LGEA Presentation

West New York Board of Education

March 11, 2022

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

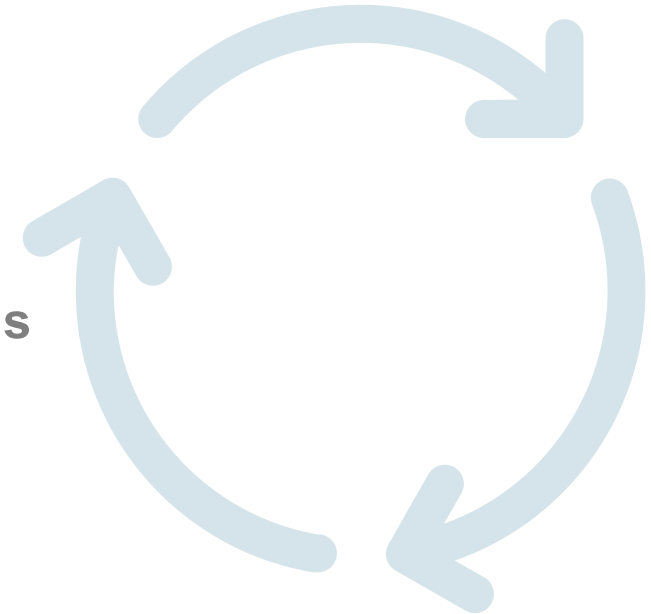
- *West New York Board of Education*
  - Clara Herrera – Superintendent of Schools
  - Scott Wohlrab – Assistant Superintendent
  - Dean Austin – Business Administrator
  - Ricky Solares – Supervisor of Facilities
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Lead Auditor
  - Nicholas Nocco – LGEA Project Auditor
  - Amanda Muench – LGEA Account Manager
  - Michelle Rossi – ESIP Coordinator (BPU)
  - Arif Welcher – Government/Business Manager (BPU)
- *Utility Energy Efficiency Programs*
  - Dave Kirsch – PSE&G
  - Steve Barba – PSE&G

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 West New York Board of Education

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
- Kitchen Equipment

Utility Consumption:

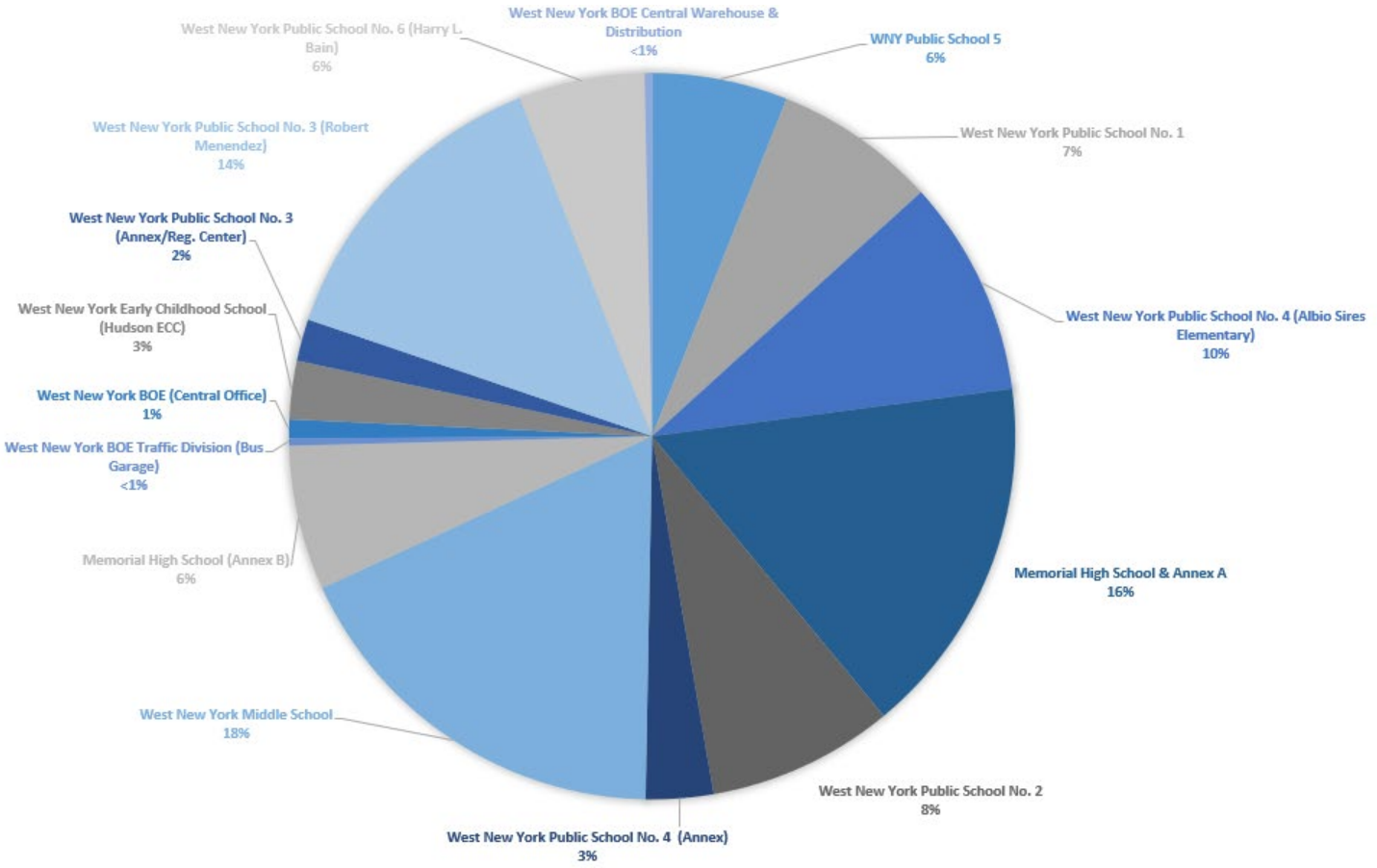
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Fuel Oil Consumption and Costs
- Solar Consumption and Costs

Sites Visited/Analyzed

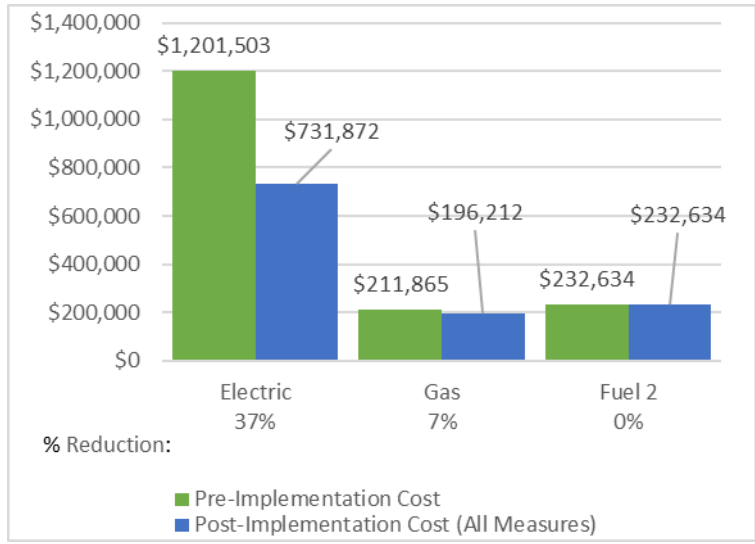
- West New York Public School No. 1
- West New York Public School No. 2
- West New York Public School No. 3 (Robert Menendez)
- West New York Public School No. 3 (Annex/Registration Center)
- West New York Public School No. 4 (Albio Sires Elementary)
- West New York Public School No. 4 (Annex)
- West New York Public School No. 5
- West New York Public School No. 6 (Harry L. Bain)
- West New York Middle School
- Memorial High School
- West New York Early Childhood School (Hudson ECC)
- West New York BOE (Central Office)
- West New York BOE Central Warehouse & Distribution (WHSE)
- West New York BOE Traffic Division (Bus Garage)
- Memorial High School (Annex B)

