

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Ramsey Board of Education

September 12th, 2019

INTRODUCTIONS

Ramsey Board of Education

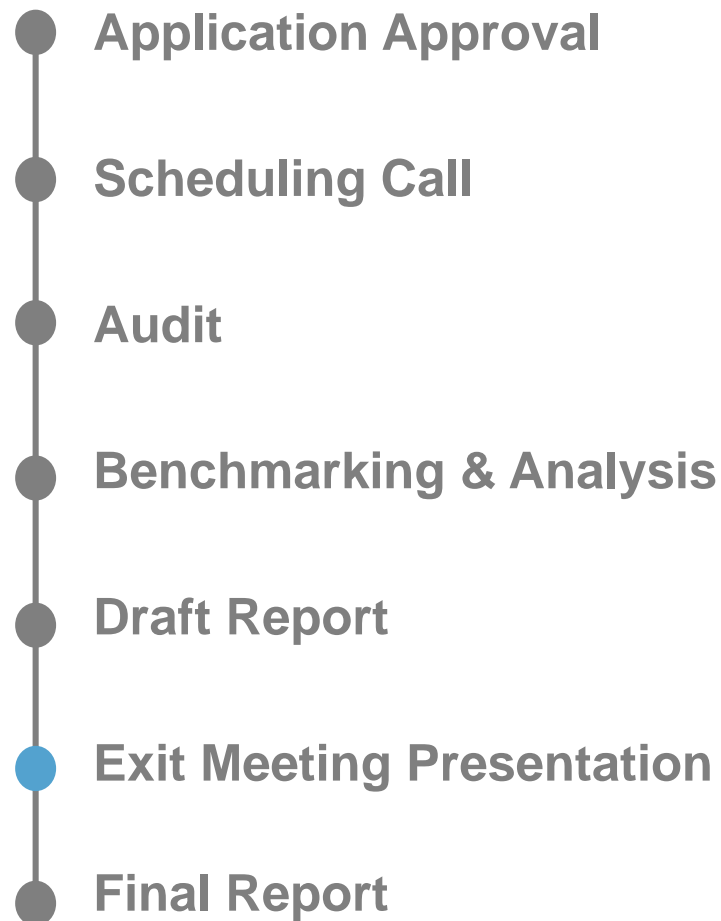
- Tom O'Hern – Business Administrator
- Joseph Fojon – Supervisor of Buildings & Grounds
- Elaine Rainey – Secretary
- *NJ Clean Energy Program*
 - Yagna Otia – TRC Auditor
 - Amanda Muench – TRC Account Manager
 - Amanda Newman – TRC Outreach Manager
 - Arif Welcher – BPU Government/Business Manager
 - Michelle Rossi – BPU State Office



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 Ramsey Board of Education

LGEA PROCESS



SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

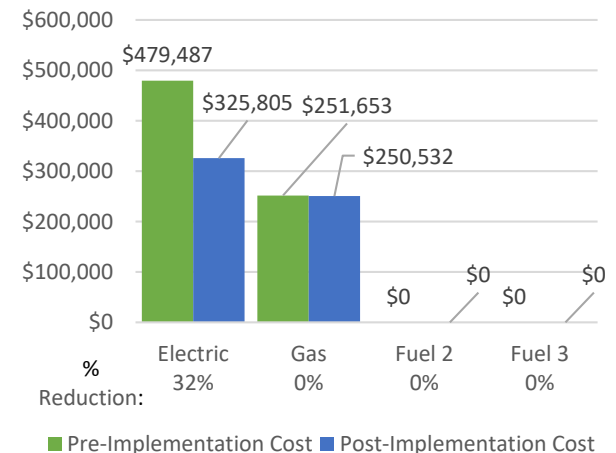
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Kitchen Equipment

Utility Consumption:

