

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
Livingston Township

Ignacio Badilla, TRC

March 1, 2018

Meeting Setup



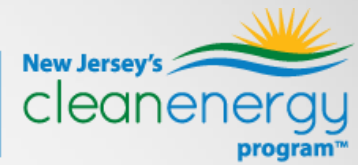
1) Dial the following:

1-877-304-9323

2) When prompted, enter the code below:

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Introductions



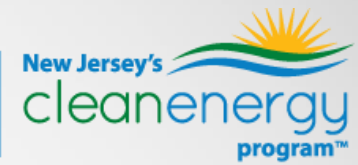
- *Livingston Township*
 - Russell Jones
 - Lorri Patino
 - Esther Lin
- *NJ Clean Energy Program – TRC*
 - Auditor: Ignacio Badilla
 - Outreach Manager: Jim Friedl

Agenda



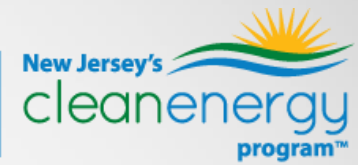
- Overview of LGEA process (application to deliverable)
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for [Applicant Name]

Process to Draft Report



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

Senior Community Center



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

Senior Community 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			121,311	25.8	0.0	\$14,908.49	\$118,122.59	\$11,530.00	\$106,592.59	7.1	122,159
ECM 1	Install LED Fixtures	Yes	14,733	2.9	0.0	\$1,810.67	\$41,519.07	\$3,250.00	\$38,269.07	21.1	14,836
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	103,221	22.2	0.0	\$12,685.34	\$75,394.00	\$8,220.00	\$67,174.00	5.3	103,943
ECM 3	Retrofit Fixtures with LED Lamps	Yes	3,356	0.7	0.0	\$412.48	\$1,209.52	\$60.00	\$1,149.52	2.8	3,380
Lighting Control Measures			2,651	0.5	0.0	\$325.81	\$4,860.00	\$630.00	\$4,230.00	13.0	2,670
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	2,651	0.5	0.0	\$325.81	\$4,860.00	\$630.00	\$4,230.00	13.0	2,670
Domestic Water Heating Upgrade			19,651	0.0	0.0	\$2,414.95	\$10,193.59	\$0.00	\$10,193.59	4.2	19,788
ECM 5	Install High Efficiency Heat Pump Water Heater	Yes	6,016	0.0	0.0	\$739.32	\$10,000.00	\$0.00	\$10,000.00	13.5	6,058
ECM 6	Install Low-Flow Domestic Hot Water Devices	Yes	13,635	0.0	0.0	\$1,675.63	\$193.59	\$0.00	\$193.59	0.1	13,730
TOTALS			143,613	26.3	0.0	\$17,649.25	\$133,176.18	\$12,160.00	\$121,016.18	6.9	144,617

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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

