New Jersey's Clean Energy Program

LGEA Exit Meeting for: Fair Haven School District

October 10th, 2019





INTRODUCTIONS

- Fair Haven School District
 - David Joye Business Administrator
 - Sean McNeil Superintendent
 - Tom Buffa Building & Grounds Supervisor
- NJ Clean Energy Program
 - Moussa Traore– TRC Auditor
 - Sarah Walters TRC Account Manager
 - Tony O'Donnell TRC Outreach Manager
 - Arif Welcher Government/Business Manager (BPU)



Agenda

- The audit process overview
- Energy use & existing conditions
- Review of Energy Conservation Measures (ECMs) identified
- Questions regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for Fair Haven School District



LGEA PROCESS

Application Approval

Scheduling Call

Benchmarking & Utility Bill Analysis

Audit & Analysis

Draft Report

Exit Meeting Presentation

Final Report



BENCHMARKING

(if applicat

Knollwood School

ENERGY STAR [®] Statement of Energy Performance		Building Name	STAR® Score
20 Knollwood School Primary Property Type: K-12 School Gross Floor Area (ft ⁻): 76,790 Built: 1925	Energy Consum Site EUI	Knollwood School	20
For Year Ending: October 31, 2018 Date Generated: July 31, 2019 Soore ¹ 1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar building endowwelds, adjusting for climate and business activity.		Sickles School	8
Property & Contact Information Property Address From Hubits School Property ID: 5787834 Property ID: 578784 Property ID: 57878	National Median Compar National Median Site EUI National Median Source E % Diff from National Media ENERGY STAR [®] scores are 100 (most efficient). It co	ison (kBtu/ft ²) 80.9 EUI (kBtu/ft ²) 133.3 an Source EUI 36% e percentile ranking from 1 ompares your building's ene	(least efficient) t



0 ales your building s energy h to similar buildings nationwide.

ENERGY

SITE VISIT & UTILITY ANALYSIS

Overview of Systems, Baseline & Existing Conditions:

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

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed:

- Knollwood School
- Sickles School





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 (Ibs)
Lighting Upgrades	317,207	58.7	-62.8	\$37,250.48	\$130,635.15	\$27,419.00	\$103,216.15	2.8	312,070
Install LED Fixtures	47,274	7.4	-6.4	\$5,594.02	\$43,551.38	\$6,775.00	\$36,776.38	6.6	46,852
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	6,815	1.8	-1.4	\$802.75	\$2,485.62	\$420.00	\$2,065.62	2.6	6,695
Retrofit Fixtures with LED Lamps	260,840	49.3	-54.5	\$30,585.76	\$83,077.43	\$20,224.00	\$62,853.43	2.1	256,282
Install LED Exit Signs	2,278	0.2	-0.5	\$267.95	\$1,520.72	\$0.00	\$1,520.72	5.7	2,240
Lighting Control Measures	70,076	13.1	-14.7	\$8,217.21	\$39,498.00	\$3,940.00	\$35,558.00	4.3	68,850
Install Occupancy Sensor Lighting Controls	62,788	11.8	-13.1	\$7,362.60	\$31,398.00	\$3,940.00	\$27,458.00	3.7	61,690
Install High/Low Lighting Controls	7,287	1.4	-1.5	\$854.61	\$8,100.00	\$0.00	\$8,100.00	9.5	7,160
Variable Frequency Drive (VFD) Measures	41,025	6.0	0.0	\$4,889.88	\$46,879.65	\$520.00	\$46,359.65	9.5	41,312
Install VFDs on Constant Volume (CV) Fans	8,042	1.9	0.0	\$962.99	\$7,577.06	\$520.00	\$7,057.06	7.3	8,098
Install VFDs on Heating Water Pumps	32,983	4.1	0.0	\$3,926.89	\$39,302.59	\$0.00	\$39,302.59	10.0	33,214
Electric Unitary HVAC Measures	32,582	26.8	0.0	\$3,896.22	\$244,261.63	\$7,116.00	\$237,145.63	60.9	32,810
Install High Efficiency Air Conditioning Units	32,582	26.8	0.0	\$3,896.22	\$244,261.63	\$7,116.00	\$237,145.63	60.9	32,810
Gas Heating (HVAC/Process) Replacement	0	0.0	82.6	\$759.17	\$131,681.44	\$7,821.60	\$123,859.84	163.2	9,672
Install High Efficiency Steam Boilers	0	0.0	82.6	\$759.17	\$131,681.44	\$7,821.60	\$123,859.84	163.2	9,672
HVAC System Improvements	1,718	0.0	16.8	\$362.15	\$9,515.94	\$0.00	\$9,515.94	26.3	3,697
Implement Demand Control Ventilation (DCV)	1,718	0.0	16.8	\$362.15	\$9,515.94	\$0.00	\$9,515.94	26.3	3,697
Custom Measures	38,415	0.0	869.1	\$5,363.02	\$254,000.00	\$0.00	\$254,000.00	47.4	140,441
Installation of Energy Management System	38,415	0.0	869.1	\$5,363.02	\$254,000.00	\$0.00	\$254,000.00	47.4	140,441
TOTALS	501,023	104.6	891.0	\$60,738.13	\$856,471.81	\$46,816.60	\$809,655.21	13.3	608,852

