



LGEA Presentation

Middletown Township Public Schools

February 2, 2024

New Jersey's Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *Middletown Township Public Schools*
 - Adam Nasr Director of Facilities
 - Sean Pruckowski Asst. Director of Facilities

- NJ Clean Energy Program
 - Sarah Walters LGEA Project Manager
 - Moussa Traore LGEA Technical Manager
 - Juno Romanick LGEA Project Auditor
 - Amanda Muench LGEA Account Manager
 - Michelle Rossi ESIP Coordinator (BPU)

- Utilities
 - Andrew Doss JCP&L
 - John Sousa JCP&L
 - Michael Mandzik NJNG



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 Middletown Township Public Schools



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:

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

Utility Consumption:

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

Sites Visited/Analyzed

- High School North
- High School South
- Bayshore Middle School
- Thompson Middle School
- Bayview Elementary School
- Fairview Elementary School
- Harmony Elementary School
- Leonardo Elementary School
- Lincroft Elementary School
- Middletown Village Elementary School
- Navesink Elementary School
- New Monmouth Elementary School
- Nut Swamp Elementary School
- Ocean Avenue Elementary School
- River Plaza Elementary School
- Maintenance Warehouse



UTILITY BREAKOUT

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost





Benchmarking



Architect Stamp (if applicable)

burce EUI 12.7 kBtu/ft²	
lational Median Comparison	
National Median Site EUI (kBtu/ft²)	90.1
National Median Source EUI (kBtu/ft ²)	121.9
% Diff from National Median Source EUI	-8%
Annual Emissions	
Total (Location-Based) GHG Emissions	151
Metric Tons CO2e/year)	

Site EUI 83.3 kBtu/ft²

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Site Name	Energy Star Score
Bayshore Middle School	30
High School South	61
Bayview Elementary	51
Fairview Elementary	41
Harmony Elementary	48
Leonardo Elementary School	54
Lincroft Elementary School	58
Navesink Elementary	58
New Monmouth Elementary	71
Nut Swamp Elementary School	58
Ocean Ave Elementary School	13
River Plaza Elementary School	56
Middletown Village Elementary	39
Thorne Middle School	38
High School North	34
Maintenance Warehouse	N/A
Thompson Middle School	72

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 M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades	98,892	8.4	-7.9	\$9,751	\$56,468	\$11,035	\$45,433	4.7	98,659
ECM 1	Install LED Fixtures	59,849	0.0	0.0	\$6,168	\$39,759	\$8,150	\$31,609	5.1	60,267
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,723	0.2	-0.4	\$165	\$540	\$51	\$489	3.0	1,693
ECM 3	Retrofit Fixtures with LED Lamps	37,321	8.2	-7.5	\$3,418	\$16,169	\$2,834	\$13,335	3.9	36,699
Lighting	Control Measures	134,003	28.6	-27.9	\$12,176	\$179,199	\$36,240	\$142,959	11.7	131,673
ECM 4	Install Occupancy Sensor Lighting Controls	120,843	26.2	-25.3	\$10,928	\$156,299	\$21,015	\$135,284	12.4	118,729
ECM 5	Install Daylight Dimming/Photocell Controls	544	0.0	0.0	\$65	\$400	\$0	\$400	6.2	548
ECM 6	Install High/Low Lighting Controls	12,616	2.4	-2.6	\$1,183	\$22,500	\$15,225	\$7,275	6.2	12,396
Variable	e Frequency Drive (VFD) Measures	204,179	56.2	41.7	\$20,944	\$332,025	\$22,925	\$309,100	14.8	210,490
ECM 7	Install VFDs on Constant Volume (CV) Fans	143,290	42.8	0.0	\$14,209	\$174,020	\$15,550	\$158,470	11.2	144,292
ECM 8	Install VFDs on Heating Water Pumps	21,489	3.0	0.0	\$2,235	\$63,892	\$2,825	\$61,067	27.3	21,639
ECM 9	Install Boiler Draft Fan VFDs	15,271	9.1	0.0	\$1,413	\$46,245	\$2,850	\$43,395	30.7	15,378
ECM 10	Install VFDs on Kitchen Hood Fan Motors	11,855	0.0	41.7	\$1,882	\$8,914	\$975	\$7,939	4.2	16,822
ECM 11	Install VFDs on Condensate Pumps	10,398	1.0	0.0	\$1,016	\$34,773	\$625	\$34,148	33.6	10,471
ECM 12	Install VFDs on Water Supply Pump	1,876	0.2	0.0	\$189	\$4,182	\$100	\$4,082	21.6	1,889
Unitary	HVAC Measures	809,127	506.6	-19.3	\$80,195	\$6,826,255	\$216,127	\$6,610,129	82.4	812,529
ECM 13	Install High Efficiency Air Conditioning Units	255,096	189.1	-19.3	\$24,272	\$2,273,584	\$81,326	\$2,192,258	90.3	254,625
ECM 14	Install High Efficiency Heat Pumps	554,031	317.5	0.0	\$55,924	\$4,552,671	\$134,800	\$4,417,871	79.0	557,905

ALL OPPORTUNITIES (CONT.)

#	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 (Ibs)
Gas Hea	ting (HVAC/Process) Replacement	0	0.0	575.3	\$9,706	\$1,004,495	\$46,079	\$958,415	98.7	67,361
ECM 15	Install High Efficiency Steam Boilers	0	0.0	440.6	\$7,313	\$978,255	\$44,879	\$933,375	127.6	51,588
ECM 16	Install Infrared Heaters	0	0.0	134.7	\$2,393	\$26,240	\$1,200	\$25,040	10.5	15,773
HVAC Sy	ystem Improvements	43,416	0.0	400.4	\$11,154	\$180,478	\$1,282	\$179,196	16.1	90,597
ECM 17	Implement Demand Control Ventilation (DCV)	36,420	0.0	302.8	\$8,760	\$172,646	\$0	\$172,646	19.7	72,128
ECM 18	Install Pipe Insulation	6,996	0.0	97.6	\$2,393	\$7,832	\$1,282	\$6,550	2.7	18,469
Domest	ic Water Heating Upgrade	12,463	0.0	166.1	\$4,037	\$173,490	\$951	\$172,539	42.7	31,999
ECM 19	Install High Efficiency Gas-Fired Water Heater	0	0.0	105.8	\$1,744	\$171,210	\$0	\$171,210	98.2	12,384
ECM 20	Install Low-Flow DHW Devices	12,463	0.0	60.3	\$2,293	\$2,280	\$951	\$1,329	0.6	19,615
Food Se	rvice & Refrigeration Measures	18,165	1.3	0.0	\$1,849	\$26,258	\$1,530	\$24,728	13.4	18,292
ECM 21	Refrigerator/Freezer Case Electrically Commutated Motors	2,490	0.3	0.0	\$248	\$3,640	\$480	\$3,160	12.7	2,508
ECM 22	Refrigeration Controls	7,989	0.1	0.0	\$798	\$13,792	\$725	\$13,067	16.4	8,045
ECM 23	Replace Refrigeration Equipment	6,477	0.7	0.0	\$668	\$8,596	\$275	\$8,321	12.5	6,522
ECM 24	Vending Machine Control	1,209	0.1	0.0	\$135	\$230	\$50	\$180	1.3	1,217
Custom	Measures	490,157	0.0	1,543.3	\$76,074	\$447,496	\$0	\$447,496	5.9	674,285
ECM 25	Retro-Commissioning Study	495,985	0.0	1,074.3	\$68,698	\$404,073	\$0	\$404,073	5.9	625,239
ECM 26	Replace Electric Water Heater with Heat Pump Water Heater	38,160	0.0	0.0	\$3,921	\$18,058	\$0	\$18,058	4.6	38,427
ECM 27	Replace Gas Fired Water Heater with Heat Pump Water Heater	-43,988	0.0	469.0	\$3,455	\$25,364	\$0	\$25,364	7.3	10,618
	TOTALS	1,810,402	601.0	2,671.7	\$225,887	\$9,226,164	\$336,169	\$8,889,994	39.4	2,135,885

