



LGEA Presentation Orange Board of Education

March 13, 2023

New Jersey's Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- Orange Board of Education
 - Jason Ballard
 Karen Nagel
 - Zachary Lamont
 EJ Vasquez
- NJ Clean Energy Program
 - Sarah Walters LGEA Project Manager
 - Moussa Traore LGEA Lead Auditor
 - Ryan Knippenberg LGEA Project Auditor
 - Nick Nocco LGEA Project Auditor
 - Michelle Rossi ESIP Coordinator (BPU)
 - Tracey Woods Sustainable Jersey



Agenda

- The audit process overview
- Energy use & existing conditions
- Review of Energy Conservation Measures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for Orange Board of Education



LGEA PROCESS



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

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

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

Utility Consumption:

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



Sites Visited/Analyzed

- Orange High School & Prep Academy
- Forest Street Community School
- Heywood Ave School
- Lincoln Ave School
- Oakwood Ave Community School
- Park Ave School
- Rosa Parks Community School
- Central Elementary School
- John R. Lewis Early Childhood Center
- Orange Early Childhood Center
- Scholars Academy (Formerly Mt. Carmel)
- STEM Innovation Academy
- Administrative Offices
- Bell Stadium Buildings

UTILITY BREAKOUT

program

Percent of Total Annual Energy Costs





Benchmarking



Site Name	ENERGY STAR Score
Administrative Offices	24
Bell Stadium Buildings	N/A
Central Elementary School	67
Forest Street Community School	72
Heywood Avenue School	67
Orange High School and Prep Academy	57
John R. Lewis ECC	47
Lincoln Avenue School	37
Oakwood Ave Community School	67
Orange ECC	67
Park Avenue School	35
Rosa Parks Community School	23
Scholars Academy	N/A
STEM Academy	75

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.

78.4

105.6

-17%

Professional Engineer or Registered Architect Stamp (if applicable)

Benchmarking



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ALL OPPORTUNITIES

Savings Potential







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

ALL OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting	Upgrades	1,577,718	343.0	-319.8	\$205,621	\$640,584	\$140,301	\$500,283	2.4	1,550,087
ECM 1	Install LED Fixtures	306,911	46.1	-44.4	\$39 <i>,</i> 450	\$153,286	\$19,635	\$133,651	3.4	303,679
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	42,024	8.8	-10.9	\$5,378	\$15,375	\$2,329	\$13,046	2.4	40,858
ECM 3	Retrofit Fixtures with LED Lamps	1,228,783	288.1	-264.5	\$160,792	\$471,923	\$118,337	\$353,586	2.2	1,205,550
Lighting	Control Measures	366,332	77.0	-79.0	\$47,601	\$290,734	\$79,760	\$210,974	4.4	359,433
ECM 4	Install Occupancy Sensor Lighting Controls	300,110	64.8	-64.7	\$38,971	\$219,634	\$27,720	\$191,914	4.9	294,465
ECM 5	Install High/Low Lighting Controls	66,222	12.2	-14.3	\$8,630	\$71,100	\$52,040	\$19,060	2.2	64,968
Motor L	Ipgrades	2,015	0.9	0.0	\$242	\$8,045	\$0	\$8,045	33.2	2,029
ECM 6	Premium Efficiency Motors	2,015	0.9	0.0	\$242	\$8,045	\$0	\$8,045	33.2	2,029
Variable	e Frequency Drive (VFD) Measures	295,421	74.7	299.8	\$40,867	\$329,937	\$33,925	\$296,012	7.2	332,587
ECM 7	Install VFDs on Constant Volume (CV) Fans	216,255	65.0	0.0	\$28,074	\$213,079	\$24,400	\$188,679	6.7	217,767
ECM 8	Install VFDs on Chilled Water Pumps	9,960	2.8	0.0	\$1,303	\$11,890	\$2,000	\$9,890	7.6	10,030
ECM 9	Install VFDs on Heating Water Pumps	32,461	4.5	0.0	\$3,895	\$59,124	\$3,100	\$56,024	14.4	32,688
ECM 10	Install VFDs on Kitchen Hood Fan Motors	36,744	2.4	299.8	\$7,595	\$45,843	\$4,425	\$41,418	5.5	72,101
Unitary	HVAC Measures	98,547	72.6	44.3	\$13,951	\$558 <i>,</i> 855	\$26,104	\$532,751	38.2	104,426
ECM 11	Install High Efficiency Air Conditioning Units	85,536	64.0	44.3	\$11,943	\$533,609	\$25,264	\$508,345	42.6	91,323
ECM 12	Install High Efficiency Heat Pumps	2,643	2.4	0.0	\$432	\$13,392	\$600	\$12,792	29.6	2,661
ECM 13	Install High Efficiency PTAC/PTHP	10,369	6.3	0.0	\$1,576	\$11,854	\$240	\$11,614	7.4	10,441



ALL OPPORTUNITIES

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Gas Hea	ting (HVAC/Process) Replacement	0	0.0	865.4	\$8,949	\$387,967	\$25,115	\$362,852	40.5	102,401
ECM 14	Install High Efficiency Hot Water Boilers	0	0.0	865.4	\$8,949	\$387,967	\$25,115	\$362 <i>,</i> 852	40.5	102,401
HVAC Sy	stem Improvements	437	0.0	207.8	\$3,024	\$2,928	\$360	\$2,568	0.8	27,655
ECM 15	Install Pipe Insulation	437	0.0	207.8	\$3,024	\$2,928	\$360	\$2,568	0.8	27,655
Domesti	c Water Heating Upgrade	5,482	0.0	114.6	\$1,996	\$10,795	\$1,618	\$9,177	4.6	18,937
ECM 16	Install High Efficiency Gas-Fired Water Heater	0	0.0	9.8	\$96	\$8 <i>,</i> 493	\$697	\$7,797	80.9	1,146
ECM 17	Install Low-Flow DHW Devices	5,482	0.0	104.8	\$1,900	\$2,302	\$922	\$1 <i>,</i> 380	0.7	17,791
Food Se	rvice & Refrigeration Measures	36,277	3.5	26.6	\$5,027	\$33,381	\$3,340	\$30,041	6.0	39,648
ECM 18	Food Service Equipment Replacement	0	0.0	26.6	\$265	\$4,839	\$1,000	\$3 <i>,</i> 839	14.5	3,117
ECM 19	Refrigerator/Freezer Case Electrically Commutated Motors	5,332	0.7	0.0	\$666	\$6 <i>,</i> 369	\$840	\$5 <i>,</i> 529	8.3	5,369
ECM 20	Refrigeration Controls	7,990	0.2	0.0	\$961	\$16,103	\$775	\$15 <i>,</i> 328	16.0	8,046
ECM 21	Replace Refrigeration Equipment	1,659	0.2	0.0	\$306	\$2 <i>,</i> 850	\$75	\$2,775	9.1	1,671
ECM 22	Vending Machine Control	21,296	2.4	0.0	\$2 <i>,</i> 829	\$3,220	\$650	\$2,570	0.9	21,445
Custom	Measures	74,119	0.0	2,093.5	\$30,067	\$298,453	\$0	\$298,453	9.9	319,764
ECM 23	Retro-Commissioning Study	76,256	0.0	933.0	\$19,589	\$98,500	\$0	\$98 <i>,</i> 500	5.0	186,033
ECM 24	Upgrade/Replace Energy Management System	56 <i>,</i> 489	0.0	430.5	\$10,832	\$158,550	\$0	\$158,550	14.6	107,293
ECM 25	Replace Electric Water Heater with Heat Pump Water Heater	9,848	0.0	0.0	\$1,247	\$11,470	\$0	\$11,470	9.2	9,917
ECM 26	Replace Gas Fired Water Heater with Heat Pump Water Heater	-68,474	0.0	730.0	-\$1,601	\$29,933	\$0	\$29,933	-18.7	16,521
	TOTALS	2,456,348	571.7	3,253.2	\$357,345	\$2,561,679	\$310,523	\$2,251,156	6.3	2,856,967

