



New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Elizabeth Public Library

Smruti Srinivasan, TRC

November 9, 2017

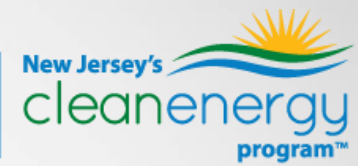
Introductions



- *Elizabeth Public Library*
 - MaryFaith Chmiel
 - Andy Luck

- *NJ Clean Energy Program – TRC*
 - Smruti Srinivasan (Auditor)
 - Jim Friedl (Outreach Manager)

Agenda



- Overview of LGEA process (application to deliverable)
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for Elizabeth Public Library

Process to Draft Report



- Application submitted to NJCEP
- Site Visit Performed
- Utility Analysis
- Baseline Condition
- Analysis
- Recommendations
- Report

(1) Main Library



Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

(1) Main Library



Energy Conservation Measure		Recommend?	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			177,053	38.7	0.0	\$26,899.21	\$81,825.03	\$12,460.00	\$69,365.03	2.6	178,291
ECM 1	Install LED Fixtures	Yes	2,287	0.4	0.0	\$347.40	\$1,172.03	\$300.00	\$872.03	2.5	2,303
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	218	0.0	0.0	\$33.18	\$83.43	\$0.00	\$83.43	2.5	220
ECM 3	Retrofit Fixtures with LED Lamps	Yes	173,855	38.2	0.0	\$26,413.36	\$79,063.80	\$12,160.00	\$66,903.80	2.5	175,071
ECM 4	Install LED Exit Signs	Yes	693	0.1	0.0	\$105.27	\$1,505.77	\$0.00	\$1,505.77	14.3	698
Lighting Control Measures			8,690	1.9	0.0	\$1,320.20	\$2,722.00	\$475.00	\$2,247.00	1.7	8,750
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	7,643	1.7	0.0	\$1,161.17	\$1,972.00	\$340.00	\$1,632.00	1.4	7,696
ECM 6	Install Daylight Dimming Controls	Yes	1,047	0.2	0.0	\$159.04	\$750.00	\$135.00	\$615.00	3.9	1,054
Variable Frequency Drive (VFD) Measures			18,651	0.0	0.0	\$2,833.61	\$5,194.45	\$900.00	\$4,294.45	1.5	18,781
ECM 7	Install VFDs on Cooling Tower Fans	Yes	18,651	0.0	0.0	\$2,833.61	\$5,194.45	\$900.00	\$4,294.45	1.5	18,781
Electric Chiller Replacement			89,439	44.1	0.0	\$13,588.21	\$174,902.76	\$6,150.00	\$168,752.76	12.4	90,064
ECM 8	Install High Efficiency Chillers	Yes	89,439	44.1	0.0	\$13,588.21	\$174,902.76	\$6,150.00	\$168,752.76	12.4	90,064
Gas Heating (HVAC/Process) Replacement			0	0.0	104.4	\$877.69	\$21,603.08	\$3,000.00	\$18,603.08	21.2	12,229
ECM 9	Install High Efficiency Hot Water Boilers	Yes	0	0.0	104.4	\$877.69	\$21,603.08	\$3,000.00	\$18,603.08	21.2	12,229
Domestic Water Heating Upgrade			11,687	0.0	0.0	\$1,775.55	\$164.91	\$0.00	\$164.91	0.1	11,769
ECM 10	Install Low-Flow Domestic Hot Water Devices	Yes	11,687	0.0	0.0	\$1,775.55	\$164.91	\$0.00	\$164.91	0.1	11,769
Plug Load Equipment Control - Vending Machine			3,224	0.0	0.0	\$489.77	\$460.00	\$0.00	\$460.00	0.9	3,246
ECM 11	Vending Machine Control	Yes	3,224	0.0	0.0	\$489.77	\$460.00	\$0.00	\$460.00	0.9	3,246
TOTALS			308,743	84.6	104.4	\$47,784.24	\$286,872.24	\$22,985.00	\$263,887.24	5.5	323,131

* - 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).

(2) Elmora Branch



Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

(2) Elmora Branch



Energy Conservation Measure		Recommend?	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			19,358	3.5	0.0	\$3,413.76	\$8,470.15	\$1,715.00	\$6,755.15	2.0	19,494
ECM 1	Install LED Fixtures	Yes	2,133	0.4	0.0	\$376.18	\$1,562.71	\$400.00	\$1,162.71	3.1	2,148
ECM 2	Retrofit Fixtures with LED Lamps	Yes	16,592	3.1	0.0	\$2,925.86	\$6,477.23	\$1,315.00	\$5,162.23	1.8	16,708
ECM 3	Install LED Exit Signs	Yes	634	0.1	0.0	\$111.72	\$430.22	\$0.00	\$430.22	3.9	638
Lighting Control Measures			448	0.1	0.0	\$79.05	\$464.00	\$80.00	\$384.00	4.9	451
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	448	0.1	0.0	\$79.05	\$464.00	\$80.00	\$384.00	4.9	451
Electric Unitary HVAC Measures			4,124	3.0	0.0	\$727.18	\$17,821.06	\$730.00	\$17,091.06	23.5	4,152
	Install High Efficiency Electric AC	No	4,124	3.0	0.0	\$727.18	\$17,821.06	\$730.00	\$17,091.06	23.5	4,152
Gas Heating (HVAC/Process) Replacement			0	0.0	32.5	\$308.45	\$10,081.44	\$1,000.00	\$9,081.44	29.4	3,810
	Install High Efficiency Hot Water Boilers	No	0	0.0	32.5	\$308.45	\$10,081.44	\$1,000.00	\$9,081.44	29.4	3,810
Domestic Water Heating Upgrade			1,551	0.0	0.0	\$273.52	\$21.51	\$0.00	\$21.51	0.1	1,562
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	1,551	0.0	0.0	\$273.52	\$21.51	\$0.00	\$21.51	0.1	1,562
TOTAL OF ALL EVALUATED ECMS			25,481	6.6	32.5	\$4,801.96	\$36,858.16	\$3,525.00	\$33,333.16	6.9	29,469
TOTAL OF ALL RECOMMENDED ECMS			21,358	4	0	3,766	8,956	1,795	7,161	1.9	21,507

* - 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).



Some Energy Efficient Best Practices

- Reduce Air Leakage
- Close Doors and Windows
- Use Window Treatments/Coverings
- Practice Proper Use of Thermostat Schedules and Temperature Resets
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

See individual reports for specific EE practices by building

PROGRAM PORTFOLIO



ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit, Institutional and Multifamily

PROGRAMS

Equipment Rebates:

- Retrofit – Existing Buildings
- New Construction
- Direct Install – Small Business
- Large Energy Users

Whole Buildings:

- Pay for Performance Existing Buildings
- Pay for Performance New Construction

Energy Generation:

- Combined Heat and Power (CHP) and Fuel Cells

Recommended NJCEP Incentives



- Direct Install

Willdan Energy Solutions

Tejas Desai

646-357-6340

tdesai@willdan.com

- Pay for Performance (P4P)

- SmartStart Buildings (i.e Retrofit – Existing Buildings)

Energy Savings Improvement Program (ESIP)



- Program administered directly by BPU
- Provides alternative financing for energy savings projects at public institutions.
- Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract. Does not count as debt/require voter approval.
- Requires an audit as 1st step (LGEA satisfied this requirement)

Questions



?



FOR MORE INFORMATION

Visit NJCleanEnergy.com

Call (866) NJSMART

Jim Friedl

Outreach Manager

732-855-6543

jfriedl@trcsolutions.com