

# New Jersey's Clean Energy Program

LGEA Presentation  
*The College of New Jersey*

April 19, 2021



# INTRODUCTIONS

- *The College of New Jersey*
  - Michael Dixon – VP of Facilities Management
  - David Matlack – Campus Engineer
- *NJ Clean Energy Program*
  - Jose Bermudez – TRC Program Manager
  - Moussa Traore – TRC Lead Auditor
  - Kush Patel – TRC Auditor
  - Sarah Walters – TRC Account Manager
  - Tony O'Donnell – TRC Outreach Manager
  - Michelle Rossi – ESIP Coordinator (BPU)
  - Arif Welcher – Government/Business Manager (BPU)

# AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- Overview of NJCEP equipment incentives
- Questions regarding the draft audit report
- Next steps for TCNJ



# 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
- Food Service & Refrigeration

## Utility Consumption:

- Electric Consumption and Costs
- Natural Gas Consumption and Costs

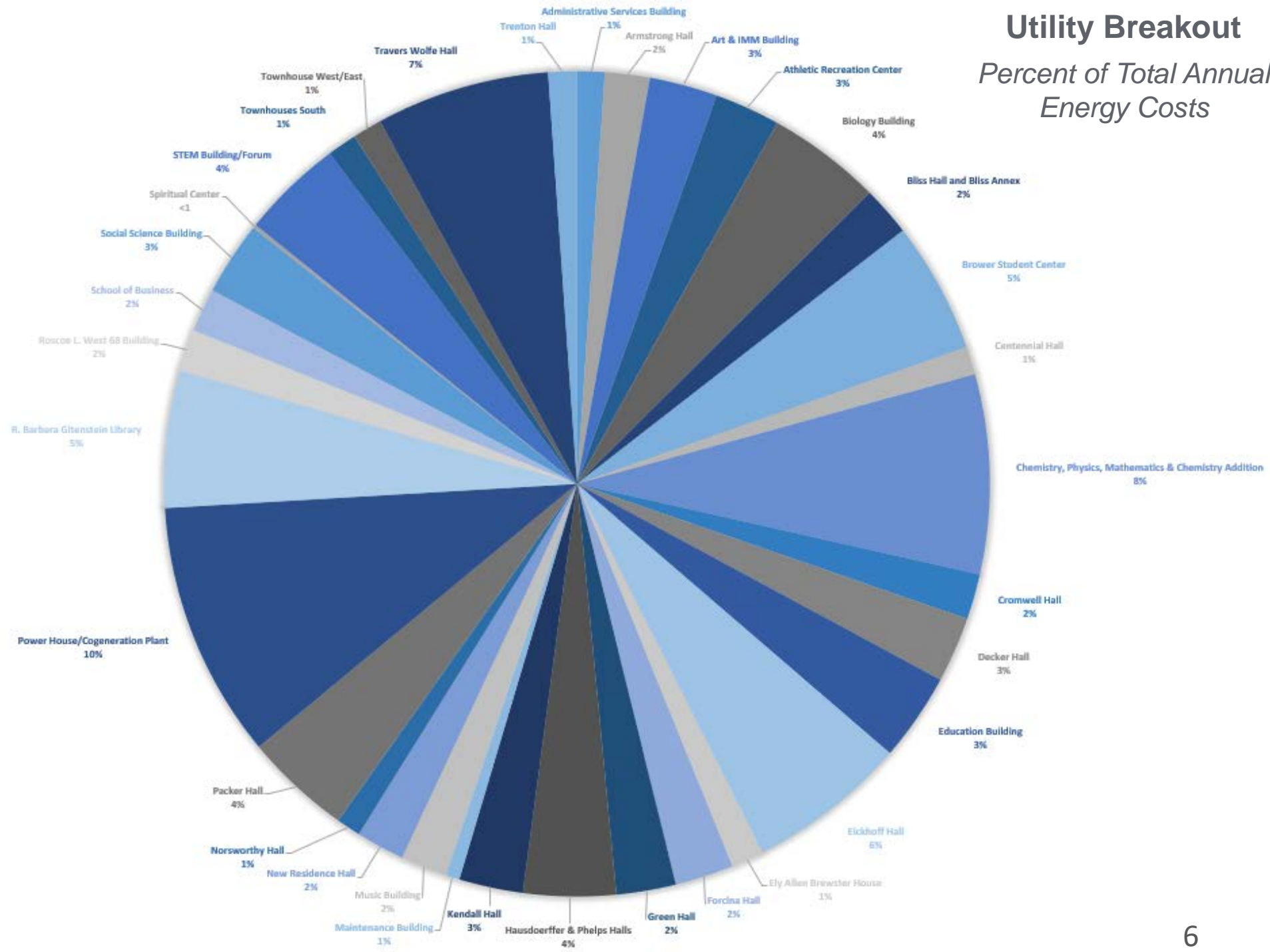
## Sites Visited/Analyzed

- Ely Allen Brewster House
- Armstrong Hall
- Art & IMM
- Administrative Services Building
- Biology Building
- Bliss Hall & Bliss Annex
- Brower Student Center
- School of Business
- Centennial Hall
- Decker Hall
- Cromwell Hall
- Education Building
- Eickhoff Hall
- Forcina Hall
- Green Hall
- Hausdoerffer Hall
- Phelps Hall
- Kendall Hall
- Maintenance Building
- Music Building
- New Residence Hall
- Norsworthy Hall
- Packer Hall
- Athletic Recreation Center
- Roscoe L West 68 Building
- Chem (and Addition), Physics, & Mathematics Bldg
- Social Science Building
- Spiritual Center
- R. Barbara Gitenstein Library
- Travers Wolfe Hall
- Townhouse West-East (Cluster #1)
- Power House – Cogen
- Trenton Hall
- Townhouse South (Cluster #2)
- STEM Building - Forum



