

# *LGEA Presentation*

## *Washington Township Board of Education*

August 22, 2024



New Jersey's  
Clean Energy Program

*Lighting the way to New Jersey's Clean Energy Future*

# INTRODUCTIONS

- *Washington Township Board of Education*
  - Janine Wechter
  - Jerry Finkle
  - Jeff Walter
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Technical Manager
  - Sabin Wagle – LGEA Project Auditor
  - Ryan Gibson – LGEA Project Auditor
  - Melissa Lott – LGEA Account Manager
- *Utility Energy Efficiency Programs*
  - Alex Haver – Atlantic City Electric
  - Nick Skari – Atlantic City Electric
  - Kimberley Byk – South Jersey Gas

# 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)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for Washington Township 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:

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

## Utility Consumption:

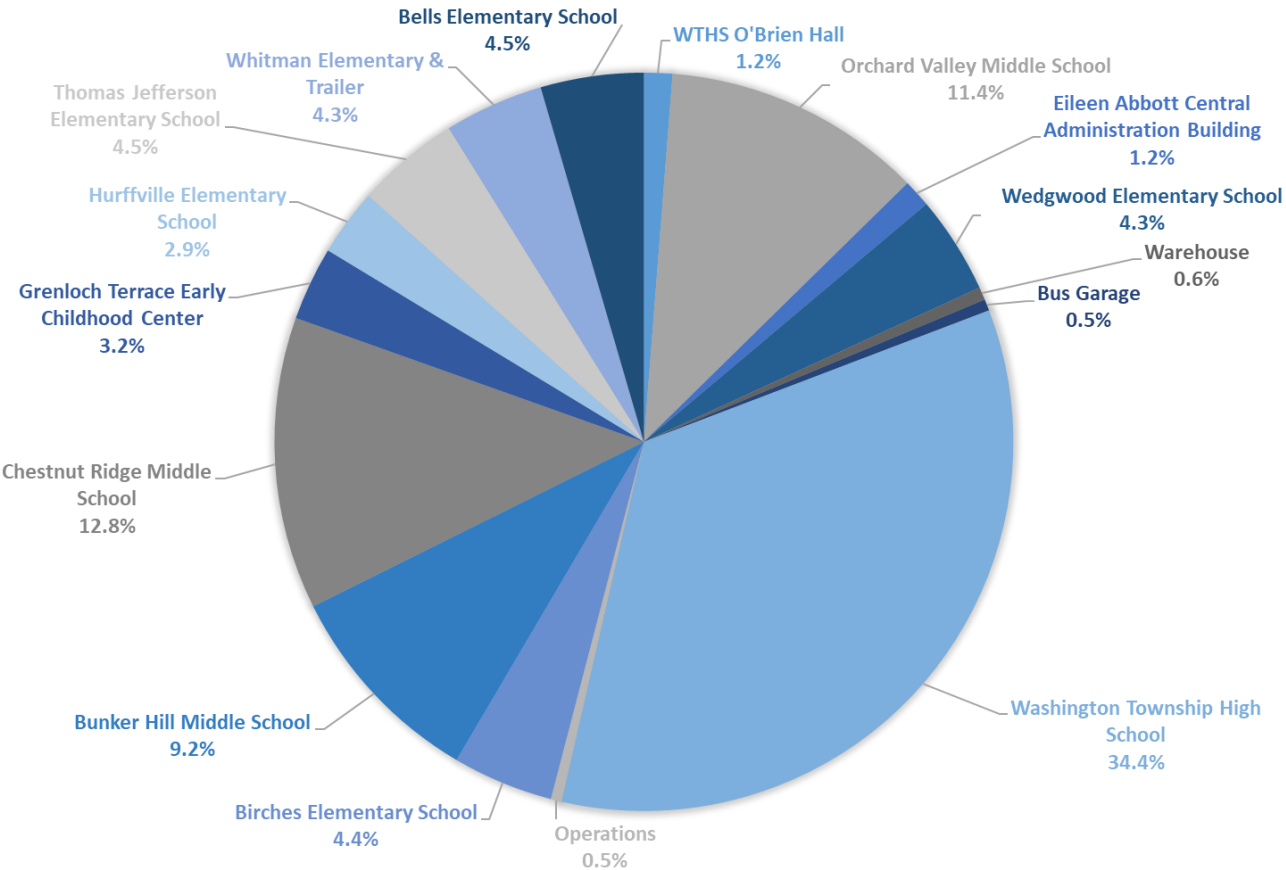
- Electric Consumption and Costs
- Natural Gas Consumption and Costs
- Water Consumption and Costs

## Sites Visited/Analyzed

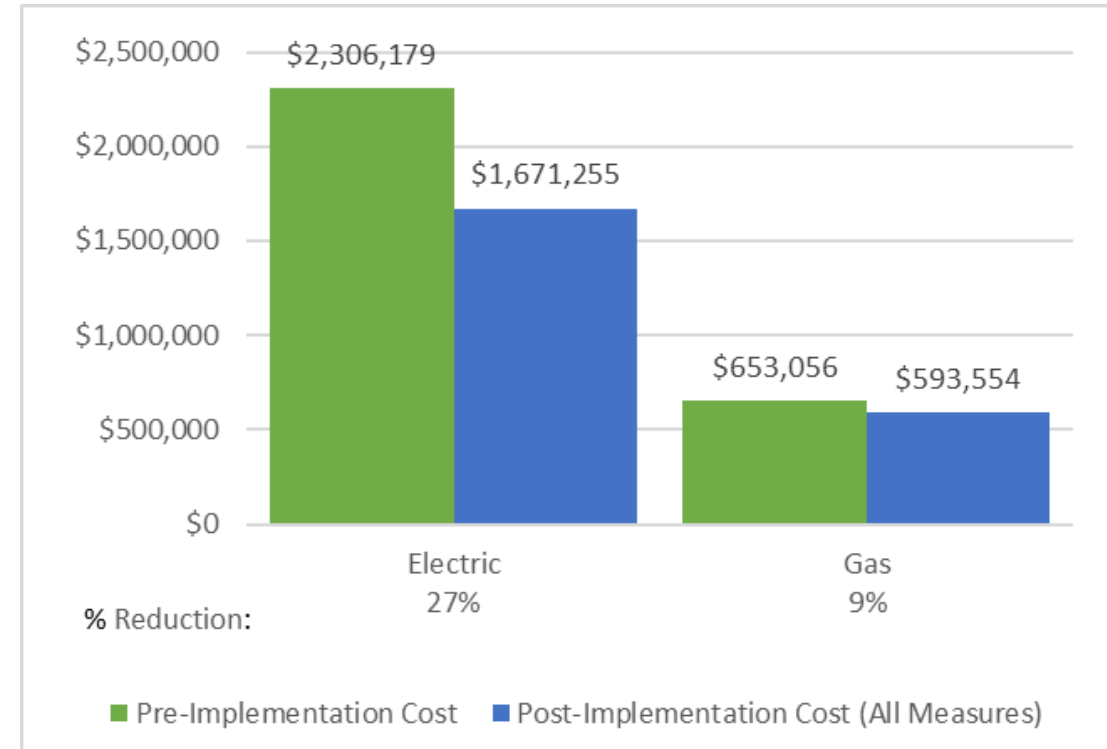
- Bells Elementary School
- Birches Elementary School
- Bunker Hill Middle School
- Bus Garage
- Chestnut Ridge Middle School
- Grenlock Terrace Early Childhood Ctr
- Eileen Abbott Central Admin Bld
- Hurffville Elementary School
- BOE Operations Building
- Orchard Valley Middle School
- Thomas Jefferson Elementary School
- BOE Warehouse
- Wedgewood Elementary School
- Whitman Elementary School & Whitman Trailer
- Washington Township High School
- WTHS O'Brien Hal

# UTILITY BREAKOUT

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



# BENCHMARKING

**ENERGY STAR® Statement of Energy Performance**

**70**  
ENERGY STAR® Score<sup>1</sup>

**Bells Elementary School**  
Primary Property Type: K-12 School  
Gross Floor Area (ft<sup>2</sup>): 62,617  
Built: 1967  
For Year Ending: March 31, 2023  
Date Generated: March 25, 2024

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**

<b>Property Address</b> Bells Elementary School 227 Greentree Road Sewell, New Jersey 08012	<b>Property Owner</b> Washington Township Board of Education 206 Holly Avenue Sewell, NJ 08080 (856) 589-6644	<b>Primary Contact</b> Janine Wechter 206 Holly Avenue Sewell, NJ 08080 (856) 589-6644 x 6502 jwechter@wtps.org
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Property ID: 30742133

**Energy Consumption and Energy Use Intensity (EUI)**

<b>Site EUI</b> 56.2 kBtu/ft <sup>2</sup>	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>
Electric - Grid (kBtu)	1,679,090 (48%)	National Median Site EUI (kBtu/ft <sup>2</sup> )
Natural Gas (kBtu)	1,837,912 (52%)	National Median Source EUI (kBtu/ft <sup>2</sup> )
<b>Source EUI</b> 105.9 kBtu/ft <sup>2</sup>		% Diff from National Median Source EUI
		-18%
	<b>Annual Emissions</b>	
	Total (Location-based) GHG Emissions (Metric Tons CO <sub>2</sub> e/year)	248

**Site EUI**  
56.2 kBtu/ft<sup>2</sup>

**Source EUI**  
105.9 kBtu/ft<sup>2</sup>

**National Median Comparison**

National Median Site EUI (kBtu/ft <sup>2</sup> )	68.9
National Median Source EUI (kBtu/ft <sup>2</sup> )	130
% Diff from National Median Source EUI	-18%

Site Name	ENERGY STAR® Score
Bells Elementary School	70
Birches Elementary School	68
Bunker Hill Middle School	22
Bus Garage	N/A
Chestnut Ridge Middle School	2
Grenlock Terrace Early Childhood Ctr	N/A
Eileen Abbott Central Admin Bld	83
Hurffville Elementary School	91
BOE Operations Building	75
Orchard Valley Middle School	3
Thomas Jefferson Elementary School	70
BOE Warehouse	13
Wedgewood Elementary School	68
Whitman Elementary School & Whitman Trailer	69
Washington Township High School	38
WTHS O'Brien Hal	N/A

**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**

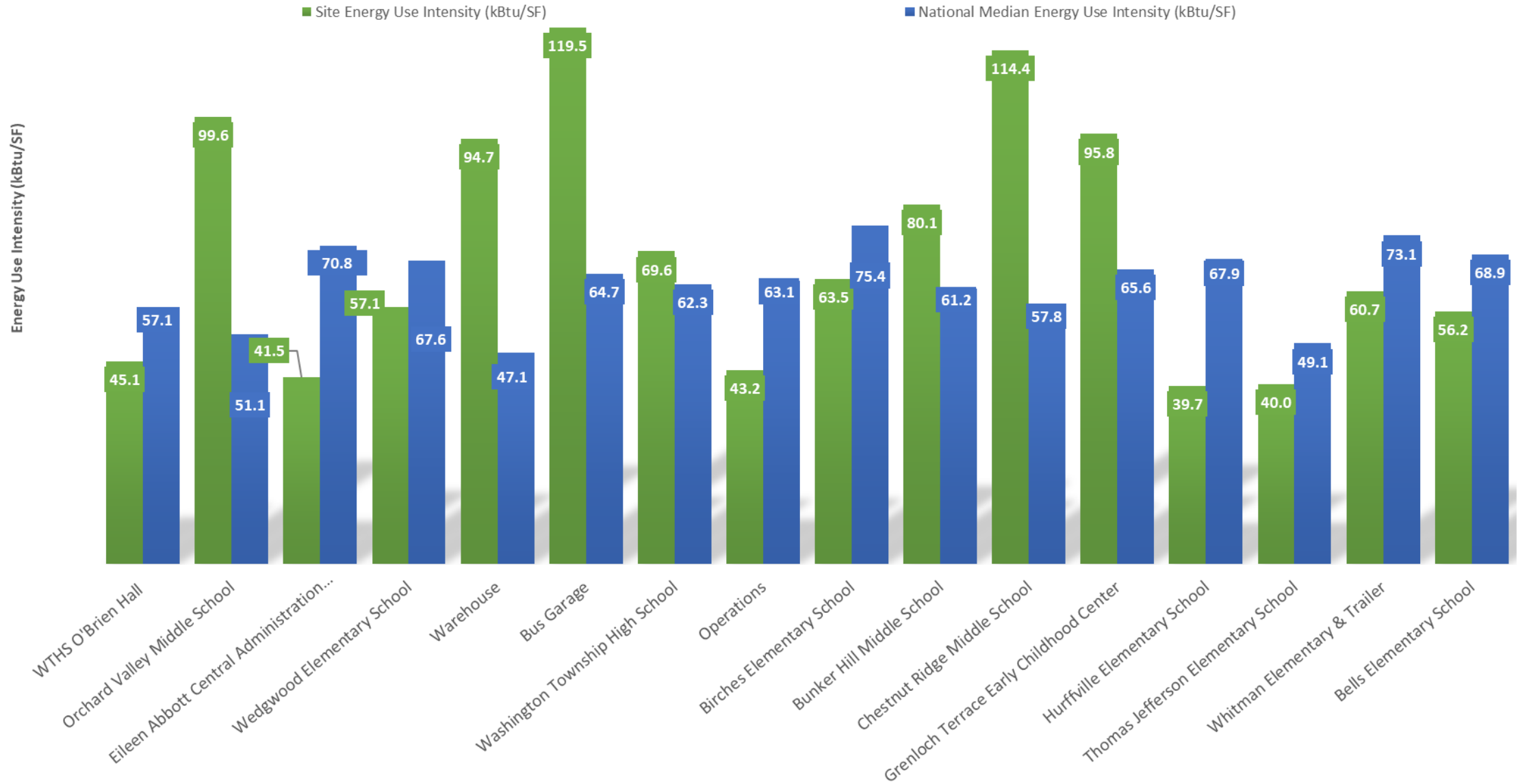
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( ) \_\_\_\_\_

Professional Engineer or Registered Architect Stamp (if applicable)

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.