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



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 M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades	1,577,718	343.0	-319.8	\$205,621	\$640,584	\$140,301	\$500,283	2.4	1,550,087
ECM 1	Install LED Fixtures	306,911	46.1	-44.4	\$39,450	\$153,286	\$19,635	\$133,651	3.4	303,679
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	42,024	8.8	-10.9	\$5,378	\$15,375	\$2,329	\$13,046	2.4	40,858
ECM 3	Retrofit Fixtures with LED Lamps	1,228,783	288.1	-264.5	\$160,792	\$471,923	\$118,337	\$353,586	2.2	1,205,550
Lighting	Control Measures	366,332	77.0	-79.0	\$47,601	\$290,734	\$79,760	\$210,974	4.4	359,433
ECM 4	Install Occupancy Sensor Lighting Controls	300,110	64.8	-64.7	\$38,971	\$219,634	\$27,720	\$191,914	4.9	294,465
ECM 5	Install High/Low Lighting Controls	66,222	12.2	-14.3	\$8,630	\$71,100	\$52,040	\$19,060	2.2	64,968
Variable	e Frequency Drive (VFD) Measures	289,773	74.0	299.8	\$40,073	\$298,327	\$33,525	\$264,802	6.6	326,899
ECM 7	Install VFDs on Constant Volume (CV) Fans	216,255	65.0	0.0	\$28,074	\$213,079	\$24,400	\$188,679	6.7	217,767
ECM 8	Install VFDs on Chilled Water Pumps	9,960	2.8	0.0	\$1,303	\$11,890	\$2,000	\$9,890	7.6	10,030
ECM 9	Install VFDs on Heating Water Pumps	26,813	3.9	0.0	\$3,101	\$27,514	\$2,700	\$24,814	8.0	27,001
ECM 10	Install VFDs on Kitchen Hood Fan Motors	36,744	2.4	299.8	\$7 <i>,</i> 595	\$45,843	\$4,425	\$41,418	5.5	72,101
Unitary	HVAC Measures	10,369	6.3	0.0	\$1,576	\$11,854	\$240	\$11,614	7.4	10,441
ECM 13	Install High Efficiency PTAC/PTHP	10,369	6.3	0.0	\$1,576	\$11,854	\$240	\$11,614	7.4	10,441
HVAC S	ystem Improvements	437	0.0	207.8	\$3,024	\$2,928	\$360	\$2,568	0.8	27,655
ECM 15	Install Pipe Insulation	437	0.0	207.8	\$3,024	\$2,928	\$360	\$2,568	0.8	27,655
Domest	ic Water Heating Upgrade	5,482	0.0	104.8	\$1,900	\$2,302	\$922	\$1,380	0.7	17,791
ECM 17	Install Low-Flow DHW Devices	5,482	0.0	104.8	\$1,900	\$2,302	\$922	\$1,380	0.7	17,791
Food Se	rvice & Refrigeration Measures	27,656	3.2	26.6	\$3,977	\$15,678	\$2,490	\$13,188	3.3	30,966
ECM 18	Food Service Equipment Replacement	0	0.0	26.6	\$265	\$4,839	\$1,000	\$3,839	14.5	3,117
ECM 19	Refrigerator/Freezer Case Electrically Commutated Motors	5,332	0.7	0.0	\$666	\$6,369	\$840	\$5,529	8.3	5,369
ECM 21	Replace Refrigeration Equipment	1,027	0.1	0.0	\$217	\$1,250	\$0	\$1,250	5.8	1,035
ECM 22	Vending Machine Control	21,296	2.4	0.0	\$2,829	\$3,220	\$650	\$2,570	0.9	21,445
Custom	Measures	97,356	0.0	1,037.1	\$23,333	\$132,070	\$0	\$132,070	5.7	219,472
ECM 23	Retro-Commissioning Study	76,256	0.0	933.0	\$19,589	\$98,500	\$0	\$98,500	5.0	186,033
ECM 24	Upgrade/Replace Energy Management System	17,406	0.0	104.1	\$3,182	\$31,500	\$0	\$31,500	9.9	29,720
ECM 25	Replace Electric Water Heater with Heat Pump Water Heater	3,693	0.0	0.0	\$562	\$2,070	\$0	\$2,070	3.7	3,719
	TOTALS	2,375,122	503.5	1,277.3	\$327,105	\$1,394,477	\$257,598	\$1,136,879	3.5	2,542,745

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ORANGE HIGH SCHOOL & PREP ACADEMY

