967	\$69,176	\$17,930	\$51,246	4.0	80,674
ECM 5	Install Daylight Dimming/Photocell Controls	Yes	1,358	0.0	0	\$217	\$2,800	\$0	\$2,800	12.9	1,368
ECM 6	Install High/Low Lighting Controls	Yes	15,587	1.9	-3	\$2,462	\$12,825	\$12,325	\$500	0.2	15,315
Variable Frequency Drive (VFD) Measures			86,782	23.9	0	\$13,859	\$102,100	\$15,550	\$86,550	6.2	87,389
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	78,486	19.4	0	\$12,534	\$92,282	\$11,550	\$80,732	6.4	79,034
ECM 8	Install Boiler Draft Fan VFDs	Yes	8,297	4.5	0	\$1,325	\$9,819	\$4,000	\$5,819	4.4	8,355
Electric Unitary HVAC Measures			13,676	13.7	0	\$2,184	\$114,536	\$13,133	\$101,403	46.4	13,771
ECM 9	Install High Efficiency Air Conditioning Units	No	13,676	13.7	0	\$2,184	\$114,536	\$13,133	\$101,403	46.4	13,771
Gas Heating (HVAC/Process) Replacement			0	0.0	26	\$217	\$3,761	\$800	\$2,961	13.7	2,999
ECM 10	Install High Efficiency Furnaces	No	0	0.0	26	\$217	\$3,761	\$800	\$2,961	13.7	2,999
HVAC System Improvements			1,333	0.0	4	\$250	\$5,495	\$40	\$5,455	21.8	1,857
ECM 11	Implement Demand Control Ventilation (DCV)	No	1,333	0.0	0	\$213	\$5,438	\$0	\$5,438	25.5	1,343
ECM 12	Install Pipe Insulation	Yes	0	0.0	4	\$37	\$58	\$40	\$18	0.5	514
Domestic Water Heating Upgrade			1,472	0.0	80	\$914	\$26,007	\$803	\$25,204	27.6	10,866
ECM 13	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	38	\$324	\$25,204	\$0	\$25,204	77.8	4,482
ECM 14	Install Low-Flow DHW Devices	Yes	1,472	0.0	42	\$589	\$803	\$803	\$0	0.0	6,384
Food Service & Refrigeration Measures			20,553	2.4	0	\$3,282	\$9,957	\$800	\$9,157	2.8	20,696
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,310	0.2	0	\$209	\$1,517	\$400	\$1,117	5.3	1,319
ECM 16	Replace Refrigeration Equipment	Yes	12,231	1.4	0	\$1,953	\$6,600	\$0	\$6,600	3.4	12,317
ECM 17	Vending Machine Control	Yes	7,012	0.8	0	\$1,120	\$1,840	\$400	\$1,440	1.3	7,061
TOTALS (COST EFFECTIVE MEASURES)			525,662	106.2	-37	\$83,631	\$318,054	\$106,632	\$211,422	2.5	524,977
TOTALS (ALL MEASURES)			540,671	119.9	27	\$86,568	\$466,992	\$120,565	\$346,427	4.0	547,572

* - 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).