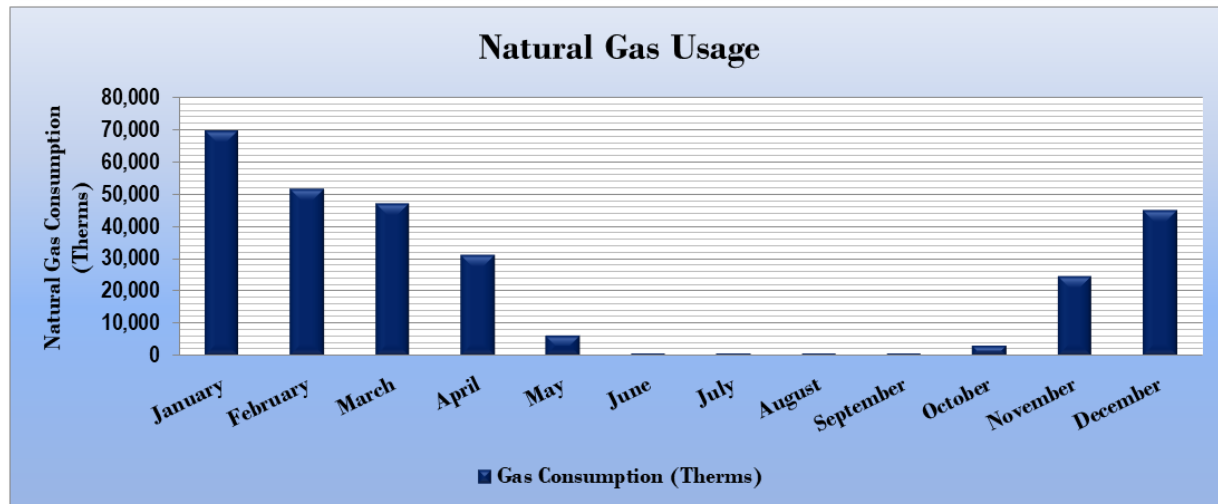
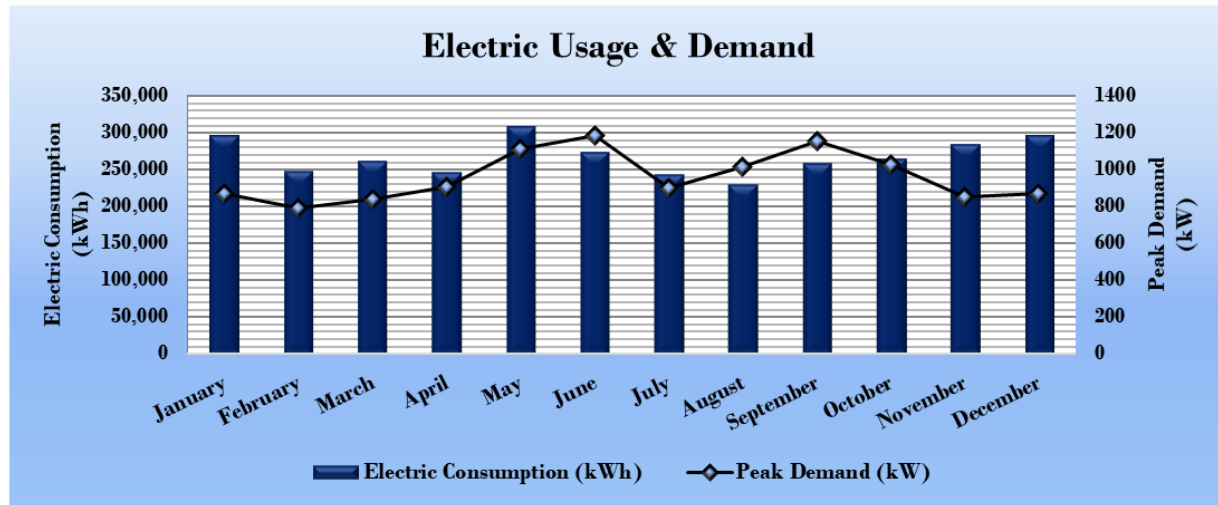
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed


- Wesley Tisdale Elementary School
- John Dater Elementary School
- Mary Hubbard Elementary School
- Eric Smith Middle School
- Ramsey High School



HISTORICAL ENERGY USE



BENCHMARKING



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ENERGY STAR® Statement of Energy Performance

77

ENERGY STAR® Score¹

Wesley Tisdale Elementary School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 78,339
Built: 1952

For Year Ending: October 31, 2018
Date Generated: April 09, 2019

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

Property & Contact Information		
Property Address Wesley Tisdale Elementary School 200 Island Ave Ramsey, New Jersey 07446	Property Owner Ramsey Board of Education 266 East Main Street Ramsey, NJ 07446 () - () - ()	Primary Contact Thomas O'Hern 266 East Main Street Ramsey, NJ 07446 2017852300 tohern@ramsey.k12.nj.us
Property ID: 8767995		