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (lbs)
Lighting	Upgrades		417,933	75.7	-85	\$53,797	\$137,508	\$31,901	\$105,607	2.0	410,885
ECM 1	Install LED Fixtures	Yes	62,932	10.0	-11	\$8,118	\$25,827	\$2,910	\$22,917	2.8	62,066
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	30,256	5.8	-6	\$3,893	\$9,157	\$1,372	\$7,785	2.0	29,727
ECM 3	Retrofit Fixtures with LED Lamps	Yes	324,745	59.9	-68	\$41,786	\$102,525	\$27,619	\$74,906	1.8	319,092
Lighting	Control Measures		115,078	20.9	-24	\$14,807	\$80,343	\$24,200	\$56,143	3.8	113,065
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	88,294	16.8	-18	\$11,360	\$57,168	\$7,260	\$49,908	4.4	86,750
ECM 5	Install High/Low Lighting Controls	Yes	26,784	4.1	-6	\$3,446	\$23,175	\$16,940	\$6,235	1.8	26,316
Motor U	lpgrades		243	0.1	0	\$32	\$1,774	\$0	\$1,774	55.8	245
ECM 6	Premium Efficiency Motors	No	243	0.1	0	\$32	\$1,774	\$0	\$1,774	55.8	245
Variable	Frequency Drive (VFD) Measures		112,537	29.1	143	\$16,199	\$140,399	\$12,425	\$127,974	7.9	130,111
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	83,969	26.3	0	\$10,985	\$106,912	\$7,425	\$99,487	9.1	84,556
ECM 8	Install VFDs on Chilled Water Pumps	Yes	9,960	2.8	0	\$1,303	\$11,890	\$2,000	\$9,890	7.6	10,030
ECM 9	Install VFDs on Kitchen Hood Fan Motors	Yes	18,608	0.0	143	\$3,912	\$21,597	\$3,000	\$18,597	4.8	35,525
Unitary	HVAC Measures		14,598	20.9	0	\$1,910	\$176,091	\$7,560	\$168,531	88.2	14,700
ECM 10	Install High Efficiency Air Conditioning Units	No	14,598	20.9	0	\$1,910	\$176,091	\$7,560	\$168,531	88.2	14,700
HVAC Sy	stem Improvements		437	0.0	10	\$163	\$604	\$90	\$514	3.2	1,644
ECM 11	Install Pipe Insulation	Yes	437	0.0	10	\$163	\$604	\$90	\$514	3.2	1,644
Domesti	c Water Heating Upgrade		0	0.0	24	\$249	\$366	\$183	\$183	0.7	2,833
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	24	\$249	\$366	\$183	\$183	0.7	2,833
Food Se	rvice & Refrigeration Measures		16,895	1.8	0	\$2,210	\$9,215	\$905	\$8,310	3.8	17,013
ECM 13	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,571	0.2	0	\$205	\$2,123	\$280	\$1,843	9.0	1,582
ECM 14	Refrigeration Controls	No	2,087	0.1	0	\$273	\$5,022	\$225	\$4,797	17.6	2,102
ECM 15	Vending Machine Control	Yes	13,237	1.5	0	\$1,732	\$2,070	\$400	\$1,670	1.0	13,330
Custom	Measures		23,736	0.0	1,493	\$18,489	\$112,732	\$0	\$112,732	6.1	198,715
ECM 16	Retro-Commissioning Study	Yes	76,256	0.0	933	\$19,589	\$98,500	\$0	\$98,500	5.0	186,033
ECM 17	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-52,520	0.0	560	-\$1,100	\$14,232	\$0	\$14,232	-12.9	12,682
	TOTALS (COST EFFECTIVE MEASURES)		737,049	127.3	1,002	\$106,741	\$461,913	\$69,479	\$392,434	3.7	859,483
	TOTALS (ALL MEASURES)		701,458	148.3	1,562	\$107,856	\$659,032	\$77,264	\$581,769	5.4	889,212

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

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

Negative payback explained in Section 4.9

FOREST STREET COMMUNITY SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		90,694	18.6	-17	\$14,657	\$35,426	\$8,005	\$27,421	1.9	89,321
ECM 1	Install LED Fixtures	Yes	22,083	2.9	-3	\$3,581	\$9 <i>,</i> 507	\$1,050	\$8,457	2.4	21,910
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,258	0.6	0	\$203	\$1,186	\$192	\$994	4.9	1,236
ECM 3	Retrofit Fixtures with LED Lamps	Yes	67,352	15.1	-14	\$10,873	\$24,733	\$6,763	\$17,970	1.7	66,174
Lighting	Control Measures		20,331	4.6	-4	\$3,282	\$14,493	\$2,760	\$11,733	3.6	19,976
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	19,382	4.4	-4	\$3,129	\$12,918	\$1,640	\$11,278	3.6	19,043
ECM 5	Install High/Low Lighting Controls	Yes	949	0.2	0	\$153	\$1,575	\$1,120	\$455	3.0	933
Unitary	HVAC Measures		2,873	2.5	0	\$469	\$14,334	\$600	\$13,734	29.3	2,893
ECM 6	Install High Efficiency Air Conditioning Units	No	230	0.2	0	\$38	\$942	\$0	\$942	25.1	232
ECM 7	Install High Efficiency Heat Pumps	No	2,643	2.4	0	\$432	\$13,392	\$600	\$12,792	29.6	2,661
Domest	ic Water Heating Upgrade		0	0.0	2	\$17	\$43	\$15	\$28	1.6	222
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	2	\$17	\$43	\$15	\$28	1.6	222
Food Se	rvice & Refrigeration Measures		1,612	0.2	0	\$263	\$230	\$50	\$180	0.7	1,623
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$263	\$230	\$50	\$180	0.7	1,623
	TOTALS (COST EFFECTIVE MEASURES)		112,638	23.4	-19	\$18,220	\$50,192	\$10,830	\$39,361	2.2	111,142
	TOTALS (ALL MEASURES)		115,511	25.9	-19	\$18,689	\$64,526	\$11,430	\$53,096	2.8	114,035