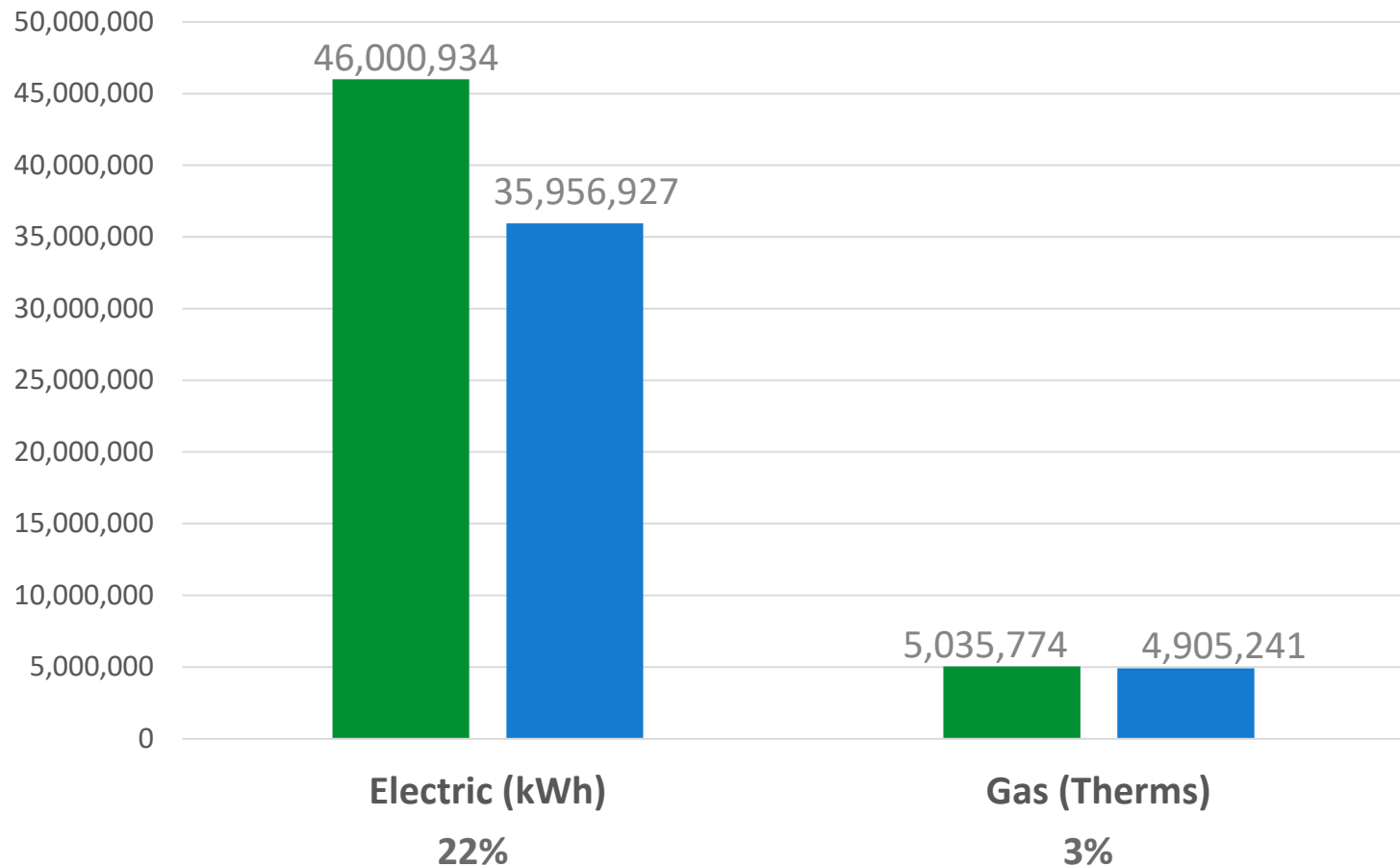
# Utility Breakout

*Percent of Total Annual Energy Costs*



# UTILITY BREAKOUT

## Pre & Post Implementation Usage



■ Pre-Implementation Usage  
■ Post Implementation Usage

# BENCHMARKING

**ENERGY STAR® Statement of Energy Performance**

N/A

**The College of New Jersey**

Primary Property Type: College/University  
 Gross Floor Area (ft²): 2,830,421  
 Built: 1855

For Year Ending: January 31, 2020  
 Date Generated: December 13, 2020

ENERGY STAR® Score<sup>1</sup>

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> The College of New Jersey 2000 Pennington Road Ewing, New Jersey 08628	<b>Property Owner</b> The College of New Jersey 2000 Pennington Rd Ewing, NJ 08628 609-771-2874	<b>Primary Contact</b> David Mataack 2000 Pennington Road Ewing, NJ 08628 609-771-2874 sstewart@trco.com
---	---	---