Library



Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (MMBtu)	Annual N/A Savings (MMBtu)	Annual N/A Savings (MMBtu)	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			116,557	19.7	0.0	0.0	0.0	0.0	\$15,491.41	\$103,993.94	\$7,525.00	\$96,468.94	6.2	117,372
ECM 1	Install LED Fixtures	Yes	43,729	7.4	0.0	0.0	0.0	0.0	\$5,811.99	\$34,831.16	\$1,500.00	\$33,331.16	5.7	44,035
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	69,667	11.8	0.0	0.0	0.0	0.0	\$9,259.32	\$68,539.50	\$5,945.00	\$62,594.50	6.8	70,154
ECM 3	Retrofit Fixtures with LED Lamps	Yes	3,161	0.5	0.0	0.0	0.0	0.0	\$420.10	\$623.28	\$80.00	\$543.28	1.3	3,183
Lighting Control Measures			1,245	0.2	0.0	0.0	0.0	0.0	\$165.41	\$2,430.00	\$315.00	\$2,115.00	12.8	1,253
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	1,245	0.2	0.0	0.0	0.0	0.0	\$165.41	\$2,430.00	\$315.00	\$2,115.00	12.8	1,253
Motor Upgrades			869	0.2	0.0	0.0	0.0	0.0	\$115.44	\$3,283.87	\$0.00	\$3,283.87	28.4	875
	Premium Efficiency Motors	No	869	0.2	0.0	0.0	0.0	0.0	\$115.44	\$3,283.87	\$0.00	\$3,283.87	28.4	875
Variable Frequency Drive (VFD) Measures			29,283	7.1	0.0	0.0	0.0	0.0	\$3,891.98	\$25,842.40	\$4,200.00	\$21,642.40	5.6	29,488
ECM 5	Install VFDs on Constant Volume (CV) HVAC	Yes	29,283	7.1	0.0	0.0	0.0	0.0	\$3,891.98	\$25,842.40	\$4,200.00	\$21,642.40	5.6	29,488
Electric Unitary HVAC Measures			0	0.0	0.0	0.0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0
ECM 6	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	12.3	0.0	0.0	12.3	\$101.09	\$43.02	\$0.00	\$43.02	0.4	1,438
TOTALS			147,953	27.3	12.3	0.0	0.0	12.3	\$19,765.32	\$135,593.23	\$12,040.00	\$123,553.23	6.3	150,425

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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

Town Hall

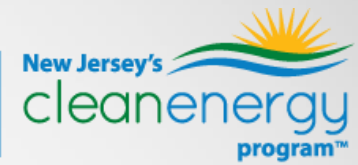


Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			267,499	57.0	0.0	\$32,543.12	\$76,254.40	\$11,505.00	\$64,749.40	2.0	269,369
ECM 1	Install LED Fixtures	Yes	6,696	1.3	0.0	\$814.65	\$4,297.45	\$1,100.00	\$3,197.45	3.9	6,743
ECM 2	Retrofit Fixtures with LED Lamps	Yes	260,802	55.8	0.0	\$31,728.47	\$71,956.95	\$10,405.00	\$61,551.95	1.9	262,626
Domestic Water Heating Upgrade			0	0.0	120.7	\$993.23	\$1,633.47	\$0.00	\$1,633.47	1.6	14,127
ECM 3	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	120.7	\$993.23	\$1,633.47	\$0.00	\$1,633.47	1.6	14,127
Plug Load Equipment Control - Vending Machine			1,954	0.0	0.0	\$237.76	\$460.00	\$0.00	\$460.00	1.9	1,968
ECM 4	Vending Machine Control	Yes	1,954	0.0	0.0	\$237.76	\$460.00	\$0.00	\$460.00	1.9	1,968
TOTALS			269,453	57.0	120.7	\$33,774.11	\$78,347.87	\$11,505.00	\$66,842.87	2.0	285,464

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Monmouth Center Court Office



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

Monmouth Center Court Office



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			60,019	13.5	0.0	\$9,059.23	\$79,300.65	\$5,555.00	\$73,745.65	8.1	60,439
ECM 1	Install LED Fixtures	Yes	32,465	6.9	0.0	\$4,900.20	\$53,704.00	\$3,000.00	\$50,704.00	10.3	32,692
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	23,069	5.5	0.0	\$3,482.00	\$23,768.17	\$2,415.00	\$21,353.17	6.1	23,230
ECM 3	Retrofit Fixtures with LED Lamps	Yes	4,486	1.1	0.0	\$677.03	\$1,828.48	\$140.00	\$1,688.48	2.5	4,517
Domestic Water Heating Upgrade			0	0.0	10.2	\$80.60	\$50.19	\$0.00	\$50.19	0.6	1,198
ECM 4	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	10.2	\$80.60	\$50.19	\$0.00	\$50.19	0.6	1,198
TOTALS			60,019	13.5	10.2	\$9,139.83	\$79,350.84	\$5,555.00	\$73,795.84	8.1	61,637

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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

