LGEA Presentation

Manasquan Public School District

January 21, 2022

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

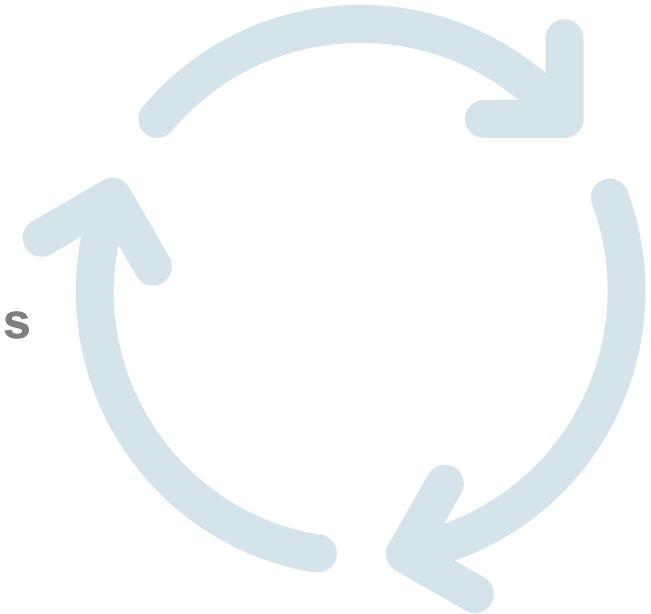
- *Manasquan Public School District*
  - Frank Kasyan – Superintendent of Schools
  - Peter Crawley – Business Administrator
  - Matthew Hudson – Custodial Supervisor
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Lead Auditor
  - Eduardo Garcia – LGEA Project Auditor
  - Amanda Muench – LGEA Account Manager
  - Michelle Rossi – ESIP Coordinator (BPU)
  - Arif Welcher – Government/Business Manager (BPU)

AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- C&I Transition of EE Programs
- Questions regarding the draft audit report
- Next steps for Manasquan Public School District

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:

- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Cooking & Refrigeration Equipment

Utility Consumption:

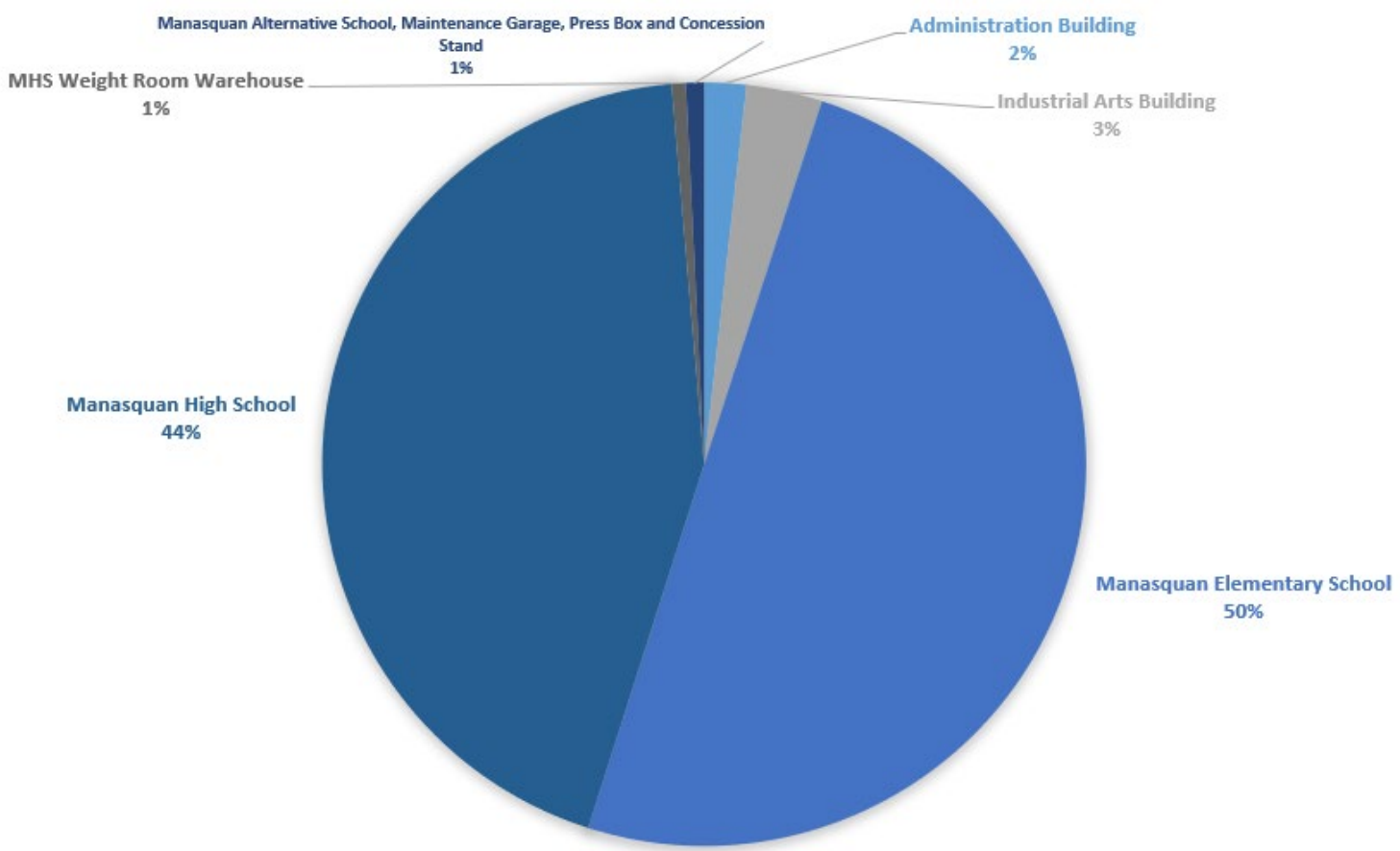
- Electric Consumption and Costs
- Natural Gas Consumption and Costs