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

HEYWOOD AVE SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		68,448	19.9	-14	\$10,225	\$37,171	\$8,367	\$28,804	2.8	67,310
ECM 1	Install LED Fixtures	Yes	13,090	3.7	-2	\$1,960	\$8,476	\$950	\$7,526	3.8	12,908
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,106	0.4	0	\$165	\$819	\$130	\$689	4.2	1,086
ECM 3	Retrofit Fixtures with LED Lamps	Yes	54,252	15.8	-11	\$8,101	\$27,876	\$7,287	\$20,589	2.5	53,316
Lighting	Control Measures		16,534	4.8	-3	\$2,468	\$14,394	\$3,685	\$10,709	4.3	16,245
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	11,888	4.0	-2	\$1,775	\$11,244	\$1,500	\$9,744	5.5	11,680
ECM 5	Install High/Low Lighting Controls	Yes	4,646	0.9	-1	\$694	\$3,150	\$2,185	\$965	1.4	4,565
Motor U	Jpgrades		148	0.0	0	\$22	\$1,257	\$0	\$1,257	56.0	149
ECM 6	Premium Efficiency Motors	No	148	0.0	0	\$22	\$1,257	\$0	\$1,257	56.0	149
Unitary	HVAC Measures		12,045	7.2	0	\$1,831	\$25,531	\$923	\$24,608	13.4	12,129
ECM 7	Install High Efficiency Air Conditioning Units	No	1,677	1.0	0	\$255	\$13,677	\$683	\$12,995	51.0	1,688
ECM 8	Install High Efficiency PTAC/PTHP	Yes	10,369	6.3	0	\$1,576	\$11,854	\$240	\$11,614	7.4	10,441
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	29	\$384	\$31,875	\$1,200	\$30,675	80.0	3,409
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	29	\$384	\$31,875	\$1,200	\$30,675	80.0	3,409
Domest	ic Water Heating Upgrade		1,586	0.0	8	\$341	\$201	\$94	\$107	0.3	2,486
ECM 10	Install Low-Flow DHW Devices	Yes	1,586	0.0	8	\$341	\$201	\$94	\$107	0.3	2,486
Food Se	rvice & Refrigeration Measures		1,612	0.2	0	\$245	\$230	\$50	\$180	0.7	1,623
ECM 11	Vending Machine Control	Yes	1,612	0.2	0	\$245	\$230	\$50	\$180	0.7	1,623
Custom	Measures		-2,413	0.0	65	\$490	\$5,205	\$0	\$5,205	10.6	5,181
ECM 12	Replace Electric Water Heater with Heat Pump Water Heater	Yes	3,693	0.0	0	\$562	\$2,070	\$0	\$2,070	3.7	3,719
ECM 13	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-6,106	0.0	65	-\$72	\$3,135	\$0	\$3,135	-43.5	1,462
	TOTALS (COST EFFECTIVE MEASURES)		102,242	31.2	-10	\$15,418	\$65,919	\$12,436	\$53,483	3.5	101,825
	TOTALS (ALL MEASURES)		97,960	32.2	84	\$16,007	\$115,863	\$14,319	\$101,545	6.3	108,533

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

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

Negative payback explained in section 4.8

LINCOLN AVE SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		183,347	53.3	-32	\$23,230	\$113,009	\$19,833	\$93,176	4.0	180,837
ECM 1	Install LED Fixtures	Yes	51,455	7.3	-5	\$6,560	\$34,564	\$5,700	\$28,864	4.4	51,242
ECM 2	Retrofit Fixtures with LED Lamps	Yes	131,892	46.0	-27	\$16,669	\$78,445	\$14,133	\$64,312	3.9	129,595
Lighting	Control Measures		15,043	4.9	-3	\$1,901	\$31,259	\$8,245	\$23,014	12.1	14,780
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	11,534	3.8	-2	\$1,458	\$24,284	\$2,985	\$21,299	14.6	11,332
ECM 4	Install High/Low Lighting Controls	Yes	3,510	1.1	-1	\$444	\$6 <i>,</i> 975	\$5,260	\$1,715	3.9	3,448
Variable	Frequency Drive (VFD) Measures		7,818	2.2	0	\$1,004	\$5,945	\$1,000	\$4,945	4.9	7,873
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	7,818	2.2	0	\$1,004	\$5,945	\$1,000	\$4,945	4.9	7,873
Domest	ic Water Heating Upgrade		0	0.0	1	\$8	\$29	\$8	\$21	2.7	92
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$8	\$29	\$8	\$21	2.7	92
Food Se	rvice & Refrigeration Measures		2,834	0.2	0	\$364	\$4,865	\$350	\$4,515	12.4	2,854
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,307	0.2	0	\$168	\$1,517	\$200	\$1,317	7.8	1,316
ECM 8	Refrigeration Controls	No	1,527	0.1	0	\$196	\$3 <i>,</i> 348	\$150	\$3,198	16.3	1,538
	TOTALS (COST EFFECTIVE MEASURES)		207,516	60.6	-35	\$26,310	\$151,759	\$29,286	\$122,473	4.7	204,898
	TOTALS (ALL MEASURES)		209,043	60.7	-35	\$26,506	\$155,107	\$29,436	\$125,671	4.7	206,436

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

OAKWOOD AVE COMMUNITY SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting	Upgrades		62,849	17.4	-13	\$8,713	\$29,530	\$6,412	\$23,118	2.7	61,766
ECM 1	Install LED Fixtures	Yes	11,319	3.0	-2	\$1,569	\$7,370	\$690	\$6,680	4.3	11,121
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	45	0.0	0	\$6	\$49	\$3	\$46	7.2	45
ECM 3	Retrofit Fixtures with LED Lamps	Yes	51,485	14.4	-11	\$7,137	\$22,111	\$5,719	\$16,392	2.3	50,601
Lighting	Control Measures		12,426	3.4	-3	\$1,722	\$12,786	\$3,150	\$9,636	5.6	12,209
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	10,943	3.0	-2	\$1,517	\$9 <i>,</i> 636	\$1,260	\$8,376	5.5	10,752
ECM 5	Install High/Low Lighting Controls	Yes	1,483	0.4	0	\$206	\$3,150	\$1,890	\$1,260	6.1	1,457
Variable	e Frequency Drive (VFD) Measures		26,455	6.6	0	\$3,719	\$45,814	\$2,500	\$43,314	11.6	26,640
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	20,807	6.0	0	\$2,925	\$14,205	\$2,100	\$12,105	4.1	20,952
ECM 7	Install VFDs on Heating Water Pumps	No	5,648	0.7	0	\$794	\$31,610	\$400	\$31,210	39.3	5,687
Unitary	HVAC Measures		7,215	9.2	43	\$1,418	\$78,754	\$3,915	\$74,839	52.8	12,278
ECM 8	Install High Efficiency Air Conditioning Units	No	7,215	9.2	43	\$1,418	\$78,754	\$3,915	\$74,839	52.8	12,278
Gas Hea	ating (HVAC/Process) Replacement		0	0.0	63	\$595	\$39,772	\$3,000	\$36,772	61.8	7,384
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	63	\$595	\$39,772	\$3,000	\$36,772	61.8	7,384
Domest	ic Water Heating Upgrade		2,093	0.0	9	\$376	\$347	\$98	\$248	0.7	3,116
ECM 10	Install Low-Flow DHW Devices	Yes	2,093	0.0	9	\$376	\$347	\$98	\$248	0.7	3,116
Food Se	rvice & Refrigeration Measures		2,865	0.3	0	\$403	\$2,437	\$205	\$2,232	5.5	2,885
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	622	0.1	0	\$87	\$607	\$80	\$527	6.0	626
ECM 12	Replace Refrigeration Equipment	No	631	0.1	0	\$89	\$1,600	\$75	\$1,525	17.2	636
ECM 13	Vending Machine Control	Yes	1,612	0.2	0	\$227	\$230	\$50	\$180	0.8	1,623
	TOTALS (COST EFFECTIVE MEASURES)		100,410	27.0	-7	\$14,050	\$57,704	\$11,890	\$45,813	3.3	100,293
	TOTALS (ALL MEASURES)		113,904	36.9	99	\$16,946	\$209,439	\$19,280	\$190,158	11.2	126,278