Some of your buildings qualify for ENERGY STAR® certification. LGEA can help!

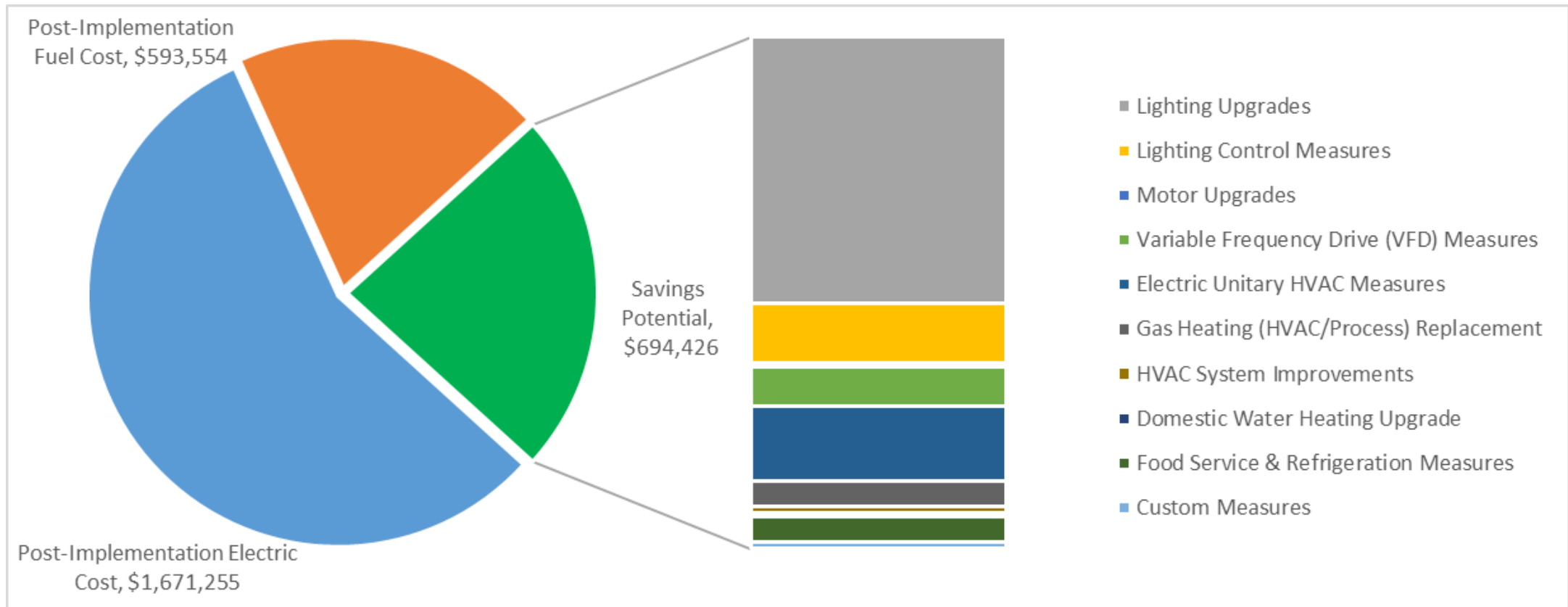
# BENCHMARKING





# ALL OPPORTUNITIES

## Savings Potential



# ALL OPPORTUNITIES (1 OF 2)

#	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>2,102,422</b>	<b>491.7</b>	<b>-379.4</b>	<b>\$360,658</b>	<b>\$1,290,570</b>	<b>\$233,370</b>	<b>\$1,057,200</b>	<b>2.9</b>	<b>2,072,699</b>
ECM 1	Install LED Fixtures	252,301	39.6	-9.2	\$44,798	\$288,260	\$25,050	\$263,210	5.9	252,984
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,029	0.5	-0.4	\$333	\$1,390	\$130	\$1,260	3.8	1,994
ECM 3	Retrofit Fixtures with LED Lamps	1,848,092	451.5	-369.7	\$315,526	\$1,000,920	\$208,190	\$792,730	2.5	1,817,722
<b>Lighting Control Measures</b>		<b>479,193</b>	<b>113.9</b>	<b>-95.7</b>	<b>\$82,466</b>	<b>\$444,860</b>	<b>\$113,660</b>	<b>\$331,200</b>	<b>4.0</b>	<b>471,337</b>
ECM 4	Install Occupancy Sensor Lighting Controls	376,781	94.1	-74.5	\$65,227	\$337,590	\$40,360	\$297,230	4.6	370,689
ECM 5	Install Daylight Dimming/Photocontrol Controls	43	0.0	0.0	\$7	\$240	\$0	\$240	34.4	43
ECM 6	Install High/Low Lighting Controls	102,369	19.8	-21.2	\$17,232	\$107,030	\$73,300	\$33,730	2.0	100,605
<b>Motor Upgrades</b>		<b>25,706</b>	<b>8.7</b>	<b>0.0</b>	<b>\$4,354</b>	<b>\$102,600</b>	<b>\$0</b>	<b>\$102,600</b>	<b>23.6</b>	<b>25,886</b>
ECM 7	Premium Efficiency Motors	25,706	8.7	0.0	\$4,354	\$102,600	\$0	\$102,600	23.6	25,886
<b>Variable Frequency Drive (VFD) Measures</b>		<b>291,006</b>	<b>101.3</b>	<b>39.8</b>	<b>\$52,618</b>	<b>\$557,600</b>	<b>\$33,000</b>	<b>\$524,600</b>	<b>10.0</b>	<b>297,700</b>
ECM 8	Install VFDs on Constant Volume (CV) Fans	251,762	94.0	0.0	\$44,938	\$509,600	\$29,000	\$480,600	10.7	253,522
ECM 9	Install VFDs on Chilled Water Pumps	19,539	6.0	0.0	\$3,263	\$16,700	\$1,500	\$15,200	4.7	19,675
ECM 10	Install VFDs on Heating Water Pumps	5,487	1.1	0.0	\$1,087	\$11,300	\$1,800	\$9,500	8.7	5,525
ECM 11	Install VFDs on Kitchen Hood Fan Motors	14,219	0.2	39.8	\$3,330	\$20,000	\$700	\$19,300	5.8	18,978
<b>Unitary HVAC Measures</b>		<b>588,767</b>	<b>578.1</b>	<b>0.0</b>	<b>\$102,643</b>	<b>\$3,314,000</b>	<b>\$169,700</b>	<b>\$3,144,300</b>	<b>30.6</b>	<b>592,883</b>
ECM 12	Install High Efficiency Air Conditioning Units	268,494	319.5	0.0	\$48,301	\$2,544,700	\$140,100	\$2,404,600	49.8	270,371
ECM 13	Install High Efficiency Heat Pumps	320,273	258.6	0.0	\$54,342	\$769,300	\$29,600	\$739,700	13.6	322,512
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>2,153.6</b>	<b>\$33,937</b>	<b>\$1,233,900</b>	<b>\$45,700</b>	<b>\$1,188,200</b>	<b>35.0</b>	<b>252,154</b>
ECM 14	Install High Efficiency Hot Water Boilers	0	0.0	2,024.3	\$31,638	\$1,161,300	\$43,100	\$1,118,200	35.3	237,019
ECM 15	Install High Efficiency Steam Boilers	0	0.0	52.3	\$873	\$53,900	\$2,000	\$51,900	59.4	6,122
ECM 16	Install Infrared Heaters	0	0.0	77.0	\$1,426	\$18,700	\$600	\$18,100	12.7	9,014

# ALL OPPORTUNITIES (2 OF 2)

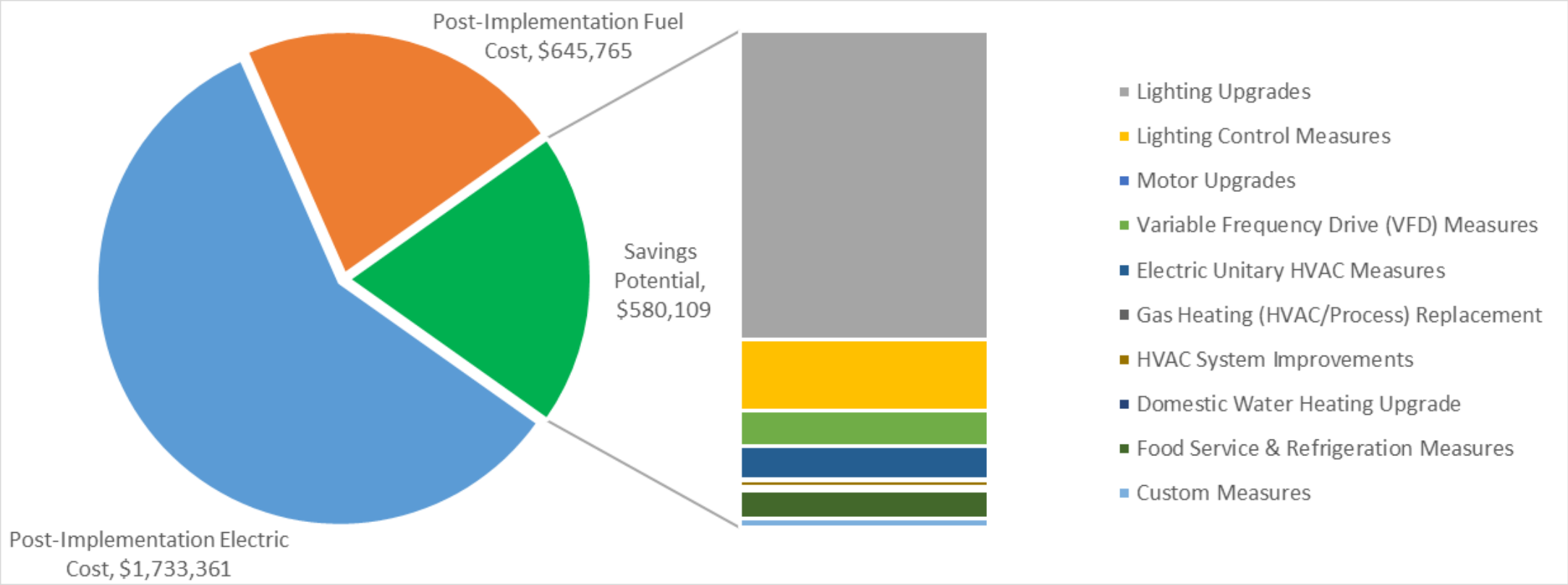
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>HVAC System Improvements</b>		<b>27,259</b>	<b>0.0</b>	<b>307.9</b>	<b>\$9,444</b>	<b>\$88,130</b>	<b>\$350</b>	<b>\$87,780</b>	<b>9.3</b>	<b>63,502</b>
ECM 17	Install Programmable Thermostats	5,086	0.0	0.0	\$992	\$6,450	\$0	\$6,450	6.5	5,121
ECM 18	Implement Demand Control Ventilation (DCV)	20,047	0.0	268.0	\$7,406	\$79,300	\$0	\$79,300	10.7	51,561
ECM 19	Install Pipe Insulation	2,126	0.0	40.0	\$1,046	\$2,380	\$350	\$2,030	1.9	6,820
<b>Domestic Water Heating Upgrade</b>		<b>6,988</b>	<b>0.0</b>	<b>247.3</b>	<b>\$5,248</b>	<b>\$90,040</b>	<b>\$4,990</b>	<b>\$85,050</b>	<b>16.2</b>	<b>35,988</b>
ECM 20	Install High Efficiency Gas-Fired Water Heater	0	0.0	58.7	\$968	\$83,600	\$2,700	\$80,900	83.6	6,874
ECM 21	Install Low-Flow DHW Devices	6,988	0.0	188.6	\$4,280	\$6,440	\$2,290	\$4,150	1.0	29,114
<b>Food Service &amp; Refrigeration Measures</b>		<b>168,543</b>	<b>17.5</b>	<b>214.3</b>	<b>\$33,586</b>	<b>\$205,720</b>	<b>\$10,120</b>	<b>\$195,600</b>	<b>5.8</b>	<b>194,815</b>
ECM 22	Food Service Equipment Replacement	0	0.0	29.0	\$485	\$5,600	\$1,000	\$4,600	9.5	3,400
ECM 23	Dishwasher Replacement	55,044	6.3	185.3	\$12,503	\$87,200	\$4,800	\$82,400	6.6	77,123
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	6,787	1.0	0.0	\$1,143	\$11,220	\$1,200	\$10,020	8.8	6,835
ECM 25	Refrigeration Controls	20,284	0.4	0.0	\$3,420	\$33,960	\$1,520	\$32,440	9.5	20,426
ECM 26	Replace Refrigeration Equipment	61,525	7.0	0.0	\$11,658	\$61,800	\$900	\$60,900	5.2	61,956
ECM 27	Vending Machine Control	24,903	2.8	0.0	\$4,378	\$5,940	\$700	\$5,240	1.2	25,077
<b>Custom Measures</b>		<b>-55,387</b>	<b>0.0</b>	<b>1,269.7</b>	<b>\$9,472</b>	<b>\$95,800</b>	<b>\$0</b>	<b>\$95,800</b>	<b>10.1</b>	<b>92,889</b>
ECM 28	Retro-Commissioning Study	29,974	0.0	163.7	\$7,558	\$38,000	\$0	\$38,000	5.0	49,348
ECM 29	Replace Electric Water Heater with Heat Pump Water Heater	18,367	0.0	0.0	\$3,441	\$22,000	\$0	\$22,000	6.4	18,495
ECM 30	Replace Gas Fired Water Heater with Heat Pump Water Heater	-103,728	0.0	1,106.0	-\$1,527	\$35,800	\$0	\$35,800	-23.4	25,045
<b>TOTALS (COST EFFECTIVE MEASURES)</b>		<b>3,284,856</b>	<b>876.9</b>	<b>461.2</b>	<b>\$580,109</b>	<b>\$2,781,360</b>	<b>\$401,930</b>	<b>\$2,379,430</b>	<b>4.1</b>	<b>3,361,827</b>
<b>TOTALS (ALL MEASURES)</b>		<b>3,634,497</b>	<b>1,311.2</b>	<b>3,757.4</b>	<b>\$694,426</b>	<b>\$7,423,220</b>	<b>\$610,890</b>	<b>\$6,812,330</b>	<b>9.8</b>	<b>4,099,855</b>

\* - 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).