Sites Visited/Analyzed

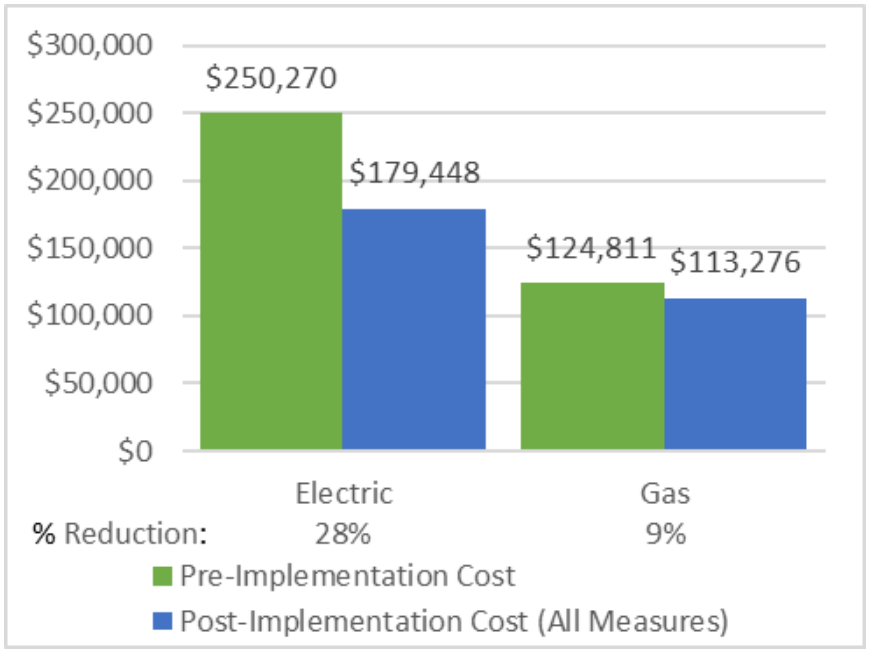
- Manasquan High School
- Manasquan Elementary School
- Industrial Arts Building
- Administration Building
- MHS Weight Room Warehouse
- Manasquan Alternative School
  - Maintenance Garage
  - Concession Stand
  - Press Box

UTILITY BREAKOUT

Percent of Total Annual Energy Costs

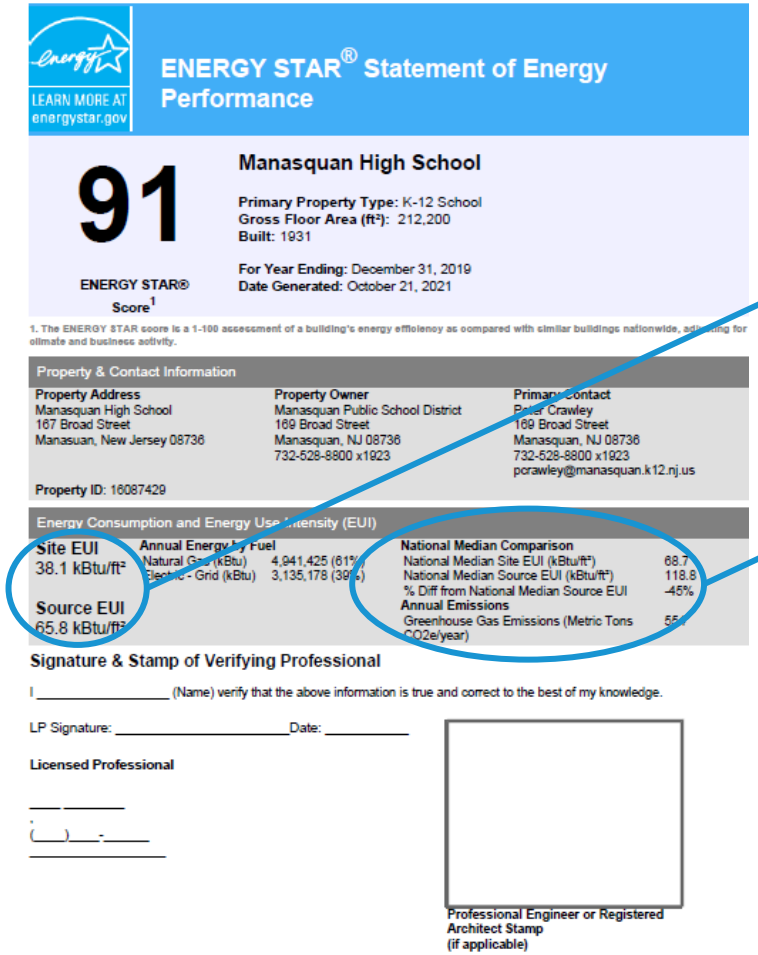


Pre & Post Implementation Cost



New Jersey's cleanenergy program™

BENCHMARKING



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

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ENERGY STAR® Score[1]

Manasquan High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 212,200
Built: 1931

For Year Ending: December 31, 2019
Date Generated: October 21, 2021

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Manasquan High School 167 Broad Street Manasuan, New Jersey 08736	Manasquan Public School District 169 Broad Street Manasquan, NJ 08736 732-528-8800 x1923	Peter Crawley 169 Broad Street Manasquan, NJ 08736 732-528-8800 x1923 pcrawley@manasquan.k12.nj.us

Property ID: 16087429

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
38.1 kBtu/ft²

Source EUI
65.8 kBtu/ft²

Annual Energy by Fuel
Natural Gas (kBtu) 4,941,425 (61%)
Electric - Grid (kBtu) 3,135,178 (39%)

National Median Comparison
National Median Site EUI (kBtu/ft²) 68.7
National Median Source EUI (kBtu/ft²) 118.8
% Diff from National Median Source EUI -45%
Annual Emissions
Greenhouse Gas Emissions (Metric Tons CO2e/year) 554

Signature & Stamp of Verifying Professional

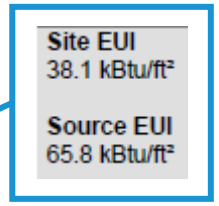
I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

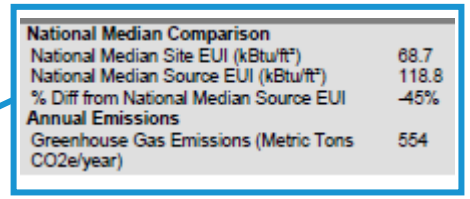
LP Signature: _____ Date: _____

Licensed Professional

___ _____
.
(___)___-____
_____

Professional Engineer or Registered Architect Stamp (if applicable)