* - 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)**	CO ₂ e Emissions Reduction (Ibs)
Lighting	Upgrades	98,884	8.4	-7.9	\$9,751	\$56,438	\$11,033	\$45,405	4.7	98,650
ECM 1	Install LED Fixtures	59,849	0.0	0.0	\$6,168	\$39,759	\$8,150	\$31,609	5.1	60,267
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,723	0.2	-0.4	\$165	\$540	\$51	\$489	3.0	1,693
ECM 3	Retrofit Fixtures with LED Lamps	37,312	8.2	-7.5	\$3,418	\$16,139	\$2,832	\$13,307	3.9	36,690
Lighting	Control Measures	112,170	23.6	-23.3	\$10,377	\$140,615	\$31,060	\$109,555	10.6	110,222
ECM 4	Install Occupancy Sensor Lighting Controls	99,010	21.3	-20.7	\$9,129	\$117,715	\$15,835	\$101,880	11.2	97,278
ECM 5	Install Daylight Dimming/Photocell Controls	544	0.0	0.0	\$65	\$400	\$0	\$400	6.2	548
ECM 6	Install High/Low Lighting Controls	12,616	2.4	-2.6	\$1,183	\$22,500	\$15,225	\$7,275	6.2	12,396
Variable	e Frequency Drive (VFD) Measures	169,474	45.6	41.7	\$17,346	\$202,472	\$18,725	\$183,747	10.6	175,543
ECM 7	Install VFDs on Constant Volume (CV) Fans	143,290	42.8	0.0	\$14,209	\$174,020	\$15,550	\$158,470	11.2	144,292
ECM 8	Install VFDs on Heating Water Pumps	8,439	1.0	0.0	\$778	\$10,055	\$1,800	\$8,255	10.6	8,498
ECM 9	Install Boiler Draft Fan VFDs	5,889	1.8	0.0	\$477	\$9 <i>,</i> 482	\$400	\$9,082	19.0	5,931
ECM 10	Install VFDs on Kitchen Hood Fan Motors	11,855	0.0	41.7	\$1,882	\$8,914	\$975	\$7,939	4.2	16,822

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)
Gas Hea	ting (HVAC/Process) Replacement	0	0.0	134.7	\$2,393	\$26,240	\$1,200	\$25,040	10.5	15,773
ECM 16	Install Infrared Heaters	0	0.0	134.7	\$2,393	\$26,240	\$1,200	\$25,040	10.5	15,773
HVAC Sy	ystem Improvements	6,996	0.0	97.6	\$2,393	\$7,832	\$1,282	\$6,550	2.7	18,469
ECM 18	Install Pipe Insulation	6,996	0.0	97.6	\$2,393	\$7,832	\$1,282	\$6,550	2.7	18,469
Domest	ic Water Heating Upgrade	12,463	0.0	60.3	\$2,293	\$2,280	\$951	\$1,329	0.6	19,615
ECM 20	Install Low-Flow DHW Devices	12,463	0.0	60.3	\$2,293	\$2,280	\$951	\$1,329	0.6	19,615
Food Se	rvice & Refrigeration Measures	12,710	1.0	0.0	\$1,287	\$16,442	\$880	\$15,562	12.1	12,799
ECM 21	Refrigerator/Freezer Case Electrically Commutated Motors	1,507	0.2	0.0	\$150	\$2,123	\$280	\$1,843	12.3	1,518
ECM 22	Refrigeration Controls	4,468	0.1	0.0	\$447	\$7,733	\$400	\$7 <i>,</i> 333	16.4	4,499
ECM 23	Replace Refrigeration Equipment	5,526	0.6	0.0	\$555	\$6,356	\$150	\$6,206	11.2	5,564
ECM 24	Vending Machine Control	1,209	0.1	0.0	\$135	\$230	\$50	\$180	1.3	1,217
Custom	Measures	493,440	0.0	1,508.3	\$75,885	\$445,112	\$0	\$445,112	5.9	673,493
ECM 25	Retro-Commissioning Study	495,985	0.0	1,074.3	\$68,698	\$404,073	\$0	\$404,073	5.9	625,239
ECM 26	Replace Electric Water Heater with Heat Pump Water Heater	38,160	0.0	0.0	\$3,921	\$18,058	\$0	\$18,058	4.6	38,427
ECM 27	Replace Gas Fired Water Heater with Heat Pump Water Heater	-40,705	0.0	434.0	\$3,266	\$22,981	\$0	\$22,981	7.0	9,826
	TOTALS	906,136	78.6	1,811.4	\$121,726	\$897,431	\$65,131	\$832,300	6.8	1,124,563

* - 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

HIGH SCHOOL NORTH

#	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 L	Jpgrades		26,324	1.7	-2	\$2,584	\$11,468	\$2,890	\$8,578	3.3	26,245
ECM 1	Install LED Fixtures	Yes	15,563	0.0	0	\$1,550	\$10,111	\$2,700	\$7,411	4.8	15,672
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,026	0.1	0	\$99	\$152	\$15	\$137	1.4	1,008
ECM 3	Retrofit Fixtures with LED Lamps	Yes	9,735	1.6	-2	\$936	\$1,206	\$175	\$1,031	1.1	9,565
Lighting C	Control Measures		14,841	2.6	-3	\$1,427	\$22,074	\$2,630	\$19,444	13.6	14,581
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	14,841	2.6	-3	\$1,427	\$22,074	\$2,630	\$19,444	13.6	14,581
Unitary H	VAC Measures		219,276	124.4	0	\$21,836	\$1,315,583	\$33,997	\$1,281,586	58.7	220,810
ECM 5	Install High Efficiency Air Conditioning Units	No	1,679	1.0	0	\$167	\$15,900	\$546	\$15,353	91.8	1,691
ECM 6	Install High Efficiency Heat Pumps	No	217,597	123.5	0	\$21,669	\$1,299,683	\$33,450	\$1,266,233	58.4	219,119
HVAC Sys	tem Improvements		14,552	0.0	121	\$3,437	\$57,096	\$0	\$57,096	16.6	28,766
ECM 7	Implement Demand Control Ventilation (DCV)	No	14,552	0.0	121	\$3,437	\$57,096	\$0	\$57,096	16.6	28,766
Domestic	Water Heating Upgrade		0	0.0	112	\$1,841	\$171,260	\$25	\$171,235	93.0	13,070
ECM 8	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	106	\$1,744	\$171,210	\$0	\$171,210	98.2	12,384
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$97	\$50	\$25	\$25	0.3	686
Food Ser	vice & Refrigeration Measures		4,505	0.2	0	\$449	\$7,576	\$525	\$7,051	15.7	4,536
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	No	983	0.1	0	\$98	\$1,517	\$200	\$1,317	13.4	990
ECM 11	Refrigeration Controls	No	3,522	0.0	0	\$351	\$6,059	\$325	\$5,734	16.4	3,546
Custom N	Neasures		176,505	0.0	332	\$23,057	\$118,720	\$0	\$118,720	5.1	216,652
ECM 12	Retro-Commissioning Study	Yes	176,505	0.0	332	\$23,057	\$118,720	\$0	\$118,720	5.1	216,652
	TOTALS (COST EFFECTIVE MEASURES)		217,670	4.3	333	\$27,165	\$152,313	\$5,545	\$146,767	5.4	258,165
	TOTALS (ALL MEASURES)		456,003	128.9	559	\$54,630	\$1,703,777	\$40,067	\$1,663,710	30.5	524,661