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

PARK AVE SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades		206,851	38.9	-41	\$22,636	\$68,600	\$15,830	\$52,770	2.3	203,516
ECM 1	Install LED Fixtures	Yes	46,932	6.8	-7	\$5,154	\$18,200	\$2,160	\$16,040	3.1	46,394
ECM 2	Retrofit Fixtures with LED Lamps	Yes	159,919	32.0	-33	\$17,482	\$50,399	\$13,670	\$36,729	2.1	157,122
Lighting	Control Measures		47,893	9.2	-10	\$5,236	\$41,266	\$10,905	\$30,361	5.8	47,055
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	38,580	7.8	-8	\$4,218	\$32,716	\$3,870	\$28,846	6.8	37,905
ECM 4	Install High/Low Lighting Controls	Yes	9,313	1.4	-2	\$1,018	\$8,550	\$7,035	\$1,515	1.5	9,150
Motor L	Jpgrades		1,266	0.6	0	\$141	\$2,954	\$0	\$2,954	21.0	1,275
ECM 5	Premium Efficiency Motors	No	1,266	0.6	0	\$141	\$2,954	\$0	\$2,954	21.0	1,275
Variable	Frequency Drive (VFD) Measures		19,306	4.5	78	\$2,897	\$19,867	\$2,250	\$17,617	6.1	28,598
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	14,771	4.4	0	\$1,644	\$11,724	\$2,000	\$9,724	5.9	14,874
ECM 7	Install VFDs on Kitchen Hood Fan Motors	Yes	4,535	0.1	78	\$1,253	\$8,143	\$250	\$7,893	6.3	13,724
Unitary	HVAC Measures		3,375	3.4	0	\$376	\$27,584	\$1,575	\$26,009	69.2	3,399
ECM 8	Install High Efficiency Air Conditioning Units	No	3,375	3.4	0	\$376	\$27,584	\$1,575	\$26,009	69.2	3,399
Domest	ic Water Heating Upgrade		801	0.0	0	\$89	\$50	\$25	\$25	0.3	807
ECM 9	Install Low-Flow DHW Devices	Yes	801	0.0	0	\$89	\$50	\$25	\$25	0.3	807
Food Se	rvice & Refrigeration Measures		4,999	0.4	0	\$556	\$5,310	\$410	\$4,900	8.8	5,034
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,047	0.1	0	\$117	\$1,213	\$160	\$1,053	9.0	1,054
ECM 11	Refrigeration Controls	No	2,340	0.0	0	\$260	\$3,867	\$200	\$3,667	14.1	2,356
ECM 12	Vending Machine Control	Yes	1,612	0.2	0	\$179	\$230	\$50	\$180	1.0	1,623
Custom	Measures		-410	0.0	70	\$624	\$18,800	\$0	\$18,800	30.1	7,783
ECM 13	Replace Electric Water Heater with Heat Pump Water Heater	No	6,155	0.0	0	\$685	\$9,400	\$0	\$9,400	13.7	6,198
ECM 14	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-6,565	0.0	70	-\$61	\$9,400	\$0	\$9,400	-154.1	1,585
	TOTALS (COST EFFECTIVE MEASURES)		277,510	52.9	27	\$31,155	\$131,226	\$29,220	\$102,006	3.3	282,653
	TOTALS (ALL MEASURES)		284,081	56.9	97	\$32,556	\$184,431	\$30,995	\$153,436	4.7	297,466

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

ROSA PARKS COMMUNITY SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		259,358	44.4	-48	\$28,970	\$89,917	\$19,792	\$70,125	2.4	255,588
ECM 1	Install LED Fixtures	Yes	69,542	7.8	-9	\$7,808	\$27,311	\$3,050	\$24,261	3.1	69,009
ECM 2	Retrofit Fixtures with LED Lamps	Yes	189,816	36.6	-39	\$21,162	\$62,606	\$16,742	\$45,864	2.2	186,579
Lighting	Control Measures		75,316	12.5	-16	\$8,394	\$39,587	\$11,960	\$27,627	3.3	73,999
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	66,140	10.9	-14	\$7,371	\$29,012	\$3,700	\$25,312	3.4	64,984
ECM 4	Install High/Low Lighting Controls	Yes	9,176	1.6	-2	\$1,023	\$10,575	\$8,260	\$2,315	2.3	9,015
Variable	Frequency Drive (VFD) Measures		72,635	19.1	78	\$9,015	\$67,836	\$8,875	\$58,961	6.5	82,299
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	45,873	15.9	0	\$5,207	\$39,323	\$6,300	\$33,023	6.3	46,194
ECM 6	Install VFDs on Heating Water Pumps	Yes	20,979	3.1	0	\$2,381	\$18,354	\$2 <i>,</i> 400	\$15,954	6.7	21,126
ECM 7	Install VFDs on Kitchen Hood Fan Motors	Yes	5,783	0.0	78	\$1,426	\$10,159	\$175	\$9,984	7.0	14,980
Unitary	HVAC Measures		2,955	2.5	0	\$335	\$23,177	\$1,103	\$22,074	65.8	2,976
ECM 8	Install High Efficiency Air Conditioning Units	No	2,955	2.5	0	\$335	\$23,177	\$1,103	\$22,074	65.8	2,976
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	570	\$5,615	\$211,409	\$14,362	\$197,048	35.1	66,778
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	570	\$5,615	\$211,409	\$14,362	\$197,048	35.1	66,778
Domesti	c Water Heating Upgrade		0	0.0	42	\$409	\$8,974	\$937	\$8,037	19.6	4,868
ECM 10	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	10	\$96	\$8,493	\$697	\$7,797	80.9	1,146
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	32	\$313	\$480	\$240	\$240	0.8	3,722
Food Se	rvice & Refrigeration Measures		4,433	0.3	0	\$503	\$5,007	\$370	\$4,637	9.2	4,464
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	785	0.1	0	\$89	\$910	\$120	\$790	8.9	791
ECM 13	Refrigeration Controls	No	2,035	0.0	0	\$231	\$3,867	\$200	\$3,667	15.9	2,050
ECM 14	Vending Machine Control	Yes	1,612	0.2	0	\$183	\$230	\$50	\$180	1.0	1,623
Custom	Measures		39,082	0.0	326	\$7,650	\$127,050	\$0	\$127,050	16.6	77,573
ECM 15	Upgrade/Replace Energy Management System	No	39,082	0.0	326	\$7,650	\$127,050	\$0	\$127,050	16.6	77,573
	TOTALS (COST EFFECTIVE MEASURES)		409,707	76.3	47	\$46,963	\$198,959	\$41,037	\$157,922	3.4	418,022
	TOTALS (ALL MEASURES)		453,779	78.8	953	\$60,891	\$572,955	\$57,398	\$515,558	8.5	568,543