J.P. STEVENS 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			632,339	82.2	-122	\$95,809	\$241,568	\$79,640	\$161,928	1.7	622,461
ECM 1	Install LED Fixtures	Yes	74,650	4.3	-7	\$11,377	\$115,060	\$14,620	\$100,440	8.8	74,380
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	4,831	1.7	-1	\$731	\$2,862	\$790	\$2,072	2.8	4,747
ECM 3	Retrofit Fixtures with LED Lamps	Yes	552,858	76.1	-114	\$83,700	\$123,646	\$64,230	\$59,416	0.7	543,334
Lighting Control Measures			180,605	25.0	-38	\$27,339	\$112,984	\$42,120	\$70,864	2.6	177,446
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	164,828	22.9	-34	\$24,951	\$94,759	\$24,195	\$70,564	2.8	161,945
ECM 5	Install High/Low Lighting Controls	Yes	15,776	2.1	-3	\$2,388	\$18,225	\$17,925	\$300	0.1	15,500
Variable Frequency Drive (VFD) Measures			180,372	45.4	52	\$28,081	\$207,037	\$41,800	\$165,237	5.9	187,737
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	Yes	40,938	11.8	0	\$6,271	\$30,442	\$8,900	\$21,542	3.4	41,224
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	61,915	18.4	0	\$9,484	\$101,604	\$9,850	\$91,754	9.7	62,348
ECM 8	Install VFDs on Heating Water Pumps	Yes	43,157	5.4	0	\$6,611	\$47,020	\$12,700	\$34,320	5.2	43,459
ECM 9	Install Boiler Draft Fan VFDs	Yes	26,423	7.4	0	\$4,048	\$15,092	\$6,200	\$8,892	2.2	26,608
ECM 10	Install Air Compressors with VFDs	Yes	3,601	2.4	0	\$552	\$9,499	\$4,000	\$5,499	10.0	3,627
ECM 11	Install VFDs on Kitchen Hood Fan Motors	Yes	4,337	0.0	52	\$1,115	\$3,380	\$150	\$3,230	2.9	10,472
Electric Unitary HVAC Measures			1,331	1.4	0	\$204	\$11,345	\$920	\$10,425	51.1	1,341
ECM 12	Install High Efficiency Air Conditioning Units	No	1,331	1.4	0	\$204	\$11,345	\$920	\$10,425	51.1	1,341
Gas Heating (HVAC/Process) Replacement			0	0.0	554	\$4,787	\$301,952	\$1,600	\$300,352	62.7	64,824
ECM 13	Install High Efficiency Hot Water Boilers	No	0	0.0	488	\$4,223	\$286,768	\$0	\$286,768	67.9	57,178
ECM 14	Install High Efficiency Furnaces	No	0	0.0	65	\$565	\$15,183	\$1,600	\$13,583	24.1	7,646
Domestic Water Heating Upgrade			4,906	0.0	17	\$903	\$574	\$574	\$0	0.0	6,990
ECM 15	Install Low-Flow DHW Devices	Yes	4,906	0.0	17	\$903	\$574	\$574	\$0	0.0	6,990
Food Service & Refrigeration Measures			20,342	1.6	0	\$3,116	\$11,320	\$1,700	\$9,620	3.1	20,484
ECM 16	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	3,932	0.5	0	\$602	\$1,517	\$400	\$1,117	1.9	3,959
ECM 17	Refrigeration Controls	Yes	7,787	0.2	0	\$1,193	\$7,733	\$800	\$6,933	5.8	7,841
ECM 18	Vending Machine Control	Yes	8,623	1.0	0	\$1,321	\$2,070	\$500	\$1,570	1.2	8,684
TOTALS (COST EFFECTIVE MEASURES)			1,018,564	154.2	-90	\$155,248	\$573,482	\$165,834	\$407,648	2.6	1,015,118
TOTALS (ALL MEASURES)			1,019,896	155.7	463	\$160,239	\$886,778	\$168,354	\$718,425	4.5	1,081,283

* - 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
- Upgrade/Replace Energy Management System
- Heating System Conversion from Steam to Hot Water
- Upgrade to a Heat Pump System

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**



SOLAR ENERGY GENERATION POTENTIAL

	Lincoln School	James Madison Primary School	John Marshall School	MLK School	James Monroe School
<i>Potential:</i>	MEDIUM	HIGH	MEDIUM	HIGH	HIGH
<i>System Potential: (kW)</i>	103	99	122	90	148
<i>Electric Generation: (kWh per year)</i>	122,712	117,945	145,347	107,224	176,323
<i>Displaced Cost: (per year)</i>	\$16,910	\$10,160	\$23,490	\$8,290	\$24,790

Transition Incentive (TI) Program:

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

Community Solar Energy Pilot Program:

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



SOLAR ENERGY GENERATION POTENTIAL

	Woodrow Wilson MS	Edison HS	J.P Stevens HS	John Adams School
<i>Potential:</i>	MEDIUM	MEDIUM	HIGH	MEDIUM
<i>System Potential: (kW)</i>	175	494	520	172
<i>Electric Generation: (kWh per year)</i>	208,490	371,708	619,512	204,860
<i>Displaced Cost: (per year)</i>	\$25,440	\$59,360	\$94,900	\$26,860