* - 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).



cleanenergy program"

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 (Ibs)
	Lighting Upgrades	317,207	58.7	-62.8	\$37,250.48	\$130,635.15	\$27,419.00	\$103,216.15	2.8	312,070
ECM 1	Install LED Fixtures	47,274	7.4	-6.4	\$5,594.02	\$43,551.38	\$6,775.00	\$36,776.38	6.6	46,852
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	6,815	1.8	-1.4	\$802.75	\$2,485.62	\$420.00	\$2,065.62	2.6	6,695
ECM 3	Retrofit Fixtures with LED Lamps	260,840	49.3	-54.5	\$30,585.76	\$83,077.43	\$20,224.00	\$62,853.43	2.1	256,282
ECM 4	Install LED Exit Signs	2,278	0.2	-0.5	\$267.95	\$1,520.72	\$0.00	\$1,520.72	5.7	2,240
	Lighting Control Measures	70,076	13.1	-14.7	\$8,217.21	\$39,498.00	\$3,940.00	\$35,558.00	4.3	68,850
ECM 5	Install Occupancy Sensor Lighting Controls	62,788	11.8	-13.1	\$7,362.60	\$31,398.00	\$3,940.00	\$27,458.00	3.7	61,690
ECM 6	Install High/Low Lighting Controls	7,287	1.4	-1.5	\$854.61	\$8,100.00	\$0.00	\$8,100.00	9.5	7,160
	Variable Frequency Drive (VFD) Measures	21,701	3.5	0.0	\$2,575.87	\$17,053.54	\$520.00	\$16,533.54	6.4	21,853
ECM 7	Install VFDs on Constant Volume (CV) Fans	8,042	1.9	0.0	\$962.99	\$7,577.06	\$520.00	\$7,057.06	7.3	8,098
ECM 8	Install VFDs on Heating Water Pumps	13,659	1.6	0.0	\$1,612.88	\$9,476.48	\$0.00	\$9,476.48	5.9	13,755
	TOTALS	408,984	75.3	-77.5	\$48,043.56	\$187,186.69	\$31,879.00	\$155,307.69	3.2	402,773

* - 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).



KNOLLWOOD 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 (Ibs)
Lighting	Upgrades		224,728	40.8	-44	\$26,497	\$94,372	\$19,767	\$74,605	2.8	221,104
ECM 1	Install LED Fixtures	Yes	43,025	6.9	-6	\$5,092	\$37,149	\$6,155	\$30,994	6.1	42,573
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	6,815	1.8	-1	\$803	\$2,486	\$420	\$2,066	2.6	6,695
ECM 3	Retrofit Fixtures with LED Lamps	Yes	172,957	31.9	-36	\$20,375	\$53,507	\$13,192	\$40,315	2.0	169,937
ECM 4	Install LED Exit Signs	Yes	1,932	0.1	0	\$228	\$1,231	\$0	\$1,231	5.4	1,899
Lighting	Control Measures		46,664	8.6	-10	\$5,497	\$26,081	\$2,590	\$23,491	4.3	45,848
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	41,764	7.7	-9	\$4,920	\$20,906	\$2,590	\$18,316	3.7	41,034
ECM 6	Install High/Low Lighting Controls	Yes	4,900	0.9	-1	\$577	\$5,175	\$0	\$5,175	9.0	4,814
Variable	Frequency Drive (VFD) Measures		27,366	4.4	0	\$3,277	\$37,403	\$520	\$36,883	11.3	27,557
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	8,042	1.9	0	\$963	\$7,577	\$520	\$7,057	7.3	8,098
ECM 8	Install VFDs on Heating Water Pumps	No	19,324	2.5	0	\$2,314	\$29,826	\$0	\$29,826	12.9	19,459
Electric	Unitary HVAC Measures		29,339	25.1	0	\$3,513	\$224,988	\$6,311	\$218,677	62.2	29,544
ECM 9	Install High Efficiency Air Conditioning Units	No	29,339	25.1	0	\$3,513	\$224,988	\$6,311	\$218,677	62.2	29,544
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	45	\$418	\$70,023	\$4,159	\$65,863	157.5	5,261
ECM 10	Install High Efficiency Steam Boilers	No	0	0.0	45	\$418	\$70,023	\$4,159	\$65,863	157.5	5,261
HVAC Sy	rstem Improvements		1,718	0.0	17	\$362	\$9,516	\$0	\$9,516	26.3	3,697
ECM 11	Implement Demand Control Ventilation (DCV)	No	1,718	0.0	17	\$362	\$9,516	\$0	\$9,516	26.3	3,697
Custom	Measures		21,379	0.0	524	\$2,985	\$177,000	\$0	\$177,000	59.3	82,827
ECM 12	Installation of an Energy Management System	No	21,379	0.0	524	\$2,985	\$177,000	\$0	\$177,000	59.3	82,827
	TOTALS (COST EFFECTIVE MEASURES)		279,434	51.3	-54	\$32,957	\$128,030	\$22,877	\$105,153	3.2	275,050
	TOTALS (ALL MEASURES)		351,194	78.9	531	\$42,550	\$639,383	\$33,347	\$606,036	14.2	415,839