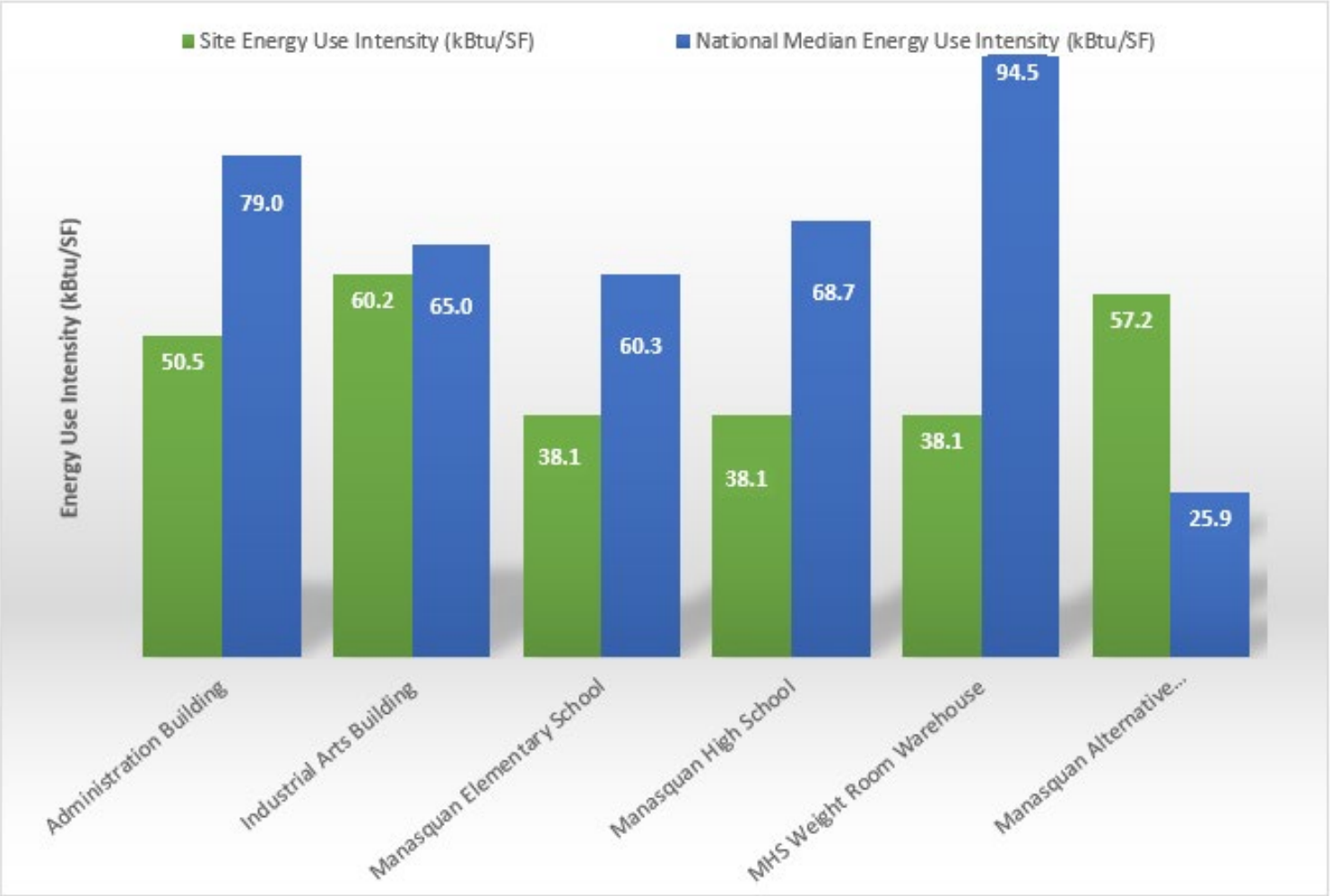


Site Name	ENERGY STAR® Score
Administration Building	79
Industrial Arts Building	57
Manasquan Elementary School	86
Manasquan High School	91
MHS Weight Room Warehouse	N/A
Manasquan Alternative School Campus	N/A

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.

