

# New Jersey's Clean Energy Program

LGEA Exit Meeting for:  
*Educational Services Commission of NJ*

Moussa Traore, TRC

June 12, 2017

# Introductions

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- *Educational Services Commission of NJ*
  - Pat Moran
  - Lou DiMeglio
  - Pete Campisano (USA Architects)
- *NJ Clean Energy Program – TRC*
  - Auditor: Moussa Traore
  - Case Manager: Ashley Miller
  - Outreach Manager: Jim Friedl

# Agenda

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- 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 *Education Services Commission of NJ*

# Process to Draft Report

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

## **Overview of Systems, Baseline & Existing Conditions:**

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Onsite Generation / Renewables

## **Utility Consumption:**

- Electric Consumption and Costs
- Gas Consumption and Costs

# (1) Piscataway Regional Day School



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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>55,075</b>	<b>15.5</b>	<b>0.0</b>	<b>\$8,563.32</b>	<b>\$135,917.52</b>	<b>\$9,815.00</b>	<b>\$126,102.52</b>	<b>14.7</b>	<b>55,460</b>
ECM 1	Install LED Fixtures	Yes	19,675	5.8	0.0	\$3,059.13	\$87,380.52	\$6,250.00	\$81,130.52	26.5	19,812
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	34,675	9.6	0.0	\$5,391.41	\$47,569.00	\$3,565.00	\$44,004.00	8.2	34,917
ECM 3	Install LED Exit Signs	Yes	725	0.0	0.0	\$112.78	\$968.00	\$0.00	\$968.00	8.6	730
<b>Lighting Control Measures</b>			<b>10,680</b>	<b>3.0</b>	<b>0.0</b>	<b>\$1,660.52</b>	<b>\$14,580.00</b>	<b>\$1,890.00</b>	<b>\$12,690.00</b>	<b>7.6</b>	<b>10,754</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	10,680	3.0	0.0	\$1,660.52	\$14,580.00	\$1,890.00	\$12,690.00	7.6	10,754
<b>Electric Unitary HVAC Measures</b>			<b>79,351</b>	<b>37.4</b>	<b>0.0</b>	<b>\$12,337.79</b>	<b>\$234,328.38</b>	<b>\$9,873.00</b>	<b>\$224,455.38</b>	<b>18.2</b>	<b>79,906</b>
	Install High Efficiency Electric AC	No	50,582	28.2	0.0	\$7,864.63	\$172,440.96	\$6,992.00	\$165,448.96	21.0	50,935
	Install High Efficiency Heat Pumps	No	28,769	9.1	0.0	\$4,473.17	\$61,887.42	\$2,881.00	\$59,006.42	13.2	28,970
<b>Plug Load Equipment Control - Vending Machine</b>			<b>1,954</b>	<b>0.0</b>	<b>0.0</b>	<b>\$303.87</b>	<b>\$460.00</b>	<b>\$0.00</b>	<b>\$460.00</b>	<b>1.5</b>	<b>1,968</b>
ECM 5	Vending Machine Control	Yes	1,954	0.0	0.0	\$303.87	\$460.00	\$0.00	\$460.00	1.5	1,968
<b>TOTALS (Recommended)</b>			<b>67,709</b>	<b>18.5</b>	<b>0.0</b>	<b>\$10,527.71</b>	<b>\$150,957.52</b>	<b>\$11,705.00</b>	<b>\$139,252.52</b>	<b>13.2</b>	<b>68,183</b>
<b>TOTALS (all)</b>			<b>147,060</b>	<b>55.9</b>	<b>0.0</b>	<b>\$22,865.50</b>	<b>\$385,285.90</b>	<b>\$21,578.00</b>	<b>\$363,707.90</b>	<b>15.9</b>	<b>148,088</b>

\* - 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) Academy Learning Center

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 <sub>2</sub> e Emissions Reduction (lbs)
Lighting Upgrades			75,258	14.3	0.0	\$8,147.39	\$33,780.73	\$5,620.00	\$28,160.73	3.5	75,784
ECM 1	Retrofit Fixtures with LED Lamps	Yes	75,258	14.3	0.0	\$8,147.39	\$33,780.73	\$5,620.00	\$28,160.73	3.5	75,784
Lighting Control Measures			18,158	3.5	0.0	\$1,965.75	\$27,810.00	\$3,605.00	\$24,205.00	12.3	18,285
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	18,158	3.5	0.0	\$1,965.75	\$27,810.00	\$3,605.00	\$24,205.00	12.3	18,285
Variable Frequency Drive (VFD) Measures			23,853	2.0	0.0	\$2,582.30	\$5,194.45	\$0.00	\$5,194.45	2.0	24,020
ECM 3	Install VFDs on Hot Water Pumps	Yes	23,853	2.0	0.0	\$2,582.30	\$5,194.45	\$0.00	\$5,194.45	2.0	24,020
Plug Load Equipment Control - Vending Machine			1,954	0.0	0.0	\$211.58	\$460.00	\$0.00	\$460.00	2.2	1,968
ECM 4	Vending Machine Control	Yes	1,954	0.0	0.0	\$211.58	\$460.00	\$0.00	\$460.00	2.2	1,968
TOTALS			119,223	19.7	0.0	\$12,907.02	\$67,245.18	\$9,225.00	\$58,020.18	4.5	120,057