SICKLES 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)**	CO₂e Emissions Reduction (Ibs)
Lighting	Upgrades		92,479	17.9	-18	\$10,753	\$36,263	\$7,652	\$28,611	2.7	90,966
ECM 1	Install LED Fixtures	Yes	4,249	0.5	0	\$502	\$6,403	\$620	\$5,783	11.5	4,279
ECM 2	Retrofit Fixtures with LED Lamps	Yes	87,883	17.4	-18	\$10,211	\$29,570	\$7,032	\$22 <i>,</i> 538	2.2	86,346
ECM 3	Install LED Exit Signs	Yes	347	0.0	0	\$40	\$290	\$0	\$290	7.2	341
Lighting	Control Measures		23,412	4.5	-5	\$2,720	\$13,417	\$1,350	\$12,067	4.4	23,002
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	21,024	4.1	-4	\$2,443	\$10,492	\$1,350	\$9,142	3.7	20,657
ECM 5	Install High/Low Lighting Controls	Yes	2,387	0.5	0	\$277	\$2,925	\$0	\$2,925	10.5	2,345
Variable	Frequency Drive (VFD) Measures		13,659	1.6	0	\$1,613	\$9,476	\$0	\$9,476	5.9	13,755
ECM 6	Install VFDs on Heating Water Pumps	Yes	13,659	1.6	0	\$1,613	\$9,476	\$0	\$9,476	5.9	13,755
Electric	Jnitary HVAC Measures		3,243	1.6	0	\$383	\$19,274	\$805	\$18,469	48.2	3,266
ECM 7	Install High Efficiency Air Conditioning Units	No	3,243	1.6	0	\$383	\$19,274	\$805	\$18,469	48.2	3,266
Gas Hea	ting (HVAC/Process) Replacement		0	0.0	38	\$341	\$61,659	\$3,662	\$57,996	170.1	4,412
ECM 8	Install High Efficiency Steam Boilers	No	0	0.0	38	\$341	\$61,659	\$3,662	\$57,996	170.1	4,412
Custom	Measures		17,036	0.0	346	\$2,378	\$77,000	\$0	\$77,000	32.4	57,613
ECM 9	Installation of an Energy Management System	No	17,036	0.0	346	\$2,378	\$77,000	\$0	\$77,000	32.4	57,613
	TOTALS (COST EFFECTIVE MEASURES)		129,550	24.0	-23	\$15,086	\$59,156	\$9,002	\$50,154	3.3	127,722
	TOTALS (ALL MEASURES)		149,829	25.7	360	\$18,188	\$217,089	\$13,469	\$203,619	11.2	193,014

* - All incentives presented in this table are based on NJ SmartStart equipment incentives

and assume proposed equipment meets minimum performance criteria for that program.