Property ID: 5984875

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

<b>Site EUI</b> 229 kBtu/ft²	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>
	Natural Gas (kBtu) 619,522,872 (96%)	National Median Site EUI (kBtu/ft²) 160.2
	Electric - Grid (kBtu) 28,774,949 (4%)	National Median Source EUI (kBtu/ft²) 180.6
		% Diff from National Median Source EUI 43%
<b>Source EUI</b> 258.3 kBtu/ft²		<b>Annual Emissions</b>
		Greenhouse Gas Emissions (Metric Tons CO2e/year) 35,660

**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**  
229 kBtu/ft²

**Source EUI**  
258.3 kBtu/ft²

**National Median Comparison**

National Median Site EUI (kBtu/ft²)	160.2
National Median Source EUI (kBtu/ft²)	180.6
% Diff from National Median Source EUI	43%

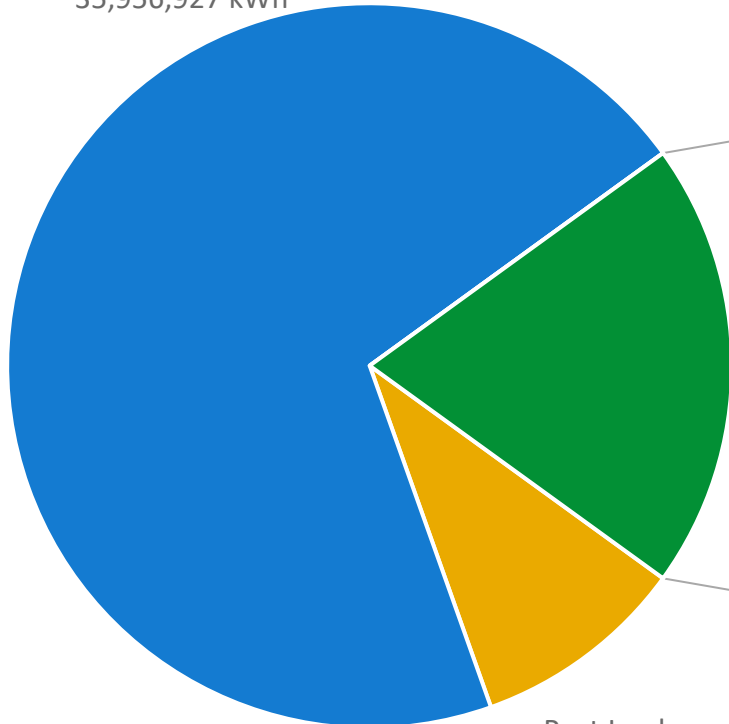
ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.