Energy Consumption and Energy Use Intensity (EUI)			
Site EUI 72.7 kBtu/ft²	Annual Energy by Fuel		National Median Comparison National Median Site EUI (kBtu/ft²) 98.3 National Median Source EUI (kBtu/ft²) 137.7 % Diff from National Median Source EUI -26% Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year) 287
	Natural Gas (kBtu)	4,555,992 (80%)	
	Electric - Grid (kBtu)	1,141,048 (20%)	
Source EUI 101.9 kBtu/ft²			

Site EUI
72.7 kBtu/ft²

Signature & Stamp of Verifying Professional

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

Signature: _____ Date: _____

Licensed Professional

() - () - ()



Professional Engineer Stamp
(if applicable)



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Building Name	ENERGY STAR® Score
Wesley Tisdale Elementary School	77
John Dater Elementary School	71
Mary Hubbard Elementary School	81
Eric Smith Middle School	88
Ramsey High School	57

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.

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	556,057	158.9	-101.4	\$80,923	\$255,676	\$45,520	\$210,156	2.6	548,069
Install LED Fixtures	69,342	67.3	-1.1	\$10,191	\$109,023	\$11,460	\$97,563	9.6	69,701
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,571	0.8	-0.5	\$382	\$1,624	\$191	\$1,433	3.8	2,526
Retrofit Fixtures with LED Lamps	484,144	90.8	-99.8	\$70,350	\$145,029	\$33,869	\$111,160	1.6	475,843
Lighting Control Measures	233,929	43.5	-48.9	\$34,647	\$192,742	\$18,540	\$174,202	5.0	229,840
Install Occupancy Sensor Lighting Controls	195,732	36.5	-40.9	\$28,954	\$152,292	\$18,540	\$133,752	4.6	192,311
Install High/Low Lighting Controls	38,197	7.0	-8.0	\$5,693	\$40,450	\$0	\$40,450	7.1	37,529
Motor Upgrades	1,010	0.3	0.0	\$152	\$4,555	\$0	\$4,555	30.0	1,017
Premium Efficiency Motors	1,010	0.3	0.0	\$152	\$4,555	\$0	\$4,555	30.0	1,017
Variable Frequency Drive (VFD) Measures	224,700	58.2	0.0	\$32,452	\$210,900	\$16,295	\$194,605	6.0	226,271
Install VFD on Variable Air Volume (VAV) Fans	66,397	20.2	0.0	\$9,189	\$64,702	\$7,050	\$57,652	6.3	66,862
Install VFDs on Constant Volume (CV) Fans	105,430	26.4	0.0	\$15,570	\$83,189	\$6,920	\$76,269	4.9	106,167
Install VFDs on Heating Water Pumps	41,430	6.2	0.0	\$5,992	\$46,099	\$0	\$46,099	7.7	41,720
Install Boiler Draft Fan VFDs	11,442	5.5	0.0	\$1,700	\$16,910	\$2,325	\$14,585	8.6	11,522
Electric Unitary HVAC Measures	12,143	11.1	0.0	\$1,790	\$82,447	\$4,125	\$78,323	43.8	12,228
Install High Efficiency Air Conditioning Units	12,143	11.1	0.0	\$1,790	\$82,447	\$4,125	\$78,323	43.8	12,228
Gas Heating (HVAC/Process) Replacement	0	0.0	1,265.5	\$11,525	\$369,556	\$800	\$368,756	32.0	148,179
Install High Efficiency Steam Boilers	0	0.0	1,124.1	\$10,296	\$344,180	\$0	\$344,180	33.4	131,614
Install High Efficiency Furnaces	0	0.0	141.5	\$1,230	\$25,376	\$800	\$24,576	20.0	16,565
HVAC System Improvements	4,870	0.0	75.3	\$1,418	\$10,875	\$0	\$10,875	7.7	13,721
Implement Demand Control Ventilation (DCV)	4,870	0.0	75.3	\$1,418	\$10,875	\$0	\$10,875	7.7	13,721
Domestic Water Heating Upgrade	0	0.0	301.9	\$2,719	\$27,246	\$910	\$26,336	9.7	35,350
Install High Efficiency Gas-Fired Water Heater	0	0.0	92.3	\$846	\$26,057	\$910	\$25,147	29.7	10,812
Install Low-Flow DHW Devices	0	0.0	209.6	\$1,873	\$1,189	\$0	\$1,189	0.6	24,537
Food Service Equipment & Refrigeration Measures	8,079	0.6	0.0	\$1,287	\$10,935	\$725	\$10,210	7.9	8,135
Refrigerator/Freezer Case Electrically Commutated Motors	1,245	0.2	0.0	\$184	\$1,517	\$0	\$1,517	8.2	1,254
Refrigeration Controls	3,633	0.0	0.0	\$535	\$4,904	\$300	\$4,604	8.6	3,659
Replace Refrigeration Equipment	3,201	0.4	0.0	\$568	\$4,515	\$425	\$4,090	7.2	3,223
Plug Load Equipment Control - Vending Machine	13,237	1.5	0.0	\$1,993	\$2,300	\$450	\$1,850	0.9	13,330
Vending Machine Control	13,237	1.5	0.0	\$1,993	\$2,300	\$450	\$1,850	0.9	13,330
TOTALS	1,054,025	274.1	1,492.4	\$168,906	\$1,167,233	\$87,365	\$1,079,869	6.4	1,236,139