UTILITY BREAKOUT

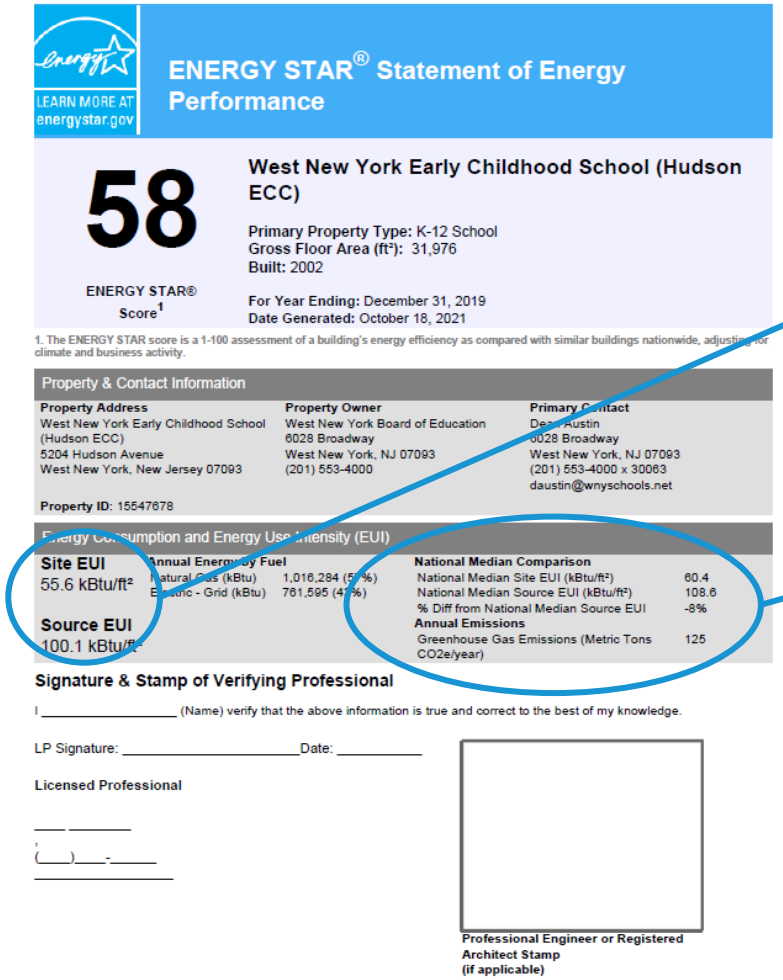
Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

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ENERGY STAR® Score[1]

West New York Early Childhood School (Hudson ECC)

Primary Property Type: K-12 School
Gross Floor Area (ft²): 31,976
Built: 2002

For Year Ending: December 31, 2019
Date Generated: October 18, 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
West New York Early Childhood School (Hudson ECC) 5204 Hudson Avenue West New York, New Jersey 07093	West New York Board of Education 6028 Broadway West New York, NJ 07093 (201) 553-4000	Dean Austin 6028 Broadway West New York, NJ 07093 (201) 553-4000 x 30063 daustin@wnyschools.net

Property ID: 15547678

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
55.6 kBtu/ft²

Source EUI
100.1 kBtu/ft²

Annual Energy by Fuel		
Natural Gas (kBtu)	1,016,284 (57%)	
Electric - Grid (kBtu)	761,595 (43%)	

National Median Comparison	
National Median Site EUI (kBtu/ft²)	60.4
National Median Source EUI (kBtu/ft²)	108.6
% Diff from National Median Source EUI	-8%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	125

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 EUI
55.6 kBtu/ft²

Source EUI
100.1 kBtu/ft²

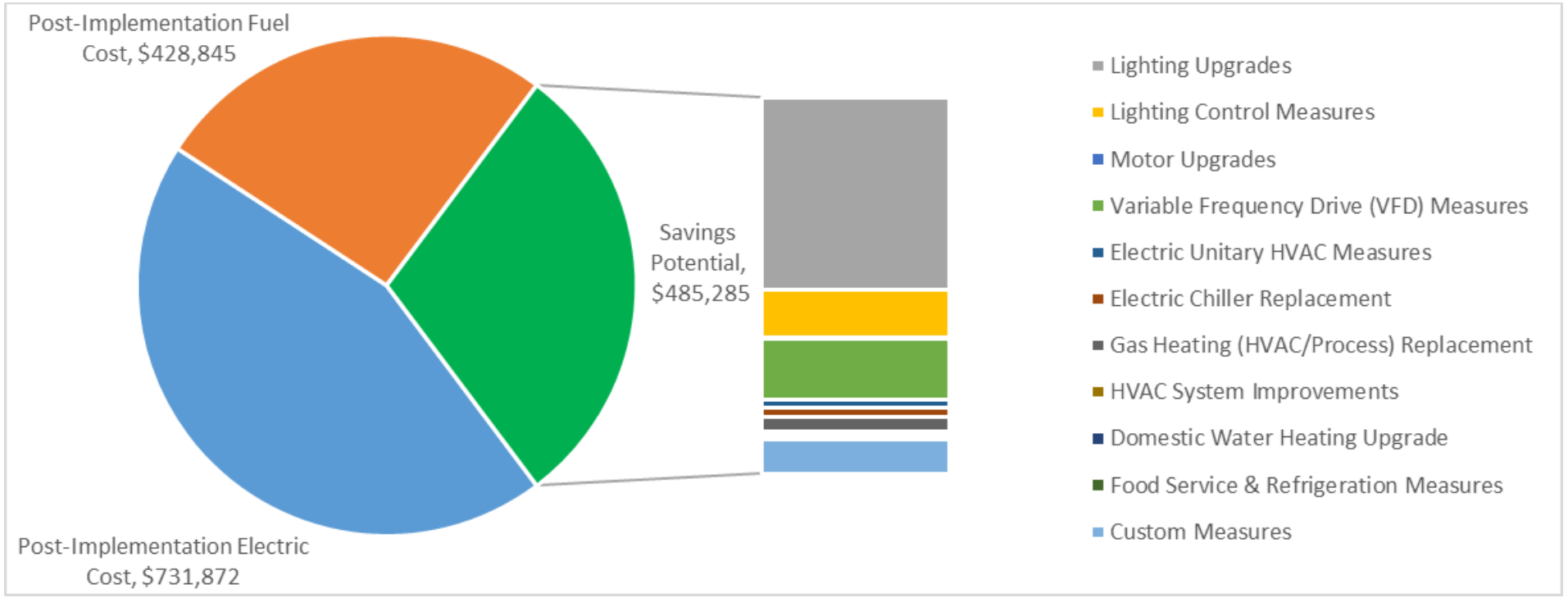
National Median Comparison	
National Median Site EUI (kBtu/ft²)	60.4
National Median Source EUI (kBtu/ft²)	108.6
% Diff from National Median Source EUI	-8%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	125

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.

New Jersey's cleanenergy program™

ALL OPPORTUNITIES

Savings Potential



ALL OPPORTUNITIES

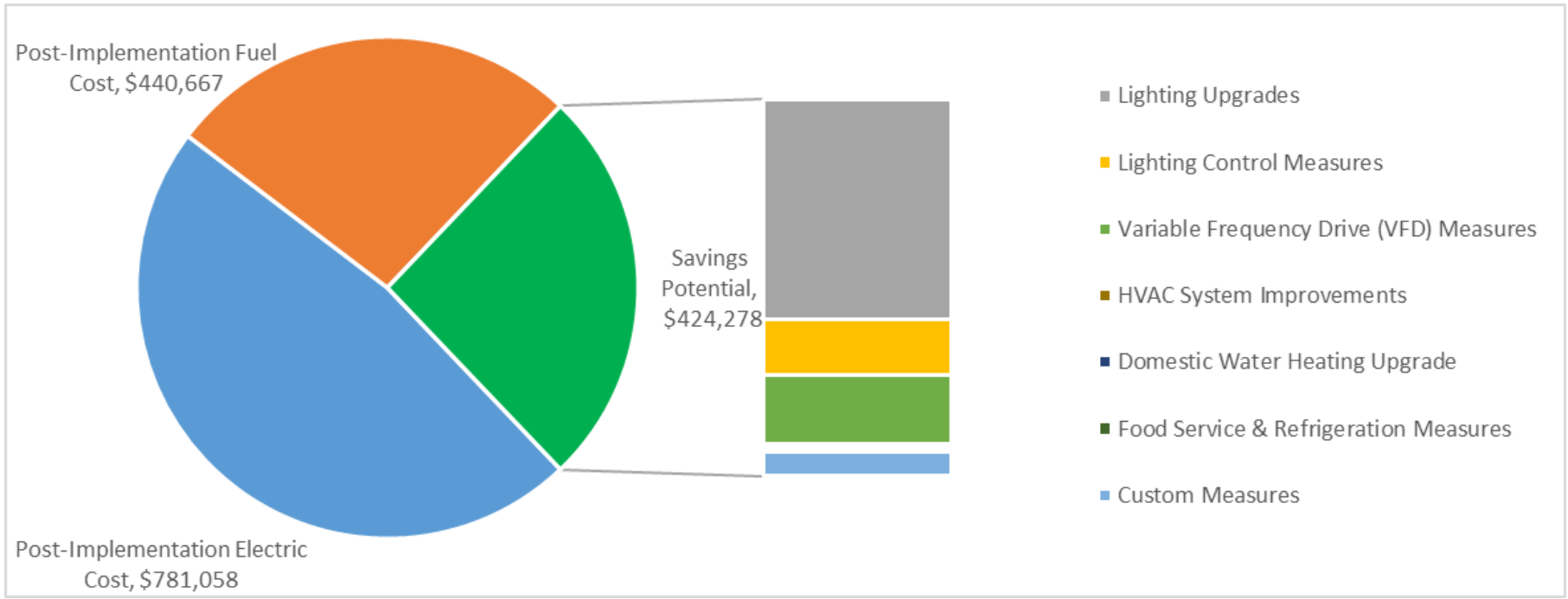
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**1,938,374**	**364.9**	**-495.8**	**$248,028**	**$714,028**	**$155,918**	**$558,110**	**2.3**	**1,882,691**
ECM 1	Install LED Fixtures	227,902	22.0	-23.4	$30,381	$130,203	$16,010	$114,193	3.8	226,504
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,061	0.5	-0.4	$136	$1,132	$170	$962	7.1	1,015
ECM 3	Retrofit Fixtures with LED Lamps	1,709,410	342.3	-472.0	$217,511	$582,693	$139,738	$442,955	2.0	1,655,172
Lighting Control Measures		**496,260**	**91.4**	**-142.1**	**$62,488**	**$433,351**	**$143,795**	**$289,556**	**4.6**	**479,597**
ECM 4	Install Occupancy Sensor Lighting Controls	372,380	72.4	-109.7	$46,612	$306,001	$43,025	$262,976	5.6	359,235
ECM 5	Install High/Low Lighting Controls	123,880	19.0	-32.4	$15,876	$127,350	$100,770	$26,580	1.7	120,362
Motor Upgrades		**4,645**	**1.5**	**0.0**	**$582**	**$21,563**	**$0**	**$21,563**	**37.1**	**4,677**
ECM 6	Premium Efficiency Motors	4,645	1.5	0.0	$582	$21,563	$0	$21,563	37.1	4,677
Variable Frequency Drive (VFD) Measures		**570,343**	**160.4**	**351.9**	**$79,327**	**$432,111**	**$66,500**	**$365,611**	**4.6**	**616,749**
ECM 7	Install VFDs on Constant Volume (CV) Fans	443,095	144.6	0.0	$59,512	$287,903	$45,575	$242,328	4.1	446,194
ECM 8	Install VFDs on Chilled Water Pumps	2,545	2.0	0.0	$346	$8,394	$1,800	$6,594	19.1	2,563
ECM 9	Install VFDs on Heating Water Pumps	74,131	12.8	0.0	$9,759	$102,562	$15,850	$86,712	8.9	74,649
ECM 10	Install VFDs on Kitchen Hood Fan Motors	45,522	0.2	351.9	$9,058	$28,514	$2,275	$26,239	2.9	88,258
ECM 11	Install VFDs on Process Pumps	5,049	0.7	0.0	$652	$4,738	$1,000	$3,738	5.7	5,085
Electric Unitary HVAC Measures		**82,129**	**60.4**	**7.3**	**$10,924**	**$449,154**	**$32,243**	**$416,911**	**38.2**	**83,558**
ECM 12	Install High Efficiency Air Conditioning Units	82,129	60.4	7.3	$10,924	$449,154	$32,243	$416,911	38.2	83,558
Electric Chiller Replacement		**83,454**	**13.6**	**0.0**	**$10,447**	**$276,884**	**$7,820**	**$269,064**	**25.8**	**84,037**
ECM 13	Install High Efficiency Chillers	83,454	13.6	0.0	$10,447	$276,884	$7,820	$269,064	25.8	84,037