Fire Headquarters

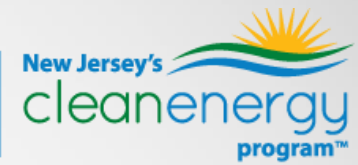


Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			12,562	2.5	0.0	\$1,621.61	\$7,641.33	\$815.00	\$6,826.33	4.2	12,650
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	12,081	2.4	0.0	\$1,559.59	\$7,466.33	\$790.00	\$6,676.33	4.3	12,166
ECM 2	Retrofit Fixtures with LED Lamps	Yes	480	0.1	0.0	\$62.02	\$175.00	\$25.00	\$150.00	2.4	484
Lighting Control Measures			1,157	0.2	0.0	\$149.34	\$1,350.00	\$175.00	\$1,175.00	7.9	1,165
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,157	0.2	0.0	\$149.34	\$1,350.00	\$175.00	\$1,175.00	7.9	1,165
Domestic Water Heating Upgrade			0	0.0	5.1	\$42.40	\$14.34	\$0.00	\$14.34	0.3	599
ECM 4	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	5.1	\$42.40	\$14.34	\$0.00	\$14.34	0.3	599
Plug Load Equipment Control - Vending Machine			1,954	0.0	0.0	\$252.29	\$460.00	\$0.00	\$460.00	1.8	1,968
ECM 5	Vending Machine Control	Yes	1,954	0.0	0.0	\$252.29	\$460.00	\$0.00	\$460.00	1.8	1,968
TOTALS			15,673	2.8	5.1	\$2,065.64	\$9,465.67	\$990.00	\$8,475.67	4.1	16,382

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Main Fire Station & Circle Fire Station



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

Main Fire Station & Circle Fire Station



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			4,667	2.2	0.0	\$625.28	\$5,366.36	\$390.00	\$4,976.36	8.0	4,700
ECM 1	Retrofit Fixtures with LED Lamps	Yes	4,667	2.2	0.0	\$625.28	\$5,366.36	\$390.00	\$4,976.36	8.0	4,700
Lighting Control Measures			391	0.2	0.0	\$52.40	\$540.00	\$70.00	\$470.00	9.0	394
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	391	0.2	0.0	\$52.40	\$540.00	\$70.00	\$470.00	9.0	394
Domestic Water Heating Upgrade			0	0.0	3.7	\$34.33	\$14.34	\$0.00	\$14.34	0.4	428
ECM 3	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	3.7	\$34.33	\$14.34	\$0.00	\$14.34	0.4	428
TOTALS			5,058	2.3	3.7	\$712.00	\$5,920.70	\$460.00	\$5,460.70	7.7	5,521

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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			865	0.4	0.0	\$151.98	\$1,215.60	\$15.00	\$1,200.60	7.9	871
ECM 1	Retrofit Fixtures with LED Lamps	Yes	865	0.4	0.0	\$151.98	\$1,215.60	\$15.00	\$1,200.60	7.9	871
Lighting Control Measures			46	0.0	0.0	\$8.09	\$116.00	\$20.00	\$96.00	11.9	46
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	46	0.0	0.0	\$8.09	\$116.00	\$20.00	\$96.00	11.9	46
HVAC System Improvements			0	0.0	10.2	\$96.40	\$435.00	\$0.00	\$435.00	4.5	1,200
ECM 3	Install Pipe Insulation	Yes	0	0.0	10.2	\$96.40	\$435.00	\$0.00	\$435.00	4.5	1,200
Domestic Water Heating Upgrade			0	0.0	5.7	\$53.39	\$399.27	\$300.00	\$99.27	1.9	665
ECM 4	Install Tankless Water Heater	Yes	0	0.0	4.2	\$39.64	\$392.10	\$300.00	\$92.10	2.3	493
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	1.5	\$13.75	\$7.17	\$0.00	\$7.17	0.5	171
Plug Load Equipment Control - Vending Machine			1,612	0.0	0.0	\$283.31	\$230.00	\$0.00	\$230.00	0.8	1,623
ECM 6	Vending Machine Control	Yes	1,612	0.0	0.0	\$283.31	\$230.00	\$0.00	\$230.00	0.8	1,623
TOTALS			2,523	0.4	15.9	\$593.17	\$2,395.87	\$335.00	\$2,060.87	3.5	4,405