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

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



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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		556,057	158.9	-101.4	\$80,923	\$255,676	\$45,520	\$210,156	2.6	548,069
ECM 1	Install LED Fixtures	69,342	67.3	-1.1	\$10,191	\$109,023	\$11,460	\$97,563	9.6	69,701
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,571	0.8	-0.5	\$382	\$1,624	\$191	\$1,433	3.8	2,526
ECM 3	Retrofit Fixtures with LED Lamps	484,144	90.8	-99.8	\$70,350	\$145,029	\$33,869	\$111,160	1.6	475,843
Lighting Control Measures		233,929	43.5	-48.9	\$34,647	\$192,742	\$18,540	\$174,202	5.0	229,840
ECM 4	Install Occupancy Sensor Lighting Controls	195,732	36.5	-40.9	\$28,954	\$152,292	\$18,540	\$133,752	4.6	192,311
ECM 5	Install High/Low Lighting Controls	38,197	7.0	-8.0	\$5,693	\$40,450	\$0	\$40,450	7.1	37,529
Variable Frequency Drive (VFD) Measures		216,275	56.4	0.0	\$31,237	\$187,011	\$16,295	\$170,716	5.5	217,787
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	66,397	20.2	0.0	\$9,189	\$64,702	\$7,050	\$57,652	6.3	66,862
ECM 7	Install VFDs on Constant Volume (CV) Fans	105,430	26.4	0.0	\$15,570	\$83,189	\$6,920	\$76,269	4.9	106,167
ECM 8	Install VFDs on Heating Water Pumps	35,888	5.3	0.0	\$5,193	\$29,301	\$0	\$29,301	5.6	36,139
ECM 9	Install Boiler Draft Fan VFDs	8,560	4.6	0.0	\$1,285	\$9,819	\$2,325	\$7,494	5.8	8,620
HVAC System Improvements		4,490	0.0	65.3	\$1,272	\$5,438	\$0	\$5,438	4.3	12,172
ECM 10	Implement Demand Control Ventilation (DCV)	4,490	0.0	65.3	\$1,272	\$5,438	\$0	\$5,438	4.3	12,172
Domestic Water Heating Upgrade		0	0.0	209.6	\$1,873	\$1,189	\$0	\$1,189	0.6	24,537
ECM 11	Install Low-Flow DHW Devices	0	0.0	209.6	\$1,873	\$1,189	\$0	\$1,189	0.6	24,537
Food Service Equipment & Refrigeration Measures		8,079	0.6	0.0	\$1,287	\$10,935	\$725	\$10,210	7.9	8,135
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	1,245	0.2	0.0	\$184	\$1,517	\$0	\$1,517	8.2	1,254
ECM 13	Refrigeration Controls	3,633	0.0	0.0	\$535	\$4,904	\$300	\$4,604	8.6	3,659
ECM 14	Replace Refrigeration Equipment	3,201	0.4	0.0	\$568	\$4,515	\$425	\$4,090	7.2	3,223
Plug Load Equipment Control - Vending Machine		13,237	1.5	0.0	\$1,993	\$2,300	\$450	\$1,850	0.9	13,330
ECM 15	Vending Machine Control	13,237	1.5	0.0	\$1,993	\$2,300	\$450	\$1,850	0.9	13,330
TOTALS		1,032,067	260.9	124.6	\$153,233	\$655,291	\$81,530	\$573,761	3.7	1,053,871