ALL OPPORTUNITIES (CONT.)

#	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)
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**1,754.0**	**$19,683**	**$803,850**	**$40,613**	**$763,237**	**38.8**	**239,386**
ECM 14	Install High Efficiency Hot Water Boilers	0	0.0	1,617.8	$17,725	$638,511	$35,525	$602,986	34.0	217,107
ECM 15	Install High Efficiency Steam Boilers	0	0.0	136.2	$1,958	$165,339	$5,088	$160,251	81.8	22,279
HVAC System Improvements		**18,785**	**0.0**	**269.8**	**$4,856**	**$23,286**	**$414**	**$22,872**	**4.7**	**50,896**
ECM 16	Implement Demand Control Ventilation (DCV)	16,211	0.0	161.1	$3,479	$21,751	$0	$21,751	6.3	35,185
ECM 17	Install Pipe Insulation	2,574	0.0	108.7	$1,377	$1,535	$414	$1,121	0.8	15,711
Domestic Water Heating Upgrade		**17,711**	**0.0**	**108.5**	**$3,203**	**$42,266**	**$3,596**	**$38,669**	**12.1**	**30,544**
ECM 18	Install High Efficiency Gas-Fired Water Heater	0	0.0	18.2	$204	$39,957	$2,328	$37,630	184.1	2,131
ECM 19	Install Low-Flow DHW Devices	17,711	0.0	90.3	$2,998	$2,309	$1,269	$1,040	0.3	28,413
Food Service & Refrigeration Measures		**12,487**	**1.0**	**0.0**	**$1,620**	**$13,407**	**$1,315**	**$12,092**	**7.5**	**12,574**
ECM 20	Refrigerator/Freezer Case Electrically Commutated Motors	6,058	0.7	0.0	$807	$6,369	$840	$5,529	6.8	6,101
ECM 21	Refrigeration Controls	4,011	0.1	0.0	$511	$6,578	$375	$6,203	12.1	4,039
ECM 22	Vending Machine Control	2,418	0.3	0.0	$302	$460	$100	$360	1.2	2,435
Custom Measures		**161,697**	**0.0**	**1,679.9**	**$44,128**	**$718,522**	**$0**	**$718,522**	**16.3**	**425,814**
ECM 23	Retro-Commissioning Study	21,273	0.0	71.9	$4,025	$29,732	$0	$29,732	7.4	29,837
ECM 24	Installation of an Energy Management System	76,415	0.0	1,425.0	$30,368	$653,090	$0	$653,090	21.5	310,093
ECM 25	Install Heat Pump Water Heater	64,009	0.0	0.0	$8,096	$3,400	$0	$3,400	0.4	64,457
ECM 26	Pool Cover	0	0.0	183.0	$1,639	$32,300	$0	$32,300	19.7	21,427
TOTALS		**3,385,885**	**693.2**	**3,533.5**	**$485,285**	**$3,928,422**	**$452,214**	**$3,476,207**	**7.2**	**3,910,523**

Cost Effective Opportunities

Savings Potential



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		**1,938,366**	**364.9**	**-495.8**	**$248,027**	**$714,010**	**$155,913**	**$558,097**	**2.3**	**1,882,683**
ECM 1	Install LED Fixtures	227,902	22.0	-23.4	$30,381	$130,203	$16,010	$114,193	3.8	226,504
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,061	0.5	-0.4	$136	$1,132	$170	$962	7.1	1,015
ECM 3	Retrofit Fixtures with LED Lamps	1,709,402	342.3	-472.0	$217,510	$582,675	$139,733	$442,942	2.0	1,655,164
Lighting Control Measures		**496,164**	**91.3**	**-142.1**	**$62,475**	**$432,901**	**$143,620**	**$289,281**	**4.6**	**479,503**
ECM 4	Install Occupancy Sensor Lighting Controls	372,380	72.4	-109.7	$46,612	$306,001	$43,025	$262,976	5.6	359,235
ECM 5	Install High/Low Lighting Controls	123,784	19.0	-32.4	$15,863	$126,900	$100,595	$26,305	1.7	120,268
Variable Frequency Drive (VFD) Measures		**558,569**	**155.1**	**351.9**	**$77,783**	**$399,463**	**$62,075**	**$337,388**	**4.3**	**604,892**
ECM 7	Install VFDs on Constant Volume (CV) Fans	443,095	144.6	0.0	$59,512	$287,903	$45,575	$242,328	4.1	446,194
ECM 9	Install VFDs on Heating Water Pumps	64,902	9.5	0.0	$8,562	$78,307	$13,225	$65,082	7.6	65,356
ECM 10	Install VFDs on Kitchen Hood Fan Motors	45,522	0.2	351.9	$9,058	$28,514	$2,275	$26,239	2.9	88,258
ECM 11	Install VFDs on Process Pumps	5,049	0.7	0.0	$652	$4,738	$1,000	$3,738	5.7	5,085
HVAC System Improvements		**18,185**	**0.0**	**267.6**	**$4,760**	**$20,567**	**$414**	**$20,153**	**4.2**	**50,036**
ECM 16	Implement Demand Control Ventilation (DCV)	15,611	0.0	158.9	$3,383	$19,032	$0	$19,032	5.6	34,325
ECM 17	Install Pipe Insulation	2,574	0.0	108.7	$1,377	$1,535	$414	$1,121	0.8	15,711
Domestic Water Heating Upgrade		**17,711**	**0.0**	**90.3**	**$2,998**	**$2,309**	**$1,269**	**$1,040**	**0.3**	**28,413**
ECM 19	Install Low-Flow DHW Devices	17,711	0.0	90.3	$2,998	$2,309	$1,269	$1,040	0.3	28,413
Food Service & Refrigeration Measures		**12,080**	**1.0**	**0.0**	**$1,571**	**$11,733**	**$1,240**	**$10,493**	**6.7**	**12,164**
ECM 20	Refrigerator/Freezer Case Electrically Commutated Motors	6,058	0.7	0.0	$807	$6,369	$840	$5,529	6.8	6,101
ECM 21	Refrigeration Controls	3,604	0.0	0.0	$462	$4,904	$300	$4,604	10.0	3,629
ECM 22	Vending Machine Control	2,418	0.3	0.0	$302	$460	$100	$360	1.2	2,435
Custom Measures		**130,932**	**0.0**	**689.1**	**$26,663**	**$243,132**	**$0**	**$243,132**	**9.1**	**241,250**
ECM 23	Retro-Commissioning Study	21,273	0.0	71.9	$4,025	$29,732	$0	$29,732	7.4	29,837
ECM 24	Installation of an Energy Management System	45,650	0.0	617.3	$14,542	$210,000	$0	$210,000	14.4	146,956
ECM 25	Install Heat Pump Water Heater	64,009	0.0	0.0	$8,096	$3,400	$0	$3,400	0.4	64,457
TOTALS		**3,172,007**	**612.2**	**761.1**	**$424,278**	**$1,824,114**	**$364,531**	**$1,459,583**	**3.4**	**3,298,941**