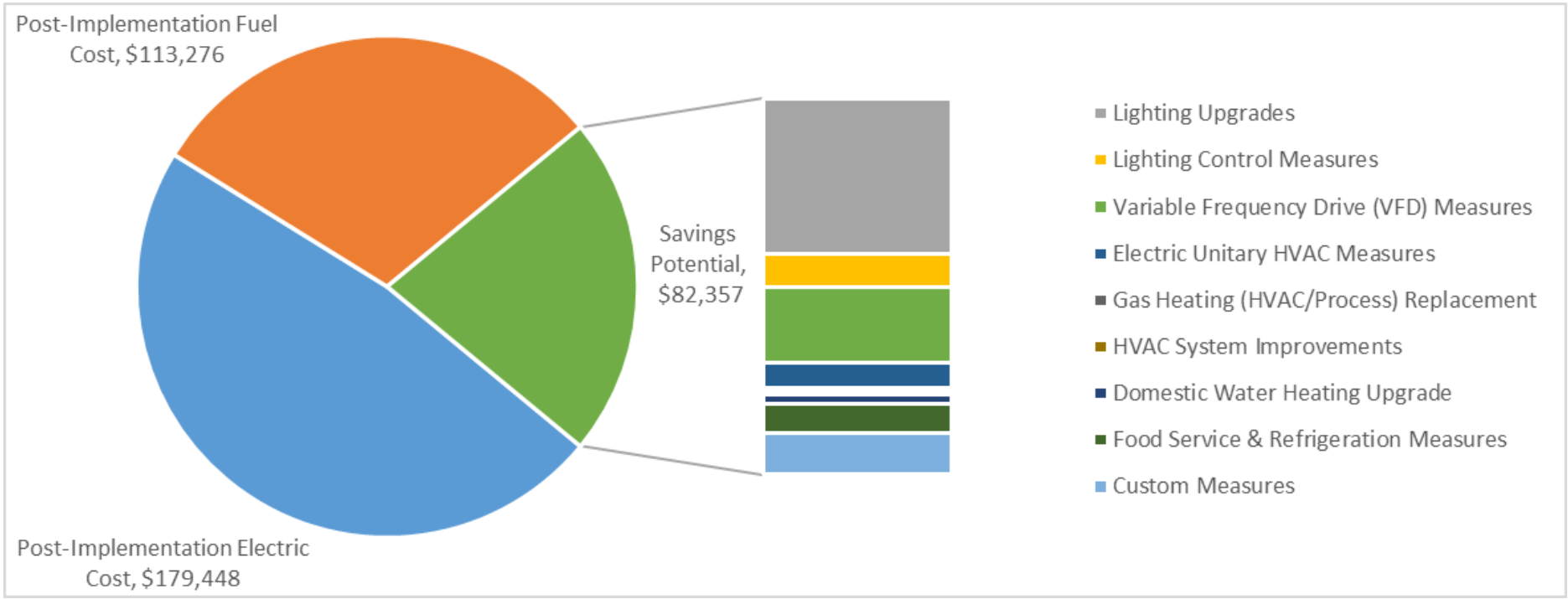
BPU New Jersey's cleanenergy program™

BENCHMARKING



New Jersey's cleanenergy program™

ALL OPPORTUNITIES



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_2e Emissions Reduction (lbs)
Lighting Upgrades		**274,458**	**45.5**	**-44.3**	**$34,100**	**$109,929**	**$18,166**	**$91,763**	**2.7**	**271,186**
ECM 1	Install LED Fixtures	65,706	2.0	-1.4	$8,196	$41,154	$2,800	$38,354	4.7	66,005
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,012	0.9	-0.4	$309	$1,999	$130	$1,869	6.0	1,976
ECM 3	Retrofit Fixtures with LED Lamps	144,819	38.0	-29.6	$17,954	$58,159	$15,236	$42,923	2.4	142,367
ECM 4	Install LED Exit Signs	61,921	4.7	-12.9	$7,641	$8,617	$0	$8,617	1.1	60,838
Lighting Control Measures		**57,920**	**15.0**	**-12.1**	**$7,185**	**$57,669**	**$12,715**	**$44,954**	**6.3**	**56,906**
ECM 5	Install Occupancy Sensor Lighting Controls	54,359	14.3	-11.4	$6,753	$54,069	$9,810	$44,259	6.6	53,407
ECM 6	Install High/Low Lighting Controls	3,561	0.7	-0.7	$432	$3,600	$2,905	$695	1.6	3,499
Variable Frequency Drive (VFD) Measures		**130,199**	**59.6**	**0.0**	**$16,639**	**$223,582**	**$23,150**	**$200,432**	**12.0**	**131,109**
ECM 7	Install VFDs on Constant Volume (CV) Fans	108,404	56.4	0.0	$13,843	$204,629	$19,150	$185,479	13.4	109,162
ECM 8	Install VFDs on Heating Water Pumps	21,795	3.2	0.0	$2,796	$18,953	$4,000	$14,953	5.3	21,947
Electric Unitary HVAC Measures		**40,695**	**33.5**	**20.7**	**$5,434**	**$469,586**	**$38,216**	**$431,371**	**79.4**	**43,399**
ECM 9	Install High Efficiency Air Conditioning Units	40,301	32.7	20.7	$5,386	$467,895	$38,116	$429,780	79.8	43,002
ECM 10	Install High Efficiency Heat Pumps	395	0.7	0.0	$48	$1,691	$100	$1,591	32.8	397
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**79.5**	**$868**	**$49,996**	**$3,725**	**$46,271**	**53.3**	**9,308**
ECM 11	Install High Efficiency Hot Water Boilers	0	0.0	34.5	$405	$28,302	$2,225	$26,077	64.4	4,045
ECM 12	Install High Efficiency Furnaces	0	0.0	39.5	$405	$18,889	$1,500	$17,389	42.9	4,628
ECM 13	Install High Efficiency Unit Heaters	0	0.0	5.4	$58	$2,805	$0	$2,805	48.1	635