# 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>2,102,422</b>	<b>491.7</b>	<b>-379.4</b>	<b>\$360,658</b>	<b>\$1,290,570</b>	<b>\$233,370</b>	<b>\$1,057,200</b>	<b>2.9</b>	<b>2,072,699</b>
ECM 1	Install LED Fixtures	252,301	39.6	-9.2	\$44,798	\$288,260	\$25,050	\$263,210	5.9	252,984
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,029	0.5	-0.4	\$333	\$1,390	\$130	\$1,260	3.8	1,994
ECM 3	Retrofit Fixtures with LED Lamps	1,848,092	451.5	-369.7	\$315,526	\$1,000,920	\$208,190	\$792,730	2.5	1,817,722
<b>Lighting Control Measures</b>		<b>479,150</b>	<b>113.9</b>	<b>-95.7</b>	<b>\$82,459</b>	<b>\$444,620</b>	<b>\$113,660</b>	<b>\$330,960</b>	<b>4.0</b>	<b>471,294</b>
ECM 4	Install Occupancy Sensor Lighting Controls	376,781	94.1	-74.5	\$65,227	\$337,590	\$40,360	\$297,230	4.6	370,689
ECM 6	Install High/Low Lighting Controls	102,369	19.8	-21.2	\$17,232	\$107,030	\$73,300	\$33,730	2.0	100,605
<b>Variable Frequency Drive (VFD) Measures</b>		<b>235,372</b>	<b>77.2</b>	<b>39.8</b>	<b>\$42,046</b>	<b>\$360,100</b>	<b>\$27,800</b>	<b>\$332,300</b>	<b>7.9</b>	<b>241,677</b>
ECM 8	Install VFDs on Constant Volume (CV) Fans	196,127	69.9	0.0	\$34,366	\$312,100	\$23,800	\$288,300	8.4	197,498
ECM 9	Install VFDs on Chilled Water Pumps	19,539	6.0	0.0	\$3,263	\$16,700	\$1,500	\$15,200	4.7	19,675
ECM 10	Install VFDs on Heating Water Pumps	5,487	1.1	0.0	\$1,087	\$11,300	\$1,800	\$9,500	8.7	5,525
ECM 11	Install VFDs on Kitchen Hood Fan Motors	14,219	0.2	39.8	\$3,330	\$20,000	\$700	\$19,300	5.8	18,978
<b>Unitary HVAC Measures</b>		<b>229,612</b>	<b>177.6</b>	<b>0.0</b>	<b>\$38,347</b>	<b>\$380,200</b>	<b>\$14,800</b>	<b>\$365,400</b>	<b>9.5</b>	<b>231,217</b>
ECM 13	Install High Efficiency Heat Pumps	229,612	177.6	0.0	\$38,347	\$380,200	\$14,800	\$365,400	9.5	231,217
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>77.0</b>	<b>\$1,426</b>	<b>\$18,700</b>	<b>\$600</b>	<b>\$18,100</b>	<b>12.7</b>	<b>9,014</b>
ECM 16	Install Infrared Heaters	0	0.0	77.0	\$1,426	\$18,700	\$600	\$18,100	12.7	9,014

# 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>HVAC System Improvements</b>		<b>23,883</b>	<b>0.0</b>	<b>253.0</b>	<b>\$7,866</b>	<b>\$44,130</b>	<b>\$350</b>	<b>\$43,780</b>	<b>5.6</b>	<b>53,674</b>
ECM 17	Install Programmable Thermostats	5,086	0.0	0.0	\$992	\$6,450	\$0	\$6,450	6.5	5,121
ECM 18	Implement Demand Control Ventilation (DCV)	16,671	0.0	213.1	\$5,828	\$35,300	\$0	\$35,300	6.1	41,734
ECM 19	Install Pipe Insulation	2,126	0.0	40.0	\$1,046	\$2,380	\$350	\$2,030	1.9	6,820
<b>Domestic Water Heating Upgrade</b>		<b>6,988</b>	<b>0.0</b>	<b>188.6</b>	<b>\$4,280</b>	<b>\$6,440</b>	<b>\$2,290</b>	<b>\$4,150</b>	<b>1.0</b>	<b>29,114</b>
ECM 21	Install Low-Flow DHW Devices	6,988	0.0	188.6	\$4,280	\$6,440	\$2,290	\$4,150	1.0	29,114
<b>Food Service &amp; Refrigeration Measures</b>		<b>159,088</b>	<b>16.5</b>	<b>214.3</b>	<b>\$32,027</b>	<b>\$176,600</b>	<b>\$9,060</b>	<b>\$167,540</b>	<b>5.2</b>	<b>185,294</b>
ECM 22	Food Service Equipment Replacement	0	0.0	29.0	\$485	\$5,600	\$1,000	\$4,600	9.5	3,400
ECM 23	Dishwasher Replacement	55,044	6.3	185.3	\$12,503	\$87,200	\$4,800	\$82,400	6.6	77,123
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	6,787	1.0	0.0	\$1,143	\$11,220	\$1,200	\$10,020	8.8	6,835
ECM 25	Refrigeration Controls	19,015	0.4	0.0	\$3,227	\$29,840	\$1,360	\$28,480	8.8	19,148
ECM 26	Replace Refrigeration Equipment	53,339	6.1	0.0	\$10,291	\$36,800	\$0	\$36,800	3.6	53,712
ECM 27	Vending Machine Control	24,903	2.8	0.0	\$4,378	\$5,940	\$700	\$5,240	1.2	25,077
<b>Custom Measures</b>		<b>48,341</b>	<b>0.0</b>	<b>163.7</b>	<b>\$10,999</b>	<b>\$60,000</b>	<b>\$0</b>	<b>\$60,000</b>	<b>5.5</b>	<b>67,844</b>
ECM 28	Retro-Commissioning Study	29,974	0.0	163.7	\$7,558	\$38,000	\$0	\$38,000	5.0	49,348
ECM 29	Replace Electric Water Heater with Heat Pump Water Heater	18,367	0.0	0.0	\$3,441	\$22,000	\$0	\$22,000	6.4	18,495
<b>TOTALS</b>		<b>3,284,856</b>	<b>876.9</b>	<b>461.2</b>	<b>\$580,109</b>	<b>\$2,781,360</b>	<b>\$401,930</b>	<b>\$2,379,430</b>	<b>4.1</b>	<b>3,361,827</b>

\* - All incentives presented in this table are included as placeholders 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).

# Bells 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>80,890</b>	<b>21.8</b>	<b>-14</b>	<b>\$17,184</b>	<b>\$58,880</b>	<b>\$11,400</b>	<b>\$47,480</b>	<b>2.8</b>	<b>79,787</b>
ECM 1	Install LED Fixtures	Yes	11,103	0.0	0	\$2,392	\$8,320	\$1,200	\$7,120	3.0	11,181
ECM 2	Retrofit Fixtures with LED Lamps	Yes	69,786	21.8	-14	\$14,792	\$50,560	\$10,200	\$40,360	2.7	68,606
<b>Lighting Control Measures</b>			<b>25,748</b>	<b>7.9</b>	<b>-5</b>	<b>\$5,455</b>	<b>\$33,920</b>	<b>\$6,870</b>	<b>\$27,050</b>	<b>5.0</b>	<b>25,297</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	23,005	7.0	-5	\$4,874	\$29,140	\$3,540	\$25,600	5.3	22,603
ECM 4	Install High/Low Lighting Controls	Yes	2,742	0.9	-1	\$581	\$4,780	\$3,330	\$1,450	2.5	2,694
<b>Variable Frequency Drive (VFD) Measures</b>			<b>22,571</b>	<b>6.0</b>	<b>12</b>	<b>\$5,071</b>	<b>\$51,700</b>	<b>\$1,600</b>	<b>\$50,100</b>	<b>9.9</b>	<b>24,184</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	15,884	6.0	0	\$3,421	\$46,600	\$1,400	\$45,200	13.2	15,995
ECM 6	Install VFDs on Kitchen Hood Fan Motors	Yes	6,686	0.0	12	\$1,649	\$5,100	\$200	\$4,900	3.0	8,189
<b>Unitary HVAC Measures</b>			<b>26,200</b>	<b>33.2</b>	<b>0</b>	<b>\$5,643</b>	<b>\$273,700</b>	<b>\$14,200</b>	<b>\$259,500</b>	<b>46.0</b>	<b>26,383</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	26,200	33.2	0	\$5,643	\$273,700	\$14,200	\$259,500	46.0	26,383
<b>HVAC System Improvements</b>			<b>496</b>	<b>0.0</b>	<b>12</b>	<b>\$300</b>	<b>\$8,800</b>	<b>\$0</b>	<b>\$8,800</b>	<b>29.3</b>	<b>1,848</b>
ECM 8	Implement Demand Control Ventilation (DCV)	No	496	0.0	12	\$300	\$8,800	\$0	\$8,800	29.3	1,848
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>8</b>	<b>\$128</b>	<b>\$280</b>	<b>\$130</b>	<b>\$150</b>	<b>1.2</b>	<b>889</b>
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	8	\$128	\$280	\$130	\$150	1.2	889
<b>Food Service &amp; Refrigeration Measures</b>			<b>13,107</b>	<b>1.5</b>	<b>0</b>	<b>\$2,823</b>	<b>\$8,400</b>	<b>\$0</b>	<b>\$8,400</b>	<b>3.0</b>	<b>13,199</b>
ECM 10	Replace Refrigeration Equipment	Yes	13,107	1.5	0	\$2,823	\$8,400	\$0	\$8,400	3.0	13,199
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>142,315</b>	<b>37.3</b>	<b>0</b>	<b>\$30,661</b>	<b>\$153,180</b>	<b>\$20,000</b>	<b>\$133,180</b>	<b>4.3</b>	<b>143,357</b>
<b>TOTALS (ALL MEASURES)</b>			<b>169,011</b>	<b>70.5</b>	<b>12</b>	<b>\$36,604</b>	<b>\$435,680</b>	<b>\$34,200</b>	<b>\$401,480</b>	<b>11.0</b>	<b>171,588</b>

\* - 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).