WEST NEW YORK PUBLIC SCHOOL NO. 1

#	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			**117,240**	**25.5**	**-45**	**$14,176**	**$50,700**	**$11,366**	**$39,334**	**2.8**	**110,721**
ECM 1	Install LED Fixtures	Yes	19,074	2.4	-4	$2,355	$12,284	$1,250	$11,034	4.7	18,562
ECM 2	Retrofit Fixtures with LED Lamps	Yes	98,166	23.2	-41	$11,821	$38,416	$10,116	$28,300	2.4	92,159
Lighting Control Measures			**32,402**	**7.5**	**-14**	**$3,901**	**$37,252**	**$9,265**	**$27,987**	**7.2**	**30,411**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	26,465	6.7	-11	$3,186	$30,052	$3,910	$26,142	8.2	24,839
ECM 4	Install High/Low Lighting Controls	Yes	5,937	0.9	-2	$715	$7,200	$5,355	$1,845	2.6	5,572
Variable Frequency Drive (VFD) Measures			**13,634**	**4.4**	**0**	**$1,724**	**$28,913**	**$2,625**	**$26,288**	**15.2**	**13,729**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	9,022	2.9	0	$1,141	$19,436	$625	$18,811	16.5	9,085
ECM 6	Install VFDs on Heating Water Pumps	Yes	4,611	1.4	0	$583	$9,476	$2,000	$7,476	12.8	4,644
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**195**	**$2,838**	**$134,032**	**$10,018**	**$124,014**	**43.7**	**31,949**
ECM 7	Install High Efficiency Hot Water Boilers	No	0	0.0	195	$2,838	$134,032	$10,018	$124,014	43.7	31,949
HVAC System Improvements			**766**	**0.0**	**3**	**$139**	**$173**	**$58**	**$115**	**0.8**	**1,066**
ECM 8	Install Pipe Insulation	Yes	766	0.0	3	$139	$173	$58	$115	0.8	1,066
Domestic Water Heating Upgrade			**834**	**0.0**	**4**	**$164**	**$1,352**	**$267**	**$1,085**	**6.6**	**1,252**
ECM 9	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	4	$58	$1,309	$245	$1,064	18.2	412
ECM 10	Install Low-Flow DHW Devices	Yes	834	0.0	0	$105	$43	$22	$22	0.2	840
Food Service & Refrigeration Measures			**2,915**	**0.2**	**0**	**$369**	**$3,924**	**$335**	**$3,589**	**9.7**	**2,936**
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,051	0.1	0	$133	$1,213	$160	$1,053	7.9	1,059
ECM 12	Refrigeration Controls	Yes	1,864	0.0	0	$236	$2,711	$175	$2,536	10.8	1,877
Custom Measures			**78,196**	**0.0**	**269**	**$13,797**	**$207,688**	**$0**	**$207,688**	**15.1**	**122,726**
ECM 13	Installation of an Energy Management System	No	14,187	0.0	269	$5,701	$204,288	$0	$204,288	35.8	58,270
ECM 14	Install Heat Pump Water Heater	Yes	64,009	0.0	0	$8,096	$3,400	$0	$3,400	0.4	64,457
TOTALS (COST EFFECTIVE MEASURES)			**231,799**	**37.6**	**-56**	**$28,511**	**$124,405**	**$23,671**	**$100,735**	**3.5**	**224,159**
TOTALS (ALL MEASURES)			**245,986**	**37.6**	**412**	**$37,108**	**$464,034**	**$33,933**	**$430,100**	**11.6**	**314,790**

WEST NEW YORK PUBLIC SCHOOL NO. 2

#	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			**279,678**	**56.1**	**-47**	**$35,483**	**$146,242**	**$24,387**	**$121,855**	**3.4**	**276,139**
ECM 1	Install LED Fixtures	Yes	106,059	11.9	-11	$13,515	$50,001	$5,200	$44,801	3.3	105,525
ECM 2	Retrofit Fixtures with LED Lamps	Yes	173,618	44.2	-36	$21,968	$96,242	$19,187	$77,055	3.5	170,614
Lighting Control Measures			**39,946**	**8.0**	**-8**	**$5,054**	**$28,584**	**$14,035**	**$14,549**	**2.9**	**39,248**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	17,200	4.4	-4	$2,176	$13,734	$1,435	$12,299	5.7	16,900
ECM 4	Install High/Low Lighting Controls	Yes	22,746	3.6	-5	$2,878	$14,850	$12,600	$2,250	0.8	22,348
Motor Upgrades			**134**	**0.0**	**0**	**$17**	**$352**	**$0**	**$352**	**20.5**	**135**
ECM 5	Premium Efficiency Motors	No	134	0.0	0	$17	$352	$0	$352	20.5	135
Variable Frequency Drive (VFD) Measures			**12,571**	**0.1**	**39**	**$1,948**	**$4,076**	**$900**	**$3,176**	**1.6**	**17,237**
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	12,571	0.1	39	$1,948	$4,076	$900	$3,176	1.6	17,237
HVAC System Improvements			**600**	**0.0**	**28**	**$318**	**$2,971**	**$70**	**$2,901**	**9.1**	**3,891**
ECM 7	Implement Demand Control Ventilation (DCV)	No	600	0.0	2	$96	$2,719	$0	$2,719	28.4	860
ECM 8	Install Pipe Insulation	Yes	0	0.0	26	$222	$252	$70	$182	0.8	3,031
Domestic Water Heating Upgrade			**0**	**0.0**	**10**	**$89**	**$158**	**$88**	**$70**	**0.8**	**1,222**
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	10	$89	$158	$88	$70	0.8	1,222
TOTALS (COST EFFECTIVE MEASURES)			**332,195**	**64.2**	**20**	**$42,797**	**$179,312**	**$39,480**	**$139,832**	**3.3**	**336,877**
TOTALS (ALL MEASURES)			**332,929**	**64.2**	**22**	**$42,909**	**$182,383**	**$39,480**	**$142,903**	**3.3**	**337,872**

WEST NEW YORK PUBLIC SCHOOL NO. 3 (ROBERT MENENDEZ)

#	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			**221,335**	**39.5**	**-40**	**$34,241**	**$82,116**	**$15,952**	**$66,164**	**1.9**	**218,192**
ECM 1	Install LED Fixtures	Yes	41,764	2.3	-3	$6,505	$22,151	$3,300	$18,851	2.9	41,705
ECM 2	Retrofit Fixtures with LED Lamps	Yes	179,571	37.2	-37	$27,736	$59,966	$12,652	$47,314	1.7	176,487
Lighting Control Measures			**38,098**	**6.6**	**-8**	**$5,883**	**$36,782**	**$16,270**	**$20,512**	**3.5**	**37,432**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	24,265	4.4	-5	$3,747	$20,132	$2,655	$17,477	4.7	23,840
ECM 4	Install High/Low Lighting Controls	Yes	13,834	2.2	-3	$2,136	$16,650	$13,615	$3,035	1.4	13,592
Variable Frequency Drive (VFD) Measures			**110,700**	**32.8**	**0**	**$17,319**	**$65,834**	**$11,200**	**$54,634**	**3.2**	**111,474**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	110,700	32.8	0	$17,319	$65,834	$11,200	$54,634	3.2	111,474
HVAC System Improvements			**0**	**0.0**	**12**	**$115**	**$108**	**$30**	**$78**	**0.7**	**1,391**
ECM 6	Install Pipe Insulation	Yes	0	0.0	12	$115	$108	$30	$78	0.7	1,391
Food Service & Refrigeration Measures			**824**	**0.1**	**0**	**$129**	**$607**	**$80**	**$527**	**4.1**	**830**
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	824	0.1	0	$129	$607	$80	$527	4.1	830
Custom Measures			**21,273**	**0.0**	**72**	**$4,025**	**$29,732**	**$0**	**$29,732**	**7.4**	**29,837**
ECM 8	Retro-Commissioning Study	Yes	21,273	0.0	72	$4,025	$29,732	$0	$29,732	7.4	29,837
TOTALS (COST EFFECTIVE MEASURES)			**392,230**	**79.1**	**36**	**$61,713**	**$215,179**	**$43,532**	**$171,647**	**2.8**	**399,157**
TOTALS (ALL MEASURES)			**392,230**	**79.1**	**36**	**$61,713**	**$215,179**	**$43,532**	**$171,647**	**2.8**	**399,157**

West New York Public School No. 3 (Annex/Registration Center)