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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

Township Garage

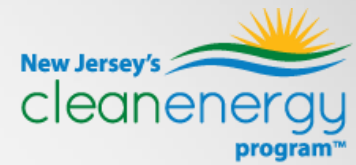


Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			10,143	3.5	0.0	\$1,301.79	\$7,028.23	\$625.00	\$6,403.23	4.9	10,214
ECM 1	Install LED Fixtures	Yes	1,290	0.4	0.0	\$165.53	\$1,172.03	\$300.00	\$872.03	5.3	1,299
ECM 2	Retrofit Fixtures with LED Lamps	Yes	8,854	3.1	0.0	\$1,136.26	\$5,856.20	\$325.00	\$5,531.20	4.9	8,915
Lighting Control Measures			258	0.1	0.0	\$33.11	\$348.00	\$60.00	\$288.00	8.7	260
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	258	0.1	0.0	\$33.11	\$348.00	\$60.00	\$288.00	8.7	260
Variable Frequency Drive (VFD) Measures			7,603	1.9	0.0	\$975.72	\$5,194.45	\$0.00	\$5,194.45	5.3	7,656
ECM 4	Install Air Compressors with VFDs	Yes	7,603	1.9	0.0	\$975.72	\$5,194.45	\$0.00	\$5,194.45	5.3	7,656
Electric Unitary HVAC Measures			244	0.7	0.0	\$31.33	\$1,607.30	\$0.00	\$1,607.30	51.3	246
	Install High Efficiency Electric AC	No	244	0.7	0.0	\$31.33	\$1,607.30	\$0.00	\$1,607.30	51.3	246
Domestic Water Heating Upgrade			0	0.0	4.4	\$41.02	\$21.51	\$0.00	\$21.51	0.5	514
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	4.4	\$41.02	\$21.51	\$0.00	\$21.51	0.5	514
TOTALS			18,248	6.1	4.4	\$2,382.97	\$14,199.49	\$685.00	\$13,514.49	5.7	18,889

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Pump House & Well Houses



Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Process Equipment

Utility Consumption:

- Electric Consumption and Costs

Livingston Water and Sewer

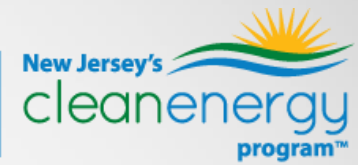


Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		9,793	2.5	0.0	\$1,230.88	\$6,669.23	\$1,475.00	\$5,194.23	4.2	9,862
ECM 1	Install LED Fixtures	8,309	1.1	0.0	\$1,030.62	\$4,688.13	\$1,200.00	\$3,488.13	3.4	8,367
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	191	0.2	0.0	\$27.26	\$234.00	\$20.00	\$214.00	7.9	192
ECM 3	Retrofit Fixtures with LED Lamps	1,294	1.2	0.0	\$173.00	\$1,747.10	\$255.00	\$1,492.10	8.6	1,303
Motor Upgrades		3,143	0.9	0.0	\$490.29	\$6,936.66	\$0.00	\$6,936.66	14.1	3,165
ECM 4	Premium Efficiency Motors	3,143	0.9	0.0	\$490.29	\$6,936.66	\$0.00	\$6,936.66	14.1	3,165
Variable Frequency Drive (VFD) Measures		135,667	7.2	0.0	\$17,246.35	\$15,700.35	\$0.00	\$15,700.35	0.9	136,616
ECM 5	Install VFDs on Chilled Water Pumps	135,667	7.2	0.0	\$17,246.35	\$15,700.35	\$0.00	\$15,700.35	0.9	136,616
Electric Unitary HVAC Measures		101,956	6.7	0.0	\$12,889.11	\$93,568.02	\$3,588.00	\$89,980.02	7.0	102,669
ECM 6	Install High Efficiency Heat Pumps	101,956	6.7	0.0	\$12,889.11	\$93,568.02	\$3,588.00	\$89,980.02	7.0	102,669
TOTALS		250,560	17.4	0.0	\$31,856.63	\$122,874.26	\$5,063.00	\$117,811.26	3.7	252,311