# Birches 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>88,175</b>	<b>22.4</b>	<b>-16</b>	<b>\$16,899</b>	<b>\$60,670</b>	<b>\$10,740</b>	<b>\$49,930</b>	<b>3.0</b>	<b>86,888</b>
ECM 1	Install LED Fixtures	Yes	9,246	0.0	0	\$1,800	\$7,080	\$1,100	\$5,980	3.3	9,311
ECM 2	Retrofit Fixtures with LED Lamps	Yes	78,929	22.4	-16	\$15,099	\$53,590	\$9,640	\$43,950	2.9	77,577
<b>Lighting Control Measures</b>			<b>24,478</b>	<b>7.0</b>	<b>-5</b>	<b>\$4,681</b>	<b>\$30,740</b>	<b>\$6,500</b>	<b>\$24,240</b>	<b>5.2</b>	<b>24,050</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	21,793	6.2	-5	\$4,168	\$25,670	\$2,990	\$22,680	5.4	21,412
ECM 4	Install High/Low Lighting Controls	Yes	2,684	0.7	-1	\$513	\$5,070	\$3,510	\$1,560	3.0	2,637
<b>Variable Frequency Drive (VFD) Measures</b>			<b>29,060</b>	<b>9.1</b>	<b>0</b>	<b>\$5,658</b>	<b>\$58,200</b>	<b>\$2,000</b>	<b>\$56,200</b>	<b>9.9</b>	<b>29,263</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	29,060	9.1	0	\$5,658	\$58,200	\$2,000	\$56,200	9.9	29,263
<b>Unitary HVAC Measures</b>			<b>26,879</b>	<b>34.1</b>	<b>0</b>	<b>\$5,233</b>	<b>\$322,100</b>	<b>\$16,800</b>	<b>\$305,300</b>	<b>58.3</b>	<b>27,067</b>
ECM 6	Install High Efficiency Air Conditioning Units	No	26,879	34.1	0	\$5,233	\$322,100	\$16,800	\$305,300	58.3	27,067
<b>HVAC System Improvements</b>			<b>835</b>	<b>0.0</b>	<b>16</b>	<b>\$418</b>	<b>\$11,700</b>	<b>\$0</b>	<b>\$11,700</b>	<b>28.0</b>	<b>2,656</b>
ECM 7	Implement Demand Control Ventilation (DCV)	No	835	0.0	16	\$418	\$11,700	\$0	\$11,700	28.0	2,656
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>11</b>	<b>\$180</b>	<b>\$190</b>	<b>\$90</b>	<b>\$100</b>	<b>0.6</b>	<b>1,278</b>
ECM 8	Install Low-Flow DHW Devices***	Yes	0	0.0	11	\$180	\$190	\$90	\$100	0.6	1,278
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,499</b>	<b>0.0</b>	<b>0</b>	<b>\$292</b>	<b>\$2,700</b>	<b>\$130</b>	<b>\$2,570</b>	<b>8.8</b>	<b>1,509</b>
ECM 9	Refrigeration Controls	Yes	1,499	0.0	0	\$292	\$2,700	\$130	\$2,570	8.8	1,509
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>143,212</b>	<b>38.5</b>	<b>-10</b>	<b>\$27,710</b>	<b>\$152,500</b>	<b>\$19,460</b>	<b>\$133,040</b>	<b>4.8</b>	<b>142,988</b>
<b>TOTALS (ALL MEASURES)</b>			<b>170,926</b>	<b>72.6</b>	<b>5</b>	<b>\$33,361</b>	<b>\$486,300</b>	<b>\$36,260</b>	<b>\$450,040</b>	<b>13.5</b>	<b>172,711</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.6



# Bunker Hill 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)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>309,339</b>	<b>49.2</b>	<b>-64</b>	<b>\$48,959</b>	<b>\$113,320</b>	<b>\$24,550</b>	<b>\$88,770</b>	<b>1.8</b>	<b>304,027</b>
ECM 1	Install LED Fixtures	Yes	3,241	0.0	0	\$524	\$2,650	\$500	\$2,150	4.1	3,264
ECM 2	Retrofit Fixtures with LED Lamps	Yes	306,098	49.2	-64	\$48,435	\$110,670	\$24,050	\$86,620	1.8	300,764
<b>Lighting Control Measures</b>			<b>97,335</b>	<b>15.5</b>	<b>-20</b>	<b>\$15,401</b>	<b>\$53,260</b>	<b>\$12,720</b>	<b>\$40,540</b>	<b>2.6</b>	<b>95,634</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	80,872	13.2	-17	\$12,796	\$41,760	\$4,910	\$36,850	2.9	79,457
ECM 4	Install Photocell Controls	No	43	0.0	0	\$7	\$240	\$0	\$240	34.4	43
ECM 5	Install High/Low Lighting Controls	Yes	16,421	2.3	-3	\$2,598	\$11,260	\$7,810	\$3,450	1.3	16,133
<b>Motor Upgrades</b>			<b>13,749</b>	<b>5.4</b>	<b>0</b>	<b>\$2,223</b>	<b>\$50,800</b>	<b>\$0</b>	<b>\$50,800</b>	<b>22.9</b>	<b>13,845</b>
ECM 6	Premium Efficiency Motors	No	13,749	5.4	0	\$2,223	\$50,800	\$0	\$50,800	22.9	13,845
<b>Variable Frequency Drive (VFD) Measures</b>			<b>67,116</b>	<b>22.9</b>	<b>0</b>	<b>\$10,851</b>	<b>\$60,200</b>	<b>\$8,800</b>	<b>\$51,400</b>	<b>4.7</b>	<b>67,585</b>
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	67,116	22.9	0	\$10,851	\$60,200	\$8,800	\$51,400	4.7	67,585
<b>Unitary HVAC Measures</b>			<b>652</b>	<b>0.8</b>	<b>0</b>	<b>\$105</b>	<b>\$6,400</b>	<b>\$300</b>	<b>\$6,100</b>	<b>57.9</b>	<b>656</b>
ECM 8	Install High Efficiency Air Conditioning Units	No	652	0.8	0	\$105	\$6,400	\$300	\$6,100	57.9	656
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>115</b>	<b>\$1,906</b>	<b>\$153,100</b>	<b>\$7,600</b>	<b>\$145,500</b>	<b>76.3</b>	<b>13,493</b>
ECM 9	Install High Efficiency Hot Water Boilers	No	0	0.0	115	\$1,906	\$153,100	\$7,600	\$145,500	76.3	13,493
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>31</b>	<b>\$508</b>	<b>\$950</b>	<b>\$140</b>	<b>\$810</b>	<b>1.6</b>	<b>3,597</b>
ECM 10	Install Pipe Insulation	Yes	0	0.0	31	\$508	\$950	\$140	\$810	1.6	3,597
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>32</b>	<b>\$531</b>	<b>\$40,680</b>	<b>\$2,880</b>	<b>\$37,800</b>	<b>71.1</b>	<b>3,762</b>
ECM 11	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	20	\$324	\$40,300	\$2,700	\$37,600	116.2	2,291
ECM 12	Install Low-Flow DHW Devices***	Yes	0	0.0	13	\$208	\$380	\$180	\$200	1.0	1,471
<b>Food Service &amp; Refrigeration Measures</b>			<b>18,090</b>	<b>2.0</b>	<b>52</b>	<b>\$3,777</b>	<b>\$28,590</b>	<b>\$1,200</b>	<b>\$27,390</b>	<b>7.3</b>	<b>24,251</b>
ECM 13	Dishwasher Replacement	Yes	8,110	0.9	52	\$2,164	\$22,000	\$1,000	\$21,000	9.7	14,200
ECM 14	Refrigeration Controls	Yes	888	0.0	0	\$144	\$1,280	\$100	\$1,180	8.2	895
ECM 15	Replace Refrigeration Equipment	Yes	5,526	0.6	0	\$893	\$4,500	\$0	\$4,500	5.0	5,565
ECM 16	Vending Machine Control	Yes	3,566	0.4	0	\$577	\$810	\$100	\$710	1.2	3,591
<b>Custom Measures</b>			<b>-13,130</b>	<b>0.0</b>	<b>140</b>	<b>\$193</b>	<b>\$4,700</b>	<b>\$0</b>	<b>\$4,700</b>	<b>24.4</b>	<b>3,170</b>
ECM 17	Replace Gas Fired Water Heater with Heat Pump Water Heater	No	-13,130	0.0	140	\$193	\$4,700	\$0	\$4,700	24.4	3,170
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>491,837</b>	<b>89.6</b>	<b>11</b>	<b>\$79,697</b>	<b>\$256,460</b>	<b>\$47,590</b>	<b>\$208,870</b>	<b>2.6</b>	<b>496,521</b>
<b>TOTALS (ALL MEASURES)</b>			<b>493,151</b>	<b>95.8</b>	<b>285</b>	<b>\$84,455</b>	<b>\$512,000</b>	<b>\$58,190</b>	<b>\$453,810</b>	<b>5.4</b>	<b>530,021</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.8

# 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>8,217</b>	<b>1.3</b>	<b>-1</b>	<b>\$1,680</b>	<b>\$4,950</b>	<b>\$750</b>	<b>\$4,200</b>	<b>2.5</b>	<b>8,145</b>
ECM 1	Install LED Fixtures	Yes	3,408	0.0	0	\$705	\$1,890	\$150	\$1,740	2.5	3,431
ECM 2	Retrofit Fixtures with LED Lamps	Yes	4,809	1.3	-1	\$975	\$3,060	\$600	\$2,460	2.5	4,713
<b>Lighting Control Measures</b>			<b>1,303</b>	<b>0.4</b>	<b>0</b>	<b>\$264</b>	<b>\$1,620</b>	<b>\$180</b>	<b>\$1,440</b>	<b>5.5</b>	<b>1,277</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,303	0.4	0	\$264	\$1,620	\$180	\$1,440	5.5	1,277
<b>HVAC System Improvements</b>			<b>101</b>	<b>0.0</b>	<b>0</b>	<b>\$21</b>	<b>\$550</b>	<b>\$80</b>	<b>\$470</b>	<b>22.5</b>	<b>102</b>
ECM 4	Install Pipe Insulation	Yes	101	0.0	0	\$21	\$550	\$80	\$470	22.5	102
<b>Domestic Water Heating Upgrade</b>			<b>139</b>	<b>0.0</b>	<b>0</b>	<b>\$29</b>	<b>\$10</b>	<b>\$0</b>	<b>\$10</b>	<b>0.3</b>	<b>140</b>
ECM 5	Install Low-Flow DHW Devices	Yes	139	0.0	0	\$29	\$10	\$0	\$10	0.3	140
<b>Custom Measures</b>			<b>607</b>	<b>0.0</b>	<b>0</b>	<b>\$126</b>	<b>\$2,900</b>	<b>\$0</b>	<b>\$2,900</b>	<b>23.0</b>	<b>611</b>
ECM 6	Replace Electric Water Heater with Heat Pump Water Heater	Yes	607	0.0	0	\$126	\$2,900	\$0	\$2,900	23.0	611
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>10,367</b>	<b>1.6</b>	<b>-1</b>	<b>\$2,120</b>	<b>\$10,030</b>	<b>\$1,010</b>	<b>\$9,020</b>	<b>4.3</b>	<b>10,275</b>
<b>TOTALS (ALL MEASURES)</b>			<b>10,367</b>	<b>1.6</b>	<b>-1</b>	<b>\$2,120</b>	<b>\$10,030</b>	<b>\$1,010</b>	<b>\$9,020</b>	<b>4.3</b>	<b>10,275</b>

\* - 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).

\*\*\* - Negative payback explained in section 4.5

# Chestnut Ridge 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)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>206,177</b>	<b>31.3</b>	<b>-43</b>	<b>\$30,581</b>	<b>\$65,680</b>	<b>\$13,310</b>	<b>\$52,370</b>	<b>1.7</b>	<b>202,571</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	206,177	31.3	-43	\$30,581	\$65,680	\$13,310	\$52,370	1.7	202,571
<b>Lighting Control Measures</b>			<b>62,103</b>	<b>9.3</b>	<b>-13</b>	<b>\$9,211</b>	<b>\$46,730</b>	<b>\$10,200</b>	<b>\$36,530</b>	<b>4.0</b>	<b>61,017</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	55,178	8.3	-12	\$8,184	\$38,290	\$4,510	\$33,780	4.1	54,213
ECM 3	Install High/Low Lighting Controls	Yes	6,925	1.0	-1	\$1,027	\$8,440	\$5,690	\$2,750	2.7	6,804
<b>Variable Frequency Drive (VFD) Measures</b>			<b>16,997</b>	<b>5.3</b>	<b>0</b>	<b>\$2,579</b>	<b>\$32,800</b>	<b>\$1,200</b>	<b>\$31,600</b>	<b>12.3</b>	<b>17,116</b>
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	16,997	5.3	0	\$2,579	\$32,800	\$1,200	\$31,600	12.3	17,116
<b>Unitary HVAC Measures</b>			<b>7,085</b>	<b>6.6</b>	<b>0</b>	<b>\$1,075</b>	<b>\$56,600</b>	<b>\$3,600</b>	<b>\$53,000</b>	<b>49.3</b>	<b>7,135</b>
ECM 5	Install High Efficiency Air Conditioning Units	No	7,085	6.6	0	\$1,075	\$56,600	\$3,600	\$53,000	49.3	7,135
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>486</b>	<b>\$7,881</b>	<b>\$221,000</b>	<b>\$10,300</b>	<b>\$210,700</b>	<b>26.7</b>	<b>56,896</b>
ECM 6	Install High Efficiency Hot Water Boilers	No	0	0.0	486	\$7,881	\$221,000	\$10,300	\$210,700	26.7	56,896
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>20</b>	<b>\$326</b>	<b>\$400</b>	<b>\$190</b>	<b>\$210</b>	<b>0.6</b>	<b>2,353</b>
ECM 7	Install Low-Flow DHW Devices***	Yes	0	0.0	20	\$326	\$400	\$190	\$210	0.6	2,353
<b>Food Service &amp; Refrigeration Measures</b>			<b>23,372</b>	<b>2.6</b>	<b>52</b>	<b>\$4,382</b>	<b>\$34,660</b>	<b>\$1,260</b>	<b>\$33,400</b>	<b>7.6</b>	<b>29,569</b>
ECM 8	Dishwasher Replacement	Yes	8,110	0.9	52	\$2,066	\$22,000	\$1,000	\$21,000	10.2	14,200
ECM 9	Refrigeration Controls	No	1,269	0.0	0	\$193	\$4,120	\$160	\$3,960	20.6	1,278
ECM 10	Replace Refrigeration Equipment	Yes	11,172	1.3	0	\$1,695	\$8,000	\$0	\$8,000	4.7	11,250
ECM 11	Vending Machine Control	Yes	2,821	0.3	0	\$428	\$540	\$100	\$440	1.0	2,840
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>290,383</b>	<b>43.1</b>	<b>16</b>	<b>\$44,307</b>	<b>\$143,350</b>	<b>\$24,800</b>	<b>\$118,550</b>	<b>2.7</b>	<b>294,232</b>
<b>TOTALS (ALL MEASURES)</b>			<b>315,734</b>	<b>55.0</b>	<b>501</b>	<b>\$56,035</b>	<b>\$457,870</b>	<b>\$40,060</b>	<b>\$417,810</b>	<b>7.5</b>	<b>376,657</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.6