#	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			**23,288**	**12.3**	**-10**	**$2,993**	**$17,899**	**$3,911**	**$13,988**	**4.7**	**21,878**
ECM 1	Install LED Fixtures	Yes	3,531	1.7	-1	$454	$4,041	$400	$3,641	8.0	3,314
ECM 2	Retrofit Fixtures with LED Lamps	Yes	19,756	10.7	-8	$2,539	$13,858	$3,511	$10,347	4.1	18,564
Lighting Control Measures			**6,728**	**3.6**	**-3**	**$864**	**$13,213**	**$2,750**	**$10,463**	**12.1**	**6,314**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	5,878	3.2	-2	$755	$11,188	$1,490	$9,698	12.8	5,517
ECM 4	Install High/Low Lighting Controls	Yes	850	0.4	0	$109	$2,025	$1,260	$765	7.0	798
Unitary HVAC Measures			**74**	**0.2**	**0**	**$10**	**$1,255**	**$0**	**$1,255**	**126.9**	**74**
ECM 5	Install High Efficiency Air Conditioning Units	No	74	0.2	0	$10	$1,255	$0	$1,255	126.9	74
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$16**	**$29**	**$14**	**$14**	**0.9**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$16	$29	$14	$14	0.9	222
TOTALS (COST EFFECTIVE MEASURES)			**30,015**	**15.9**	**-11**	**$3,872**	**$31,141**	**$6,675**	**$24,466**	**6.3**	**28,415**
TOTALS (ALL MEASURES)			**30,089**	**16.1**	**-11**	**$3,882**	**$32,396**	**$6,675**	**$25,721**	**6.6**	**28,489**

WEST NEW YORK PUBLIC SCHOOL NO. 4 (ALBIO SIRES ELEMENTARY)

#	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			**201,084**	**44.8**	**-37**	**$25,801**	**$83,864**	**$19,604**	**$64,260**	**2.5**	**198,208**
ECM 1	Install LED Fixtures	Yes	24,634	0.3	0	$3,198	$17,327	$2,850	$14,477	4.5	24,782
ECM 2	Retrofit Fixtures with LED Lamps	Yes	176,450	44.5	-36	$22,603	$66,537	$16,754	$49,783	2.2	173,426
Lighting Control Measures			**40,876**	**8.8**	**-9**	**$5,235**	**$50,543**	**$23,475**	**$27,068**	**5.2**	**40,161**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	29,850	6.6	-6	$3,823	$34,793	$9,790	$25,003	6.5	29,328
ECM 4	Install High/Low Lighting Controls	Yes	11,026	2.2	-2	$1,412	$15,750	$13,685	$2,065	1.5	10,833
Variable Frequency Drive (VFD) Measures			**85,160**	**29.4**	**0**	**$11,063**	**$62,504**	**$10,875**	**$51,629**	**4.7**	**85,756**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	76,580	28.5	0	$9,949	$54,352	$9,075	$45,277	4.6	77,116
ECM 6	Install VFDs on Heating Water Pumps	Yes	8,580	1.0	0	$1,115	$8,152	$1,800	$6,352	5.7	8,640
Unitary HVAC Measures			**48,051**	**25.0**	**0**	**$6,242**	**$170,930**	**$14,275**	**$156,655**	**25.1**	**48,386**
ECM 7	Install High Efficiency Air Conditioning Units	No	48,051	25.0	0	$6,242	$170,930	$14,275	$156,655	25.1	48,386
HVAC System Improvements			**10,611**	**0.0**	**80**	**$2,079**	**$8,222**	**$16**	**$8,206**	**3.9**	**20,017**
ECM 8	Implement Demand Control Ventilation (DCV)	Yes	10,611	0.0	69	$1,985	$8,157	$0	$8,157	4.1	18,762
ECM 9	Install Pipe Insulation	Yes	0	0.0	11	$94	$66	$16	$50	0.5	1,255
Domestic Water Heating Upgrade			**1,251**	**0.0**	**6**	**$214**	**$158**	**$77**	**$80**	**0.4**	**1,949**
ECM 10	Install Low-Flow DHW Devices	Yes	1,251	0.0	6	$214	$158	$77	$80	0.4	1,949
Food Service & Refrigeration Measures			**2,657**	**0.1**	**0**	**$345**	**$3,406**	**$285**	**$3,121**	**9.0**	**2,676**
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	917	0.1	0	$119	$1,213	$160	$1,053	8.8	924
ECM 12	Refrigeration Controls	Yes	1,740	0.0	0	$226	$2,193	$125	$2,068	9.1	1,752
TOTALS (COST EFFECTIVE MEASURES)			**341,639**	**83.2**	**40**	**$44,738**	**$208,698**	**$54,332**	**$154,365**	**3.5**	**348,767**
TOTALS (ALL MEASURES)			**389,689**	**108.2**	**40**	**$50,980**	**$379,628**	**$68,607**	**$311,020**	**6.1**	**397,153**

West New York Public School No. 4 (Annex)

#	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			**27,403**	**10.4**	**-13**	**$3,448**	**$18,164**	**$4,700**	**$13,464**	**3.9**	**25,540**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	297	0.1	0	$37	$257	$40	$217	5.8	277
ECM 2	Retrofit Fixtures with LED Lamps	Yes	27,106	10.3	-12	$3,410	$17,906	$4,660	$13,246	3.9	25,263
Lighting Control Measures			**7,622**	**3.0**	**-4**	**$959**	**$15,309**	**$3,465**	**$11,844**	**12.4**	**7,101**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	6,293	2.7	-3	$792	$12,384	$1,505	$10,879	13.7	5,863
ECM 4	Install High/Low Lighting Controls	Yes	1,329	0.3	-1	$167	$2,925	$1,960	$965	5.8	1,238
Motor Upgrades			**196**	**0.1**	**0**	**$26**	**$1,516**	**$0**	**$1,516**	**58.4**	**197**
ECM 5	Premium Efficiency Motors	No	196	0.1	0	$26	$1,516	$0	$1,516	58.4	197
Variable Frequency Drive (VFD) Measures			**4,564**	**1.0**	**0**	**$604**	**$8,152**	**$1,800**	**$6,352**	**10.5**	**4,595**
ECM 6	Install VFDs on Heating Water Pumps	Yes	4,564	1.0	0	$604	$8,152	$1,800	$6,352	10.5	4,595
Unitary HVAC Measures			**73**	**0.1**	**0**	**$10**	**$703**	**$0**	**$703**	**73.1**	**73**
ECM 7	Install High Efficiency Air Conditioning Units	No	73	0.1	0	$10	$703	$0	$703	73.1	73
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**96**	**$1,367**	**$85,660**	**$5,088**	**$80,572**	**58.9**	**15,646**
ECM 8	Install High Efficiency Steam Boilers	No	0	0.0	96	$1,367	$85,660	$5,088	$80,572	58.9	15,646
HVAC System Improvements			**0**	**0.0**	**12**	**$168**	**$165**	**$34**	**$131**	**0.8**	**1,740**
ECM 9	Install Pipe Insulation	Yes	0	0.0	12	$168	$165	$34	$131	0.8	1,740
Domestic Water Heating Upgrade			**0**	**0.0**	**5**	**$72**	**$72**	**$36**	**$36**	**0.5**	**556**
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	5	$72	$72	$36	$36	0.5	556
Custom Measures			**1,786**	**0.0**	**207**	**$3,190**	**$53,400**	**$0**	**$53,400**	**16.7**	**35,593**
ECM 11	Installation of an Energy Management System	No	1,786	0.0	207	$3,190	$53,400	$0	$53,400	16.7	35,593
TOTALS (COST EFFECTIVE MEASURES)			**39,588**	**14.4**	**0**	**$5,250**	**$41,862**	**$10,035**	**$31,827**	**6.1**	**39,533**
TOTALS (ALL MEASURES)			**41,643**	**14.5**	**302**	**$9,843**	**$183,141**	**$15,123**	**$168,018**	**17.1**	**91,042**