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

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



WESLEY TISDALE ELEMENTARY SCHOOL

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			8,777	1.8	\$1,542	\$4,222	\$226	\$3,996	2.6	8,634
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	116	0.0	\$20	\$97	\$6	\$91	4.5	114
ECM 2	Retrofit Fixtures with LED Lamps	Yes	8,660	1.7	\$1,521	\$4,125	\$220	\$3,905	2.6	8,520
Lighting Control Measures			40,126	8.2	\$7,044	\$24,517	\$2,335	\$22,182	3.1	39,424
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	32,808	6.7	\$5,759	\$18,442	\$2,335	\$16,107	2.8	32,234
ECM 4	Install High/Low Lighting Controls	Yes	7,318	1.5	\$1,285	\$6,075	\$0	\$6,075	4.7	7,190
Domestic Water Heating Upgrade			0	0.0	\$341	\$136	\$0	\$136	0.4	4,549
ECM 5	Install Low-Flow DHW Devices	Yes	0	0.0	\$341	\$136	\$0	\$136	0.4	4,549
Food Service & Refrigeration Measures			4,813	0.5	\$854	\$4,745	\$475	\$4,270	5.0	4,846
ECM 6	Replace Refrigeration Equipment	Yes	3,201	0.4	\$568	\$4,515	\$425	\$4,090	7.2	3,223
TOTALS (COST EFFECTIVE MEASURES)			53,715	10.5	\$9,780	\$33,621	\$3,036	\$30,585	3.1	57,454
TOTALS (ALL MEASURES)			53,715	10.5	\$9,780	\$33,621	\$3,036	\$30,585	3.1	57,454

JOHN DATER ELEMENTARY SCHOOL

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			26,550	4.0	-3	\$3,649	\$9,791	\$679	\$9,112	2.5	26,403
ECM 1	Install LED Fixtures	Yes	17,740	2.4	-1	\$2,446	\$4,800	\$260	\$4,540	1.9	17,737
ECM 2	Retrofit Fixtures with LED Lamps	Yes	8,811	1.6	-2	\$1,204	\$4,991	\$419	\$4,572	3.8	8,666
Lighting Control Measures			45,161	8.3	-9	\$6,166	\$33,378	\$3,510	\$29,868	4.8	44,371
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	39,379	7.2	-8	\$5,377	\$26,628	\$3,510	\$23,118	4.3	38,690
ECM 4	Install High/Low Lighting Controls	Yes	5,781	1.1	-1	\$789	\$6,750	\$0	\$6,750	8.6	5,680
Variable Frequency Drive (VFD) Measures			82,983	21.7	0	\$11,485	\$74,223	\$7,050	\$67,173	5.8	83,563
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	Yes	66,397	20.2	0	\$9,189	\$64,702	\$7,050	\$57,652	6.3	66,862
ECM 6	Install VFDs on Heating Water Pumps	Yes	16,585	1.6	0	\$2,295	\$9,521	\$0	\$9,521	4.1	16,701
Electric Unitary HVAC Measures			2,135	1.5	0	\$296	\$8,229	\$506	\$7,723	26.1	2,150
ECM 7	Install High Efficiency Air Conditioning Units	No	2,135	1.5	0	\$296	\$8,229	\$506	\$7,723	26.1	2,150
Domestic Water Heating Upgrade			0	0.0	31	\$273	\$194	\$0	\$194	0.7	3,608
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	31	\$273	\$194	\$0	\$194	0.7	3,608
Food Service & Refrigeration Measures			1,612	0.2	0	\$223	\$230	\$50	\$180	0.8	1,623
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$223	\$230	\$50	\$180	0.8	1,623
TOTALS (COST EFFECTIVE MEASURES)			156,306	34.2	19	\$21,797	\$117,816	\$11,289	\$106,527	4.9	159,568
TOTALS (ALL MEASURES)			158,441	35.7	19	\$22,092	\$126,045	\$11,795	\$114,250	5.2	161,718