# Grenlock Terrace Early Childhood Ctr

#	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>73,535</b>	<b>11.2</b>	<b>-14</b>	<b>\$15,850</b>	<b>\$29,610</b>	<b>\$5,630</b>	<b>\$23,980</b>	<b>1.5</b>	<b>72,448</b>
ECM 1	Install LED Fixtures	Yes	8,068	0.0	0	\$1,764	\$5,890	\$920	\$4,970	2.8	8,124
ECM 2	Retrofit Fixtures with LED Lamps	Yes	65,467	11.2	-14	\$14,086	\$23,720	\$4,710	\$19,010	1.3	64,323
<b>Lighting Control Measures</b>			<b>17,564</b>	<b>3.0</b>	<b>-4</b>	<b>\$3,779</b>	<b>\$19,170</b>	<b>\$4,980</b>	<b>\$14,190</b>	<b>3.8</b>	<b>17,257</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	14,716	2.5	-3	\$3,166	\$13,260	\$1,610	\$11,650	3.7	14,459
ECM 4	Install High/Low Lighting Controls	Yes	2,848	0.5	-1	\$613	\$5,910	\$3,370	\$2,540	4.1	2,798
<b>Variable Frequency Drive (VFD) Measures</b>			<b>5,307</b>	<b>1.3</b>	<b>0</b>	<b>\$1,160</b>	<b>\$22,300</b>	<b>\$300</b>	<b>\$22,000</b>	<b>19.0</b>	<b>5,344</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	5,307	1.3	0	\$1,160	\$22,300	\$300	\$22,000	19.0	5,344
<b>Unitary HVAC Measures</b>			<b>4,282</b>	<b>5.9</b>	<b>0</b>	<b>\$936</b>	<b>\$68,600</b>	<b>\$3,200</b>	<b>\$65,400</b>	<b>69.9</b>	<b>4,312</b>
ECM 6	Install High Efficiency Air Conditioning Units	No	2,942	4.5	0	\$643	\$59,600	\$2,900	\$56,700	88.1	2,963
ECM 7	Install High Efficiency Heat Pumps	No	1,339	1.4	0	\$293	\$9,000	\$300	\$8,700	29.7	1,349
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>52</b>	<b>\$873</b>	<b>\$53,900</b>	<b>\$2,000</b>	<b>\$51,900</b>	<b>59.4</b>	<b>6,122</b>
ECM 8	Install High Efficiency Steam Boilers	No	0	0.0	52	\$873	\$53,900	\$2,000	\$51,900	59.4	6,122
<b>Domestic Water Heating Upgrade</b>			<b>957</b>	<b>0.0</b>	<b>3</b>	<b>\$265</b>	<b>\$210</b>	<b>\$100</b>	<b>\$110</b>	<b>0.4</b>	<b>1,352</b>
ECM 9	Install Low-Flow DHW Devices***	Yes	957	0.0	3	\$265	\$210	\$100	\$110	0.4	1,352
<b>Food Service &amp; Refrigeration Measures</b>			<b>9,030</b>	<b>1.0</b>	<b>29</b>	<b>\$2,459</b>	<b>\$11,300</b>	<b>\$1,000</b>	<b>\$10,300</b>	<b>4.2</b>	<b>12,493</b>
ECM 10	Food Service Equipment Replacement	Yes	0	0.0	29	\$485	\$5,600	\$1,000	\$4,600	9.5	3,400
ECM 11	Replace Refrigeration Equipment	Yes	9,030	1.0	0	\$1,974	\$5,700	\$0	\$5,700	2.9	9,093
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>101,086</b>	<b>15.2</b>	<b>15</b>	<b>\$22,353</b>	<b>\$60,290</b>	<b>\$11,710</b>	<b>\$48,580</b>	<b>2.2</b>	<b>103,550</b>
<b>TOTALS (ALL MEASURES)</b>			<b>110,675</b>	<b>22.4</b>	<b>67</b>	<b>\$25,322</b>	<b>\$205,090</b>	<b>\$17,210</b>	<b>\$187,880</b>	<b>7.4</b>	<b>119,328</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.6

# Eileen Abbott Central Admin Bld

#	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>34,241</b>	<b>13.3</b>	<b>-7</b>	<b>\$6,537</b>	<b>\$24,580</b>	<b>\$5,150</b>	<b>\$19,430</b>	<b>3.0</b>	<b>33,682</b>
ECM 1	Install LED Fixtures	Yes	1,644	0.0	0	\$321	\$1,950	\$110	\$1,840	5.7	1,656
ECM 2	Retrofit Fixtures with LED Lamps	Yes	32,596	13.3	-7	\$6,216	\$22,630	\$5,040	\$17,590	2.8	32,026
<b>Lighting Control Measures</b>			<b>10,687</b>	<b>4.4</b>	<b>-2</b>	<b>\$2,038</b>	<b>\$12,260</b>	<b>\$2,220</b>	<b>\$10,040</b>	<b>4.9</b>	<b>10,500</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	9,271	3.9	-2	\$1,768	\$10,570	\$1,200	\$9,370	5.3	9,109
ECM 4	Install High/Low Lighting Controls	Yes	1,417	0.5	0	\$270	\$1,690	\$1,020	\$670	2.5	1,392
<b>Variable Frequency Drive (VFD) Measures</b>			<b>9,216</b>	<b>3.1</b>	<b>0</b>	<b>\$1,796</b>	<b>\$23,500</b>	<b>\$500</b>	<b>\$23,000</b>	<b>12.8</b>	<b>9,280</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	9,216	3.1	0	\$1,796	\$23,500	\$500	\$23,000	12.8	9,280
<b>HVAC System Improvements</b>			<b>422</b>	<b>0.0</b>	<b>0</b>	<b>\$82</b>	<b>\$170</b>	<b>\$30</b>	<b>\$140</b>	<b>1.7</b>	<b>425</b>
ECM 6	Install Pipe Insulation	Yes	422	0.0	0	\$82	\$170	\$30	\$140	1.7	425
<b>Domestic Water Heating Upgrade</b>			<b>510</b>	<b>0.0</b>	<b>0</b>	<b>\$99</b>	<b>\$50</b>	<b>\$20</b>	<b>\$30</b>	<b>0.3</b>	<b>514</b>
ECM 7	Install Low-Flow DHW Devices	Yes	510	0.0	0	\$99	\$50	\$20	\$30	0.3	514
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$381</b>	<b>\$540</b>	<b>\$50</b>	<b>\$490</b>	<b>1.3</b>	<b>1,968</b>
ECM 8	Vending Machine Control	Yes	1,954	0.2	0	\$381	\$540	\$50	\$490	1.3	1,968
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>57,030</b>	<b>21.0</b>	<b>-9</b>	<b>\$10,934</b>	<b>\$61,100</b>	<b>\$7,970</b>	<b>\$53,130</b>	<b>4.9</b>	<b>56,370</b>
<b>TOTALS (ALL MEASURES)</b>			<b>57,030</b>	<b>21.0</b>	<b>-9</b>	<b>\$10,934</b>	<b>\$61,100</b>	<b>\$7,970</b>	<b>\$53,130</b>	<b>4.9</b>	<b>56,370</b>

\* - 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).

# Hurffville 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>63,707</b>	<b>23.1</b>	<b>-10</b>	<b>\$12,441</b>	<b>\$59,630</b>	<b>\$11,810</b>	<b>\$47,820</b>	<b>3.8</b>	<b>62,950</b>
ECM 1	Install LED Fixtures	Yes	13,920	0.0	0	\$2,757	\$10,130	\$1,300	\$8,830	3.2	14,017
ECM 2	Retrofit Fixtures with LED Lamps	Yes	49,788	23.1	-10	\$9,685	\$49,500	\$10,510	\$38,990	4.0	48,933
<b>Lighting Control Measures</b>			<b>14,624</b>	<b>6.7</b>	<b>-3</b>	<b>\$2,844</b>	<b>\$26,470</b>	<b>\$5,670</b>	<b>\$20,800</b>	<b>7.3</b>	<b>14,369</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	12,561	6.0	-3	\$2,443	\$21,690	\$2,580	\$19,110	7.8	12,341
ECM 4	Install High/Low Lighting Controls	Yes	2,064	0.8	0	\$401	\$4,780	\$3,090	\$1,690	4.2	2,028
<b>Variable Frequency Drive (VFD) Measures</b>			<b>15,474</b>	<b>7.3</b>	<b>0</b>	<b>\$3,064</b>	<b>\$61,000</b>	<b>\$3,100</b>	<b>\$57,900</b>	<b>18.9</b>	<b>15,582</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	9,987	6.2	0	\$1,978	\$49,700	\$1,300	\$48,400	24.5	10,057
ECM 6	Install VFDs on Heating Water Pumps	Yes	5,487	1.1	0	\$1,087	\$11,300	\$1,800	\$9,500	8.7	5,525
<b>Unitary HVAC Measures</b>			<b>8,193</b>	<b>16.4</b>	<b>0</b>	<b>\$1,622</b>	<b>\$83,700</b>	<b>\$4,700</b>	<b>\$79,000</b>	<b>48.7</b>	<b>8,250</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	8,193	16.4	0	\$1,622	\$83,700	\$4,700	\$79,000	48.7	8,250
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>109</b>	<b>\$1,855</b>	<b>\$145,600</b>	<b>\$7,000</b>	<b>\$138,600</b>	<b>74.7</b>	<b>12,746</b>
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	109	\$1,855	\$145,600	\$7,000	\$138,600	74.7	12,746
<b>Domestic Water Heating Upgrade</b>			<b>53</b>	<b>0.0</b>	<b>6</b>	<b>\$115</b>	<b>\$210</b>	<b>\$90</b>	<b>\$120</b>	<b>1.0</b>	<b>769</b>
ECM 9	Install Low-Flow DHW Devices***	Yes	53	0.0	6	\$115	\$210	\$90	\$120	1.0	769
<b>Food Service &amp; Refrigeration Measures</b>			<b>9,504</b>	<b>1.1</b>	<b>41</b>	<b>\$2,583</b>	<b>\$13,270</b>	<b>\$750</b>	<b>\$12,520</b>	<b>4.8</b>	<b>14,383</b>
ECM 10	Dishwasher Replacement	Yes	5,269	0.6	41	\$1,744	\$10,800	\$700	\$10,100	5.8	10,119
ECM 11	Replace Refrigeration Equipment	Yes	2,623	0.3	0	\$519	\$2,200	\$0	\$2,200	4.2	2,641
ECM 12	Vending Machine Control	Yes	1,612	0.2	0	\$319	\$270	\$50	\$220	0.7	1,623
<b>Custom Measures****</b>			<b>-13,130</b>	<b>0.0</b>	<b>140</b>	<b>-\$214</b>	<b>\$4,500</b>	<b>\$0</b>	<b>\$4,500</b>	<b>-21.0</b>	<b>3,170</b>
ECM 13	Replace Gas Fired Water Heater with Heat Pump Water Heater****	No	-13,130	0.0	140	-\$214	\$4,500	\$0	\$4,500	-21.0	3,170
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>93,375</b>	<b>32.0</b>	<b>34</b>	<b>\$19,069</b>	<b>\$110,880</b>	<b>\$20,120</b>	<b>\$90,760</b>	<b>4.8</b>	<b>97,996</b>
<b>TOTALS (ALL MEASURES)</b>			<b>98,425</b>	<b>54.5</b>	<b>283</b>	<b>\$24,311</b>	<b>\$394,380</b>	<b>\$33,120</b>	<b>\$361,260</b>	<b>14.9</b>	<b>132,219</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.6