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



SOLAR ENERGY GENERATION POTENTIAL

	Knollwood	Sickles
Potential:	MEDIUM	HIGH
System Potential: (kW)	268	161
Electric Generation: (kWh per year)	319,287	191,811
Displaced Cost: (per year)	\$38,230	\$22,650

SREC Registration Program (SRP):

http://www.NJCleanEnergy.com/SREC

Community Solar Energy Pilot Program:

http://www.NJCleanEnergy.com/Com munitySolar



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

INCENTIVE PROGRAMS

OTHER PROGRAMS



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

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

Renewable Energy Generation:

- SREC Registration Program (SRP)
- Community Solar

RECOMMENDED NJCEP INCENTIVES PER BUILDING

Fair Haven SD	P4P*	Direct Install	Smar tStart	CTEEP
Knollwood School	Х		Х	Х
Sickles School		Х	Х	Х



PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P

What is P4P: Comprehensive, whole-building approach to saving energy in existing or new facilities.



- Qualifications: Annual peak demand 200 kW+ in the previous year for existing buildings
- About: Customer choose from a network of pre-approved *Participating Partners*

Incentives: Incentives paid in <u>three</u> installments

- Up to \$2MM per project((\$4MM entity cap/year)
 - \$1 million for electric measures
 - \$1 million for gas measures
- Up to 50% of project cost (<u>80%</u> for UEZ/OZ/ MUNI/<u>K-12</u> <u>Public Schools</u>) up to \$2MM per project / \$4MM per entity annually



PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P





DIRECT INSTALL

NJCleanEnergy.com/DI

What is DI: Turn-key retrofit program to replace outdated and inefficient equipment, including lighting, HVAC, refrigeration, etc.



Qualifications: Average electric peak demand <200 kW in the previous 12 months

About:

- Pre-approved participating contractors provide support and process paperwork
 - Incentives paid directly to the contractor
 - Fast project turnaround time (4-6 months)

Incentives:

- \$125,000 incentive funding per project/building <u>(\$250K</u>UEZ/OZ/ MUNI/<u>K-12 Public Schools</u>), or
 - \$250,000 entity cap (\$4MM UEZ/OZ/MUNI/<u>K-12 Public Schools</u>)



DIRECT INSTALL

NJCleanEnergy.com/DI

Facilities in Urban Enterprise Zones (UEZ), Opportunity Zones (OZ), municipalities, and K-12 public schools:

INCENTIVE FUNDING	CUSTOMER
Up to 80% of installed cost is paid directly to the contractor	20% of installed cost
All other eligible facilities:	
INCENTIVE FUNDING	CUSTOMER
Up to 70% of installed cost is paid directly to the contractor	30% of installed cost





Participating Contractor

Hutchinson Mechanical Services Pete Hatton 856-429-5828 x259 petehatton@hutchbiz.com



DIRECT INSTALL: FINANCING OPTION

- Eligible NJNG customers can <u>finance</u> <u>the remaining 30 percent balance</u> at 0% APR through the "SAVEGREEN Project[®] On-Bill Repayment Program" (OBRP) for 36 months.
- For measures that may not qualify for Direct Install, NJNG also offers financing options for SmartStart that will cover up to \$130,000 per year.



• Questions? Contact:

Jerry Ryan

Energy Efficiency Ops. Manager New Jersey Natural Gas 732-433-4362 (cell) 732 378 4920 (office) jryan@njng.com



SMARTSTART

NJCleanEnergy.com/SSB

What is SSB: Individual high efficiency equipment rebates for new construction, renovation, remodeling, equipment replacement



Qualifications: • All C&I customer types contributing into the Societal Benefits Charge (SBC)

About:

- Prescriptive and custom designed measures
- Pre-approval required only for lighting projects with incentives >\$100,000 and <u>all</u> 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



SMARTSTART & CTEEP: FINANCING OPTION

- NJNG provides 0% financing options that will cover up to \$130,000 per year.
- 10 year term-repayments made on regular monthly gas bill
- Need to review project with NJNG to confirm project qualifies.
- The SAVEGREEN program can help with a consultation to discuss your Commercial Energy Efficiency Project.



• Questions? Contact:

Jerry Ryan Energy Efficiency Ops. Manager New Jersey Natural Gas 732-433-4362 (cell) 732 378 4920 (office) jryan@njng.com



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





Program

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

FOR MORE INFORMATION

Michelle Rossi ESIP Coordinator Office: 609-633-9641 ESIP@bpu.nj.gov



FOR MORE INFORMATION

Visit NJCleanEnergy.com Call (732) 855-0033

Tony O'Donnell Regional Outreach Manager 732.259.4938 aodonnell@trccompanies.com



QUESTIONS