# ALL OPPORTUNITIES

## Savings Potential

Post Implementation Electric  
35,956,927 kWh



Post Implementation Fuel  
4,891,903 Therms



- Lighting Upgrades
- Lighting Control Measures
- Motor Upgrades
- Variable Frequency Drive (VFD) Measures
- Electric Unitary HVAC Measures
- Gas Heating (HVAC/Process) Replacement
- HVAC System Improvements
- Domestic Water Heating Upgrade
- Food Service & Refrigeration Measures
- Custom Measures



# 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>4,692,981</b>	<b>568.7</b>	<b>-1,001.5</b>	<b>\$685,979</b>	<b>\$1,402,110</b>	<b>\$267,382</b>	<b>\$1,134,728</b>	<b>1.7</b>	<b>4,608,532</b>
ECM 1	Install LED Fixtures	636,012	59.6	-123.8	\$93,042	\$214,146	\$23,425	\$190,721	2.0	625,959
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	26,457	2.9	-5.7	\$3,867	\$6,273	\$778	\$5,495	1.4	25,975
ECM 3	Retrofit Fixtures with LED Lamps	4,030,459	506.2	-871.9	\$589,063	\$1,181,618	\$243,179	\$938,439	1.6	3,956,547
ECM 4	Install LED Exit Signs	53	0.0	0.0	\$8	\$72	\$0	\$72	9.4	52
<b>Lighting Control Measures</b>		<b>1,157,108</b>	<b>130.5</b>	<b>-248.5</b>	<b>\$169,109</b>	<b>\$1,047,527</b>	<b>\$262,053</b>	<b>\$785,474</b>	<b>4.6</b>	<b>1,136,104</b>
ECM 5	Install Occupancy Sensor Lighting Controls	788,722	100.8	-173.1	\$115,276	\$801,794	\$86,008	\$715,786	6.2	773,966
ECM 6	Install High/Low Lighting Controls	368,386	29.8	-75.4	\$53,834	\$245,733	\$176,045	\$69,688	1.3	362,138
<b>Motor Upgrades</b>		<b>84,294</b>	<b>14.2</b>	<b>0.0</b>	<b>\$12,401</b>	<b>\$187,140</b>	<b>\$0</b>	<b>\$187,140</b>	<b>15.1</b>	<b>84,883</b>
ECM 7	Premium Efficiency Motors	84,294	14.2	0.0	\$12,401	\$187,140	\$0	\$187,140	15.1	84,883
<b>Variable Frequency Drive (VFD) Measures</b>		<b>1,938,063</b>	<b>326.9</b>	<b>117.0</b>	<b>\$285,656</b>	<b>\$2,213,732</b>	<b>\$148,750</b>	<b>\$2,064,982</b>	<b>7.2</b>	<b>1,965,317</b>
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	316,034	60.7	0.0	\$46,494	\$146,918	\$20,575	\$126,343	2.7	318,244
ECM 9	Install VFDs on Constant Volume (CV) Fans	926,927	161.5	0.0	\$136,366	\$478,759	\$51,550	\$427,209	3.1	933,408
ECM 10	Install VFDs on Chilled Water Pumps	6,469	2.0	0.0	\$952	\$23,152	\$1,800	\$21,352	22.4	6,515
ECM 11	Install VFDs on Heating Water Pumps	319,768	33.0	0.0	\$47,044	\$1,165,024	\$34,800	\$1,130,224	24.0	322,004
ECM 12	Install VFDs on Cooling Tower Fans	34,628	-4.0	0.0	\$5,094	\$53,487	\$10,000	\$43,487	8.5	34,870
ECM 13	Install Boiler Draft Fan VFDs	27,373	14.9	0.0	\$4,027	\$17,501	\$3,000	\$14,501	3.6	27,565
ECM 14	Install VFDs on Boiler Feedwater Pumps	79,616	44.8	0.0	\$11,713	\$37,390	\$5,400	\$31,990	2.7	80,173
ECM 15	Install VFDs on Kitchen Hood Fan Motors	91,304	0.9	117.0	\$13,966	\$34,429	\$4,525	\$29,904	2.1	105,646
ECM 16	Install VFDs on Condensate Pumps	33,867	4.3	0.0	\$4,982	\$45,222	\$4,850	\$40,372	8.1	34,104
ECM 17	Install VFDs on Water Supply Pump	102,075	8.8	0.0	\$15,017	\$211,849	\$12,250	\$199,599	13.3	102,788