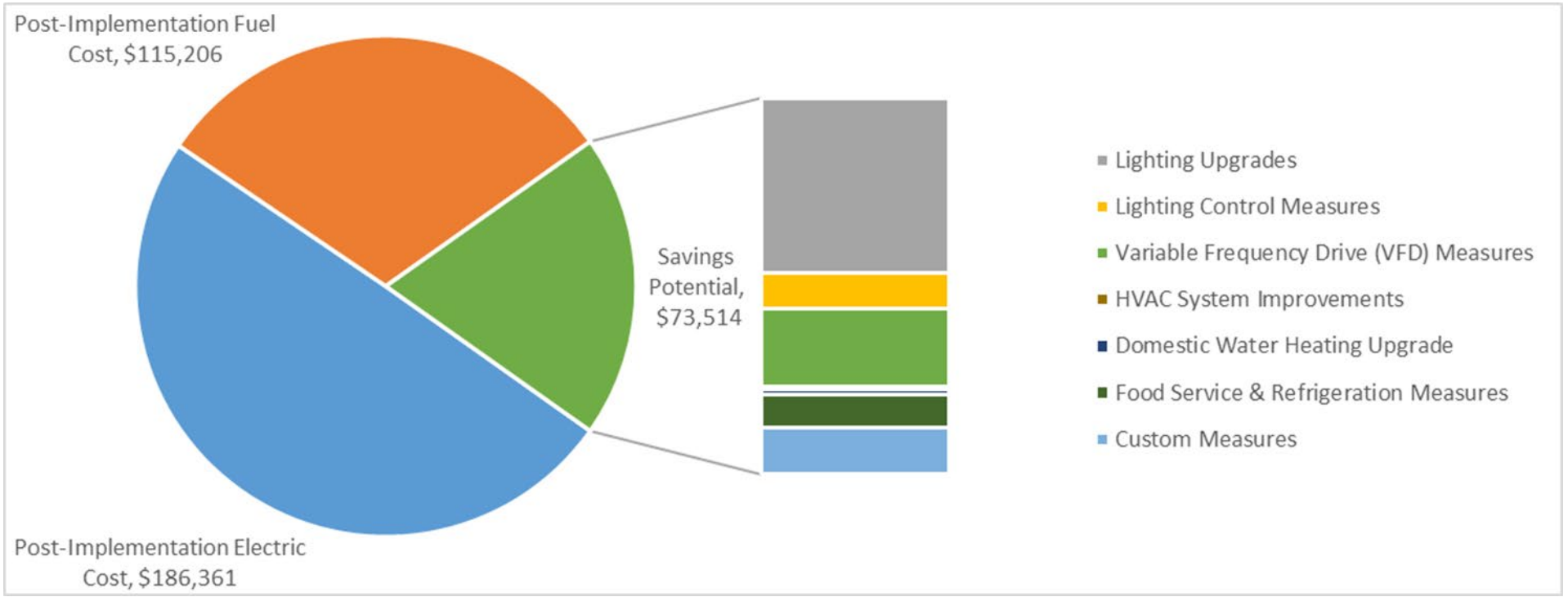
ALL OPPORTUNITIES

#	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_2e Emissions Reduction (lbs)
HVAC System Improvements		**781**	**0.0**	**39.3**	**$556**	**$2,337**	**$124**	**$2,213**	**4.0**	**5,383**
ECM 14	Install Programmable Thermostats	0	0.0	38.4	$443	$1,979	$0	$1,979	4.5	4,498
ECM 15	Install Pipe Insulation	781	0.0	0.8	$113	$358	$124	$234	2.1	885
Domestic Water Heating Upgrade		**1,160**	**0.0**	**176.2**	**$1,972**	**$41,843**	**$5,099**	**$36,744**	**18.6**	**21,804**
ECM 16	Install High Efficiency Gas-Fired Water Heater	0	0.0	83.6	$858	$40,353	$4,515	$35,838	41.7	9,788
ECM 17	Install Low-Flow DHW Devices	1,160	0.0	92.6	$1,113	$1,490	$584	$906	0.8	12,015
Food Service & Refrigeration Measures		**23,185**	**6.1**	**336.4**	**$6,442**	**$63,971**	**$8,219**	**$55,752**	**8.7**	**62,738**
ECM 18	Food Service Equipment Replacement	6,893	5.1	336.4	$4,408	$49,786	$7,199	$42,587	9.7	46,333
ECM 19	Refrigerator/Freezer Case Electrically Commutated Motors	2,867	0.4	0.0	$356	$2,426	$320	$2,106	5.9	2,887
ECM 20	Refrigeration Controls	8,777	0.1	0.0	$1,090	$5,422	$350	$5,072	4.7	8,838
ECM 21	Replace Refrigeration Equipment	1,423	0.2	0.0	$183	$5,876	$250	$5,626	30.8	1,433
ECM 22	Vending Machine Control	3,224	0.4	0.0	$405	$460	$100	$360	0.9	3,246
Custom Measures		**28,573**	**0.0**	**509.7**	**$9,160**	**$71,395**	**$0**	**$71,395**	**7.8**	**88,447**
ECM 23	Retro-Commissioning Study	20,910	0.0	267.7	$5,255	$53,100	$0	$53,100	10.1	52,395
ECM 24	Building Envelope Improvements	893	0.0	242.0	$2,990	$14,785	$0	$14,785	4.9	29,234
ECM 25	Install Heat Pump Water Heaters	6,770	0.0	0.0	$915	$3,510	$0	$3,510	3.8	6,817
TOTALS		**556,970**	**159.7**	**1,105.3**	**$82,357**	**$1,090,309**	**$109,414**	**$980,896**	**11.9**	**690,279**

* - 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

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

Cost Effective Opportunities



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_2e Emissions Reduction (lbs)
Lighting Upgrades		**274,458**	**45.5**	**-44.3**	**$34,100**	**$109,929**	**$18,166**	**$91,763**	**2.7**	**271,186**
ECM 1	Install LED Fixtures	65,706	2.0	-1.4	$8,196	$41,154	$2,800	$38,354	4.7	66,005
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,012	0.9	-0.4	$309	$1,999	$130	$1,869	6.0	1,976
ECM 3	Retrofit Fixtures with LED Lamps	144,819	38.0	-29.6	$17,954	$58,159	$15,236	$42,923	2.4	142,367
ECM 4	Install LED Exit Signs	61,921	4.7	-12.9	$7,641	$8,617	$0	$8,617	1.1	60,838
Lighting Control Measures		**57,417**	**14.7**	**-12.0**	**$7,107**	**$56,819**	**$12,580**	**$44,239**	**6.2**	**56,411**
ECM 5	Install Occupancy Sensor Lighting Controls	53,855	14.0	-11.3	$6,675	$53,219	$9,675	$43,544	6.5	52,912
ECM 6	Install High/Low Lighting Controls	3,561	0.7	-0.7	$432	$3,600	$2,905	$695	1.6	3,499
Variable Frequency Drive (VFD) Measures		**118,704**	**54.7**	**0.0**	**$15,228**	**$196,114**	**$20,925**	**$175,189**	**11.5**	**119,534**
ECM 7	Install VFDs on Constant Volume (CV) Fans	96,909	51.5	0.0	$12,432	$177,161	$16,925	$160,236	12.9	97,587
ECM 8	Install VFDs on Heating Water Pumps	21,795	3.2	0.0	$2,796	$18,953	$4,000	$14,953	5.3	21,947
HVAC System Improvements		**781**	**0.0**	**38.4**	**$546**	**$2,164**	**$64**	**$2,100**	**3.8**	**5,285**
ECM 14	Install Programmable Thermostats	0	0.0	38.4	$443	$1,979	$0	$1,979	4.5	4,498
ECM 15	Install Pipe Insulation	781	0.0	0.0	$103	$185	$64	$121	1.2	786
Domestic Water Heating Upgrade		**1,160**	**0.0**	**92.6**	**$1,113**	**$1,490**	**$584**	**$906**	**0.8**	**12,015**
ECM 17	Install Low-Flow DHW Devices	1,160	0.0	92.6	$1,113	$1,490	$584	$906	0.8	12,015
Food Service & Refrigeration Measures		**21,761**	**5.9**	**336.4**	**$6,259**	**$58,095**	**$7,969**	**$50,126**	**8.0**	**61,304**
ECM 18	Food Service Equipment Replacement	6,893	5.1	336.4	$4,408	$49,786	$7,199	$42,587	9.7	46,333
ECM 19	Refrigerator/Freezer Case Electrically Commutated Motors	2,867	0.4	0.0	$356	$2,426	$320	$2,106	5.9	2,887
ECM 20	Refrigeration Controls	8,777	0.1	0.0	$1,090	$5,422	$350	$5,072	4.7	8,838
ECM 22	Vending Machine Control	3,224	0.4	0.0	$405	$460	$100	$360	0.9	3,246
Custom Measures		**28,573**	**0.0**	**509.7**	**$9,160**	**$71,395**	**$0**	**$71,395**	**7.8**	**88,447**
ECM 23	Retro-Commissioning Study	20,910	0.0	267.7	$5,255	$53,100	$0	$53,100	10.1	52,395
ECM 24	Building Envelope Improvements	893	0.0	242.0	$2,990	$14,785	$0	$14,785	4.9	29,234
ECM 25	Install Heat Pump Water Heaters	6,770	0.0	0.0	$915	$3,510	$0	$3,510	3.8	6,817
TOTALS		**502,853**	**120.9**	**920.8**	**$73,514**	**$496,006**	**$60,288**	**$435,719**	**5.9**	**614,182**