HIGH SCHOOL SOUTH

#	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		20,492	0.8	-1	\$1,994	\$13,705	\$2,655	\$11,050	5.5	20,548
ECM 1	Install LED Fixtures	Yes	16,924	0.0	0	\$1,657	\$11,749	\$2,400	\$9,349	5.6	17,043
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	697	0.1	0	\$66	\$389	\$36	\$353	5.4	685
ECM 3	Retrofit Fixtures with LED Lamps	Yes	2,870	0.6	-1	\$271	\$1,568	\$219	\$1,349	5.0	2,820
Lighting	Control Measures		10,113	2.1	-2	\$956	\$16,398	\$4,000	\$12,398	13.0	9,936
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	9,109	1.9	-2	\$861	\$13,698	\$1,865	\$11,833	13.7	8,949
ECM 5	Install High/Low Lighting Controls	Yes	1,004	0.2	0	\$95	\$2,700	\$2,135	\$565	6.0	986
Variable	e Frequency Drive (VFD) Measures		8,430	0.0	26	\$1,254	\$5,028	\$900	\$4,128	3.3	11,541
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	8,430	0.0	26	\$1,254	\$5,028	\$900	\$4,128	3.3	11,541
Unitary	HVAC Measures		160,036	84.3	0	\$15,672	\$1,458,715	\$47,124	\$1,411,591	90.1	161,155
ECM 7	Install High Efficiency Heat Pumps	No	160,036	84.3	0	\$15,672	\$1,458,715	\$47,124	\$1,411,591	90.1	161,155
HVAC S	ystem Improvements		15,818	0.0	129	\$3,674	\$53,570	\$90	\$53,480	14.6	31,062
ECM 8	Implement Demand Control Ventilation (DCV)	No	15,818	0.0	102	\$3,231	\$53,017	\$0	\$53,017	16.4	27,911
ECM 9	Install Pipe Insulation	Yes	0	0.0	27	\$442	\$552	\$90	\$462	1.0	3,151
Domest	ic Water Heating Upgrade		0	0.0	10	\$165	\$86	\$43	\$43	0.3	1,176
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$165	\$86	\$43	\$43	0.3	1,176
Food Se	rvice & Refrigeration Measures		4,708	0.3	0	\$461	\$8,731	\$550	\$8,181	17.7	4,741
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,114	0.1	0	\$109	\$1,517	\$200	\$1,317	12.1	1,122
ECM 12	Refrigeration Controls	Yes	2,870	0.0	0	\$281	\$5,541	\$275	\$5,266	18.7	2,890
ECM 13	Replace Refrigeration Equipment	Yes	723	0.1	0	\$71	\$1,674	\$75	\$1,599	22.6	728
Custom	Measures		124,367	0.0	269	\$16,607	\$111,262	\$0	\$111,262	6.7	156,781
ECM 14	Retro-Commissioning Study	Yes	124,367	0.0	269	\$16,607	\$111,262	\$0	\$111,262	6.7	156,781
	TOTALS (COST EFFECTIVE MEASURES)		168,109	3.1	330	\$21,880	\$155,762	\$8,238	\$147,524	6.7	207,874
	TOTALS (ALL MEASURES)		343,963	87.4	432	\$40,782	\$1,667,494	\$55,362	\$1,612,133	39.5	396,940

* - 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.

BAYSHORE MIDDLE 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		11,723	0.1	0	\$1,218	\$7,774	\$1,002	\$6,772	5.6	11,787
ECM1	Install LED Fixtures	Yes	10,985	0.0	0	\$1,144	\$7,563	\$950	\$6,613	5.8	11,062
ECM 2	Retrofit Fixtures with LED Lamps	Yes	738	0.1	0	\$74	\$211	\$52	\$159	2.1	725
Lighting	Control Measures		16,620	2.7	-3	\$1,670	\$22,055	\$4,225	\$17,830	10.7	16,330
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,496	2.6	-3	\$1,557	\$20,030	\$3,000	\$17,030	10.9	15,225
ECM4	Install High/Low Lighting Controls	Yes	1,124	0.2	0	\$113	\$2,025	\$1,225	\$800	7.1	1,104
Variable	e Frequency Drive (VFD) Measures		104,757	30.9	16	\$11,178	\$124,663	\$12,025	\$112,638	10.1	107,321
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	101,331	30.8	0	\$10,549	\$120,776	\$11,950	\$108,826	10.3	102,040
ECM6	Install VFDs on Kitchen Hood Fan Motors	Yes	3,425	0.0	16	\$628	\$3,887	\$75	\$3,812	6.1	5,281
Unitary	HVAC Measures		51,074	42.5	0	\$5,317	\$694,435	\$25,066	\$669,369	125.9	51,432
ECM7	Install High Efficiency Heat Pumps	No	51,074	42.5	0	\$5,317	\$694,435	\$25,066	\$669,369	125.9	51,432
HVAC S	ystem Improvements		1,518	0.0	32	\$719	\$11,090	\$36	\$11,054	15.4	5,310
ECM8	Implement Demand Control Ventilation (DCV)	No	1,518	0.0	29	\$658	\$10,875	\$0	\$10,875	16.5	4,900
ECM9	Install Pipe Insulation	Yes	0	0.0	4	\$61	\$215	\$36	\$179	2.9	410
Domest	ic Water Heating Upgrade		1,308	0.0	2	\$165	\$158	\$79	\$79	0.5	1,514
ECM 10	Install Low-Flow DHW Devices	Yes	1,308	0.0	2	\$165	\$158	\$79	\$79	0.5	1,514
Food Se	rvice & Refrigeration Measures		1,991	0.1	0	\$207	\$2,799	\$205	\$2,594	12.5	2,005
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	393	0.0	0	\$41	\$607	\$80	\$527	12.9	396
ECM 12	Refrigeration Controls	Yes	1,598	0.0	0	\$166	\$2,193	\$125	\$2,068	12.4	1,609
Custom	Measures		91,992	0.0	201	\$13,060	\$72,035	\$0	\$72,035	5.5	116,112
ECM 13	Retro-Commissioning Study	Yes	91,992	0.0	201	\$13,060	\$72,035	\$0	\$72,035	5.5	116,112
	TOTALS (COST EFFECTIVE MEASURES)		228,391	33.8	218	\$27,559	\$229,698	\$17,572	\$212,126	7.7	255,477
	TOTALS (ALL MEASURES)		280,984	76.3	246	\$33,534	\$935,008	\$42,637	\$892,371	26.6	311,808

* - 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.