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Northland Pool & Community Center



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

Northland Pool & Community 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 ₂ e Emissions Reduction (lbs)
Lighting Upgrades			19,158	5.8	0.0	\$2,056.74	\$9,590.27	\$940.00	\$8,650.27	4.2	19,292
ECM 1	Install LED Fixtures	Yes	1,557	0.5	0.0	\$167.18	\$1,562.71	\$0.00	\$1,562.71	9.3	1,568
ECM 2	Retrofit Fixtures with LED Lamps	Yes	17,601	5.3	0.0	\$1,889.56	\$8,027.57	\$940.00	\$7,087.57	3.8	17,724
Lighting Control Measures			841	0.3	0.0	\$90.28	\$270.00	\$35.00	\$235.00	2.6	847
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	841	0.3	0.0	\$90.28	\$270.00	\$35.00	\$235.00	2.6	847
Motor Upgrades			2,431	0.4	0.0	\$260.99	\$3,468.33	\$0.00	\$3,468.33	13.3	2,448
ECM 4	Premium Efficiency Motors	Yes	2,431	0.4	0.0	\$260.99	\$3,468.33	\$0.00	\$3,468.33	13.3	2,448
Domestic Water Heating Upgrade			0	0.0	4.3	\$34.51	\$21.51	\$0.00	\$21.51	0.6	498
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	4.3	\$34.51	\$21.51	\$0.00	\$21.51	0.6	498
TOTALS			22,430	6.5	4.3	\$2,442.52	\$13,350.11	\$975.00	\$12,375.11	5.1	23,084

* - 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).

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

Okner Parkway



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			29,103	66.0	0.0	\$9,251.92	\$170,194.14	\$9,165.00	\$161,029.14	17.4	29,307
ECM 1	Install LED Fixtures	Yes	29,023	65.9	0.0	\$9,226.43	\$169,910.78	\$9,100.00	\$160,810.78	17.4	29,226
ECM 2	Retrofit Fixtures with LED Lamps	Yes	80	0.1	0.0	\$25.49	\$283.35	\$65.00	\$218.35	8.6	81
TOTALS			29,103	66.0	0.0	\$9,251.92	\$170,194.14	\$9,165.00	\$161,029.14	17.4	29,307

* - 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).

Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Process Equipment

Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sewer Treatment & Animal Control



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			11,956	3.5	0.0	\$1,244.90	\$6,897.80	\$320.00	\$6,577.80	5.3	12,039
ECM 1	Retrofit Fixtures with LED Lamps	Yes	11,956	3.5	0.0	\$1,244.90	\$6,897.80	\$320.00	\$6,577.80	5.3	12,039
Lighting Control Measures			530	0.1	0.0	\$55.21	\$502.00	\$75.00	\$427.00	7.7	534
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	530	0.1	0.0	\$55.21	\$502.00	\$75.00	\$427.00	7.7	534
Motor Upgrades			45,374	6.2	0.0	\$4,724.64	\$41,903.30	\$0.00	\$41,903.30	8.9	45,691
ECM 3	Premium Efficiency Motors	Yes	45,374	6.2	0.0	\$4,724.64	\$41,903.30	\$0.00	\$41,903.30	8.9	45,691
Variable Frequency Drive (VFD) Measures			274,472	47.5	0.0	\$28,579.80	\$300,000.00	\$18,000.00	\$282,000.00	9.9	276,391
ECM 4	Install Premium Efficiency Motors Blower VFD's	Yes	274,472	47.5	0.0	\$28,579.80	\$300,000.00	\$18,000.00	\$282,000.00	9.9	276,391
Electric Unitary HVAC Measures			4,653	2.8	0.0	\$484.53	\$9,075.84	\$368.00	\$8,707.84	18.0	4,686
ECM 5	Install High Efficiency Electric AC	Yes	4,653	2.8	0.0	\$484.53	\$9,075.84	\$368.00	\$8,707.84	18.0	4,686
HVAC System Improvements			1,046	0.2	0.0	\$108.91	\$500.00	\$250.00	\$250.00	2.3	1,053
ECM 6	Install Dual Enthalpy Outside Economizer Control	Yes	1,046	0.2	0.0	\$108.91	\$500.00	\$250.00	\$250.00	2.3	1,053
Domestic Water Heating Upgrade			0	0.0	8.2	\$61.55	\$28.68	\$0.00	\$28.68	0.5	959
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	8.2	\$61.55	\$28.68	\$0.00	\$28.68	0.5	959
TOTALS			338,031	60.4	8.2	\$35,259.55	\$358,907.62	\$19,013.00	\$339,894.62	9.6	341,353