West New York Public School No. 5

#	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			**66,992**	**17.6**	**-28**	**$8,695**	**$28,462**	**$7,652**	**$20,810**	**2.4**	**62,928**
ECM 1	Install LED Fixtures	Yes	648	0.0	0	$88	$412	$100	$312	3.5	653
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	189	0.1	0	$25	$266	$40	$226	9.2	178
ECM 3	Retrofit Fixtures with LED Lamps	Yes	66,155	17.5	-28	$8,583	$27,783	$7,512	$20,271	2.4	62,098
Lighting Control Measures			**18,964**	**5.0**	**-8**	**$2,460**	**$28,065**	**$6,695**	**$21,370**	**8.7**	**17,800**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	16,336	4.3	-7	$2,119	$23,340	$2,980	$20,360	9.6	15,333
ECM 5	Install High/Low Lighting Controls	Yes	2,628	0.7	-1	$341	$4,725	$3,715	$1,010	3.0	2,467
Variable Frequency Drive (VFD) Measures			**24,900**	**10.6**	**0**	**$3,384**	**$32,779**	**$6,400**	**$26,379**	**7.8**	**25,074**
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	17,121	5.7	0	$2,327	$10,303	$2,200	$8,103	3.5	17,240
ECM 7	Install VFDs on Chilled Water Pumps	No	2,545	2.0	0	$346	$8,394	$1,800	$6,594	19.1	2,563
ECM 8	Install VFDs on Heating Water Pumps	No	5,234	2.9	0	$711	$14,082	$2,400	$11,682	16.4	5,271
Unitary HVAC Measures			**4,130**	**2.5**	**0**	**$561**	**$28,040**	**$0**	**$28,040**	**50.0**	**4,159**
ECM 9	Install High Efficiency Air Conditioning Units	No	4,130	2.5	0	$561	$28,040	$0	$28,040	50.0	4,159
Electric Chiller Replacement			**3,426**	**3.2**	**0**	**$466**	**$55,002**	**$800**	**$54,202**	**116.4**	**3,450**
ECM 10	Install High Efficiency Chillers	No	3,426	3.2	0	$466	$55,002	$800	$54,202	116.4	3,450
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**230**	**$3,406**	**$160,935**	**$0**	**$160,935**	**47.3**	**37,611**
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	230	$3,406	$160,935	$0	$160,935	47.3	37,611
HVAC System Improvements			**0**	**0.0**	**7**	**$68**	**$50**	**$14**	**$36**	**0.5**	**803**
ECM 12	Install Pipe Insulation	Yes	0	0.0	7	$68	$50	$14	$36	0.5	803
Domestic Water Heating Upgrade			**0**	**0.0**	**15**	**$146**	**$38,648**	**$2,083**	**$36,566**	**250.2**	**1,719**
ECM 13	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	15	$146	$38,648	$2,083	$36,566	250.2	1,719
Food Service & Refrigeration Measures			**618**	**0.0**	**0**	**$84**	**$303**	**$40**	**$263**	**3.1**	**623**
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	618	0.0	0	$84	$303	$40	$263	3.1	623
Custom Measures			**14,793**	**0.0**	**332**	**$6,935**	**$185,402**	**$0**	**$185,402**	**26.7**	**69,274**
ECM 15	Installation of an Energy Management System	No	14,793	0.0	332	$6,935	$185,402	$0	$185,402	26.7	69,274
TOTALS (COST EFFECTIVE MEASURES)			**103,696**	**28.4**	**-29**	**$13,635**	**$67,183**	**$16,601**	**$50,582**	**3.7**	**99,394**
TOTALS (ALL MEASURES)			**133,824**	**38.9**	**548**	**$26,206**	**$557,687**	**$23,684**	**$534,003**	**20.4**	**223,440**

West New York Public School No. 6 (Harry L. Bain)

#	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			**82,070**	**22.8**	**-17**	**$11,163**	**$38,810**	**$10,106**	**$28,704**	**2.6**	**80,677**
ECM 1	Install LED Fixtures	Yes	858	0.0	0	$118	$525	$100	$425	3.6	864
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	201	0.2	0	$27	$342	$50	$292	10.7	197
ECM 3	Retrofit Fixtures with LED Lamps	Yes	81,011	22.6	-17	$11,017	$37,943	$9,956	$27,987	2.5	79,616
Lighting Control Measures			**14,020**	**3.0**	**-3**	**$1,906**	**$15,406**	**$5,315**	**$10,091**	**5.3**	**13,775**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	6,212	1.9	-1	$845	$7,756	$660	$7,096	8.4	6,104
ECM 5	Install High/Low Lighting Controls	Yes	7,808	1.2	-2	$1,062	$7,650	$4,655	$2,995	2.8	7,671
Variable Frequency Drive (VFD) Measures			**26,647**	**5.9**	**26**	**$3,903**	**$24,401**	**$4,750**	**$19,651**	**5.0**	**29,886**
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	13,694	4.4	0	$1,887	$12,229	$2,700	$9,529	5.0	13,789
ECM 7	Install VFDs on Heating Water Pumps	Yes	11,883	1.5	0	$1,638	$9,476	$2,000	$7,476	4.6	11,966
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	1,070	0.0	26	$378	$2,696	$50	$2,646	7.0	4,130
Unitary HVAC Measures			**6,302**	**6.3**	**0**	**$869**	**$41,373**	**$3,683**	**$37,690**	**43.4**	**6,346**
ECM 9	Install High Efficiency Air Conditioning Units	No	6,302	6.3	0	$869	$41,373	$3,683	$37,690	43.4	6,346
HVAC System Improvements			**0**	**0.0**	**29**	**$252**	**$295**	**$90**	**$205**	**0.8**	**3,347**
ECM 10	Install Pipe Insulation	Yes	0	0.0	29	$252	$295	$90	$205	0.8	3,347
Domestic Water Heating Upgrade			**0**	**0.0**	**9**	**$80**	**$136**	**$76**	**$60**	**0.8**	**1,056**
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	9	$80	$136	$76	$60	0.8	1,056
Food Service & Refrigeration Measures			**615**	**0.0**	**0**	**$85**	**$607**	**$80**	**$527**	**6.2**	**619**
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	615	0.0	0	$85	$607	$80	$527	6.2	619
TOTALS (COST EFFECTIVE MEASURES)			**123,352**	**31.8**	**44**	**$17,389**	**$79,655**	**$20,417**	**$59,238**	**3.4**	**129,359**
TOTALS (ALL MEASURES)			**129,654**	**38.1**	**44**	**$18,257**	**$121,028**	**$24,100**	**$96,928**	**5.3**	**135,706**

WEST NEW YORK MIDDLE 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)**	CO2e Emissions Reduction (lbs)
Lighting Upgrades			**407,162**	**53.4**	**-85**	**$50,054**	**$87,389**	**$22,000**	**$65,389**	**1.3**	**400,096**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	407,162	53.4	-85	$50,054	$87,389	$22,000	$65,389	1.3	400,096
Lighting Control Measures			**132,138**	**17.3**	**-28**	**$16,243**	**$71,302**	**$24,990**	**$46,312**	**2.9**	**129,827**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	106,832	14.1	-22	$13,132	$48,802	$5,880	$42,922	3.3	104,964
ECM 3	Install High/Low Lighting Controls	Yes	25,306	3.2	-5	$3,111	$22,500	$19,110	$3,390	1.1	24,863
Motor Upgrades			**4,138**	**1.3**	**0**	**$516**	**$17,723**	**$0**	**$17,723**	**34.3**	**4,167**
ECM 4	Premium Efficiency Motors	No	4,138	1.3	0	$516	$17,723	$0	$17,723	34.3	4,167
Variable Frequency Drive (VFD) Measures			**189,249**	**52.7**	**156**	**$24,952**	**$113,386**	**$16,475**	**$96,911**	**3.9**	**208,885**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	153,144	50.1	0	$19,101	$88,573	$12,375	$76,198	4.0	154,215
ECM 6	Install VFDs on Heating Water Pumps	Yes	10,897	2.4	0	$1,359	$14,215	$3,000	$11,215	8.3	10,974
ECM 7	Install VFDs on Kitchen Hood Fan Motors	Yes	25,207	0.1	156	$4,492	$10,598	$1,100	$9,498	2.1	43,697
Unitary HVAC Measures			**745**	**0.5**	**0**	**$93**	**$5,642**	**$0**	**$5,642**	**60.7**	**750**
ECM 8	Install High Efficiency Air Conditioning Units	No	745	0.5	0	$93	$5,642	$0	$5,642	60.7	750
Electric Chiller Replacement			**80,028**	**10.4**	**0**	**$9,982**	**$221,882**	**$7,020**	**$214,862**	**21.5**	**80,588**
ECM 9	Install High Efficiency Chillers	No	80,028	10.4	0	$9,982	$221,882	$7,020	$214,862	21.5	80,588
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**628**	**$5,415**	**$123,935**	**$13,320**	**$110,615**	**20.4**	**73,578**
ECM 10	Install High Efficiency Hot Water Boilers	No	0	0.0	628	$5,415	$123,935	$13,320	$110,615	20.4	73,578
HVAC System Improvements			**6,141**	**0.0**	**98**	**$1,610**	**$11,191**	**$72**	**$11,119**	**6.9**	**17,651**
ECM 11	Implement Demand Control Ventilation (DCV)	Yes	5,000	0.0	90	$1,398	$10,875	$0	$10,875	7.8	15,563
ECM 12	Install Pipe Insulation	Yes	1,140	0.0	8	$211	$316	$72	$244	1.2	2,089
Domestic Water Heating Upgrade			**0**	**0.0**	**24**	**$208**	**$366**	**$204**	**$162**	**0.8**	**2,833**
ECM 13	Install Low-Flow DHW Devices	Yes	0	0.0	24	$208	$366	$204	$162	0.8	2,833
Food Service & Refrigeration Measures			**3,991**	**0.5**	**0**	**$498**	**$2,280**	**$340**	**$1,940**	**3.9**	**4,018**
ECM 14	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,573	0.2	0	$196	$1,820	$240	$1,580	8.1	1,584
ECM 15	Vending Machine Control	Yes	2,418	0.3	0	$302	$460	$100	$360	1.2	2,435
TOTALS (COST EFFECTIVE MEASURES)			**738,680**	**123.8**	**166**	**$93,565**	**$285,913**	**$64,081**	**$221,832**	**2.4**	**763,311**
TOTALS (ALL MEASURES)			**823,591**	**136.0**	**795**	**$109,570**	**$655,096**	**$84,421**	**$570,675**	**5.2**	**922,393**