THOMPSON MIDDLE 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		3,273	0.5	0	\$357	\$1,474	\$199	\$1,275	3.6	3,252
ECM 1	Install LED Fixtures	Yes	1,480	0.0	0	\$165	\$555	\$50	\$505	3.1	1,491
ECM 2	Retrofit Fixtures with LED Lamps	Yes	1,793	0.5	0	\$192	\$920	\$149	\$771	4.0	1,761
Lighting	Control Measures		4,317	0.9	-1	\$462	\$7,171	\$1,915	\$5,256	11.4	4,242
ECM 3	Install Occupancy Sensor Lighting Controls	No	2,782	0.6	-1	\$298	\$5,596	\$760	\$4,836	16.2	2,734
ECM 4	Install High/Low Lighting Controls	Yes	1,535	0.3	0	\$164	\$1,575	\$1,155	\$420	2.6	1,508
Unitary	HVAC Measures		59,294	33.6	0	\$6,614	\$549,920	\$14,581	\$535,339	80.9	59,708
ECM 5	Install High Efficiency Heat Pumps	No	59, 294	33.6	0	\$6,614	\$549,920	\$14,581	\$535,339	80.9	59,708
HVAC S	ystem Improvements		5,060	0.0	20	\$1,002	\$26,203	\$52	\$26,151	26.1	7,491
ECM 6	Implement Demand Control Ventilation (DCV)	No	1,891	0.0	20	\$649	\$25,829	\$0	\$25,829	39.8	4,300
ECM 7	Install Pipe Insulation	Yes	3,169	0.0	0	\$353	\$374	\$52	\$322	0.9	3,191
Domest	ic Water Heating Upgrade		3,435	0.0	0	\$383	\$151	\$75	\$75	0.2	3,459
ECM 8	Install Low-Flow DHW Devices	Yes	3,435	0.0	0	\$383	\$151	\$75	\$75	0.2	3,459
Food Se	rvice & Refrigeration Measures		1,209	0.1	0	\$135	\$230	\$50	\$180	1.3	1,217
ECM 9	Vending Machine Control	Yes	1,209	0.1	0	\$135	\$230	\$50	\$180	1.3	1,217
Custom	Measures		50,876	0.0	108	\$7,986	\$57,334	\$0	\$57,334	7.2	63,872
ECM 10	Retro-Commissioning Study	Yes	45,952	0.0	108	\$7,437	\$51,628	\$0	\$51,628	6.9	58,914
ECM 11	Replace Electric Water Heater with Heat Pump Water Heater	Yes	4,924	0.0	0	\$549	\$5,706	\$0	\$5,706	10.4	4,958
	TOTALS (COST EFFECTIVE MEASURES)		63,497	0.9	107	\$9,379	\$61,138	\$1,531	\$59,607	6.4	76,500
	TOTALS (ALL MEASURES)		127,464	35.1	127	\$16,940	\$642,483	\$16,872	\$625,611	36.9	143,241

* - 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.

THORNE MIDDLE 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		2,034	0.5	0	\$198	\$920	\$149	\$771	3.9	1,998
ECM 1	Retrofit Fixtures with LED Lamps	Yes	2,034	0.5	0	\$198	\$920	\$149	\$771	3.9	1,998
Lighting	Control Measures		4,554	0.8	-1	\$443	\$6,676	\$1,775	\$4,901	11.1	4,475
ECM 2	Install Occupancy Sensor Lighting Controls	No	3,019	0.5	-1	\$293	\$5,326	\$725	\$4,601	15.7	2,967
ECM 3	Install High/Low Lighting Controls	Yes	1,535	0.3	0	\$149	\$1,350	\$1,050	\$300	2.0	1,508
Unitary	HVAC Measures		66,029	33.6	0	\$6,652	\$549,920	\$14,581	\$535,339	80.5	66,491
ECM 4	Install High Efficiency Heat Pumps	No	66,029	33.6	0	\$6,652	\$549,920	\$14,581	\$535,339	80.5	66,491
HVAC S	ystem Improvements		5,809	0.0	31	\$1,105	\$26,203	\$52	\$26,151	23.7	9,442
ECM 5	Implement Demand Control Ventilation (DCV)	No	2,640	0.0	31	\$785	\$25,829	\$0	\$25,829	32.9	6,251
ECM6	Install Pipe Insulation	Yes	3,169	0.0	0	\$319	\$374	\$52	\$322	1.0	3,191
Domes	tic Water Heating Upgrade		5,070	0.0	0	\$511	\$222	\$111	\$111	0.2	5,105
ECM7	Install Low-Flow DHW Devices	Yes	5,070	0.0	0	\$511	\$222	\$111	\$111	0.2	5,105
Food Se	ervice & Refrigeration Measures		1,496	0.2	0	\$151	\$2,702	\$75	\$2,627	17.4	1,507
ECM8	Replace Refrigeration Equipment	Yes	1,496	0.2	0	\$151	\$2,702	\$75	\$2,627	17.4	1,507
Custom	Measures		80,517	0.0	164	\$10,889	\$56,134	\$0	\$56,134	5.2	100,292
ECM9	Retro-Commissioning Study	Yes	57,129	0.0	164	\$8,533	\$50,428	\$0	\$50,428	5.9	76,740
ECM 10	Replace Electric Water Heater with Heat Pump Water Heater	Yes	23,388	0.0	0	\$2,356	\$5,706	\$0	\$5,706	2.4	23,552
	TOTALS (COST EFFECTIVE MEASURES)		93,821	0.9	163	\$12,217	\$61,702	\$1,437	\$60,265	4.9	113,602
	TOTALS (ALL MEASURES)		165,509	35.1	193	\$19,947	\$642,777	\$16,743	\$626,034	31.4	189,310

* - 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.

BAYVIEW 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		9,257	2.4	-2	\$785	\$3,725	\$1,020	\$2,705	3.4	9,095
ECM 1	Retrofit Fixtures with LED Lamps	Yes	9,257	2.4	-2	\$785	\$3,725	\$1,020	\$2,705	3.4	9,095
Lighting	Control Measures		1,371	0.3	0	\$116	\$2,932	\$390	\$2,542	21.9	1,347
ECM 2	Install Occupancy Sensor Lighting Controls	No	1,371	0.3	0	\$116	\$2,932	\$390	\$2,542	21.9	1,347
Variable	e Frequency Drive (VFD) Measures		43,495	12.8	0	\$3,827	\$83,859	\$3,400	\$80,459	21.0	43,799
ECM 3	Install VFDs on Constant Volume (CV) Fans	Yes	37,270	10.5	0	\$3,279	\$48,216	\$2,700	\$45,516	13.9	37,530
ECM 4	Install VFDs on Heating Water Pumps	No	3,202	1.0	0	\$282	\$26,629	\$500	\$26,129	92.7	3,224
ECM 5	Install Boiler Draft Fan VFDs	No	3,023	1.2	0	\$266	\$9,014	\$200	\$8,814	33.1	3,044
Unitary	HVAC Measures		21,931	27.5	4	\$1,994	\$297,868	\$10,662	\$287,206	144.1	22,571
ECM 6	Install High Efficiency Air Conditioning Units	No	21,931	27.5	4	\$1,994	\$297,868	\$10,662	\$287,206	144.1	22,571
Gas Hea	ating (HVAC/Process) Replacement		0	0.0	34	\$519	\$125,082	\$6,000	\$119,082	229.4	3,957
ECM 7	Install High Efficiency Steam Boilers	No	0	0.0	34	\$519	\$125,082	\$6,000	\$119,082	229.4	3,957
HVAC S	ystem Improvements		0	0.0	7	\$105	\$239	\$40	\$199	1.9	802
ECM 8	Install Pipe Insulation	Yes	0	0.0	7	\$105	\$239	\$40	\$199	1.9	802
Domest	tic Water Heating Upgrade		0	0.0	6	\$87	\$151	\$59	\$91	1.0	663
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$87	\$151	\$59	\$91	1.0	663
Custom	Measures		-7,222	0.0	77	\$547	\$3,166	\$0	\$3,166	5.8	1,743
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-7,222	0.0	77	\$547	\$3,166	\$0	\$3,166	5.8	1,743
	TOTALS (COST EFFECTIVE MEASURES)		39,304	13.0	88	\$4,803	\$55,496	\$3,819	\$51,677	10.8	49,834
	TOTALS (ALL MEASURES)		68,832	43.0	125	\$7,980	\$517,022	\$21,571	\$495,451	62.1	83,977
* - All ince	ntives presented in this table are included as placeholders for planning purposes	and are based	on previous	y run state r	ebate progr	ams. Contact y	our utility provid	ler for details	on current progra	ms.	