MARY HUBBARD ELEMENTARY SCHOOL

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			12,261	2.8	-2	\$1,753	\$4,480	\$381	\$4,099	2.3	12,137
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	354	0.1	0	\$50	\$119	\$15	\$104	2.1	348
ECM 2	Retrofit Fixtures with LED Lamps	Yes	11,907	2.8	-2	\$1,702	\$4,361	\$366	\$3,995	2.3	11,789
Lighting Control Measures			37,377	7.1	-8	\$5,323	\$24,855	\$2,295	\$22,560	4.2	36,723
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	32,620	6.2	-7	\$4,645	\$19,680	\$2,295	\$17,385	3.7	32,050
ECM 4	Install High/Low Lighting Controls	Yes	4,756	0.9	-1	\$677	\$5,175	\$0	\$5,175	7.6	4,673
Variable Frequency Drive (VFD) Measures			45,893	11.4	0	\$6,619	\$37,972	\$2,400	\$35,572	5.4	46,213
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	37,468	9.5	0	\$5,404	\$14,082	\$2,400	\$11,682	2.2	37,730
ECM 6	Install VFDs on Heating Water Pumps	No	5,543	0.9	0	\$799	\$16,798	\$0	\$16,798	21.0	5,582
ECM 7	Install Boiler Draft Fan VFDs	No	2,882	0.9	0	\$416	\$7,091	\$0	\$7,091	17.1	2,902
Gas Heating (HVAC/Process) Replacement			0	0.0	141	\$1,230	\$25,376	\$800	\$24,576	20.0	16,565
ECM 8	Install High Efficiency Furnaces	No	0	0.0	141	\$1,230	\$25,376	\$800	\$24,576	20.0	16,565
Domestic Water Heating Upgrade			0	0.0	51	\$442	\$158	\$0	\$158	0.4	5,961
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	51	\$442	\$158	\$0	\$158	0.4	5,961
Food Service & Refrigeration Measures			1,612	0.2	0	\$232	\$230	\$50	\$180	0.8	1,623
ECM 10	Vending Machine Control	Yes	1,612	0.2	0	\$232	\$230	\$50	\$180	0.8	1,623
TOTALS (COST EFFECTIVE MEASURES)			88,717	19.6	41	\$13,154	\$43,806	\$5,126	\$38,680	2.9	94,173
TOTALS (ALL MEASURES)			97,142	21.5	183	\$15,598	\$93,071	\$5,926	\$87,145	5.6	119,222

ERIC SMITH MIDDLE SCHOOL

#	Energy Conservation Measure	Cost effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Energy Cost Savings (\$)	Lifetime Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			186,196	38.2	\$26,125	\$391,873	\$63,122	\$15,992	\$47,130	1.8	182,989
ECM 1	Retrofit Fixtures with LED Lamps	Yes	186,196	38.2	\$26,125	\$391,873	\$63,122	\$15,992	\$47,130	1.8	182,989
Lighting Control Measures			47,389	9.3	\$6,648	\$53,186	\$41,960	\$4,175	\$37,785	5.7	46,562
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	38,151	7.5	\$5,352	\$42,818	\$33,410	\$4,175	\$29,235	5.5	37,486
ECM 3	Install High/Low Lighting Controls	Yes	9,238	1.8	\$1,296	\$10,367	\$8,550	\$0	\$8,550	6.6	9,076
Variable Frequency Drive (VFD) Measures			4,350	2.1	\$619	\$9,279	\$11,059	\$560	\$10,499	17.0	4,381
ECM 4	Install VFDs on Constant Volume (CV) Fans	Yes	4,350	2.1	\$619	\$9,279	\$11,059	\$560	\$10,499	17.0	4,381
Electric Unitary HVAC Measures			1,027	1.7	\$146	\$2,191	\$8,728	\$548	\$8,181	56.0	1,034
ECM 5	Install High Efficiency Air Conditioning Units	No	1,027	1.7	\$146	\$2,191	\$8,728	\$548	\$8,181	56.0	1,034
HVAC System Improvements			380	0.0	\$145	\$2,182	\$5,438	\$0	\$5,438	37.4	1,548
ECM 6	Implement Demand Control Ventilation (DCV)	No	380	0.0	\$145	\$2,182	\$5,438	\$0	\$5,438	37.4	1,548
Domestic Water Heating Upgrade			0	0.0	\$602	\$6,021	\$601	\$0	\$601	1.0	7,675
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	\$602	\$6,021	\$601	\$0	\$601	1.0	7,675
Food Service & Refrigeration Measures			2,805	0.2	\$399	\$4,444	\$1,571	\$150	\$1,421	3.6	2,825
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	328	0.0	\$47	\$699	\$303	\$0	\$303	6.5	330
ECM 9	Refrigeration Controls	Yes	1,268	0.0	\$180	\$2,886	\$1,037	\$100	\$937	5.2	1,277
ECM 10	Vending Machine Control	Yes	1,209	0.1	\$172	\$860	\$230	\$50	\$180	1.0	1,217
TOTALS (COST EFFECTIVE MEASURES)			240,740	49.7	\$34,393	\$464,804	\$118,312	\$20,877	\$97,435	2.8	244,431
TOTALS (ALL MEASURES)			242,147	51.4	\$34,684	\$469,177	\$132,478	\$21,425	\$111,054	3.2	247,014