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### (3) Bright Beginning Learning Center

Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Dem and Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
Lighting Upgrades			29,060	6.6	0.0	\$4,258.07	\$76,158.82	\$4,965.00	\$71,193.82	16.7	29,263
ECM 1	Install LED Fixtures	Yes	5,615	2.5	0.0	\$822.79	\$64,058.48	\$3,600.00	\$60,458.48	73.5	5,654
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	500	0.1	0.0	\$73.33	\$856.00	\$80.00	\$776.00	10.6	504
ECM 3	Retrofit Fixtures with LED Lamps	Yes	22,742	4.1	0.0	\$3,332.42	\$10,706.56	\$1,285.00	\$9,421.56	2.8	22,901
ECM 4	Install LED Exit Signs	Yes	201	0.0	0.0	\$29.52	\$537.78	\$0.00	\$537.78	18.2	203
Lighting Control Measures			6,090	1.1	0.0	\$892.31	\$25,650.00	\$3,325.00	\$22,325.00	25.0	6,132
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	6,090	1.1	0.0	\$892.31	\$25,650.00	\$3,325.00	\$22,325.00	25.0	6,132
Variable Frequency Drive (VFD) Measures			21,951	1.9	0.0	\$3,216.48	\$7,213.60	\$0.00	\$7,213.60	2.2	22,105
ECM 6	Install VFDs on Chilled Water Pumps	Yes	21,951	1.9	0.0	\$3,216.48	\$7,213.60	\$0.00	\$7,213.60	2.2	22,105
Electric Chiller Replacement			39,174	17.5	0.0	\$5,740.14	\$78,778.03	\$7,200.00	\$71,578.03	12.5	39,448
ECM 7	Install High Efficiency Chillers	Yes	39,174	17.5	0.0	\$5,740.14	\$78,778.03	\$7,200.00	\$71,578.03	12.5	39,448
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$236.18	\$230.00	\$0.00	\$230.00	1.0	1,623
ECM 8	Vending Machine Control	Yes	1,612	0.0	0.0	\$236.18	\$230.00	\$0.00	\$230.00	1.0	1,623
<b>TOTALS</b>			<b>97,886</b>	<b>27.1</b>	<b>0.0</b>	<b>\$14,343.19</b>	<b>\$188,030.45</b>	<b>\$15,490.00</b>	<b>\$172,540.45</b>	<b>12.0</b>	<b>98,571</b>

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## (4) Center for Lifelong Learning

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 <sub>2</sub> e Emissions Reduction (lbs)
Lighting Upgrades			241,326	39.4	0.0	\$26,924.23	\$247,080.22	\$18,105.00	\$228,975.22	8.5	243,014
ECM 1	Install LED Fixtures	Yes	145,473	19.5	0.0	\$16,230.06	\$190,509.16	\$10,500.00	\$180,009.16	11.1	146,490
ECM 2	Retrofit Fixtures with LED Lamps	Yes	93,436	19.7	0.0	\$10,424.43	\$50,117.77	\$7,605.00	\$42,512.77	4.1	94,089
ECM 3	Install LED Exit Signs	Yes	2,418	0.2	0.0	\$269.74	\$6,453.30	\$0.00	\$6,453.30	23.9	2,435
Lighting Control Measures			3,299	0.5	0.0	\$368.08	\$6,210.00	\$140.00	\$6,070.00	16.5	3,322
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	3,299	0.5	0.0	\$368.08	\$6,210.00	\$140.00	\$6,070.00	16.5	3,322
Custom Measures			40,276	0.0	0.0	\$4,510.86	\$75,000.00	\$0.00	\$75,000.00	16.6	40,557
ECM 5	Pool Humidity Control	Yes	40,276	0.0	0.0	\$4,510.86	\$75,000.00	\$0.00	\$75,000.00	16.6	40,557
TOTALS			284,901	39.9	0.0	\$31,803.17	\$328,290.22	\$18,245.00	\$310,045.22	9.7	286,893