FAIRVIEW 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)**	CO2e Emissions Reduction (lbs)
Lighting	; Control Measures		2,826	0.7	-1	\$275	\$3,443	\$515	\$2,928	10.7	2,777
ECM 1	Install Occupancy Sensor Lighting Controls	Yes	2,720	0.7	-1	\$264	\$3,218	\$445	\$2,773	10.5	2,672
ECM 2	Install High/Low Lighting Controls	Yes	107	0.0	0	\$10	\$225	\$70	\$155	14.9	105
Variable	e Frequency Drive (VFD) Measures		5,883	1.2	0	\$593	\$19,664	\$350	\$19,314	32.6	5,924
ECM 3	Install Boiler Draft Fan VFDs	No	2,719	0.9	0	\$274	\$8,442	\$150	\$8,292	30.3	2,738
ECM 4	Install VFDs on Condensate Pumps	No	1,288	0.1	0	\$130	\$7,040	\$100	\$6,940	53.5	1,297
ECM 5	Install VFDs on Water Supply Pump	No	1,876	0.2	0	\$189	\$4,182	\$100	\$4,082	21.6	1,889
Unitary	HVAC Measures		20,342	11.7	0	\$2,050	\$142,006	\$4,944	\$137,062	66.9	20,484
ECM 6	Install High Efficiency Air Conditioning Units	No	20,342	11.7	0	\$2,050	\$142,006	\$4,944	\$137,062	66.9	20,484
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	213	\$3,629	\$119,601	\$5,400	\$114,201	31.5	24,881
ECM 7	Install High Efficiency Steam Boilers	No	0	0.0	213	\$3,629	\$119,601	\$5,400	\$114,201	31.5	24,881
Domest	ic Water Heating Upgrade		981	0.0	0	\$99	\$108	\$36	\$71	0.7	988
ECM 8	Install Low-Flow DHW Devices	Yes	981	0.0	0	\$99	\$108	\$36	\$71	0.7	988
Food Se	rvice & Refrigeration Measures		3,306	0.4	0	\$333	\$1,980	\$0	\$1,980	5.9	3,329
ECM 9	Replace Refrigeration Equipment	Yes	3,306	0.4	0	\$333	\$1,980	\$0	\$1,980	5.9	3,329
Custom	Measures		6,155	0.0	0	\$620	\$3,323	\$0	\$3,323	5.4	6,198
ECM 10	Replace Electric Water Heater with Heat Pump Water Heater	Yes	6,155	0.0	0	\$620	\$3,323	\$0	\$3,323	5.4	6,198
	TOTALS (COST EFFECTIVE MEASURES)		13,269	1.1	-1	\$1,327	\$8,854	\$551	\$8,302	6.3	13,292
	TOTALS (ALL MEASURES)		39,493	14.0	212	\$7,598	\$290,124	\$11,245	\$278,879	36.7	64,581
* - All ince ** - Simpl	entives presented in this table are included as placeholders for planning purposes a e Payback Period is based on net measure costs (i.e. after incentives).	nd are based or	n previously i	run state reb	ate programs	s. Contact you	ır utility provider	for details on	current programs.		

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HARMONY 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		5	0.0	0	\$0	\$13	\$1	\$12	30.0	5
ECM 1	Retrofit Fixtures with LED Lamps	No	5	0.0	0	\$0	\$13	\$1	\$12	30.0	5
Lighting	Control Measures		26,991	5.9	-6	\$2,094	\$19,120	\$5,140	\$13,980	6.7	26,519
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	25,033	5.5	-5	\$1,942	\$14,620	\$1,920	\$12,700	6.5	24,596
ECM 3	Install High/Low Lighting Controls	Yes	1,958	0.4	0	\$152	\$4,500	\$3,220	\$1,280	8.4	1,924
Variable	e Frequency Drive (VFD) Measures		12,003	3.4	0	\$973	\$21,640	\$1,400	\$20,240	20.8	12,087
ECM 4	Install VFDs on Constant Volume (CV) Fans	Yes	4,689	1.4	0	\$380	\$5,028	\$900	\$4,128	10.9	4,721
ECM 5	Install Boiler Draft Fan VFDs	Yes	5,889	1.8	0	\$477	\$9,482	\$400	\$9,082	19.0	5,931
ECM 6	Install VFDs on Condensate Pumps	No	1,425	0.2	0	\$116	\$7,130	\$100	\$7,030	60.8	1,435
Unitary	HVAC Measures		33,468	24.1	0	\$2,713	\$292,887	\$10,197	\$282,690	104.2	33,702
ECM 7	Install High Efficiency Air Conditioning Units	No	33,468	24.1	0	\$2,713	\$292,887	\$10,197	\$282,690	104.2	33,702
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	34	\$570	\$140,655	\$6,532	\$134,123	235.3	3,989
ECM 8	Install High Efficiency Steam Boilers	No	0	0.0	34	\$570	\$140,655	\$6,532	\$134,123	235.3	3,989
Domest	ic Water Heating Upgrade		0	0.0	7	\$122	\$194	\$83	\$111	0.9	853
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	7	\$122	\$194	\$83	\$111	0.9	853
Custom	Measures		-3,283	0.0	35	\$319	\$3,166	\$0	\$3,166	9.9	792
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-3,283	0.0	35	\$319	\$3,166	\$0	\$3,166	9.9	792
	TOTALS (COST EFFECTIVE MEASURES)		34,286	9.1	37	\$3,392	\$36,990	\$6,523	\$30,467	9.0	38,816
	TOTALS (ALL MEASURES)		69,184	33.4	71	\$6,791	\$477,674	\$23,353	\$454,321	66.9	77,947
* - All ince	entives presented in this table are included as placeholders for planning purposes a	nd are based on	previously i	un state reb	ate programs	s. Contact you	r utility provider	for details on	current programs.		