\*\*\*\* - Negative payback explained in section 4.8

# BOE Operations 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>10,380</b>	<b>3.1</b>	<b>0</b>	<b>\$1,948</b>	<b>\$6,000</b>	<b>\$1,190</b>	<b>\$4,810</b>	<b>2.5</b>	<b>10,452</b>
ECM 1	Install LED Fixtures	Yes	1,467	0.0	0	\$275	\$660	\$50	\$610	2.2	1,478
ECM 2	Retrofit Fixtures with LED Lamps	Yes	8,912	3.1	0	\$1,672	\$5,340	\$1,140	\$4,200	2.5	8,975
<b>Lighting Control Measures</b>			<b>2,693</b>	<b>0.9</b>	<b>0</b>	<b>\$505</b>	<b>\$3,120</b>	<b>\$370</b>	<b>\$2,750</b>	<b>5.4</b>	<b>2,712</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,693	0.9	0	\$505	\$3,120	\$370	\$2,750	5.4	2,712
<b>Unitary HVAC Measures</b>			<b>3,938</b>	<b>3.9</b>	<b>0</b>	<b>\$739</b>	<b>\$23,500</b>	<b>\$1,000</b>	<b>\$22,500</b>	<b>30.4</b>	<b>3,965</b>
ECM 4	Install High Efficiency Heat Pumps	No	3,938	3.9	0	\$739	\$23,500	\$1,000	\$22,500	30.4	3,965
<b>HVAC System Improvements</b>			<b>1,839</b>	<b>0.0</b>	<b>0</b>	<b>\$345</b>	<b>\$1,340</b>	<b>\$30</b>	<b>\$1,310</b>	<b>3.8</b>	<b>1,852</b>
ECM 5	Install Programmable Thermostats	Yes	1,628	0.0	0	\$306	\$1,140	\$0	\$1,140	3.7	1,640
ECM 6	Install Pipe Insulation	Yes	211	0.0	0	\$40	\$200	\$30	\$170	4.3	212
<b>Domestic Water Heating Upgrade</b>			<b>515</b>	<b>0.0</b>	<b>0</b>	<b>\$97</b>	<b>\$60</b>	<b>\$20</b>	<b>\$40</b>	<b>0.4</b>	<b>519</b>
ECM 7	Install Low-Flow DHW Devices	Yes	515	0.0	0	\$97	\$60	\$20	\$40	0.4	519
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$367</b>	<b>\$540</b>	<b>\$50</b>	<b>\$490</b>	<b>1.3</b>	<b>1,968</b>
ECM 8	Vending Machine Control	Yes	1,954	0.2	0	\$367	\$540	\$50	\$490	1.3	1,968
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>17,381</b>	<b>4.2</b>	<b>0</b>	<b>\$3,262</b>	<b>\$11,060</b>	<b>\$1,660</b>	<b>\$9,400</b>	<b>2.9</b>	<b>17,503</b>
<b>TOTALS (ALL MEASURES)</b>			<b>21,319</b>	<b>8.1</b>	<b>0</b>	<b>\$4,001</b>	<b>\$34,560</b>	<b>\$2,660</b>	<b>\$31,900</b>	<b>8.0</b>	<b>21,468</b>

\* - 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).

# Orchard Valley 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)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>163,334</b>	<b>44.7</b>	<b>-34</b>	<b>\$25,943</b>	<b>\$97,070</b>	<b>\$21,540</b>	<b>\$75,530</b>	<b>2.9</b>	<b>160,493</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	163,334	44.7	-34	\$25,943	\$97,070	\$21,540	\$75,530	2.9	160,493
<b>Lighting Control Measures</b>			<b>51,018</b>	<b>13.8</b>	<b>-11</b>	<b>\$8,103</b>	<b>\$38,120</b>	<b>\$8,740</b>	<b>\$29,380</b>	<b>3.6</b>	<b>50,126</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	43,960	12.2	-9	\$6,982	\$32,200	\$4,460	\$27,740	4.0	43,191
ECM 3	Install High/Low Lighting Controls	Yes	7,058	1.6	-1	\$1,121	\$5,920	\$4,280	\$1,640	1.5	6,934
<b>Variable Frequency Drive (VFD) Measures</b>			<b>12,034</b>	<b>4.2</b>	<b>6</b>	<b>\$2,055</b>	<b>\$28,700</b>	<b>\$1,700</b>	<b>\$27,000</b>	<b>13.1</b>	<b>12,846</b>
ECM 4	Install VFDs on Constant Volume (CV) Fans	Yes	8,114	4.1	0	\$1,317	\$23,600	\$1,500	\$22,100	16.8	8,171
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	3,919	0.1	6	\$738	\$5,100	\$200	\$4,900	6.6	4,675
<b>Unitary HVAC Measures</b>			<b>32,825</b>	<b>28.5</b>	<b>0</b>	<b>\$5,326</b>	<b>\$197,100</b>	<b>\$12,800</b>	<b>\$184,300</b>	<b>34.6</b>	<b>33,055</b>
ECM 6	Install High Efficiency Air Conditioning Units	No	32,825	28.5	0	\$5,326	\$197,100	\$12,800	\$184,300	34.6	33,055
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>763</b>	<b>\$12,554</b>	<b>\$338,700</b>	<b>\$18,200</b>	<b>\$320,500</b>	<b>25.5</b>	<b>89,295</b>
ECM 7	Install High Efficiency Hot Water Boilers	No	0	0.0	763	\$12,554	\$338,700	\$18,200	\$320,500	25.5	89,295
<b>HVAC System Improvements</b>			<b>3,641</b>	<b>0.0</b>	<b>63</b>	<b>\$1,628</b>	<b>\$8,800</b>	<b>\$0</b>	<b>\$8,800</b>	<b>5.4</b>	<b>11,043</b>
ECM 8	Implement Demand Control Ventilation (DCV)	Yes	3,641	0.0	63	\$1,628	\$8,800	\$0	\$8,800	5.4	11,043
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>57</b>	<b>\$936</b>	<b>\$43,650</b>	<b>\$150</b>	<b>\$43,500</b>	<b>46.5</b>	<b>6,655</b>
ECM 9	Install High Efficiency Gas-Fired Water Heater	No	0	0.0	39	\$644	\$43,300	\$0	\$43,300	67.2	4,583
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	18	\$291	\$350	\$150	\$200	0.7	2,072
<b>Food Service &amp; Refrigeration Measures</b>			<b>10,425</b>	<b>1.0</b>	<b>41</b>	<b>\$2,368</b>	<b>\$17,330</b>	<b>\$1,120</b>	<b>\$16,210</b>	<b>6.8</b>	<b>15,311</b>
ECM 11	Dishwasher Replacement	Yes	5,269	0.6	41	\$1,532	\$10,800	\$700	\$10,100	6.6	10,119
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,047	0.1	0	\$170	\$1,500	\$160	\$1,340	7.9	1,054
ECM 13	Refrigeration Controls	Yes	2,497	0.0	0	\$405	\$4,760	\$210	\$4,550	11.2	2,514
ECM 14	Vending Machine Control	Yes	1,612	0.2	0	\$262	\$270	\$50	\$220	0.8	1,623
<b>Custom Measures</b>			<b>29,974</b>	<b>0.0</b>	<b>164</b>	<b>\$7,558</b>	<b>\$38,000</b>	<b>\$0</b>	<b>\$38,000</b>	<b>5.0</b>	<b>49,348</b>
ECM 15	Retro-Commissioning Study	Yes	29,974	0.0	164	\$7,558	\$38,000	\$0	\$38,000	5.0	49,348
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>270,426</b>	<b>63.7</b>	<b>247</b>	<b>\$47,946</b>	<b>\$228,370</b>	<b>\$33,250</b>	<b>\$195,120</b>	<b>4.1</b>	<b>301,238</b>
<b>TOTALS (ALL MEASURES)</b>			<b>303,252</b>	<b>92.3</b>	<b>1,049</b>	<b>\$66,470</b>	<b>\$807,470</b>	<b>\$64,250</b>	<b>\$743,220</b>	<b>11.2</b>	<b>428,172</b>

\* - 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).



# Thomas Jefferson 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>68,909</b>	<b>22.3</b>	<b>0</b>	<b>\$12,076</b>	<b>\$51,300</b>	<b>\$10,770</b>	<b>\$40,530</b>	<b>3.4</b>	<b>69,390</b>
ECM 1	Install LED Fixtures	Yes	6,592	0.0	0	\$1,155	\$5,400	\$700	\$4,700	4.1	6,638
ECM 2	Retrofit Fixtures with LED Lamps	Yes	62,317	22.3	0	\$10,921	\$45,900	\$10,070	\$35,830	3.3	62,752
<b>Lighting Control Measures</b>			<b>19,485</b>	<b>6.9</b>	<b>0</b>	<b>\$3,415</b>	<b>\$25,890</b>	<b>\$4,720</b>	<b>\$21,170</b>	<b>6.2</b>	<b>19,621</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	18,440	6.5	0	\$3,232	\$23,070	\$2,790	\$20,280	6.3	18,569
ECM 4	Install High/Low Lighting Controls	Yes	1,044	0.4	0	\$183	\$2,820	\$1,930	\$890	4.9	1,052
<b>Motor Upgrades</b>			<b>8,787</b>	<b>2.2</b>	<b>0</b>	<b>\$1,540</b>	<b>\$27,100</b>	<b>\$0</b>	<b>\$27,100</b>	<b>17.6</b>	<b>8,848</b>
ECM 5	Premium Efficiency Motors	No	8,787	2.2	0	\$1,540	\$27,100	\$0	\$27,100	17.6	8,848
<b>Unitary HVAC Measures</b>			<b>85,384</b>	<b>75.6</b>	<b>0</b>	<b>\$14,963</b>	<b>\$356,600</b>	<b>\$13,500</b>	<b>\$343,100</b>	<b>22.9</b>	<b>85,981</b>
ECM 6	Install High Efficiency Heat Pumps	No	85,384	75.6	0	\$14,963	\$356,600	\$13,500	\$343,100	22.9	85,981
<b>HVAC System Improvements</b>			<b>946</b>	<b>0.0</b>	<b>8</b>	<b>\$300</b>	<b>\$11,800</b>	<b>\$0</b>	<b>\$11,800</b>	<b>39.3</b>	<b>1,830</b>
ECM 7	Implement Demand Control Ventilation (DCV)	No	946	0.0	8	\$300	\$11,800	\$0	\$11,800	39.3	1,830
<b>Domestic Water Heating Upgrade</b>			<b>2,085</b>	<b>0.0</b>	<b>7</b>	<b>\$493</b>	<b>\$260</b>	<b>\$120</b>	<b>\$140</b>	<b>0.3</b>	<b>2,933</b>
ECM 8	Install Low-Flow DHW Devices***	Yes	2,085	0.0	7	\$493	\$260	\$120	\$140	0.3	2,933
<b>Food Service &amp; Refrigeration Measures</b>			<b>4,577</b>	<b>0.5</b>	<b>0</b>	<b>\$802</b>	<b>\$2,740</b>	<b>\$50</b>	<b>\$2,690</b>	<b>3.4</b>	<b>4,609</b>
ECM 9	Replace Refrigeration Equipment	Yes	2,623	0.3	0	\$460	\$2,200	\$0	\$2,200	4.8	2,641
ECM 10	Vending Machine Control	Yes	1,954	0.2	0	\$342	\$540	\$50	\$490	1.4	1,968
<b>Custom Measures</b>			<b>6,155</b>	<b>0.0</b>	<b>0</b>	<b>\$1,079</b>	<b>\$4,700</b>	<b>\$0</b>	<b>\$4,700</b>	<b>4.4</b>	<b>6,198</b>
ECM 11	Replace Electric Water Heater with Heat Pump Water Heater	Yes	6,155	0.0	0	\$1,079	\$4,700	\$0	\$4,700	4.4	6,198
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>101,211</b>	<b>29.7</b>	<b>7</b>	<b>\$17,864</b>	<b>\$84,890</b>	<b>\$15,660</b>	<b>\$69,230</b>	<b>3.9</b>	<b>102,752</b>
<b>TOTALS (ALL MEASURES)</b>			<b>196,327</b>	<b>107.4</b>	<b>15</b>	<b>\$34,667</b>	<b>\$480,390</b>	<b>\$29,160</b>	<b>\$451,230</b>	<b>13.0</b>	<b>199,411</b>

\* - 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).

# BOE 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>4,652</b>	<b>1.1</b>	<b>-1</b>	<b>\$776</b>	<b>\$3,300</b>	<b>\$570</b>	<b>\$2,730</b>	<b>3.5</b>	<b>4,600</b>
ECM 1	Install LED Fixtures	Yes	1,480	0.0	0	\$251	\$660	\$50	\$610	2.4	1,491
ECM 2	Retrofit Fixtures with LED Lamps	Yes	3,172	1.1	-1	\$525	\$2,640	\$520	\$2,120	4.0	3,109
<b>Lighting Control Measures</b>			<b>1,576</b>	<b>0.6</b>	<b>0</b>	<b>\$261</b>	<b>\$2,760</b>	<b>\$320</b>	<b>\$2,440</b>	<b>9.4</b>	<b>1,544</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,576	0.6	0	\$261	\$2,760	\$320	\$2,440	9.4	1,544
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>77</b>	<b>\$1,426</b>	<b>\$18,700</b>	<b>\$600</b>	<b>\$18,100</b>	<b>12.7</b>	<b>9,014</b>
ECM 4	Install Infrared Heaters	Yes	0	0.0	77	\$1,426	\$18,700	\$600	\$18,100	12.7	9,014
<b>HVAC System Improvements</b>			<b>212</b>	<b>0.0</b>	<b>0</b>	<b>\$36</b>	<b>\$110</b>	<b>\$10</b>	<b>\$100</b>	<b>2.8</b>	<b>214</b>
ECM 5	Install Pipe Insulation	Yes	212	0.0	0	\$36	\$110	\$10	\$100	2.8	214
<b>Domestic Water Heating Upgrade</b>			<b>262</b>	<b>0.0</b>	<b>0</b>	<b>\$44</b>	<b>\$20</b>	<b>\$0</b>	<b>\$20</b>	<b>0.5</b>	<b>264</b>
ECM 6	Install Low-Flow DHW Devices	Yes	262	0.0	0	\$44	\$20	\$0	\$20	0.5	264
<b>Food Service &amp; Refrigeration Measures</b>			<b>6,633</b>	<b>0.4</b>	<b>0</b>	<b>\$1,126</b>	<b>\$8,490</b>	<b>\$610</b>	<b>\$7,880</b>	<b>7.0</b>	<b>6,680</b>
ECM 7	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,703	0.3	0	\$289	\$3,730	\$400	\$3,330	11.5	1,715
ECM 8	Refrigeration Controls	Yes	4,930	0.1	0	\$837	\$4,760	\$210	\$4,550	5.4	4,965
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>13,336</b>	<b>2.1</b>	<b>76</b>	<b>\$3,669</b>	<b>\$33,380</b>	<b>\$2,110</b>	<b>\$31,270</b>	<b>8.5</b>	<b>22,315</b>
<b>TOTALS (ALL MEASURES)</b>			<b>13,336</b>	<b>2.1</b>	<b>76</b>	<b>\$3,669</b>	<b>\$33,380</b>	<b>\$2,110</b>	<b>\$31,270</b>	<b>8.5</b>	<b>22,315</b>

\* - 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).