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

CENTRAL ELEMENTARY SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting	Upgrades		61,904	18.6	-12	\$10,801	\$39,125	\$9,324	\$29,801	2.8	60,895
ECM 1	Install LED Fixtures	Yes	6,833	1.3	-1	\$1,198	\$8,401	\$950	\$7,451	6.2	6,787
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	519	0.2	0	\$91	\$237	\$40	\$197	2.2	510
ECM 3	Retrofit Fixtures with LED Lamps	Yes	54,552	17.2	-11	\$9,513	\$30 <i>,</i> 488	\$8,334	\$22,154	2.3	53,598
Lighting	Control Measures		18,367	5.8	-4	\$3,203	\$17,097	\$4,510	\$12,587	3.9	18,046
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	15,021	4.9	-3	\$2,619	\$11,922	\$1,605	\$10,317	3.9	14,758
ECM 5	Install High/Low Lighting Controls	Yes	3,346	0.9	-1	\$584	\$5,175	\$2 <i>,</i> 905	\$2,270	3.9	3,288
HVAC Sy	stem Improvements		0	0.0	11	\$103	\$358	\$60	\$298	2.9	1,229
ECM 6	Install Pipe Insulation	Yes	0	0.0	11	\$103	\$358	\$60	\$298	2.9	1,229
Domesti	c Water Heating Upgrade		0	0.0	8	\$79	\$122	\$61	\$61	0.8	944
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$79	\$122	\$61	\$61	0.8	944
	TOTALS (COST EFFECTIVE MEASURES)		80,271	24.5	2	\$14,187	\$56,702	\$13,955	\$42,747	3.0	81,114
	TOTALS (ALL MEASURES)		80,271	24.5	2	\$14,187	\$56,702	\$13,955	\$42,747	3.0	81,114

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

JOHN R LEWIS EARLY CHILDHOOD CENTER

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (lbs)
Lighting Upgrades			19,783	2.5	-3	\$4,146	\$6,731	\$1,537	\$5,194	1.3	19,599
ECM 1	Install LED Fixtures	Yes	6,623	0.0	0	\$1,397	\$2,826	\$475	\$2,351	1.7	6,669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	13,160	2.5	-3	\$2,749	\$3 <i>,</i> 905	\$1,062	\$2,843	1.0	12,930
Lighting Control Measures			2,983	0.6	-1	\$623	\$3,119	\$535	\$2,584	4.1	2,931
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,911	0.5	-1	\$608	\$2 <i>,</i> 894	\$395	\$2,499	4.1	2,860
ECM 4	Install High/Low Lighting Controls	Yes	72	0.0	0	\$15	\$225	\$140	\$85	5.7	71
Variable Frequency Drive (VFD) Measures			5,861	1.4	0	\$1,236	\$5,028	\$900	\$4,128	3.3	5,902
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	5,861	1.4	0	\$1,236	\$5,028	\$900	\$4,128	3.3	5,902
Unitary	HVAC Measures		8,200	7.1	0	\$1,730	\$47,004	\$2,670	\$44,334	25.6	8,257
ECM 6	Install High Efficiency Air Conditioning Units	No	8,200	7.1	0	\$1,730	\$47,004	\$2,670	\$44,334	25.6	8,257
Domest	ic Water Heating Upgrade		0	0.0	4	\$41	\$72	\$30	\$42	1.0	484
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$41	\$72	\$30	\$42	1.0	484
Food Se	rvice & Refrigeration Measures		1,027	0.1	27	\$482	\$6,089	\$1,000	\$5,089	10.6	4,151
ECM 8	Food Service Equipment Replacement	Yes	0	0.0	27	\$265	\$4,839	\$1,000	\$3,839	14.5	3,117
ECM 9	Replace Refrigeration Equipment	Yes	1,027	0.1	0	\$217	\$1,250	\$0	\$1,250	5.8	1,035
	TOTALS (COST EFFECTIVE MEASURES)		29,654	4.6	27	\$6,528	\$21,038	\$4,002	\$17,037	2.6	33,066
TOTALS (ALL MEASURES)			37,854	11.7	27	\$8,258	\$68,042	\$6,672	\$61,370	7.4	41,324

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

JOHN R LEWIS EARLY CHILDHOOD CENTER

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (lbs)
Lighting Upgrades			19,783	2.5	-3	\$4,146	\$6,731	\$1,537	\$5,194	1.3	19,599
ECM 1	Install LED Fixtures	Yes	6,623	0.0	0	\$1,397	\$2,826	\$475	\$2,351	1.7	6,669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	13,160	2.5	-3	\$2,749	\$3 <i>,</i> 905	\$1,062	\$2,843	1.0	12,930
Lighting Control Measures			2,983	0.6	-1	\$623	\$3,119	\$535	\$2,584	4.1	2,931
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,911	0.5	-1	\$608	\$2 <i>,</i> 894	\$395	\$2,499	4.1	2,860
ECM 4	Install High/Low Lighting Controls	Yes	72	0.0	0	\$15	\$225	\$140	\$85	5.7	71
Variable Frequency Drive (VFD) Measures			5,861	1.4	0	\$1,236	\$5,028	\$900	\$4,128	3.3	5,902
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	5,861	1.4	0	\$1,236	\$5,028	\$900	\$4,128	3.3	5,902
Unitary	HVAC Measures		8,200	7.1	0	\$1,730	\$47,004	\$2,670	\$44,334	25.6	8,257
ECM 6	Install High Efficiency Air Conditioning Units	No	8,200	7.1	0	\$1,730	\$47,004	\$2,670	\$44,334	25.6	8,257
Domest	ic Water Heating Upgrade		0	0.0	4	\$41	\$72	\$30	\$42	1.0	484
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$41	\$72	\$30	\$42	1.0	484
Food Se	rvice & Refrigeration Measures		1,027	0.1	27	\$482	\$6,089	\$1,000	\$5,089	10.6	4,151
ECM 8	Food Service Equipment Replacement	Yes	0	0.0	27	\$265	\$4,839	\$1,000	\$3,839	14.5	3,117
ECM 9	Replace Refrigeration Equipment	Yes	1,027	0.1	0	\$217	\$1,250	\$0	\$1,250	5.8	1,035
	TOTALS (COST EFFECTIVE MEASURES)		29,654	4.6	27	\$6,528	\$21,038	\$4,002	\$17,037	2.6	33,066
TOTALS (ALL MEASURES)			37,854	11.7	27	\$8,258	\$68,042	\$6,672	\$61,370	7.4	41,324