LEONARDO 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)**	CO₂e Emissions Reduction (lbs)
Lighting	Upgrades		711	0.2	0	\$86	\$543	\$75	\$468	5.5	699
ECM 1	Retrofit Fixtures with LED Lamps	Yes	711	0.2	0	\$86	\$543	\$75	\$468	5.5	699
Lighting	Control Measures		6,645	1.7	-1	\$799	\$15,558	\$3,665	\$11,893	14.9	6,529
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	5,944	1.5	-1	\$715	\$12,633	\$1,845	\$10,788	15.1	5,840
ECM 3	Install High/Low Lighting Controls	Yes	701	0.2	0	\$84	\$2,925	\$1,820	\$1,105	13.1	688
Variable	e Frequency Drive (VFD) Measures		3,556	4.7	0	\$440	\$19,592	\$2,150	\$17,442	39.6	3,580
ECM 4	Install Boiler Draft Fan VFDs	No	1,448	4.6	0	\$179	\$11,890	\$2,000	\$9,890	55.2	1,458
ECM 5	Install VFDs on Condensate Pumps	No	2,107	0.2	0	\$261	\$7,702	\$150	\$7,552	29.0	2,122
Unitary	HVAC Measures		11,179	12.4	0	\$1,384	\$150,881	\$5,253	\$145,628	105.2	11,257
ECM 6	Install High Efficiency Air Conditioning Units	No	11,179	12.4	0	\$1,384	\$150,881	\$5,253	\$145,628	105.2	11,257
HVAC S	ystem Improvements		o	0.0	5	\$81	\$895	\$150	\$745	9.2	574
ECM 7	Install Pipe Insulation	Yes	0	0.0	5	\$81	\$895	\$150	\$745	9.2	574
Domest	ic Water Heating Upgrade		0	0.0	7	\$109	\$122	\$56	\$66	0.6	768
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	7	\$109	\$122	\$56	\$66	0.6	768
Custom	Measures		-4,596	0.0	49	\$245	\$3,166	\$0	\$3,166	12.9	1,109
ECM 9	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-4,596	0.0	49	\$245	\$3,166	\$0	\$3,166	12.9	1,109
	TOTALS (COST EFFECTIVE MEASURES)		2,761	1.8	59	\$1,320	\$20,284	\$3,946	\$16,338	12.4	9,679
	TOTALS (ALL MEASURES)		17,495	19.0	59	\$3,144	\$190,758	\$11,349	\$179,409	57.1	24,516
* - All ince	entives presented in this table are included as placeholders for planning purposes a	and are based or	n previously i	run state reb	ate programs	s. Contact you	ur utility provider	for details on	current programs.		
** - Simple	e Payback Period is based on net measure costs (i.e. after incentives).										

LINCROFT 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		2,506	0.0	0	\$299	\$1,973	\$315	\$1,658	5.6	2,519
ECM 1	Install LED Fixtures	Yes	2,313	0.0	0	\$276	\$1,918	\$300	\$1,618	5.9	2,329
ECM 2	Retrofit Fixtures with LED Lamps	Yes	193	0.0	0	\$22	\$55	\$15	\$40	1.8	190
Lighting	Control Measures		2,413	0.4	0	\$282	\$3,216	\$370	\$2,846	10.1	2,384
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,868	0.4	0	\$217	\$2,816	\$370	\$2,446	11.3	1,836
ECM 4	Install Photocell Controls	Yes	544	0.0	0	\$65	\$400	\$0	\$400	6.2	548
Variable	Frequency Drive (VFD) Measures		9,848	1.1	0	\$1,176	\$27,207	\$525	\$26,682	22.7	9,917
ECM 5	Install VFDs on Heating Water Pumps	No	9,848	1.1	0	\$1,176	\$27,207	\$525	\$26,682	22.7	9,917
Unitary	HVAC Measures		35,149	19.3	-23	\$3,809	\$229,116	\$8,123	\$220,993	58.0	32,654
ECM 6	Install High Efficiency Air Conditioning Units	No	35,149	19.3	-23	\$3,809	\$229,116	\$8,123	\$220,993	58.0	32,654
HVAC Sy	stem Improvements		0	0.0	4	\$58	\$477	\$80	\$397	6.8	410
ECM 7	Install Pipe Insulation	Yes	0	0.0	4	\$58	\$477	\$80	\$397	6.8	410
Domest	ic Water Heating Upgrade		0	0.0	1	\$21	\$86	\$26	\$60	2.8	150
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	1	\$21	\$86	\$26	\$60	2.8	150
Food Se	rvice & Refrigeration Measures		951	0.1	0	\$114	\$2,240	\$125	\$2,115	18.6	957
ECM 9	Replace Refrigeration Equipment	No	951	0.1	0	\$114	\$2,240	\$125	\$2,115	18.6	957
Custom	Measures		-3,283	0.0	35	\$189	\$2,383	\$0	\$2,383	12.6	792
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-3,283	0.0	35	\$189	\$2,383	\$0	\$2,383	12.6	792
	TOTALS (COST EFFECTIVE MEASURES)		4,919	0.4	4	\$660	\$5,752	\$791	\$4,961	7.5	5,463
	TOTALS (ALL MEASURES)		47,583	20.9	16	\$5,947	\$266,698	\$9,563	\$257,135	43.2	49,782

* - 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.

MIDDLETOWN VILLAGE 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)**	CO2e Emissions Reduction (Ibs)
Lighting	g Upgrades		1,634	0.3	0	\$171	\$973	\$126	\$847	5.0	1,615
ECM 1	Retrofit Fixtures with LED Lamps	Yes	1,634	0.3	0	\$171	\$973	\$126	\$847	5.0	1,615
Lighting	g Control Measures		1,149	0.3	0	\$119	\$3,048	\$410	\$2,638	22.1	1,129
ECM 2	Install Occupancy Sensor Lighting Controls	No	1,149	0.3	0	\$119	\$3,048	\$410	\$2,638	22.1	1,129
Unitary	HVAC Measures		25,617	20.0	0	\$2,750	\$230,759	\$8,034	\$222,725	81.0	25,796
ECM 3	Install High Efficiency Air Conditioning Units	No	25,617	20.0	0	\$2,750	\$230,759	\$8,034	\$222,725	81.0	25,796
Gas Hea	ating (HVAC/Process) Replacement		0	0.0	34	\$554	\$118,959	\$5,590	\$113,369	204.7	3,956
ECM 4	Install High Efficiency Steam Boilers	No	0	0.0	34	\$554	\$118,959	\$5,590	\$113,369	204.7	3,956
HVAC S	ystem Improvements		615	0.0	0	\$66	\$597	\$100	\$497	7.5	620
ECM 5	Install Pipe Insulation	Yes	615	0.0	0	\$66	\$597	\$100	\$497	7.5	620
Domest	tic Water Heating Upgrade		1,668	0.0	0	\$179	\$201	\$75	\$126	0.7	1,680
ECM 6	Install Low-Flow DHW Devices	Yes	1,668	0.0	0	\$179	\$201	\$75	\$126	0.7	1,680
Custom	Measures		3,693	0.0	0	\$396	\$3,323	\$0	\$3,323	8.4	3,719
ECM 7	Replace Electric Water Heater with Heat Pump Water Heater	Yes	3,693	0.0	0	\$396	\$3,323	\$0	\$3,323	8.4	3,719
	TOTALS (COST EFFECTIVE MEASURES)		7,611	0.3	0	\$812	\$5,093	\$301	\$4,792	5.9	7,633
	TOTALS (ALL MEASURES)		34,377	20.6	33	\$4,235	\$357,860	\$14,335	\$343,525	81.1	38,514
* - All inc	entives presented in this table are included as placeholders for planning purposes a	nd are based or	n previously i	run state reb	ate programs	s. Contact you	ır utility provider	for details on	current programs.		
** - Simp	le Pay back Period is based on net measure costs (i.e. after incentives).										