MEMORIAL 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			**351,035**	**51.3**	**-146**	**$40,570**	**$78,719**	**$19,503**	**$59,216**	**1.5**	**329,652**
ECM 1	Install LED Fixtures	Yes	753	0.0	0	$92	$415	$50	$365	4.0	759
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	87	0.1	0	$10	$129	$20	$109	10.8	82
ECM 3	Retrofit Fixtures with LED Lamps	Yes	350,194	51.3	-146	$40,468	$78,175	$19,433	$58,742	1.5	328,811
Lighting Control Measures			**112,945**	**16.5**	**-47**	**$13,048**	**$77,284**	**$21,800**	**$55,484**	**4.3**	**106,008**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	93,678	14.2	-39	$10,822	$57,484	$7,030	$50,454	4.7	87,924
ECM 5	Install High/Low Lighting Controls	Yes	19,268	2.3	-8	$2,226	$19,800	$14,770	$5,030	2.3	18,084
Motor Upgrades			**134**	**0.0**	**0**	**$16**	**$1,619**	**$0**	**$1,619**	**99.0**	**135**
ECM 6	Premium Efficiency Motors	No	134	0.0	0	$16	$1,619	$0	$1,619	99.0	135
Variable Frequency Drive (VFD) Measures			**51,899**	**13.9**	**26**	**$6,692**	**$35,829**	**$4,675**	**$31,154**	**4.7**	**56,527**
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	46,626	13.5	0	$5,671	$22,961	$4,400	$18,561	3.3	46,952
ECM 8	Install VFDs on Heating Water Pumps	No	3,995	0.4	0	$486	$10,172	$225	$9,947	20.5	4,023
ECM 9	Install VFDs on Kitchen Hood Fan Motors	Yes	1,279	0.0	26	$535	$2,696	$50	$2,646	4.9	5,552
Unitary HVAC Measures			**3,099**	**3.1**	**0**	**$377**	**$31,650**	**$1,460**	**$30,190**	**80.1**	**3,121**
ECM 10	Install High Efficiency Air Conditioning Units	No	3,099	3.1	0	$377	$31,650	$1,460	$30,190	80.1	3,121
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**210**	**$3,065**	**$149,763**	**$0**	**$149,763**	**48.9**	**34,432**
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	170	$2,475	$70,083	$0	$70,083	28.3	27,799
ECM 12	Install High Efficiency Steam Boilers	No	0	0.0	41	$591	$79,679	$0	$79,679	134.9	6,633
HVAC System Improvements			**621**	**0.0**	**0**	**$76**	**$29**	**$8**	**$21**	**0.3**	**625**
ECM 13	Install Pipe Insulation	Yes	621	0.0	0	$76	$29	$8	$21	0.3	625
Domestic Water Heating Upgrade			**15,570**	**0.0**	**0**	**$1,894**	**$803**	**$448**	**$355**	**0.2**	**15,679**
ECM 14	Install Low-Flow DHW Devices	Yes	15,570	0.0	0	$1,894	$803	$448	$355	0.2	15,679
Food Service & Refrigeration Measures			**669**	**0.0**	**0**	**$81**	**$1,977**	**$115**	**$1,862**	**22.9**	**674**
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	262	0.0	0	$32	$303	$40	$263	8.3	264
ECM 16	Refrigeration Controls	No	407	0.0	0	$49	$1,674	$75	$1,599	32.3	410
Custom Measures			**45,650**	**0.0**	**617**	**$14,542**	**$210,000**	**$0**	**$210,000**	**14.4**	**146,956**
ECM 17	Installation of an Energy Management System	Yes	45,650	0.0	617	$14,542	$210,000	$0	$210,000	14.4	146,956
TOTALS (COST EFFECTIVE MEASURES)			**573,987**	**81.3**	**450**	**$76,367**	**$392,795**	**$46,249**	**$346,546**	**4.5**	**651,688**
TOTALS (ALL MEASURES)			**581,622**	**84.9**	**661**	**$80,361**	**$587,672**	**$48,009**	**$539,663**	**6.7**	**693,808**

West New York Early Childhood School (Hudson ECC)

#	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			**45,227**	**10.6**	**-8**	**$6,640**	**$20,936**	**$5,145**	**$15,791**	**2.4**	**44,638**
ECM 1	Install LED Fixtures	Yes	7,066	0.0	0	$1,049	$3,562	$800	$2,762	2.6	7,116
ECM 2	Retrofit Fixtures with LED Lamps	Yes	38,160	10.6	-8	$5,591	$17,374	$4,345	$13,029	2.3	37,522
Lighting Control Measures			**11,871**	**3.3**	**-2**	**$1,739**	**$15,245**	**$5,290**	**$9,955**	**5.7**	**11,663**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	9,566	2.7	-2	$1,401	$10,070	$1,335	$8,735	6.2	9,399
ECM 4	Install High/Low Lighting Controls	Yes	2,305	0.6	0	$338	$5,175	$3,955	$1,220	3.6	2,265
Variable Frequency Drive (VFD) Measures			**9,200**	**1.1**	**26**	**$1,613**	**$11,163**	**$1,875**	**$9,288**	**5.8**	**12,316**
ECM 5	Install VFDs on Heating Water Pumps	Yes	6,069	1.1	0	$901	$8,152	$1,800	$6,352	7.1	6,112
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	3,130	0.0	26	$712	$3,010	$75	$2,935	4.1	6,204
Unitary HVAC Measures			**6,300**	**12.6**	**0**	**$935**	**$108,150**	**$8,925**	**$99,225**	**106.1**	**6,344**
ECM 7	Install High Efficiency Air Conditioning Units	No	6,300	12.6	0	$935	$108,150	$8,925	$99,225	106.1	6,344
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**87**	**$821**	**$38,302**	**$3,511**	**$34,792**	**42.4**	**10,139**
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	87	$821	$38,302	$3,511	$34,792	42.4	10,139
Domestic Water Heating Upgrade			**0**	**0.0**	**9**	**$85**	**$136**	**$76**	**$60**	**0.7**	**1,056**
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	9	$85	$136	$76	$60	0.7	1,056
Food Service & Refrigeration Measures			**197**	**0.0**	**0**	**$29**	**$303**	**$40**	**$263**	**9.0**	**198**
ECM 10	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	197	0.0	0	$29	$303	$40	$263	9.0	198
TOTALS (COST EFFECTIVE MEASURES)			**66,494**	**15.0**	**25**	**$10,106**	**$47,783**	**$12,426**	**$35,357**	**3.5**	**69,871**
TOTALS (ALL MEASURES)			**72,794**	**27.6**	**111**	**$11,862**	**$194,236**	**$24,862**	**$169,375**	**14.3**	**86,354**

WEST NEW YORK BOE (CENTRAL OFFICE)

#	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			**35**	**0.0**	**0**	**$5**	**$41**	**$3**	**$38**	**8.1**	**35**
ECM 1	Retrofit Fixtures with LED Lamps	Yes	35	0.0	0	$5	$41	$3	$38	8.1	35
Lighting Control Measures			**6,082**	**1.6**	**-1**	**$793**	**$6,340**	**$1,395**	**$4,945**	**6.2**	**5,975**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	4,960	1.4	-1	$647	$5,440	$695	$4,745	7.3	4,873
ECM 3	Install High/Low Lighting Controls	Yes	1,122	0.2	0	$146	$900	$700	$200	1.4	1,102
Unitary HVAC Measures			**9,774**	**5.7**	**7**	**$1,365**	**$51,333**	**$2,431**	**$48,902**	**35.8**	**10,697**
ECM 4	Install High Efficiency Air Conditioning Units	No	9,774	5.7	7	$1,365	$51,333	$2,431	$48,902	35.8	10,697
HVAC System Improvements			**0**	**0.0**	**1**	**$13**	**$17**	**$6**	**$11**	**0.9**	**154**
ECM 5	Install Pipe Insulation	Yes	0	0.0	1	$13	$17	$6	$11	0.9	154
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$18**	**$29**	**$16**	**$13**	**0.7**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$18	$29	$16	$13	0.7	222
TOTALS (COST EFFECTIVE MEASURES)			**6,117**	**1.6**	**2**	**$829**	**$6,426**	**$1,420**	**$5,006**	**6.0**	**6,387**
TOTALS (ALL MEASURES)			**15,891**	**7.4**	**9**	**$2,193**	**$57,759**	**$3,851**	**$53,908**	**24.6**	**17,084**

West New York BOE Central Warehouse & Distribution (WHSE)