RAMSEY 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			322,272	112.2	-57	\$47,855	\$174,060	\$28,242	\$145,818	3.0	317,906
ECM 1	Install LED Fixtures	Yes	51,603	65.0	0	\$7,745	\$104,223	\$11,200	\$93,023	12.0	51,963
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,100	0.7	0	\$311	\$1,408	\$170	\$1,238	4.0	2,063
ECM 3	Retrofit Fixtures with LED Lamps	Yes	268,570	46.5	-56	\$39,798	\$68,429	\$16,872	\$51,557	1.3	263,879
Lighting Control Measures			63,877	10.6	-13	\$9,466	\$68,032	\$6,225	\$61,807	6.5	62,760
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	52,774	8.8	-11	\$7,820	\$54,132	\$6,225	\$47,907	6.1	51,851
ECM 5	Install High/Low Lighting Controls	Yes	11,103	1.8	-2	\$1,645	\$13,900	\$0	\$13,900	8.4	10,909
Motor Upgrades			1,010	0.3	0	\$152	\$4,555	\$0	\$4,555	30.0	1,017
ECM 6	Premium Efficiency Motors	No	1,010	0.3	0	\$152	\$4,555	\$0	\$4,555	30.0	1,017
Variable Frequency Drive (VFD) Measures			91,474	23.1	0	\$13,730	\$87,647	\$6,285	\$81,362	5.9	92,114
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	63,612	14.8	0	\$9,548	\$58,048	\$3,960	\$54,088	5.7	64,057
ECM 8	Install VFDs on Heating Water Pumps	Yes	19,302	3.7	0	\$2,897	\$19,779	\$0	\$19,779	6.8	19,437
ECM 9	Install Boiler Draft Fan VFDs	Yes	8,560	4.6	0	\$1,285	\$9,819	\$2,325	\$7,494	5.8	8,620
Electric Unitary HVAC Measures			8,981	7.9	0	\$1,348	\$65,490	\$3,071	\$62,419	46.3	9,043
ECM 10	Install High Efficiency Air Conditioning Units	No	8,981	7.9	0	\$1,348	\$65,490	\$3,071	\$62,419	46.3	9,043
Gas Heating (HVAC/Process) Replacement			0	0.0	1,124	\$10,296	\$344,180	\$0	\$344,180	33.4	131,614
ECM 11	Install High Efficiency Steam Boilers	No	0	0.0	1,124	\$10,296	\$344,180	\$0	\$344,180	33.4	131,614
HVAC System Improvements			4,490	0.0	65	\$1,272	\$5,438	\$0	\$5,438	4.3	12,172
ECM 12	Implement Demand Control Ventilation (DCV)	Yes	4,490	0.0	65	\$1,272	\$5,438	\$0	\$5,438	4.3	12,172
Domestic Water Heating Upgrade			0	0.0	116	\$1,061	\$26,158	\$910	\$25,248	23.8	13,557
ECM 13	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	92	\$846	\$26,057	\$910	\$25,147	29.7	10,812
ECM 14	Install Low-Flow DHW Devices	Yes	0	0.0	23	\$215	\$100	\$0	\$100	0.5	2,745
Food Service & Refrigeration Measures			10,475	1.0	0	\$1,572	\$6,460	\$450	\$6,010	3.8	10,548
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	917	0.1	0	\$138	\$1,213	\$0	\$1,213	8.8	924
ECM 16	Refrigeration Controls	Yes	2,365	0.0	0	\$355	\$3,867	\$200	\$3,667	10.3	2,381
ECM 17	Vending Machine Control	Yes	7,193	0.8	0	\$1,080	\$1,380	\$250	\$1,130	1.0	7,243
TOTALS (COST EFFECTIVE MEASURES)			492,589	146.8	19	\$74,110	\$341,737	\$41,202	\$300,535	4.1	498,245
TOTALS (ALL MEASURES)			502,580	155.0	1,235	\$86,751	\$782,018	\$45,183	\$736,835	8.5	650,732