NAVESINK 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		4	0.0	0	\$0	\$17	\$1	\$16	44.3	4
ECM 1	Retrofit Fixtures with LED Lamps	No	4	0.0	0	\$0	\$17	\$1	\$16	44.3	4
Lighting	Control Measures		805	0.2	0	\$77	\$2,122	\$285	\$1,837	24.0	791
ECM 2	Install Occupancy Sensor Lighting Controls	No	805	0.2	0	\$77	\$2,122	\$285	\$1,837	24.0	791
Variable	e Frequency Drive (VFD) Measures		3,646	0.8	0	\$359	\$11,303	\$175	\$11,128	31.0	3,672
ECM 3	Install Boiler Draft Fan VFDs	No	2,191	0.6	0	\$216	\$7,416	\$100	\$7,316	33.9	2,206
ECM 4	Install VFDs on Condensate Pumps	No	1,455	0.1	0	\$143	\$3,887	\$75	\$3,812	26.6	1,466
Unitary	HVAC Measures		14,628	8.0	0	\$1,441	\$97,629	\$3,399	\$94,230	65.4	14,730
ECM 5	Install High Efficiency Air Conditioning Units	No	14,628	8.0	0	\$1,441	\$97,629	\$3,399	\$94,230	65.4	14,730
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	22	\$349	\$113,704	\$4,800	\$108,904	312.2	2,544
ECM 6	Install High Efficiency Steam Boilers	No	0	0.0	22	\$349	\$113,704	\$4,800	\$108,904	312.2	2,544
HVAC S	ystem Improvements		o	0.0	6	\$90	\$1,193	\$200	\$993	11.0	656
ECM 7	Install Pipe Insulation	Yes	0	0.0	6	\$90	\$1,193	\$200	\$993	11.0	656
Domest	ic Water Heating Upgrade		0	0.0	3	\$47	\$86	\$35	\$51	1.1	346
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$47	\$86	\$35	\$51	1.1	346
Custom	Measures		-5,252	0.0	56	\$381	\$2,383	\$0	\$2,383	6.3	1,268
ECM 9	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-5,252	0.0	56	\$381	\$2,383	\$0	\$2,383	6.3	1,268
	TOTALS (COST EFFECTIVE MEASURES)		-5,252	0.0	65	\$518	\$3,662	\$235	\$3,427	6.6	2,270
	TOTALS (ALL MEASURES)		13,831	9.0	86	\$2,745	\$228,437	\$8,895	\$219,542	80.0	24,011
* - All ince	entives presented in this table are included as placeholders for planning purposes	and are based or	n previously	run state reb	ate program	s. Contact you	r utility provider	for details on	current programs.	-	

NEW MONMOUTH 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		2,888	0.0	0	\$265	\$3,611	\$1,024	\$2,587	9.8	2,902
ECM 1	Install LED Fixtures	Yes	2,439	0.0	0	\$225	\$3,369	\$1,000	\$2,369	10.5	2,456
ECM 2	Retrofit Fixtures with LED Lamps	Yes	448	0.0	0	\$41	\$241	\$24	\$217	5.4	446
Lighting	Control Measures		22,636	5.0	-5	\$2,007	\$27,025	\$5,840	\$21,185	10.6	22,240
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	19,421	4.5	-4	\$1,722	\$22,300	\$2,935	\$19,365	11.2	19,082
ECM 4	Install High/Low Lighting Controls	Yes	3,215	0.5	-1	\$285	\$4,725	\$2,905	\$1,820	6.4	3,159
Variable	Frequency Drive (VFD) Measures		8,439	1.0	0	\$778	\$10,055	\$1,800	\$8,255	10.6	8,498
ECM 5	Install VFDs on Heating Water Pumps	Yes	8,439	1.0	0	\$778	\$10,055	\$1,800	\$8,255	10.6	8,498
Unitary	HVAC Measures		30,915	23.6	0	\$2,848	\$332,165	\$13,161	\$319,004	112.0	31,132
ECM 6	Install High Efficiency Air Conditioning Units	No	30,915	23.6	0	\$2,848	\$332,165	\$13,161	\$319,004	112.0	31,132
HVAC S	ystem Improvements		0	0.0	8	\$128	\$895	\$150	\$745	5.8	902
ECM 7	Install Pipe Insulation	Yes	0	0.0	8	\$128	\$895	\$150	\$745	5.8	902
Domest	ic Water Heating Upgrade		0	0.0	7	\$119	\$294	\$103	\$191	1.6	833
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	7	\$119	\$294	\$103	\$191	1.6	833
Custom	Measures		-7,222	0.0	77	\$619	\$3,166	\$0	\$3,166	5.1	1,743
ECM 9	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-7,222	0.0	77	\$619	\$3,166	\$0	\$3,166	5.1	1,743
	TOTALS (COST EFFECTIVE MEASURES)		26,741	6.0	87	\$3,916	\$45,046	\$8,917	\$36,129	9.2	37,119
	TOTALS (ALL MEASURES)		57,657	29.6	87	\$6,764	\$377,211	\$22,078	\$355,133	52.5	68,251
* - All ince	entives presented in this table are included as placeholders for planning purposes a	nd are based or	n previously i	un state reb	ate programs	s. Contact you	r utility provider	for details on	current programs.		

uses and are based on previously run slate rebate programs. Contact y

NUT SWAMP 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)**	CO2e Emissions Reduction (lbs)
Lighting	Upgrades		3,869	0.8	-1	\$271	\$2,977	\$402	\$2,575	9.5	3,812
ECM 1	Retrofit Fixtures with LED Lamps	Yes	3,869	0.8	-1	\$271	\$2,977	\$402	\$2,575	9.5	3,812
Lighting	; Control Measures		12,251	2.9	-3	\$853	\$17,308	\$2,575	\$14,733	17.3	12,037
ECM 2	Install Occupancy Sensor Lighting Controls	No	12,093	2.9	-3	\$842	\$16,858	\$2,225	\$14,633	17.4	11,881
ECM 3	Install High/Low Lighting Controls	Yes	158	0.0	0	\$11	\$450	\$350	\$100	9.1	155
Unitary	HVAC Measures		23,092	19.2	0	\$1,687	\$221,884	\$7,725	\$214,159	126.9	23,254
ECM 4	Install High Efficiency Air Conditioning Units	No	23,092	19.2	0	\$1,687	\$221,884	\$7,725	\$214,159	126.9	23,254
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	41	\$676	\$119,199	\$5,356	\$113,843	168.3	4,858
ECM 5	Install High Efficiency Steam Boilers	No	0	0.0	41	\$676	\$119,199	\$5,356	\$113,843	168.3	4,858
Domest	ic Water Heating Upgrade		0	0.0	3	\$55	\$115	\$43	\$72	1.3	392
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$55	\$115	\$43	\$72	1.3	392
Custom	Measures		-5,252	0.0	56	\$529	\$3,166	\$0	\$3,166	6.0	1,268
ECM 7	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-5,252	0.0	56	\$529	\$3,166	\$0	\$3,166	6.0	1,268
	TOTALS (COST EFFECTIVE MEASURES)		-1,225	0.8	59	\$866	\$6,708	\$795	\$5,913	6.8	5,628
	TOTALS (ALL MEASURES)		33,960	23.0	98	\$4,071	\$364,649	\$16,101	\$348,548	85.6	45,621

* - 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.