* - 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.

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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

Water Department



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			6,084	1.4	0.0	\$832.22	\$3,074.95	\$385.00	\$2,689.95	3.2	6,126
ECM 1	Install LED Fixtures	Yes	1,111	0.2	0.0	\$151.92	\$781.35	\$0.00	\$781.35	5.1	1,118
ECM 2	Retrofit Fixtures with LED Lamps	Yes	4,973	1.1	0.0	\$680.30	\$2,293.60	\$385.00	\$1,908.60	2.8	5,008
Lighting Control Measures			1,111	0.2	0.0	\$152.00	\$540.00	\$70.00	\$470.00	3.1	1,119
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,111	0.2	0.0	\$152.00	\$540.00	\$70.00	\$470.00	3.1	1,119
Gas Heating (HVAC/Process) Replacement			0	0.0	23.9	\$220.04	\$4,383.16	\$0.00	\$4,383.16	19.9	2,794
	Install High Efficiency Unit Heaters	No	0	0.0	23.9	\$220.04	\$4,383.16	\$0.00	\$4,383.16	19.9	2,794
Domestic Water Heating Upgrade			0	0.0	1.2	\$11.07	\$3,164.40	\$50.00	\$3,114.40	281.4	141
	Install High Efficiency Gas Water Heater	No	0	0.0	1.2	\$11.07	\$3,164.40	\$50.00	\$3,114.40	281.4	141
TOTALS			7,195	1.6	25.1	\$1,215.32	\$11,162.51	\$505.00	\$10,657.51	8.8	10,179

* - 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.

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Some Energy Efficient 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
- Perform Routine Motor Maintenance

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

Robert Vidaurre

732-372-4014 x6113

rvidaurre@willdan.com

- SmartStart Buildings (i.e Retrofit – Existing Buildings)
- Pay For Performance Existing Building

DIRECT INSTALL: BENEFITS



- Turn-key process: participating contractors provide support and process all paperwork.
- Minimal cost: Low upfront cost with generous incentives 70% of installed cost.
- Fast turnaround time: Average length of time for job completion, 4-6 months after approval.
- Ongoing savings: Projects provide energy savings year after year.