# Wedgewood 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>90,559</b>	<b>26.6</b>	<b>-15</b>	<b>\$16,607</b>	<b>\$76,020</b>	<b>\$13,050</b>	<b>\$62,970</b>	<b>3.8</b>	<b>89,397</b>
ECM 1	Install LED Fixtures	Yes	14,490	0.0	0	\$2,700	\$13,510	\$1,150	\$12,360	4.6	14,591
ECM 2	Retrofit Fixtures with LED Lamps	Yes	76,068	26.6	-15	\$13,907	\$62,510	\$11,900	\$50,610	3.6	74,806
<b>Lighting Control Measures</b>			<b>21,159</b>	<b>7.3</b>	<b>-4</b>	<b>\$3,866</b>	<b>\$28,300</b>	<b>\$6,850</b>	<b>\$21,450</b>	<b>5.5</b>	<b>20,789</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	16,963	6.3	-4	\$3,099	\$22,380	\$2,540	\$19,840	6.4	16,666
ECM 4	Install High/Low Lighting Controls	Yes	4,196	1.0	-1	\$767	\$5,920	\$4,310	\$1,610	2.1	4,123
<b>Motor Upgrades</b>			<b>3,171</b>	<b>1.2</b>	<b>0</b>	<b>\$591</b>	<b>\$24,700</b>	<b>\$0</b>	<b>\$24,700</b>	<b>41.8</b>	<b>3,193</b>
ECM 5	Premium Efficiency Motors	No	3,171	1.2	0	\$591	\$24,700	\$0	\$24,700	41.8	3,193
<b>Variable Frequency Drive (VFD) Measures</b>			<b>10,200</b>	<b>3.7</b>	<b>9</b>	<b>\$2,052</b>	<b>\$25,100</b>	<b>\$900</b>	<b>\$24,200</b>	<b>11.8</b>	<b>11,290</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	9,131	3.7	0	\$1,701	\$20,400	\$800	\$19,600	11.5	9,194
ECM 7	Install VFDs on Kitchen Hood Fan Motors	Yes	1,069	0.0	9	\$350	\$4,700	\$100	\$4,600	13.1	2,096
<b>Unitary HVAC Measures</b>			<b>25,159</b>	<b>37.6</b>	<b>0</b>	<b>\$4,688</b>	<b>\$306,200</b>	<b>\$16,100</b>	<b>\$290,100</b>	<b>61.9</b>	<b>25,335</b>
ECM 8	Install High Efficiency Air Conditioning Units	No	25,159	37.6	0	\$4,688	\$306,200	\$16,100	\$290,100	61.9	25,335
<b>HVAC System Improvements</b>			<b>1,099</b>	<b>0.0</b>	<b>20</b>	<b>\$558</b>	<b>\$11,700</b>	<b>\$0</b>	<b>\$11,700</b>	<b>20.9</b>	<b>3,492</b>
ECM 9	Implement Demand Control Ventilation (DCV)	No	1,099	0.0	20	\$558	\$11,700	\$0	\$11,700	20.9	3,492
<b>Domestic Water Heating Upgrade</b>			<b>196</b>	<b>0.0</b>	<b>16</b>	<b>\$306</b>	<b>\$520</b>	<b>\$240</b>	<b>\$280</b>	<b>0.9</b>	<b>2,013</b>
ECM 10	Install Low-Flow DHW Devices	Yes	196	0.0	16	\$306	\$520	\$240	\$280	0.9	2,013
<b>Food Service &amp; Refrigeration Measures</b>			<b>15,364</b>	<b>1.7</b>	<b>0</b>	<b>\$2,863</b>	<b>\$13,610</b>	<b>\$860</b>	<b>\$12,750</b>	<b>4.5</b>	<b>15,471</b>
ECM 11	Dishwasher Replacement	Yes	14,143	1.6	0	\$2,635	\$10,800	\$700	\$10,100	3.8	14,242
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	524	0.1	0	\$98	\$750	\$80	\$670	6.9	527
ECM 13	Refrigeration Controls	Yes	697	0.0	0	\$130	\$2,060	\$80	\$1,980	15.3	701
<b>Custom Measures</b>			<b>-6,278</b>	<b>0.0</b>	<b>126</b>	<b>\$1,018</b>	<b>\$9,500</b>	<b>\$0</b>	<b>\$9,500</b>	<b>9.3</b>	<b>8,431</b>
ECM 14	Replace Electric Water Heater with Heat Pump Water Heater	Yes	5,539	0.0	0	\$1,032	\$5,000	\$0	\$5,000	4.8	5,578
ECM 15	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-11,817	0.0	126	-\$14	\$4,500	\$0	\$4,500	-321.4	2,853
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>143,016</b>	<b>39.3</b>	<b>4</b>	<b>\$26,724</b>	<b>\$148,550</b>	<b>\$21,900</b>	<b>\$126,650</b>	<b>4.7</b>	<b>144,538</b>
<b>TOTALS (ALL MEASURES)</b>			<b>160,628</b>	<b>78.1</b>	<b>151</b>	<b>\$32,548</b>	<b>\$495,650</b>	<b>\$38,000</b>	<b>\$457,650</b>	<b>14.1</b>	<b>179,412</b>

\* - 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).

\*\*\* - Negative payback explained in section 4.9

# Whitman Elementary School & Whitman Trailer

#	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>99,893</b>	<b>25.1</b>	<b>-20</b>	<b>\$20,415</b>	<b>\$59,590</b>	<b>\$11,750</b>	<b>\$47,840</b>	<b>2.3</b>	<b>98,195</b>
ECM 1	Install LED Fixtures	Yes	1,945	0.0	0	\$405	\$1,600	\$300	\$1,300	3.2	1,958
ECM 2	Retrofit Fixtures with LED Lamps	Yes	97,948	25.1	-20	\$20,010	\$57,990	\$11,450	\$46,540	2.3	96,236
<b>Lighting Control Measures</b>			<b>31,020</b>	<b>7.7</b>	<b>-6</b>	<b>\$6,337</b>	<b>\$34,060</b>	<b>\$7,130</b>	<b>\$26,930</b>	<b>4.2</b>	<b>30,478</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	27,720	7.1	-6	\$5,663	\$28,710	\$3,440	\$25,270	4.5	27,235
ECM 4	Install High/Low Lighting Controls	Yes	3,301	0.6	-1	\$674	\$5,350	\$3,690	\$1,660	2.5	3,243
<b>Variable Frequency Drive (VFD) Measures</b>			<b>23,344</b>	<b>11.4</b>	<b>0</b>	<b>\$4,856</b>	<b>\$92,700</b>	<b>\$2,400</b>	<b>\$90,300</b>	<b>18.6</b>	<b>23,507</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	23,344	11.4	0	\$4,856	\$92,700	\$2,400	\$90,300	18.6	23,507
<b>Unitary HVAC Measures</b>			<b>20,106</b>	<b>30.6</b>	<b>0</b>	<b>\$4,182</b>	<b>\$299,800</b>	<b>\$15,400</b>	<b>\$284,400</b>	<b>68.0</b>	<b>20,247</b>
ECM 6	Install High Efficiency Air Conditioning Units	No	20,106	30.6	0	\$4,182	\$299,800	\$15,400	\$284,400	68.0	20,247
<b>Domestic Water Heating Upgrade</b>			<b>1,112</b>	<b>0.0</b>	<b>13</b>	<b>\$467</b>	<b>\$310</b>	<b>\$140</b>	<b>\$170</b>	<b>0.4</b>	<b>2,675</b>
ECM 7	Install Low-Flow DHW Devices***	Yes	1,112	0.0	13	\$467	\$310	\$140	\$170	0.4	2,675
<b>Food Service &amp; Refrigeration Measures</b>			<b>10,870</b>	<b>1.2</b>	<b>0</b>	<b>\$2,261</b>	<b>\$6,070</b>	<b>\$50</b>	<b>\$6,020</b>	<b>2.7</b>	<b>10,946</b>
ECM 8	Replace Refrigeration Equipment	Yes	9,258	1.1	0	\$1,926	\$5,800	\$0	\$5,800	3.0	9,323
ECM 9	Vending Machine Control	Yes	1,612	0.2	0	\$335	\$270	\$50	\$220	0.7	1,623
<b>Custom Measures****</b>			<b>-6,565</b>	<b>0.0</b>	<b>70</b>	<b>-\$123</b>	<b>\$4,700</b>	<b>\$0</b>	<b>\$4,700</b>	<b>-38.2</b>	<b>1,585</b>
ECM 10	Replace Gas Fired Water Heater with Heat Pump Water Heater****	No	-6,565	0.0	70	-\$123	\$4,700	\$0	\$4,700	-38.2	1,585
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>142,895</b>	<b>34.0</b>	<b>-14</b>	<b>\$29,480</b>	<b>\$100,030</b>	<b>\$19,070</b>	<b>\$80,960</b>	<b>2.7</b>	<b>142,294</b>
<b>TOTALS (ALL MEASURES)</b>			<b>179,780</b>	<b>76.0</b>	<b>56</b>	<b>\$38,394</b>	<b>\$497,230</b>	<b>\$36,870</b>	<b>\$460,360</b>	<b>12.0</b>	<b>187,633</b>

\* - 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).