# 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Electric Unitary HVAC Measures</b>		<b>634,734</b>	<b>189.9</b>	<b>92.2</b>	<b>\$93,936</b>	<b>\$1,514,035</b>	<b>\$78,902</b>	<b>\$1,435,133</b>	<b>15.3</b>	<b>649,969</b>
ECM 18	Install High Efficiency Air Conditioning Units	367,614	107.1	92.2	\$54,638	\$690,691	\$47,154	\$643,537	11.8	380,981
ECM 19	Install High Efficiency Heat Pumps	264,799	82.3	0.0	\$38,957	\$811,736	\$31,629	\$780,108	20.0	266,651
ECM 20	Install High Efficiency PTAC/PTHP	2,321	0.4	0.0	\$341	\$11,608	\$120	\$11,488	33.6	2,337
<b>Gas Heating (HVAC/Process) Replacement</b>		<b>0</b>	<b>0.0</b>	<b>63.5</b>	<b>\$515</b>	<b>\$27,259</b>	<b>\$2,126</b>	<b>\$25,133</b>	<b>48.8</b>	<b>7,438</b>
ECM 21	Install High Efficiency Hot Water Boilers	0	0.0	63.5	\$515	\$27,259	\$2,126	\$25,133	48.8	7,438
<b>HVAC System Improvements</b>		<b>12,889</b>	<b>0.0</b>	<b>3,600.3</b>	<b>\$17,162</b>	<b>\$109,255</b>	<b>\$6,682</b>	<b>\$102,573</b>	<b>6.0</b>	<b>434,530</b>
ECM 22	Install Pipe Insulation	12,889	0.0	3,600.3	\$17,162	\$109,255	\$6,682	\$102,573	6.0	434,530
<b>Domestic Water Heating Upgrade</b>		<b>102,811</b>	<b>0.0</b>	<b>853.9</b>	<b>\$18,807</b>	<b>\$47,828</b>	<b>\$13,242</b>	<b>\$34,586</b>	<b>1.8</b>	<b>203,508</b>
ECM 23	Install Low-Flow DHW Devices	102,811	0.0	853.9	\$18,807	\$47,828	\$13,242	\$34,586	1.8	203,508
<b>Food Service &amp; Refrigeration Measures</b>		<b>110,946</b>	<b>11.6</b>	<b>0.0</b>	<b>\$16,322</b>	<b>\$66,936</b>	<b>\$6,550</b>	<b>\$60,386</b>	<b>3.7</b>	<b>111,721</b>
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	13,551	1.6	0.0	\$1,994	\$13,649	\$1,800	\$11,849	5.9	13,646
ECM 25	Refrigeration Controls	12,167	0.3	0.0	\$1,790	\$21,407	\$1,200	\$20,207	11.3	12,252
ECM 26	Replace Refrigeration Equipment	20,996	2.4	0.0	\$3,089	\$17,391	\$1,600	\$15,791	5.1	21,142
ECM 27	Vending Machine Control	64,232	7.3	0.0	\$9,449	\$14,490	\$1,950	\$12,540	1.3	64,681
<b>Custom Measures</b>		<b>1,310,182</b>	<b>0.0</b>	<b>10,910.1</b>	<b>\$239,426</b>	<b>\$1,684,759</b>	<b>\$0</b>	<b>\$1,684,759</b>	<b>7.0</b>	<b>2,577,373</b>
ECM 28	Retro-Commissioning Study	336,132	0.0	5,397.8	\$72,600	\$503,014	\$0	\$503,014	6.9	970,493
ECM 29	Installation of an Energy Management System	24,681	0.0	713.4	\$6,649	\$40,000	\$0	\$40,000	6.0	108,380
ECM 30	Sub Metering	353,162	0.0	3,709.0	\$67,853	\$425,600	\$0	\$425,600	6.3	770,500
ECM 31	Install Heat Pump Water Heat	596,207	0.0	0.0	\$87,712	\$551,845	\$0	\$551,845	6.3	600,376
ECM 32	Automatic Pool Cover	0	0.0	1,090.0	\$4,612	\$122,300	\$0	\$122,300	26.5	127,625
ECM 33	Connect Existing Plant Steam Flow Meter & Install a Chilled Water Flow Meter	0	0.0	0.0	\$0	\$42,000	\$0	\$42,000	0.0	0
<b>TOTALS</b>		<b>10,044,007</b>	<b>1,241.8</b>	<b>14,387.1</b>	<b>\$1,539,314</b>	<b>\$8,300,580</b>	<b>\$785,687</b>	<b>\$7,514,893</b>	<b>4.9</b>	<b>11,779,378</b>