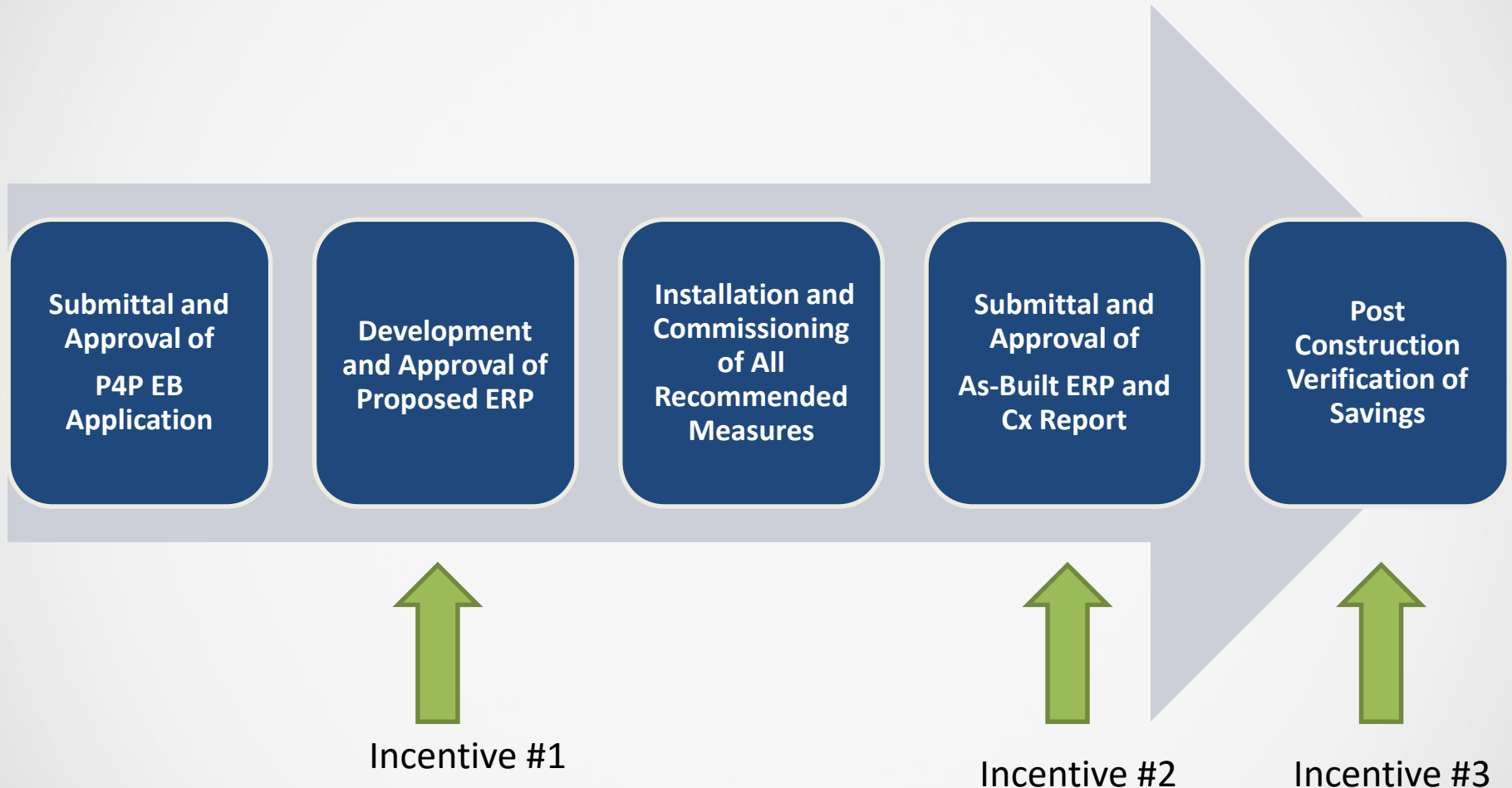
SMARTSTART: INCENTIVES



Prescriptive Incentives

- Specific incentives and individual applications for:
 - Lighting & Lighting Controls
 - Packed HVAC
 - Boilers & Water Heaters
 - Chillers
 - VFD's
 - Food Service
 - Refrigeration
- Project pre-approval required for all lighting measures