* - 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

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

MANASQUAN HIGH 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_2e Emissions Reduction (lbs)
Lighting Upgrades			**141,948**	**18.0**	**-20**	**$17,224**	**$43,893**	**$6,451**	**$37,442**	**2.2**	**140,566**
ECM 1	Install LED Fixtures	Yes	44,535	0.0	0	$5,468	$15,057	$0	$15,057	2.8	44,846
ECM 2	Retrofit Fixtures with LED Lamps	Yes	66,713	15.7	-14	$8,051	$24,564	$6,451	$18,113	2.2	65,556
ECM 3	Install LED Exit Signs	Yes	30,700	2.3	-6	$3,705	$4,273	$0	$4,273	1.2	30,163
Lighting Control Measures			**28,094**	**6.1**	**-6**	**$3,390**	**$25,294**	**$5,505**	**$19,789**	**5.8**	**27,603**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	24,937	5.6	-5	$3,009	$22,144	$2,775	$19,369	6.4	24,501
ECM 5	Install High/Low Lighting Controls	Yes	3,157	0.6	-1	$381	$3,150	$2,730	$420	1.1	3,102
Variable Frequency Drive (VFD) Measures			**11,495**	**4.9**	**0**	**$1,411**	**$27,468**	**$2,225**	**$25,243**	**17.9**	**11,575**
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	11,495	4.9	0	$1,411	$27,468	$2,225	$25,243	17.9	11,575
Unitary HVAC Measures			**395**	**0.7**	**0**	**$48**	**$1,691**	**$100**	**$1,591**	**32.8**	**397**
ECM 7	Install High Efficiency Heat Pumps	No	395	0.7	0	$48	$1,691	$100	$1,591	32.8	397
Domestic Water Heating Upgrade			**0**	**0.0**	**86**	**$862**	**$23,348**	**$3,838**	**$19,509**	**22.6**	**10,051**
ECM 8	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	40	$397	$22,811	$3,640	$19,171	48.3	4,633
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	46	$465	$537	$198	$339	0.7	5,419
Food Service & Refrigeration Measures			**10,146**	**0.5**	**0**	**$1,246**	**$6,132**	**$500**	**$5,632**	**4.5**	**10,217**
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	2,077	0.3	0	$255	$1,517	$200	$1,317	5.2	2,091
ECM 11	Refrigeration Controls	Yes	6,457	0.1	0	$793	$4,385	$250	$4,135	5.2	6,502
ECM 12	Vending Machine Control	Yes	1,612	0.2	0	$198	$230	$50	$180	0.9	1,623
Custom Measures			**20,910**	**0.0**	**268**	**$5,255**	**$53,100**	**$0**	**$53,100**	**10.1**	**52,395**
ECM 13	Retro-Commissioning Study	Yes	20,910	0.0	268	$5,255	$53,100	$0	$53,100	10.1	52,395
TOTALS (COST EFFECTIVE MEASURES)			**201,098**	**24.7**	**288**	**$27,579**	**$128,956**	**$12,654**	**$116,302**	**4.2**	**236,199**
TOTALS (ALL MEASURES)			**212,987**	**30.2**	**327**	**$29,436**	**$180,925**	**$18,619**	**$162,306**	**5.5**	**252,804**

* - 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.

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

MANASQUAN 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)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**117,383**	**22.7**	**-21**	**$14,835**	**$57,096**	**$9,936**	**$47,160**	**3.2**	**115,704**
ECM 1	Install LED Fixtures	Yes	19,121	2.0	-1	$2,439	$24,340	$2,400	$21,940	9.0	19,094
ECM 2	Retrofit Fixtures with LED Lamps	Yes	68,083	18.5	-14	$8,591	$28,555	$7,536	$21,019	2.4	66,958
ECM 3	Install LED Exit Signs	Yes	30,180	2.3	-6	$3,806	$4,200	$0	$4,200	1.1	29,652
Lighting Control Measures			**26,130**	**7.4**	**-5**	**$3,295**	**$27,177**	**$6,430**	**$20,747**	**6.3**	**25,673**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	26,130	7.4	-5	$3,295	$27,177	$6,430	$20,747	6.3	25,673
Variable Frequency Drive (VFD) Measures			**118,704**	**54.7**	**0**	**$15,228**	**$196,114**	**$20,925**	**$175,189**	**11.5**	**119,534**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	96,909	51.5	0	$12,432	$177,161	$16,925	$160,236	12.9	97,587
ECM 6	Install VFDs on Heating Water Pumps	Yes	21,795	3.2	0	$2,796	$18,953	$4,000	$14,953	5.3	21,947
Unitary HVAC Measures			**39,491**	**31.8**	**21**	**$5,283**	**$461,410**	**$37,696**	**$423,714**	**80.2**	**42,186**
ECM 7	Install High Efficiency Air Conditioning Units	No	39,491	31.8	21	$5,283	$461,410	$37,696	$423,714	80.2	42,186
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**27**	**$283**	**$18,195**	**$1,400**	**$16,795**	**59.4**	**3,161**
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	3	$28	$4,902	$400	$4,502	158.1	318
ECM 9	Install High Efficiency Furnaces	No	0	0.0	24	$254	$13,293	$1,000	$12,293	48.3	2,843