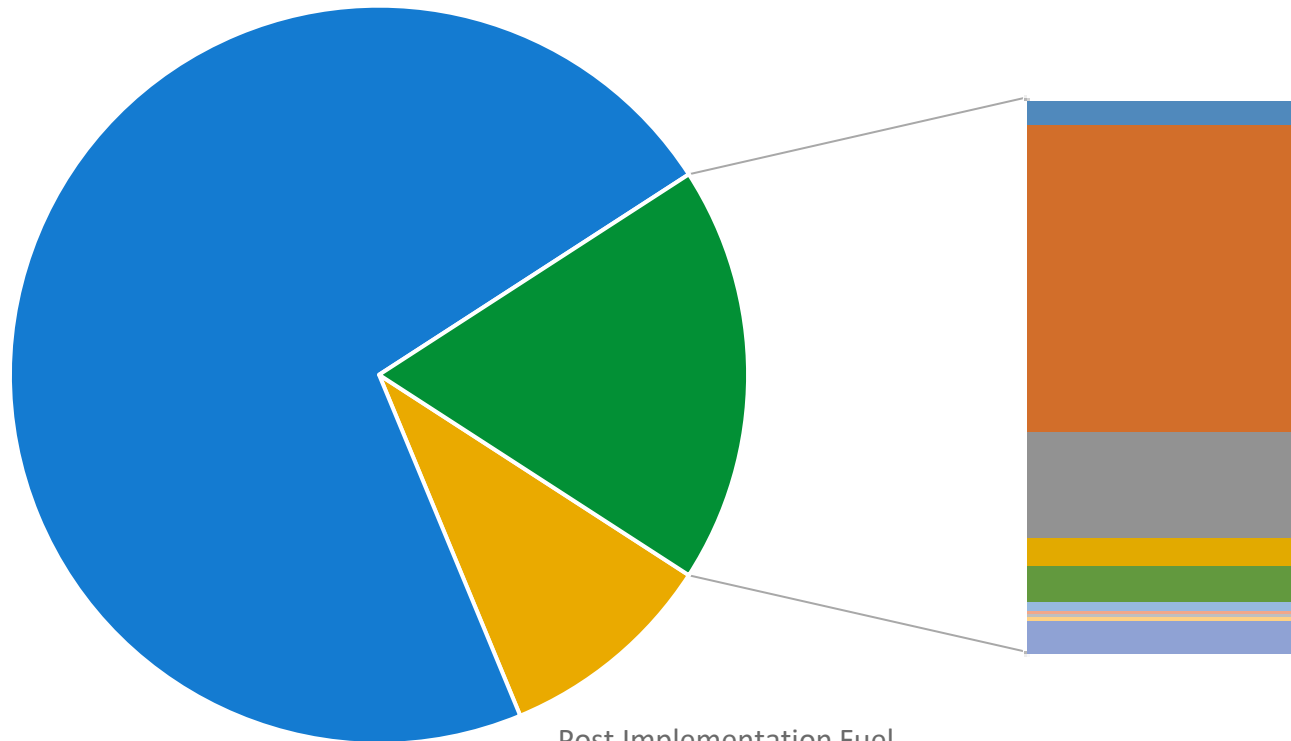
\* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# COST EFFECTIVE OPPORTUNITIES

## Savings Potential

Post Implementation Electric  
36,801,400 kWh



Post Implementation Fuel  
4,905,241 Therms

- Lighting Upgrades
- Lighting Control Measures
- Motor Upgrades
- Variable Frequency Drive (VFD) Measures
- Electric Unitary HVAC Measures
- HVAC System Improvements
- Domestic Water Heating Upgrade
- Food Service & Refrigeration Measures
- Custom Measures