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

ORANGE EARLY CHILDHOOD CENTER

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting Upgrades			43,740	8.4	-9	\$7,495	\$15,785	\$3,825	\$11,960	1.6	43,045
ECM 1	Install LED Fixtures	Yes	2,865	0.0	0	\$496	\$1,503	\$450	\$1,053	2.1	2,885
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	249	0.1	0	\$43	\$179	\$22	\$157	3.7	245
ECM 3	Retrofit Fixtures with LED Lamps	Yes	40,626	8.3	-8	\$6 <i>,</i> 956	\$14,102	\$3,353	\$10,749	1.5	39,916
Lighting Control Measures			10,643	2.2	-2	\$1,822	\$8,732	\$3,150	\$5,582	3.1	10,457
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	8,134	1.7	-2	\$1,393	\$5,132	\$700	\$4,432	3.2	7,992
ECM 5	Install High/Low Lighting Controls	Yes	2,508	0.5	-1	\$429	\$3,600	\$2 <i>,</i> 450	\$1,150	2.7	2,464
Variable	e Frequency Drive (VFD) Measures		10,572	3.4	0	\$1,832	\$13,942	\$1,875	\$12,067	6.6	10,646
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	10,572	3.4	0	\$1,832	\$13,942	\$1 <i>,</i> 875	\$12,067	6.6	10,646
Unitary	HVAC Measures		647	0.9	2	\$127	\$13,373	\$474	\$12,899	101.4	828
ECM 7	Install High Efficiency Air Conditioning Units	No	647	0.9	2	\$127	\$13,373	\$474	\$12,899	101.4	828
Domest	ic Water Heating Upgrade		1,001	0.0	0	\$173	\$86	\$43	\$43	0.2	1,008
ECM 8	Install Low-Flow DHW Devices	Yes	1,001	0.0	0	\$173	\$86	\$43	\$43	0.2	1,008
TOTALS (COST EFFECTIVE MEASURES)			65,956	14.0	-11	\$11,323	\$38,545	\$8,893	\$29,652	2.6	65,156
TOTALS (ALL MEASURES)			66,602	14.9	-9	\$11,450	\$51,918	\$9,367	\$42,551	3.7	65,983

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

SCHOLARS ACADEMY

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting Upgrades			14,117	11.5	-3	\$3,029	\$21,072	\$5,674	\$15,398	5.1	13,874
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	114	0.2	0	\$24	\$515	\$80	\$435	17.9	112
ECM 2	Retrofit Fixtures with LED Lamps	Yes	14,003	11.3	-3	\$3,005	\$20,557	\$5,594	\$14,963	5.0	13,763
Lighting Control Measures			3,459	2.4	-1	\$742	\$5,895	\$1,990	\$3,905	5.3	3,399
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,581	1.9	-1	\$554	\$4,320	\$560	\$3,760	6.8	2,536
ECM 4 Install High/Low Lighting Controls		Yes	878	0.6	0	\$188	\$1,575	\$1,430	\$145	0.8	863
HVAC Sy	stem Improvements		0	0.0	117	\$1,153	\$1,025	\$96	\$929	0.8	13,755
ECM 5	Install Pipe Insulation	Yes	0	0.0	117	\$1 <i>,</i> 153	\$1,025	\$96	\$929	0.8	13,755
Domesti	c Water Heating Upgrade		0	0.0	4	\$38	\$50	\$25	\$25	0.7	458
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$38	\$50	\$25	\$25	0.7	458
Custom	Measures		-3,283	0.0	35	-\$368	\$3,166	\$0	\$3,166	-8.6	792
ECM 7	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-3,283	0.0	35	-\$368	\$3,166	\$0	\$3,166	-8.6	792
TOTALS (COST EFFECTIVE MEASURES)			17,576	14.0	118	\$4,962	\$28,042	\$7,785	\$20,257	4.1	31,485
TOTALS (ALL MEASURES)			14,293	14.0	153	\$4,594	\$31,208	\$7,785	\$23,423	5.1	32,277

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

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

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Negative payback explained is section 4.5

STEM ACADEMY

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			49,780	17.1	-21	\$6,019	\$20,919	\$3,776	\$17,143	2.8	46,751
ECM 1	Install LED Fixtures	Yes	9,369	3.4	-4	\$1,132	\$6,895	\$700	\$6,195	5.5	8,794
ECM 2	Retrofit Fixtures with LED Lamps	Yes	40,411	13.7	-17	\$4,887	\$14,024	\$3 <i>,</i> 076	\$10,948	2.2	37,957
Lighting Control Measures			8,100	2.6	-3	\$979	\$9,184	\$2,725	\$6,459	6.6	7,602
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	5,911	2.2	-2	\$714	\$6,934	\$860	\$6,074	8.5	5,548
ECM 4	Install High/Low Lighting Controls	Yes	2,189	0.4	-1	\$264	\$2,250	\$1 <i>,</i> 865	\$385	1.5	2,054
Motor U	lpgrades		358	0.2	0	\$47	\$2,059	\$0	\$2,059	43.9	360
ECM 5	Premium Efficiency Motors	No	358	0.2	0	\$47	\$2,059	\$0	\$2,059	43.9	360
HVAC Sy	rstem Improvements		0	0.0	10	\$248	\$82	\$10	\$72	0.3	1,644
ECM 6	Install Pipe Insulation	Yes	0	0.0	10	\$248	\$82	\$10	\$72	0.3	1,644
Domesti	c Water Heating Upgrade		0	0.0	9	\$92	\$239	\$54	\$185	2.0	1,001
ECM 7 Install Low-Flow DHW Devices Yes			0	0.0	9	\$92	\$239	\$54	\$185	2.0	1,001
TOTALS (COST EFFECTIVE MEASURES)			57,880	19.7	-5	\$7,338	\$30,424	\$6,565	\$23,859	3.3	56,999
TOTALS (ALL MEASURES)			58,238	20.0	-5	\$7,384	\$32,483	\$6,565	\$25,917	3.5	57,359