\*\*\* - Associated water savings for Low-Flow DHW Devices found in Section 4.5

\*\*\*\* - Negative payback explained in section 4.7

# Washington Township 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>769,763</b>	<b>191.1</b>	<b>-136</b>	<b>\$126,718</b>	<b>\$559,860</b>	<b>\$88,370</b>	<b>\$471,490</b>	<b>3.7</b>	<b>759,180</b>
ECM 1	Install LED Fixtures	Yes	158,873	39.6	-9	\$26,409	\$218,220	\$16,670	\$201,550	7.6	158,903
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,029	0.5	0	\$333	\$1,390	\$130	\$1,260	3.8	1,994
ECM 3	Retrofit Fixtures with LED Lamps	Yes	608,861	150.9	-127	\$99,976	\$340,250	\$71,570	\$268,680	2.7	598,284
<b>Lighting Control Measures</b>			<b>93,618</b>	<b>21.1</b>	<b>-20</b>	<b>\$15,371</b>	<b>\$82,500</b>	<b>\$35,530</b>	<b>\$46,970</b>	<b>3.1</b>	<b>91,980</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	41,947	11.4	-9	\$6,887	\$37,410	\$4,260	\$33,150	4.8	41,214
ECM 5	Install High/Low Lighting Controls	Yes	51,670	9.6	-11	\$8,484	\$45,090	\$31,270	\$13,820	1.6	50,766
<b>Variable Frequency Drive (VFD) Measures</b>			<b>79,690</b>	<b>27.0</b>	<b>12</b>	<b>\$13,477</b>	<b>\$101,400</b>	<b>\$10,500</b>	<b>\$90,900</b>	<b>6.7</b>	<b>81,703</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	57,607	20.9	0	\$9,621	\$79,600	\$8,800	\$70,800	7.4	58,010
ECM 7	Install VFDs on Chilled Water Pumps	Yes	19,539	6.0	0	\$3,263	\$16,700	\$1,500	\$15,200	4.7	19,675
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	2,544	0.1	12	\$593	\$5,100	\$200	\$4,900	8.3	4,018
<b>Unitary HVAC Measures</b>			<b>348,063</b>	<b>304.7</b>	<b>0</b>	<b>\$58,130</b>	<b>\$1,319,700</b>	<b>\$68,100</b>	<b>\$1,251,600</b>	<b>21.5</b>	<b>350,497</b>
ECM 9	Install High Efficiency Air Conditioning Units	No	118,451	127.1	0	\$19,782	\$939,500	\$53,300	\$886,200	44.8	119,279
ECM 10	Install High Efficiency Heat Pumps	Yes	229,612	177.6	0	\$38,347	\$380,200	\$14,800	\$365,400	9.5	231,217
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>552</b>	<b>\$7,442</b>	<b>\$302,900</b>	<b>\$0</b>	<b>\$302,900</b>	<b>40.7</b>	<b>64,588</b>
ECM 11	Install High Efficiency Hot Water Boilers	No	0	0.0	552	\$7,442	\$302,900	\$0	\$302,900	40.7	64,588
<b>HVAC System Improvements</b>			<b>13,030</b>	<b>0.0</b>	<b>159</b>	<b>\$4,325</b>	<b>\$26,700</b>	<b>\$30</b>	<b>\$26,670</b>	<b>6.2</b>	<b>31,772</b>
ECM 12	Implement Demand Control Ventilation (DCV)	Yes	13,030	0.0	150	\$4,200	\$26,500	\$0	\$26,500	6.3	30,691
ECM 13	Install Pipe Insulation	Yes	0	0.0	9	\$125	\$200	\$30	\$170	1.4	1,081
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>74</b>	<b>\$1,003</b>	<b>\$3,080</b>	<b>\$780</b>	<b>\$2,300</b>	<b>2.3</b>	<b>8,707</b>
ECM 14	Install Low-Flow DHW Devices	Yes	0	0.0	74	\$1,003	\$3,080	\$780	\$2,300	2.3	8,707
<b>Food Service &amp; Refrigeration Measures</b>			<b>40,210</b>	<b>3.8</b>	<b>0</b>	<b>\$6,715</b>	<b>\$56,940</b>	<b>\$2,940</b>	<b>\$54,000</b>	<b>8.0</b>	<b>40,491</b>
ECM 15	Dishwasher Replacement	Yes	14,143	1.6	0	\$2,362	\$10,800	\$700	\$10,100	4.3	14,242
ECM 16	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	3,513	0.4	0	\$587	\$5,240	\$560	\$4,680	8.0	3,538
ECM 17	Refrigeration Controls	Yes	8,504	0.2	0	\$1,420	\$14,280	\$630	\$13,650	9.6	8,563
ECM 18	Replace Refrigeration Equipment	No	8,186	0.9	0	\$1,367	\$25,000	\$900	\$24,100	17.6	8,243
ECM 19	Vending Machine Control	Yes	5,863	0.7	0	\$979	\$1,620	\$150	\$1,470	1.5	5,904
<b>Custom Measures***</b>			<b>-59,086</b>	<b>0.0</b>	<b>630</b>	<b>-\$1,369</b>	<b>\$17,400</b>	<b>\$0</b>	<b>\$17,400</b>	<b>-12.7</b>	<b>14,266</b>
ECM 20	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-59,086	0.0	630	-\$1,369	\$17,400	\$0	\$17,400	-12.7	14,266
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>1,217,736</b>	<b>419.6</b>	<b>90</b>	<b>\$204,589</b>	<b>\$1,185,680</b>	<b>\$152,050</b>	<b>\$1,033,630</b>	<b>5.1</b>	<b>1,236,807</b>
<b>TOTALS (ALL MEASURES)</b>			<b>1,285,288</b>	<b>547.6</b>	<b>1,272</b>	<b>\$231,811</b>	<b>\$2,470,480</b>	<b>\$206,250</b>	<b>\$2,264,230</b>	<b>9.8</b>	<b>1,443,184</b>

\* - 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).

\*\*\* - Negative payback explained in section 4.9

# WTHS O'Brien Hall

#	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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>30,651</b>	<b>4.2</b>	<b>-3</b>	<b>\$6,046</b>	<b>\$20,110</b>	<b>\$2,790</b>	<b>\$17,320</b>	<b>2.9</b>	<b>30,493</b>
ECM 1	Install LED Fixtures	Yes	16,823	0.0	0	\$3,342	\$10,300	\$850	\$9,450	2.8	16,940
ECM 2	Retrofit Fixtures with LED Lamps	Yes	13,828	4.2	-3	\$2,704	\$9,810	\$1,940	\$7,870	2.9	13,553
<b>Lighting Control Measures</b>			<b>4,783</b>	<b>1.5</b>	<b>-1</b>	<b>\$935</b>	<b>\$5,940</b>	<b>\$660</b>	<b>\$5,280</b>	<b>5.6</b>	<b>4,687</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	4,783	1.5	-1	\$935	\$5,940	\$660	\$5,280	5.6	4,687
<b>HVAC System Improvements</b>			<b>4,637</b>	<b>0.0</b>	<b>0</b>	<b>\$921</b>	<b>\$5,510</b>	<b>\$30</b>	<b>\$5,480</b>	<b>5.9</b>	<b>4,670</b>
ECM 4	Install Programmable Thermostats	Yes	3,457	0.0	0	\$687	\$5,310	\$0	\$5,310	7.7	3,482
ECM 5	Install Pipe Insulation	Yes	1,180	0.0	0	\$234	\$200	\$30	\$170	0.7	1,188
<b>Domestic Water Heating Upgrade</b>			<b>1,158</b>	<b>0.0</b>	<b>0</b>	<b>\$230</b>	<b>\$110</b>	<b>\$40</b>	<b>\$70</b>	<b>0.3</b>	<b>1,166</b>
ECM 6	Install Low-Flow DHW Devices	Yes	1,158	0.0	0	\$230	\$110	\$40	\$70	0.3	1,166
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$388</b>	<b>\$540</b>	<b>\$50</b>	<b>\$490</b>	<b>1.3</b>	<b>1,968</b>
ECM 7	Vending Machine Control	Yes	1,954	0.2	0	\$388	\$540	\$50	\$490	1.3	1,968
<b>Custom Measures</b>			<b>6,066</b>	<b>0.0</b>	<b>0</b>	<b>\$1,204</b>	<b>\$9,400</b>	<b>\$0</b>	<b>\$9,400</b>	<b>7.8</b>	<b>6,108</b>
ECM 8	Replace Electric Water Heater with Heat Pump Water Heater	Yes	6,066	0.0	0	\$1,204	\$9,400	\$0	\$9,400	7.8	6,108
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>49,249</b>	<b>6.0</b>	<b>-4</b>	<b>\$9,724</b>	<b>\$41,610</b>	<b>\$3,570</b>	<b>\$38,040</b>	<b>3.9</b>	<b>49,092</b>
<b>TOTALS (ALL MEASURES)</b>			<b>49,249</b>	<b>6.0</b>	<b>-4</b>	<b>\$9,724</b>	<b>\$41,610</b>	<b>\$3,570</b>	<b>\$38,040</b>	<b>3.9</b>	<b>49,092</b>

\* - 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).

# 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 Best Practices by building*

# WATER BEST PRACTICES



- Leak Detection and Repair
- Toilets and Urinals
- Faucets and Showerheads
- Commercial Kitchen Equipment
- Laundry Equipment
- Cooling Towers
- Steam Boiler System
- Pools and Spas



- Laboratory and Medical Equipment
- Water Metering and Submetering
- Vehicle Washing
- Single Pass Cooling System
- Landscaping and Irrigation
- On-Site Alternative Water Sources

*See individual reports for specific Water Best Practices by building*



# MEASURES FOR FUTURE CONSIDERATION

- Retro-Commissioning Study
- Eliminate Oversized Domestic Hot Water Heating Systems
- Heating System Conversion from Steam to Hot Water
- Upgrade to a Heat Pump System
- VRF Systems
- High Speed Insulated Overhead Doors

# EV CHARGING STATION POTENTIAL

NJCleanEnergy.com/EV

## Know your EV Charging Stations



### LEVEL 1



**4-6 miles/hour**  
Replenish Rate



**7-30 hours for full charge**

Approximate time to charge a battery\*

**CHARGE**  
110/120V

### LEVEL 2



**10-20 miles/hour**  
Replenish Rate



**2-10 hours for full charge**

Approximate time to charge a battery\*

**CHARGE**  
208/240V

### DIRECT CURRENT (DC) FAST CHARGING\*



**120-200 miles/hour**  
Replenish Rate



**20-90 minutes for full charge**

Approximate time to charge a battery\*

**CHARGE**  
480V or 208V

\*dependent on the size of the battery

## Washington Township BOE

Potential:

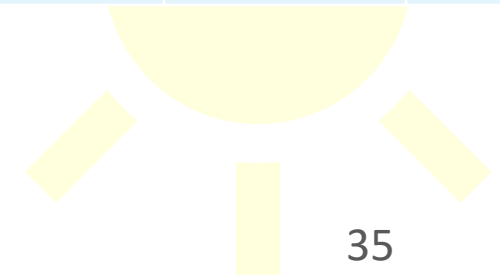
See reports



# SOLAR ENERGY GENERATION POTENTIAL

NJCleanEnergy.com/renewable-energy

	Bells ES	Birches ES	Bunker Hill MS	Chestnut Ridge MS	Grenlock Terrace ECC	Hurffville ES	Orchard Valley MS	Thomas Jefferson ES	Wedgewood ES	Whitman ES	Washington Twp HS	WTHS O'Brien Hall
<i>Potential:</i>	High	High	High	High	High	Medium	High	High	High	High	High	High
<i>System Potential: (kW)</i>	215	225	215	107	160	107	485	215	230	219	1,746	101
<i>Electric Generation: (kWh per year)</i>	256,145	268,059	256,145	127,477	120,391	127,477	577,815	256,145	274,015	260,901	2,080,132	120,328
<i>Displaced Cost: (per year)</i>	\$55,170	\$52,190	\$41,410	\$19,340	\$26,320	\$25,240	\$93,760	\$44,960	\$51,060	\$54,270	\$347,400	\$23,900



# FINANCING MECHANISM: ESIP

[NJCleanEnergy.com/ESIP](http://NJCleanEnergy.com/ESIP)

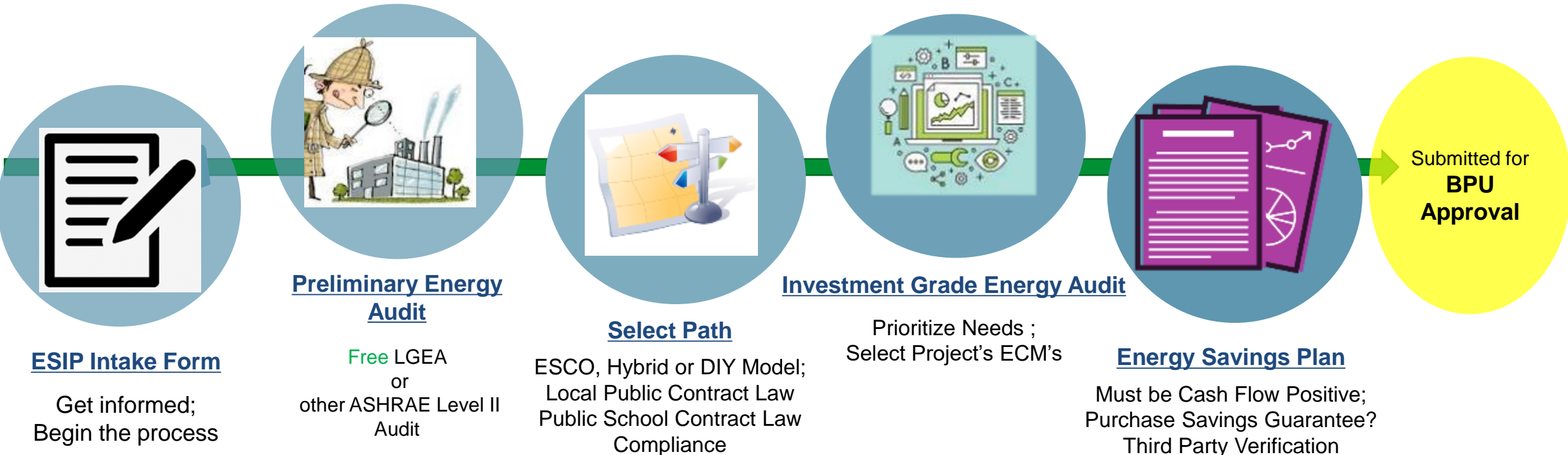
## ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP Program
- A creative tool and financing mechanism that allows public 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
- 2 Options: Lease Purchase Loan or Bond
- 15 or 20 year pay back term
- NJBPU Approved Incentive Programs
  - Utility or NJCEP
- Can be combined with Federal/State Grants
- No upfront capital expenses
- No referendum or impact to tax payers



# ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP



# ENERGY SAVINGS IMPROVEMENT PROGRAM

NJCleanEnergy.com/ESIP

## FOR MORE INFORMATION

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ESIP Coordinator

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# C&I ENERGY EFFICIENCY PROGRAMS

NJCleanEnergy.com

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\*

[NJCleanEnergy.com/Transition](http://NJCleanEnergy.com/Transition)

## 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

## ENERGY MANAGEMENT :

- Includes the Building Tune-up (BT), Retro-commissioning (RCx), and Strategic Energy Management (SEM) subprograms. These subprograms offer a comprehensive mix of custom energy-savings measures such as basic HVAC tune-ups, building systems tune-ups, controls' calibration, diagnostic testing, and installation of measures to enhance your building's energy performance and savings.

## 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

*\*Other programs may be available to you. Check with your Utility Provider to see a full list of offering and what you may be qualified for.*





# UTILITY RUN ENERGY EFFICIENCY PROGRAMS

## Atlantic City Electric

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**THANK YOU**