P4P EB: PROCESS



P4P EB: INCENTIVES

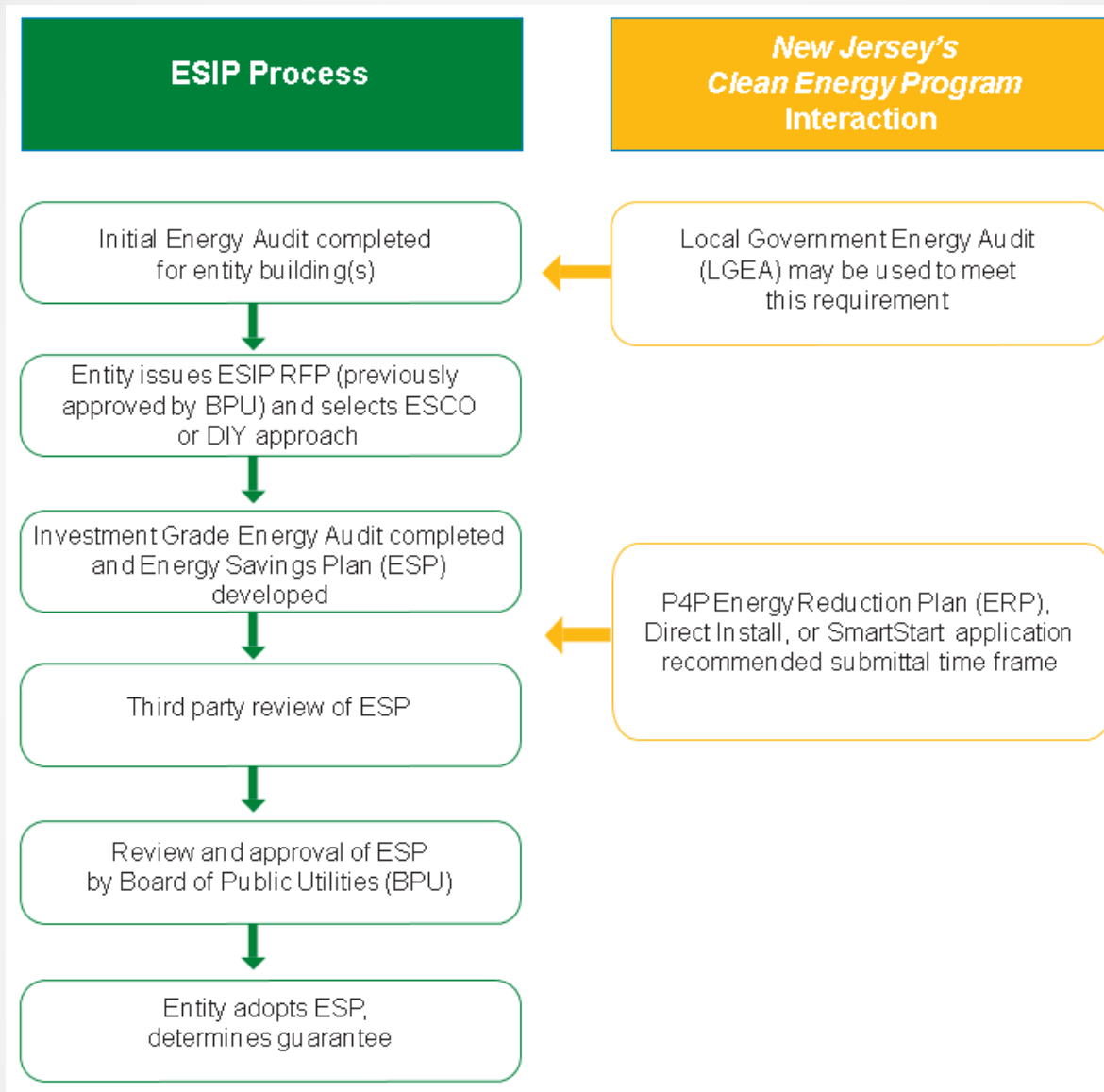


Incentive #1: Energy Reduction Plan			
Incentive Amount:		\$0.15	per sq ft
Minimum Incentive:		\$7,500	
Maximum Incentive:		\$50,000	or 50% of facility annual energy cost
Incentive #2: Installation of Recommended Measures			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15 % savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost
Incentive #3: Post-Construction Benchmarking Report			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15% savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost

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 or require voter approval.
- Requires an audit as 1st step (LGEA satisfied this requirement)





FOR MORE INFORMATION

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Questions



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FOR MORE INFORMATION

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