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

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

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ADMINISTRATIVE OFFICE

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO2e Emissions Reduction (Ibs)
Lighting	ting Upgrades		85,931	14.3	-17	\$10,432	\$20,510	\$5,025	\$15,485	1.5	84,532
ECM 1	Install LED Fixtures	Yes	2,917	0.0	0	\$360	\$1 <i>,</i> 855	\$450	\$1,405	3.9	2,937
ECM 2	Retrofit Fixtures with LED Lamps	Yes	83,014	14.3	-17	\$10,072	\$18,655	\$4,575	\$14,080	1.4	81,595
Lighting	Control Measures		17,305	2.6	-4	\$2,099	\$10,963	\$1,785	\$9,178	4.4	17,002
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,936	2.4	-3	\$1,933	\$9 <i>,</i> 838	\$1,225	\$8,613	4.5	15,658
ECM 4	Install High/Low Lighting Controls	Yes	1,368	0.2	0	\$166	\$1,125	\$560	\$565	3.4	1,344
Variable Frequency Drive (VFD) Measures			40,238	8.3	0	\$4,964	\$31,106	\$4,100	\$27,006	5.4	40,519
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	34,404	7.5	0	\$4,245	\$21,946	\$3,800	\$18,146	4.3	34,644
ECM 6	Install VFDs on Heating Water Pumps	Yes	5,834	0.7	0	\$720	\$9,160	\$300	\$8,860	12.3	5,875
Unitary	Unitary HVAC Measures		46,220	18.5	0	\$5,702	\$148,768	\$7,285	\$141,483	24.8	46,543
ECM 7	Install High Efficiency Air Conditioning Units	No	46,220	18.5	0	\$5,702	\$148,768	\$7,285	\$141,483	24.8	46,543
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	180	\$1,786	\$79,921	\$5,236	\$74,685	41.8	21,053
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	180	\$1,786	\$79,921	\$5,236	\$74,685	41.8	21,053
HVAC S	ystem Improvements		0	0.0	7	\$73	\$253	\$30	\$223	3.0	865
ECM 9	Install Pipe Insulation	Yes	0	0.0	7	\$73	\$253	\$30	\$223	3.0	865
Domest	ic Water Heating Upgrade		0	0.0	5	\$47	\$72	\$36	\$36	0.8	556
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	5	\$47	\$72	\$36	\$36	0.8	556
Custom	Custom Measures		17,406	0.0	104	\$3,182	\$31,500	\$0	\$31,500	9.9	29,720
ECM 11	Upgrade/Replace Energy Management System	Yes	17,406	0.0	104	\$3,182	\$31,500	\$0	\$31,500	9.9	29,720
	TOTALS (COST EFFECTIVE MEASURES)		160,879	25.2	96	\$20,798	\$94,403	\$10,976	\$83,427	4.0	173,193
	TOTALS (ALL MEASURES)			43.7	275	\$28,286	\$323,092	\$23,497	\$299,595	10.6	240,789

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

Bell Stadium Buildings

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting Upgrades			12,982	2.4	-6	\$1,471	\$5,283	\$1,000	\$4,283	2.9	12,167
ECM 1	Install LED Fixtures	Yes	950	0.0	0	\$118	\$552	\$100	\$452	3.8	957
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	8,477	1.5	-4	\$953	\$3,234	\$490	\$2,744	2.9	7,898
ECM 3	Retrofit Fixtures with LED Lamps	Yes	3,555	0.9	-2	\$400	\$1,497	\$410	\$1,087	2.7	3,312
Lighting	Control Measures		2,854	0.5	-1	\$322	\$2,276	\$265	\$2,011	6.2	2,668
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,854	0.5	-1	\$322	\$2,276	\$265	\$2,011	6.2	2,668
Unitary HVAC Measures			420	0.5	0	\$52	\$4,237	\$0	\$4,237	81.5	423
ECM 5	Install High Efficiency Air Conditioning Units	No	420	0.5	0	\$52	\$4,237	\$0	\$4,237	81.5	423
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	23	\$569	\$24,991	\$1,318	\$23,673	41.6	3,777
ECM 6	Install High Efficiency Hot Water Boilers	No	0	0.0	23	\$569	\$24,991	\$1,318	\$23,673	41.6	3,777
HVAC Sy	vstem Improvements		0	0.0	52	\$1,284	\$607	\$74	\$533	0.4	8,518
ECM 7	Install Pipe Insulation	Yes	0	0.0	52	\$1,284	\$607	\$74	\$533	0.4	8,518
Domestic Water Heating Upgrade			0	0.0	1	\$35	\$146	\$9	\$137	3.9	62
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$35	\$146	\$9	\$137	3.9	62
	TOTALS (COST EFFECTIVE MEASURES)		15,836	2.9	46	\$3,112	\$8,312	\$1,348	\$6,964	2.2	23,415
TOTALS (ALL MEASURES)			16,256	3.3	69	\$3,733	\$37,540	\$2,666	\$34,874	9.3	27,616

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

ENERGY EFFICIENT BEST PRACTICES

- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls
 Are Operating Properly
- Use Fans to Reduce
 Cooling Load
- Use Window
 Treatments/Coverings

- Clean and/or Replace
 HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler
 Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

See individual reports for specific EE practices by building



MEASURES FOR FUTURE CONSIDERATION

- Upgrade/Replace Energy Management System
- Window Replacements
- Heating System Conversion from Steam to Hot Water
- Replace Fuel Oil Fired Equipment with Natural Gas
 Equipment





EV CHARGING STATION POTENTIAL

NJCleanEnergy.com/EV



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SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	HS & PA	Heywood	Oakwood	Park	Rosa Parks	Central	Admin
Potential:	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
System Potential: (kW)	626	97	59	54	107	50	99
Electric Generation: (kWh per year)	745,798	115,563	70,291	64,334	127,477	59,569	117,945
Displaced Cost: (per year)	\$97,570	\$17,750	\$9,880	\$7,160	\$14,470	\$10,510	\$14,550



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP
- A creative tool and financing mechanism that allows public entities to make energy efficiency improvements without impacting their budgets
- Administered by the NJBPU
- Project is paid for with the value of its own energy savings
- 15 or 20 year pay back; self funding
- NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Pandemic Relief Funds (ESSER)
- No upfront capital expenses
- No referendum or impact to tax payers



ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP





ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP

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C&I ENERGY EFFICIENCY PROGRAMS

NJCleanEnergy.com



UTILITY RUN ENERGY EFFICIENCY PROGRAMS

NJCleanEnergy.com/Transition

PRESCRIPTIVE & CUSTOM REBATES:

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

DIRECT INSTALL:

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

ENGINEERED SOLUTIONS:

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



UTILITY RUN ENERGY EFFICIENCY PROGRAMS

PSE&G

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

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

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

- **REQUIREMENTS** Assessment verified by a Certified Energy Auditor or TAB Technician and proof of noncompliant equipment.
 - INCENTIVEGrants shall provide no more than 75% of the approved project cost up
to \$5 million.





FOR MORE INFORMATION

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