SOLAR ENERGY GENERATION POTENTIAL

	Wesley Tisdale ES	John Dater ES	Mary Hubbard ES	Eric Smith MS	Ramsey HS
<i>Potential:</i>	HIGH	HIGH	HIGH	HIGH	HIGH
<i>System Potential: (kW)</i>	94	131	85	227	423
<i>Electric Generation: (kWh per year)</i>	111,989	156,070	101,266	270,441	503,949
<i>Displaced Cost: (per year)</i>	\$19,860	\$21,600	\$14,600	\$38,460	\$75,640

SREC Registration Program (SRP):

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

**Community Solar Energy Pilot
Program:**

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



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

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:

- **SREC Registration Program (SRP)**
- **Community Solar**

RECOMMENDED NJCEP INCENTIVES PER BUILDING

Ramsey BOE	Direct Install	SmartStart	CTEEP
Wesley Tisdale ES	X	X	X
John Dater ES	X	X	X
Mary Hubbard ES	X	X	X
Eric Smith MS		X	X
Ramsey HS		X	X

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/MUNI/K-12 Public Schools), or
- \$250,000 entity cap (\$4MM UEZ/OZ/MUNI/K-12 Public Schools)

DIRECT INSTALL

NJCleanEnergy.com/DI

Facilities in Urban Enterprise Zones (UEZ), Opportunity Zones (OZ), municipalities, 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

Lime Energy

Chris Fornicola

732-427-7278

[chris.fornicola @lime-energy.com](mailto:chris.fornicola@lime-energy.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/ MUNI/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)

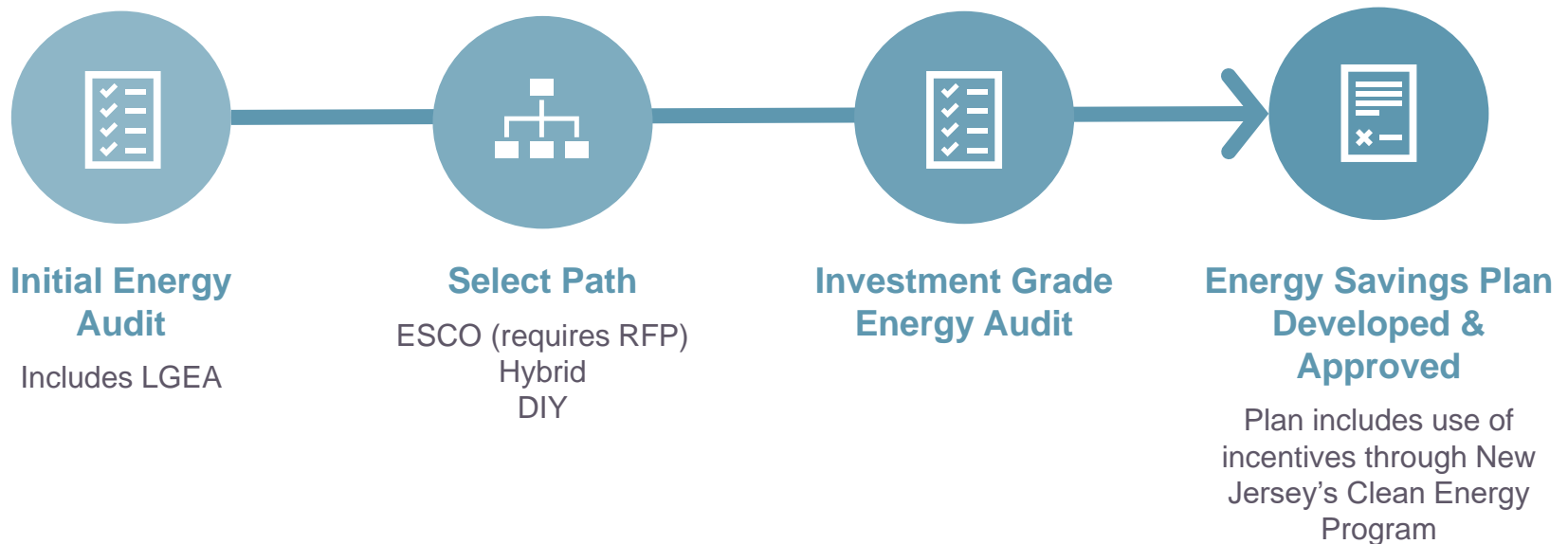
**SAME INCENTIVE
VALUES AS
SMARTSTART**

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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QUESTIONS