#	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			**8**	**0.0**	**0**	**$1**	**$18**	**$5**	**$13**	**12.0**	**8**
ECM 1	Retrofit Fixtures with LED Lamps	No	8	0.0	0	$1	$18	$5	$13	12.0	8
Lighting Control Measures			**456**	**0.2**	**0**	**$65**	**$810**	**$105**	**$705**	**10.8**	**447**
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	456	0.2	0	$65	$810	$105	$705	10.8	447
Motor Upgrades			**42**	**0.0**	**0**	**$6**	**$352**	**$0**	**$352**	**57.9**	**42**
ECM 3	Premium Efficiency Motors	No	42	0.0	0	$6	$352	$0	$352	57.9	42
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**28**	**$260**	**$9,872**	**$770**	**$9,102**	**35.0**	**3,220**
ECM 4	Install High Efficiency Hot Water Boilers	No	0	0.0	28	$260	$9,872	$770	$9,102	35.0	3,220
HVAC System Improvements			**0**	**0.0**	**1**	**$13**	**$35**	**$6**	**$29**	**2.2**	**163**
ECM 5	Install Pipe Insulation	Yes	0	0.0	1	$13	$35	$6	$29	2.2	163
Domestic Water Heating Upgrade			**0**	**0.0**	**1**	**$13**	**$36**	**$20**	**$16**	**1.2**	**167**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	1	$13	$36	$20	$16	1.2	167
TOTALS (COST EFFECTIVE MEASURES)			**456**	**0.2**	**3**	**$92**	**$880**	**$131**	**$749**	**8.2**	**776**
TOTALS (ALL MEASURES)			**505**	**0.3**	**30**	**$359**	**$11,122**	**$906**	**$10,216**	**28.4**	**4,046**

West New York BOE Traffic Division (Bus Garage)

#	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			**3,912**	**0.6**	**0**	**$512**	**$1,976**	**$350**	**$1,626**	**3.2**	**3,904**
ECM 1	Install LED Fixtures	Yes	2,497	0.0	0	$329	$1,246	$150	$1,096	3.3	2,514
ECM 2	Retrofit Fixtures with LED Lamps	Yes	1,416	0.6	0	$183	$730	$200	$530	2.9	1,390
Lighting Control Measures			**1,312**	**0.5**	**0**	**$170**	**$1,376**	**$300**	**$1,076**	**6.3**	**1,288**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,215	0.5	0	$157	$926	$125	$801	5.1	1,194
ECM 4	Install High/Low Lighting Controls	No	96	0.0	0	$12	$450	$175	$275	22.1	94
Variable Frequency Drive (VFD) Measures			**9,491**	**4.5**	**0**	**$1,250**	**$9,476**	**$2,000**	**$7,476**	**6.0**	**9,558**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	9,491	4.5	0	$1,250	$9,476	$2,000	$7,476	6.0	9,558
Unitary HVAC Measures			**40**	**0.0**	**0**	**$5**	**$492**	**$0**	**$492**	**94.5**	**40**
ECM 6	Install High Efficiency Air Conditioning Units	No	40	0.0	0	$5	$492	$0	$492	94.5	40
HVAC System Improvements			**47**	**0.0**	**0**	**$6**	**$29**	**$10**	**$19**	**3.0**	**48**
ECM 7	Install Pipe Insulation	Yes	47	0.0	0	$6	$29	$10	$19	3.0	48
Domestic Water Heating Upgrade			**56**	**0.0**	**0**	**$7**	**$14**	**$8**	**$6**	**0.9**	**56**
ECM 8	Install Low-Flow DHW Devices	Yes	56	0.0	0	$7	$14	$8	$6	0.9	56
TOTALS (COST EFFECTIVE MEASURES)			**14,722**	**5.5**	**-1**	**$1,933**	**$12,422**	**$2,493**	**$9,929**	**5.1**	**14,759**
TOTALS (ALL MEASURES)			**14,857**	**5.6**	**-1**	**$1,951**	**$13,363**	**$2,668**	**$10,695**	**5.5**	**14,893**

MEMORIAL HIGH SCHOOL FRESHMAN ACADEMY (ANNEX B)

#	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			**111,906**	**19.8**	**-22**	**$14,246**	**$58,692**	**$11,234**	**$47,458**	**3.3**	**110,074**
ECM 1	Install LED Fixtures	Yes	21,017	3.5	-4	$2,678	$18,239	$1,810	$16,429	6.1	20,710
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	287	0.1	0	$36	$138	$20	$118	3.2	281
ECM 3	Retrofit Fixtures with LED Lamps	Yes	90,602	16.3	-18	$11,531	$40,316	$9,404	$30,912	2.7	89,083
Lighting Control Measures			**32,801**	**6.3**	**-8**	**$4,167**	**$35,840**	**$8,645**	**$27,195**	**6.5**	**32,147**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	23,175	5.0	-5	$2,944	$29,090	$3,430	$25,660	8.7	22,713
ECM 5	Install High/Low Lighting Controls	Yes	9,627	1.3	-2	$1,223	$6,750	$5,215	$1,535	1.3	9,435
Variable Frequency Drive (VFD) Measures			**32,329**	**4.2**	**78**	**$4,874**	**$35,597**	**$2,925**	**$32,672**	**6.7**	**41,712**
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	6,718	2.2	0	$867	$4,738	$1,000	$3,738	4.3	6,765
ECM 7	Install VFDs on Heating Water Pumps	Yes	18,297	1.2	0	$2,362	$20,682	$825	$19,857	8.4	18,425
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	2,265	0.0	78	$993	$5,438	$100	$5,338	5.4	11,437
ECM 9	Install VFDs on Process Pumps	Yes	5,049	0.7	0	$652	$4,738	$1,000	$3,738	5.7	5,085
Unitary HVAC Measures			**3,543**	**4.4**	**0**	**$457**	**$9,586**	**$1,469**	**$8,117**	**17.7**	**3,568**
ECM 10	Install High Efficiency Air Conditioning Units	No	3,543	4.4	0	$457	$9,586	$1,469	$8,117	17.7	3,568
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**280**	**$2,510**	**$101,352**	**$7,907**	**$93,445**	**37.2**	**32,811**
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	280	$2,510	$101,352	$7,907	$93,445	37.2	32,811
Domestic Water Heating Upgrade			**0**	**0.0**	**22**	**$196**	**$330**	**$184**	**$146**	**0.7**	**2,555**
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	22	$196	$330	$184	$146	0.7	2,555
Custom Measures			**0**	**0.0**	**183**	**$1,639**	**$32,300**	**$0**	**$32,300**	**19.7**	**21,427**
ECM 13	Pool Cover	No	0	0.0	183	$1,639	$32,300	$0	$32,300	19.7	21,427
TOTALS (COST EFFECTIVE MEASURES)			**177,036**	**30.2**	**70**	**$23,482**	**$130,459**	**$22,988**	**$107,471**	**4.6**	**186,489**
TOTALS (ALL MEASURES)			**180,579**	**34.7**	**533**	**$28,089**	**$273,698**	**$32,364**	**$241,333**	**8.6**	**244,294**

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

Measures for Future Consideration

- Retro-Commissioning Study
- Upgrade/Replace Energy Management System
- Installation of an Energy Management System
- Window Replacements
- Oil to gas conversion

Solar Energy Generation Potential

	School No. 1	School No. 2	Robert Menendez	Albio Sires Elementary	School No. 5	Harry Bain	Middle School	Memorial HS
Potential:	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**
System Potential: (kW)	215	107	129	54	125	54	215	215
Electric Generation: (kWh per year)	256,145	127,477	153,687	64,334	148,921	64,334	161,776	256,145
Displaced Cost: (per year)	$32,400	$16,360	$24,040	$8,360	$20,240	$8,870	$20,180	$31,150

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

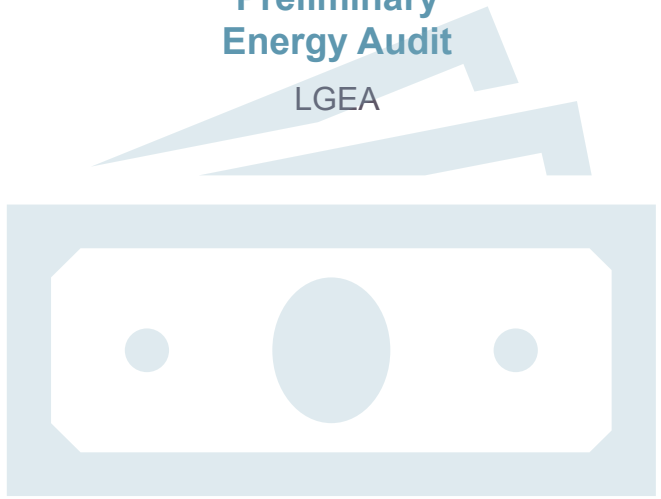
Prioritize ECM's to determine project

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

LOCAL GOVERNMENT CUSTOMERS

COMMERCIAL & INSTITUTIONAL CUSTOMERS

LARGE ENERGY CUSTOMERS

EXISTING BUILDINGS

MEASUREMENT & AUDITS

FREE Energy Audits

RETROFITS

Prescriptive & Custom Rebates

Direct Install

Engineered Solutions

And more from your local utility!

Incentives up to $4 million for eligible projects

NEW CONSTRUCTION

Prescriptive & Custom Rebates for New Construction and Gut Rehabs

Pay for Performance incentives for buildings over 50,000 sq. ft.

DISTRIBUTED ENERGY RESOURCES

Combined Heat & Power and Fuel Cell Installation Incentives

Microgrid Development

Battery Storage

Muni EV Fleets

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

UTILITY RUN ENERGY EFFICIENCY PROGRAMS

PSE&G

Dave Kirsch – David.Kirsch@pseg.com

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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.

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For More Information

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THANK YOU