MANASQUAN 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)**	CO_2e Emissions Reduction (lbs)
HVAC System Improvements			**615**	**0.0**	**0**	**$79**	**$173**	**$60**	**$113**	**1.4**	**620**
ECM 10	Install Pipe Insulation	Yes	615	0.0	0	$79	$173	$60	$113	1.4	620
Domestic Water Heating Upgrade			**0**	**0.0**	**89**	**$937**	**$18,402**	**$1,217**	**$17,185**	**18.3**	**10,470**
ECM 11	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	44	$461	$17,542	$875	$16,667	36.1	5,156
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	45	$475	$860	$342	$518	1.1	5,314
Food Service & Refrigeration Measures			**13,039**	**5.6**	**336**	**$5,196**	**$57,840**	**$7,719**	**$50,121**	**9.6**	**52,521**
ECM 13	Food Service Equipment Replacement	Yes	6,893	5.1	336	$4,408	$49,786	$7,199	$42,587	9.7	46,333
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	791	0.1	0	$101	$910	$120	$790	7.8	796
ECM 15	Refrigeration Controls	Yes	2,320	0.0	0	$298	$1,037	$100	$937	3.1	2,336
ECM 16	Replace Refrigeration Equipment	No	1,423	0.2	0	$183	$5,876	$250	$5,626	30.8	1,433
ECM 17	Vending Machine Control	Yes	1,612	0.2	0	$207	$230	$50	$180	0.9	1,623
Custom Measures			**3,693**	**0.0**	**0**	**$474**	**$1,440**	**$0**	**$1,440**	**3.0**	**3,719**
ECM 18	Install Heat Pump Water Heater	Yes	3,693	0.0	0	$474	$1,440	$0	$1,440	3.0	3,719
TOTALS (COST EFFECTIVE MEASURES)			**278,141**	**90.2**	**355**	**$39,400**	**$334,823**	**$45,162**	**$289,661**	**7.4**	**321,652**
TOTALS (ALL MEASURES)			**319,056**	**122.2**	**447**	**$45,609**	**$837,846**	**$85,383**	**$752,463**	**16.5**	**373,588**

* - 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.

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

INDUSTRIAL ARTS BUILDING

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**2,471**	**0.3**	**0**	**$350**	**$1,685**	**$428**	**$1,257**	**3.6**	**2,447**
ECM 1	Install LED Fixtures	Yes	946	0.0	0	$136	$824	$200	$624	4.6	953
ECM 2	Retrofit Fixtures with LED Lamps	Yes	1,525	0.3	0	$214	$861	$228	$633	3.0	1,494
Lighting Control Measures			**606**	**0.1**	**0**	**$85**	**$1,004**	**$75**	**$929**	**10.9**	**594**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	606	0.1	0	$85	$1,004	$75	$929	10.9	594
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**32**	**$376**	**$23,400**	**$1,825**	**$21,575**	**57.3**	**3,727**
ECM 4	Install High Efficiency Hot Water Boilers	No	0	0.0	32	$376	$23,400	$1,825	$21,575	57.3	3,727
HVAC System Improvements			**166**	**0.0**	**28**	**$357**	**$1,331**	**$4**	**$1,327**	**3.7**	**3,471**
ECM 5	Install Programmable Thermostats	Yes	0	0.0	28	$334	$1,319	$0	$1,319	4.0	3,304
ECM 6	Install Pipe Insulation	Yes	166	0.0	0	$24	$12	$4	$8	0.3	167
Domestic Water Heating Upgrade			**857**	**0.0**	**0**	**$123**	**$50**	**$25**	**$25**	**0.2**	**863**
ECM 7	Install Low-Flow DHW Devices	Yes	857	0.0	0	$123	$50	$25	$25	0.2	863
Custom Measures			**3,970**	**0.0**	**242**	**$3,431**	**$16,855**	**$0**	**$16,855**	**4.9**	**32,333**
ECM 8	Building Envelope Improvements	Yes	893	0.0	242	$2,990	$14,785	$0	$14,785	4.9	29,234
ECM 9	Install Heat Pump Water Heater	Yes	3,077	0.0	0	$441	$2,070	$0	$2,070	4.7	3,099
TOTALS (COST EFFECTIVE MEASURES)			**8,069**	**0.5**	**270**	**$4,346**	**$20,926**	**$532**	**$20,394**	**4.7**	**39,707**
TOTALS (ALL MEASURES)			**8,069**	**0.5**	**302**	**$4,723**	**$44,326**	**$2,357**	**$41,968**	**8.9**	**43,434**

* - 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.

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ADMINISTRATION BUILDING

#	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_2e Emissions Reduction (lbs)
Lighting Upgrades			**9,100**	**2.9**	**-2**	**$1,141**	**$3,734**	**$831**	**$2,903**	**2.5**	**8,966**
ECM 1	Install LED Fixtures	Yes	666	0.0	0	$85	$469	$100	$369	4.4	670
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,393	2.8	-1	$926	$3,120	$731	$2,389	2.6	7,273
ECM 3	Install LED Exit Signs	Yes	1,041	0.1	0	$130	$145	$0	$145	1.1	1,022
Lighting Control Measures			**2,142**	**0.8**	**0**	**$268**	**$3,074**	**$535**	**$2,539**	**9.5**	**2,105**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	1,738	0.7	0	$218	$2,624	$360	$2,264	10.4	1,707
ECM 5	Install High/Low Lighting Controls	Yes	404	0.1	0	$51	$450	$175	$275	5.4	397
Unitary HVAC Measures			**810**	**0.9**	**0**	**$103**	**$6,486**	**$420**	**$6,066**	**58.8**	**816**
ECM 6	Install High Efficiency Air Conditioning Units	No	810	0.9	0	$103	$6,486	$420	$6,066	58.8	816
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**15**	**$151**	**$5,596**	**$500**	**$5,096**	**33.7**	**1,785**
ECM 7	Install High Efficiency Furnaces	No	0	0.0	15	$151	$5,596	$500	$5,096	33.7	1,785
Domestic Water Heating Upgrade			**303**	**0.0**	**0**	**$39**	**$22**	**$9**	**$12**	**0.3**	**305**
ECM 8	Install Low-Flow DHW Devices	Yes	303	0.0	0	$39	$22	$9	$12	0.3	305
TOTALS (COST EFFECTIVE MEASURES)			**11,545**	**3.8**	**-2**	**$1,448**	**$6,829**	**$1,375**	**$5,454**	**3.8**	**11,375**
TOTALS (ALL MEASURES)			**12,355**	**4.7**	**13**	**$1,702**	**$18,911**	**$2,295**	**$16,616**	**9.8**	**13,976**

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MHS Weight Room 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_2e Emissions Reduction (lbs)
Lighting Upgrades			**1,714**	**0.7**	**0**	**$263**	**$1,158**	**$0**	**$1,158**	**4.4**	**1,683**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,714	0.7	0	$263	$1,158	$0	$1,158	4.4	1,683
Lighting Control Measures			**445**	**0.2**	**0**	**$68**	**$270**	**$35**	**$235**	**3.4**	**437**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	445	0.2	0	$68	$270	$35	$235	3.4	437
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**5**	**$58**	**$2,805**	**$0**	**$2,805**	**48.1**	**635**
ECM 3	Install High Efficiency Unit Heaters	No	0	0.0	5	$58	$2,805	$0	$2,805	48.1	635
HVAC System Improvements			**0**	**0.0**	**10**	**$110**	**$660**	**$0**	**$660**	**6.0**	**1,194**
ECM 4	Install Programmable Thermostats	Yes	0	0.0	10	$110	$660	$0	$660	6.0	1,194
TOTALS (COST EFFECTIVE MEASURES)			**2,158**	**0.9**	**10**	**$441**	**$2,088**	**$35**	**$2,053**	**4.7**	**3,314**
TOTALS (ALL MEASURES)			**2,158**	**0.9**	**15**	**$499**	**$4,893**	**$35**	**$4,858**	**9.7**	**3,949**