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## (5) NuView Academy

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 <sub>2</sub> e Emissions Reduction (lbs)
Lighting Upgrades			17,126	6.2	0.0	\$2,424.72	\$36,905.12	\$4,015.00	\$32,890.12	13.6	17,246
	Install LED Fixtures	No	1,164	0.6	0.0	\$164.77	\$21,482.92	\$1,100.00	\$20,382.92	123.7	1,172
ECM 1	Retrofit Fixtures with LED Lamps	Yes	15,962	5.6	0.0	\$2,259.94	\$15,422.20	\$2,915.00	\$12,507.20	5.5	16,074
Lighting Control Measures			380	0.1	0.0	\$53.76	\$270.00	\$35.00	\$235.00	4.4	382
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	380	0.1	0.0	\$53.76	\$270.00	\$35.00	\$235.00	4.4	382
Variable Frequency Drive (VFD) Measures			25,648	9.4	0.0	\$3,631.33	\$18,575.46	\$2,632.00	\$15,943.46	4.4	25,828
ECM 3	Install VFDs on Constant Volume (CV) HVAC	Yes	24,345	9.1	0.0	\$3,446.82	\$13,117.75	\$2,632.00	\$10,485.75	3.0	24,515
ECM 4	Install VFDs on Hot Water Pumps	Yes	1,303	0.4	0.0	\$184.51	\$5,457.71	\$0.00	\$5,457.71	29.6	1,312
TOTALS (Recommended)			41,990	15.2	0.0	\$5,945.03	\$34,267.66	\$5,582.00	\$28,685.66	4.8	42,284
TOTALS (All)			43,154	15.7	0.0	\$6,109.81	\$55,750.58	\$6,682.00	\$49,068.58	8.0	43,455

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## (6) NuView Academy Annex

Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Dem and Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
Lighting Upgrades			75,312	22.0	0.0	\$8,312.46	\$93,552.17	\$5,155.00	\$88,397.17	10.6	75,838
EC M 1	Install LED Fixtures	Yes	15,952	5.9	0.0	\$1,760.65	\$47,688.96	\$385.00	\$47,303.96	26.9	16,063
EC M 2	Retrofit Fixtures with LED Lamps	Yes	59,360	16.1	0.0	\$6,551.81	\$45,863.22	\$4,770.00	\$41,093.22	6.3	59,775
Lighting Control Measures			17,429	4.6	0.0	\$1,923.71	\$22,466.00	\$4,075.00	\$18,391.00	9.6	17,551
EC M 3	Install Occupancy Sensor Lighting Controls	Yes	17,429	4.6	0.0	\$1,923.71	\$22,350.00	\$4,055.00	\$18,295.00	9.5	17,551
Variable Frequency Drive (VFD) Measures			2,401	1.9	0.0	\$264.97	\$5,194.45	\$0.00	\$5,194.45	19.6	2,417
EC M 4	Install VFDs on Hot Water Pumps	Yes	2,401	1.9	0.0	\$264.97	\$5,194.45	\$0.00	\$5,194.45	19.6	2,417
Electric Unitary HVAC Measures			20,957	24.1	0.0	\$2,313.08	\$86,166.45	\$2,925.00	\$83,241.45	36.0	21,103
	Install High Efficiency Packaged Terminal AC/HP	No	20,957	24.1	0.0	\$2,313.08	\$86,166.45	\$2,925.00	\$83,241.45	36.0	21,103
Electric Chiller Replacement			63,855	44.7	0.0	\$7,047.96	\$98,472.54	\$9,000.00	\$89,472.54	12.7	64,302
EC M 5	Install High Efficiency Chillers	Yes	63,855	44.7	0.0	\$7,047.96	\$98,472.54	\$9,000.00	\$89,472.54	12.7	64,302
Food Service Equipment & Refrigeration Measures			2,886	0.2	0.0	\$318.52	\$909.90	\$120.00	\$789.90	2.5	2,906
EC M 6	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	2,886	0.2	0.0	\$318.52	\$909.90	\$120.00	\$789.90	2.5	2,906
TOTALS (only Recommended Measures)			161,883	73.4	0.0	\$17,867.63	\$220,479.06	\$18,330.00	\$202,149.06	11.3	163,015
TOTALS (All)			182,839	97.5	0.0	\$20,180.71	\$306,761.51	\$21,275.00	\$285,486.51	14.1	184,118

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## *Some Energy Efficient Practices*

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- 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*

# 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

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## ➤ Direct Install

Tri-State Light & Energy, Inc.

Alan Rhode

610-789-1900 x226

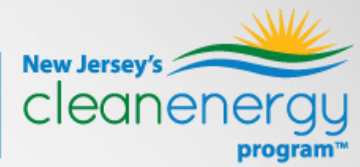
[asr@tsle.com](mailto:asr@tsle.com)

## ➤ Pay for Performance (P4P)

## ➤ SmartStart Buildings (i.e Retrofit – Existing Buildings)

# Questions

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# FOR MORE INFORMATION

**Visit** [NJCleanEnergy.com](http://NJCleanEnergy.com)

**Call** (866) NJSMART

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