Transition Incentive (TI) Program:

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

Community Solar Energy Pilot Program:

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



RECOMMENDED NJCEP INCENTIVES PER BUILDING

Edison Township BOE	Pay For Performance	Direct Install	SmartStart	CTEEP
Edison Education Center	X	X	X	X
Buildings & Grounds Sheds		X	X	X
Edison Early Learning Center		X	X	X
Benjamin Franklin School		X	X	X
Lincoln School		X	X	X
Lindeneau School		X	X	X
James Madison Intermediate & FDR Schools		X	X	X
James Madison Primary School		X	X	X
John Marshall School		X	X	X
MLK School		X	X	X

**Conditional text: 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.*

RECOMMENDED NJCEP INCENTIVES PER BUILDING

Edison Township BOE	Pay For Performance	Direct Install	SmartStart	CTEEP
James Monroe School		X	X	X
Washington School		X	X	X
Woodbrook School		X	X	X
John Adams Middle School		X	X	X
Thomas Jefferson Middle School		X	X	X
Woodrow Wilson Middle School		X	X	X
Edison High School			X	X
J.P Stevens High School		X	X	X

**Conditional text: 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

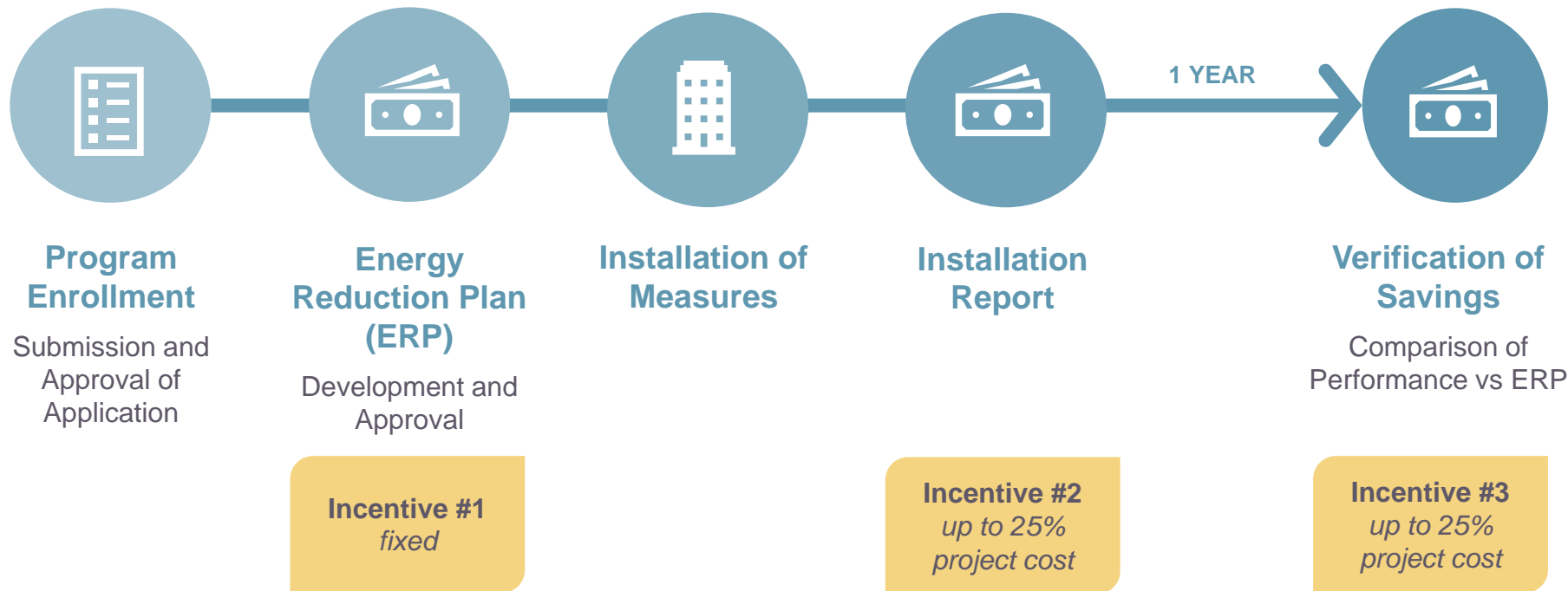
About: Customer choose from a network of pre-approved *Participating Partners*

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

Tri-State Light & Energy, Inc.