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MANASQUAN ALTERNATIVE HIGH 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_2e Emissions Reduction (lbs)
Lighting Upgrades			**1,842**	**0.9**	**0**	**$287**	**$2,364**	**$520**	**$1,844**	**6.4**	**1,820**
ECM 1	Install LED Fixtures	Yes	438	0.0	0	$69	$464	$100	$364	5.3	441
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	298	0.2	0	$46	$841	$130	$711	15.4	293
ECM 3	Retrofit Fixtures with LED Lamps	Yes	1,105	0.7	0	$172	$1,059	$290	$769	4.5	1,086
Lighting Control Measures			**504**	**0.3**	**0**	**$78**	**$850**	**$135**	**$715**	**9.1**	**495**
ECM 4	Install Occupancy Sensor Lighting Controls	No	504	0.3	0	$78	$850	$135	$715	9.1	495
HVAC System Improvements			**0**	**0.0**	**1**	**$10**	**$173**	**$60**	**$113**	**11.1**	**98**
ECM 5	Install Pipe Insulation	No	0	0.0	1	$10	$173	$60	$113	11.1	98
Domestic Water Heating Upgrade			**0**	**0.0**	**1**	**$12**	**$22**	**$9**	**$12**	**1.0**	**115**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	1	$12	$22	$9	$12	1.0	115
TOTALS (COST EFFECTIVE MEASURES)			**1,842**	**0.9**	**1**	**$299**	**$2,385**	**$529**	**$1,856**	**6.2**	**1,935**
TOTALS (ALL MEASURES)			**2,345**	**1.2**	**1**	**$387**	**$3,408**	**$724**	**$2,684**	**6.9**	**2,528**

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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

Solar Energy Generation Potential

	High School	Elementary School
Potential:	**HIGH**	**HIGH**
System Potential: (kW)	149	419
Electric Generation: (kWh per year)	177,514	499,184
Displaced Cost: (per year)	$21,790	$64,040

Successor Solar Incentive Program

https://www.njcleanenergy.com/renewable-energy/programs/susi-program

Community Solar Energy Pilot Program

http://www.NJCleanEnergy.com/CommunitySolar

FINANCING MECHANISM: ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting – NJ ESIP
- Financing Mechanism that allows state 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
- 15 or 20 year self-funding loan
- Recent Energy Efficiency Transition
    - NJBPU Approved Incentive Programs
        - Utility or NJCEP
- Can be combined with Federal/State Pandemic Relief Funds
- No upfront capital expenses
- No referendum or impact to tax payers

BPU New Jersey's cleanenergy program™

Financing Mechanism: ESIP

Preliminary Energy Audit

LGEA

Select Path

ESCO Model
Hybrid Model
DIY Model

Investment Grade Energy Audit

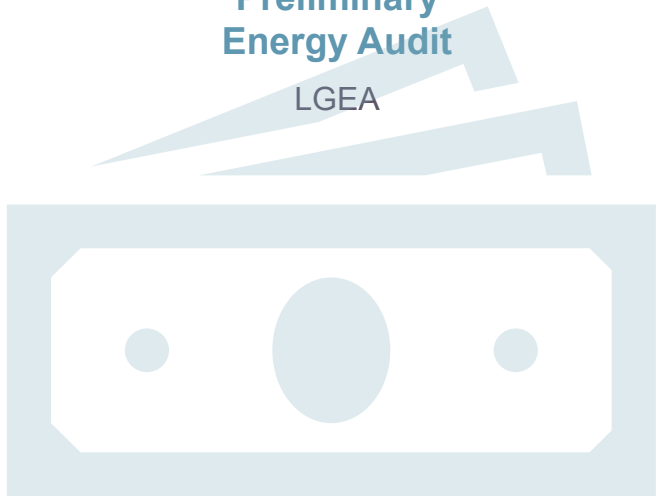
Prioritize ECM's to determine project

Energy Savings Plan Developed

Cash Flow Positive

Third Part Audit of Plan

Submitted for **BPU Approval**



New Jersey's cleanenergy program™

Energy SAVINGS Improvement Program

FOR MORE INFORMATION

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C&I Transition of Energy Efficiency Programs

https://www.njcleanenergy.com/transition

	EXISTING BUILDINGS		NEW CONSTRUCTION	DISTRIBUTED ENERGY RESOURCES
	MEASUREMENT & AUDITS	RETROFITS		
LOCAL GOVERNMENT CUSTOMERS	FREE Energy Audits	Prescriptive & Custom Rebates Direct Install Engineered Solutions **And more from your local utility!**	Prescriptive & Custom Rebates for New Construction and Gut Rehabs	Combined Heat & Power and Fuel Cell Installation Incentives Microgrid Development Battery Storage Muni EV Fleets
COMMERCIAL & INSTITUTIONAL CUSTOMERS				
LARGE ENERGY CUSTOMERS		Incentives up to $4 million for eligible projects	Pay for Performance incentives for buildings over 50,000 sq. ft.	

Key:

Programs run by investor-owned utility companies

Programs run by NJCEP

Utility Run Energy Efficiency Programs

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:

- 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

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

School & Small Business Energy Efficiency Stimulus Program

NJCleanEnergy.com/SSBEE

ABOUT

Provides grants to ensure facilities have functional HVAC systems that are tested, adjusted, and, if necessary or cost effective, repaired, upgraded or replaced to improve performance. *(SSB-VEEVR)*

Provides grants to replace noncompliant plumbing fixtures and appliances that fail to meet water efficiency standards. *(SSB-NPFA)*

REQUIREMENTS

Assessment verified by a Certified Energy Auditor or TAB Technician and proof of noncompliant equipment.

INCENTIVE CAP

Grants shall provide no more than 75% of the approved project cost up to $5 million.

BPU | New Jersey's cleanenergy program™

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THANK YOU