OCEAN AVENUE 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)**	CO2e Emissions Reduction (lbs)
Lighting	Upgrades		1,212	0.2	0	\$105	\$375	\$78	\$297	2.8	1,197
ECM 1	Retrofit Fixtures with LED Lamps	Yes	1,212	0.2	0	\$105	\$375	\$78	\$297	2.8	1,197
Lighting	Control Measures		613	0.1	0	\$53	\$2,702	\$385	\$2,317	44.1	602
ECM 2	Install Occupancy Sensor Lighting Controls	No	613	0.1	0	\$53	\$2,702	\$385	\$2,317	44.1	602
Variable	e Frequency Drive (VFD) Measures		4,123	0.4	0	\$367	\$9,014	\$200	\$8,814	24.0	4,151
ECM 3	Install VFDs on Condensate Pumps	No	4,123	0.4	0	\$367	\$9,014	\$200	\$8,814	24.0	4,151
Unitary	HVAC Measures		20,119	10.1	0	\$1,789	\$116,398	\$4,017	\$112,381	62.8	20,260
ECM 4	Install High Efficiency Air Conditioning Units	No	20,119	10.1	0	\$1,789	\$116,398	\$4,017	\$112,381	62.8	20,260
Gas Hea	ting (HVAC/Process) Replacement		o	0.0	34	\$513	\$122,118	\$5,712	\$116,406	227.0	3,972
ECM 5	Install High Efficiency Steam Boilers	No	0	0.0	34	\$513	\$122,118	\$5,712	\$116,406	227.0	3,972
Domest	ic Water Heating Upgrade		o	0.0	6	\$90	\$158	\$66	\$92	1.0	699
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$90	\$158	\$66	\$92	1.0	699
Custom	Measures		-3,939	0.0	42	\$285	\$2,383	\$0	\$2,383	8.4	951
ECM 7	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-3,939	0.0	42	\$285	\$2,383	\$0	\$2,383	8.4	951
	TOTALS (COST EFFECTIVE MEASURES)		-2,727	0.2	48	\$480	\$2,916	\$144	\$2,772	5.8	2,848
	TOTALS (ALL MEASURES)		22,128	10.8	82	\$3,201	\$253,148	\$10,458	\$242,690	75.8	31,834
* - All ince	entives presented in this table are included as placeholders for planning purposes	and are based or	n previously	run state rek	oate programs	s. Contact you	ur utility provider	for details on	current programs.		7
** - Simpl	e Pavback Period is based on net measure costs (i.e. after incentives).										

RIVER PLAZA 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)**	CO2e Emissions Reduction (Ibs)
Lighting	Upgrades		3,015	0.6	-1	\$282	\$2,761	\$358	\$2,403	8.5	2,974
ECM 1	Install LED Fixtures	Yes	473	0.0	0	\$46	\$517	\$50	\$467	10.2	476
ECM 2	Retrofit Fixtures with LED Lamps	Yes	2,542	0.6	-1	\$236	\$2,244	\$308	\$1,936	8.2	2,498
Lighting	Control Measures		5,857	2.1	-1	\$544	\$8,351	\$2,120	\$6,231	11.4	5,754
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	4,577	1.7	-1	\$425	\$6,326	\$825	\$5,501	12.9	4,497
ECM 4	Install High/Low Lighting Controls	Yes	1,280	0.3	0	\$119	\$2,025	\$1,295	\$730	6.1	1,258
Unitary	HVAC Measures		16,891	12.1	0	\$1,631	\$145,250	\$5,265	\$139,985	85.8	17,010
ECM 5	Install High Efficiency Air Conditioning Units	No	16,891	12.1	0	\$1,631	\$145,250	\$5,265	\$139,985	85.8	17,010
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	29	\$503	\$118,937	\$5,490	\$113,447	225.3	3,431
ECM 6	Install High Efficiency Steam Boilers	No	0	0.0	29	\$503	\$118,937	\$5,490	\$113,447	225.3	3,431
HVAC S	ystem Improvements		0	0.0	4	\$72	\$954	\$160	\$794	11.0	492
ECM 7	Install Pipe Insulation	Yes	0	0.0	4	\$72	\$954	\$160	\$794	11.0	492
Domest	ic Water Heating Upgrade		0	0.0	3	\$44	\$100	\$36	\$64	1.5	301
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	\$44	\$100	\$36	\$64	1.5	301
Custom	Measures		-3,939	0.0	42	\$341	\$2,383	\$0	\$2,383	7.0	951
ECM 9	Replace Gas Fired Water Heater with Heat Pump Water Heater	Yes	-3,939	0.0	42	\$341	\$2,383	\$0	\$2,383	7.0	951
	TOTALS (COST EFFECTIVE MEASURES)		4,933	2.7	47	\$1,284	\$14,550	\$2,674	\$11,876	9.3	10,472
	TOTALS (ALL MEASURES)		21,825	14.8	76	\$3,418	\$278,737	\$13,429	\$265,308	77.6	30,912
* - All ince	ntives presented in this table are included as placeholders for planning purposes	and are based or	n previously i	run state reb	ate programs	s. Contact y ou	ir utility provider	for details on	current programs.		

MAINTENANCE WAREHOUSE

#	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		9,945	0.1	0	\$1,136	\$4,159	\$740	\$3,419	3.0	10,008
ECM1	Install LED Fixtures	Yes	9,671	0.0	0	\$1,106	\$3,977	\$700	\$3,277	3.0	9,739
ECM 2	Retrofit Fixtures with LED Lamps	Yes	274	0.1	0	\$30	\$182	\$40	\$142	4.7	269
Unitary	HVAC Measures		85	0.1	0	\$10	\$841	\$0	\$841	86.6	86
ECM3	Install High Efficiency Air Conditioning Units	No	85	0.1	0	\$10	\$841	\$0	\$841	86.6	86
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	135	\$2,393	\$26,240	\$1,200	\$25,040	10.5	15,773
ECM4	Install Infrared Heaters	Yes	0	0.0	135	\$2,393	\$26,240	\$1,200	\$25,040	10.5	15,773
HVAC S	ystem Improvements		42	0.0	34	\$616	\$1,068	\$172	\$896	1.5	4,072
ECM5	Install Pipe Insulation	Yes	42	0.0	34	\$616	\$1,068	\$172	\$896	1.5	4,072
	TOTALS (COST EFFECTIVE MEASURES)		9,988	0.1	169	\$4,146	\$31,467	\$2,112	\$29,355	7.1	29,852
	TOTALS (ALL MEASURES)		10,073	0.2	169	\$4,156	\$32,308	\$2,112	\$30,196	7.3	29,938

* - 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 Best Practices by building



MEASURES FOR FUTURE CONSIDERATION

- Installation of an Energy Management System
- Heating System Conversion from Steam to Hot Water
- Variable Refrigerant Flow (VRF) Systems
- Ozone Laundry System



EV CHARGING STATION POTENTIAL

NJCleanEnergy.com/EV



SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	Leonardo ES	New Monmouth ES
Potential:	MEDIUM	HIGH
System Potential: (kW)	65	106
Electric Generation: (kWh per year)	48,909	79,759
Displaced Cost: (per year)	\$6,050	\$7,350



FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP Program
- 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
- 2 Options: Lease Purchase Loan or Bond
- 15 or 20 year pay back term
- NJBPU Approved Incentive Programs
 - Utility or NJCEP
- Can be combined with Federal/State Grants
- 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

ENERGY MANAGEMENT :

- 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
- Includes the Building Tune-up (BT), Retro-commissioning (RCx), and Strategic Energy Management (SEM) subprograms. These subprograms offer a comprehensive mix of custom energy-savings measures such as basic HVAC tune-ups, building systems tune-ups, controls' calibration, diagnostic testing, and installation of measures to enhance your building's energy performance and savings.

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

*Other programs may be available to you. Check with your Utility Provider to see a full list of offering and what you may be qualified for.

UTILITY RUN ENERGY EFFICIENCY PROGRAMS

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