Alan Rhode

610-789-1900 x226

asr@tsle.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:

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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

- Lighting & Lighting Controls
- Packaged HVAC
- Boilers & Water Heaters
- Chillers
- VFD's
- Food Service
- Refrigeration

Prescriptive Only:

**DOUBLE
INCENTIVES FOR
OZ/UEZ/ LOCAL
GOVT./K-12 PUBLIC
SCHOOLS**

Custom Incentives

- New or innovative technologies proven to be cost-effective and not listed as prescriptive
- Projects must have a minimum first year energy savings of 75,000 kWh or 1,500 therms
- 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)

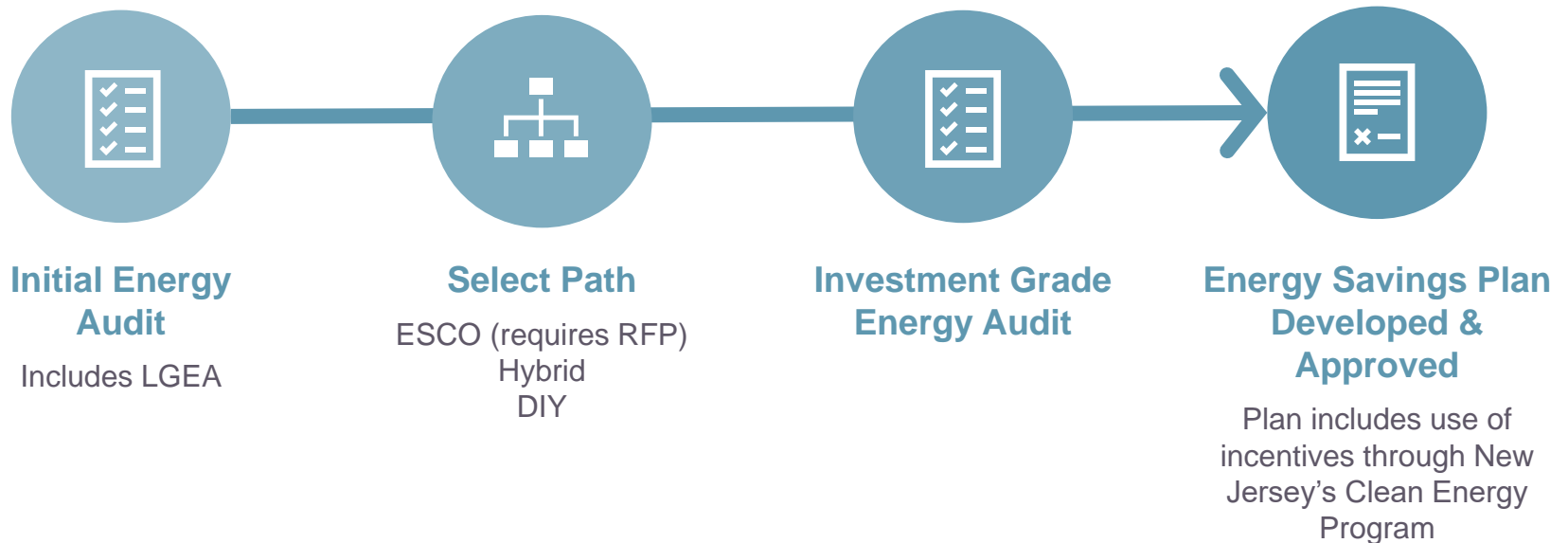
**SAME INCENTIVE
VALUES AS
SMARTSTART**

FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Provides alternative financing for energy savings projects at public institutions
- Administered directly by the BPU
- Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract
- Requires NO new bonding and is outside of capital budget
- Does not count as debt or require voter approval

FINANCING MECHANISM: ESIP



ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

FOR MORE INFORMATION

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ESIP Coordinator

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ESIP@bpu.nj.gov



FOR MORE INFORMATION

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QUESTIONS