# 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>4,692,981</b>	<b>568.7</b>	<b>-1,001.5</b>	<b>\$685,979</b>	<b>\$1,402,110</b>	<b>\$267,382</b>	<b>\$1,134,728</b>	<b>1.7</b>	<b>4,608,532</b>
ECM 1	Install LED Fixtures	636,012	59.6	-123.8	\$93,042	\$214,146	\$23,425	\$190,721	2.0	625,959
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	26,457	2.9	-5.7	\$3,867	\$6,273	\$778	\$5,495	1.4	25,975
ECM 3	Retrofit Fixtures with LED Lamps	4,030,459	506.2	-871.9	\$589,063	\$1,181,618	\$243,179	\$938,439	1.6	3,956,547
ECM 4	Install LED Exit Signs	53	0.0	0.0	\$8	\$72	\$0	\$72	9.4	52
<b>Lighting Control Measures</b>		<b>1,081,517</b>	<b>117.5</b>	<b>-235.6</b>	<b>\$158,043</b>	<b>\$827,587</b>	<b>\$251,684</b>	<b>\$575,903</b>	<b>3.6</b>	<b>1,061,490</b>
ECM 5	Install Occupancy Sensor Lighting Controls	713,131	87.8	-160.3	\$104,209	\$581,854	\$75,639	\$506,215	4.9	699,351
ECM 6	Install High/Low Lighting Controls	368,386	29.8	-75.4	\$53,834	\$245,733	\$176,045	\$69,688	1.3	362,138
<b>Motor Upgrades</b>		<b>43,163</b>	<b>6.7</b>	<b>0.0</b>	<b>\$6,350</b>	<b>\$53,996</b>	<b>\$0</b>	<b>\$53,996</b>	<b>8.5</b>	<b>43,465</b>
ECM 7	Premium Efficiency Motors	43,163	6.7	0.0	\$6,350	\$53,996	\$0	\$53,996	8.5	43,465
<b>Variable Frequency Drive (VFD) Measures</b>		<b>1,605,211</b>	<b>290.0</b>	<b>117.0</b>	<b>\$236,687</b>	<b>\$876,782</b>	<b>\$113,250</b>	<b>\$763,532</b>	<b>3.2</b>	<b>1,630,138</b>
ECM 8	Install VFD on Variable Air Volume (VAV) Fans	316,034	60.7	0.0	\$46,494	\$146,918	\$20,575	\$126,343	2.7	318,244
ECM 9	Install VFDs on Constant Volume (CV) Fans	909,109	156.8	0.0	\$133,745	\$432,093	\$50,550	\$381,543	2.9	915,465
ECM 11	Install VFDs on Heating Water Pumps	55,225	6.4	0.0	\$8,125	\$83,231	\$6,100	\$77,131	9.5	55,611
ECM 12	Install VFDs on Cooling Tower Fans	34,628	-4.0	0.0	\$5,094	\$53,487	\$10,000	\$43,487	8.5	34,870
ECM 13	Install Boiler Draft Fan VFDs	27,373	14.9	0.0	\$4,027	\$17,501	\$3,000	\$14,501	3.6	27,565
ECM 14	Install VFDs on Boiler Feedwater Pumps	79,616	44.8	0.0	\$11,713	\$37,390	\$5,400	\$31,990	2.7	80,173
ECM 15	Install VFDs on Kitchen Hood Fan Motors	91,304	0.9	117.0	\$13,966	\$34,429	\$4,525	\$29,904	2.1	105,646
ECM 16	Install VFDs on Condensate Pumps	30,695	3.7	0.0	\$4,515	\$32,660	\$4,600	\$28,060	6.2	30,910
ECM 17	Install VFDs on Water Supply Pump	61,226	5.9	0.0	\$9,007	\$39,073	\$8,500	\$30,573	3.4	61,654

# 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>Electric Unitary HVAC Measures</b>		<b>402,610</b>	<b>106.6</b>	<b>48.1</b>	<b>\$59,445</b>	<b>\$655,608</b>	<b>\$40,482</b>	<b>\$615,126</b>	<b>10.3</b>	<b>411,058</b>
ECM 18	Install High Efficiency Air Conditioning Units	272,106	72.4	48.1	\$40,245	\$415,495	\$30,139	\$385,357	9.6	279,641
ECM 19	Install High Efficiency Heat Pumps	130,505	34.3	0.0	\$19,200	\$240,113	\$10,343	\$229,770	12.0	131,417
<b>HVAC System Improvements</b>		<b>12,889</b>	<b>0.0</b>	<b>3,600.3</b>	<b>\$17,162</b>	<b>\$109,255</b>	<b>\$6,682</b>	<b>\$102,573</b>	<b>6.0</b>	<b>434,530</b>
ECM 22	Install Pipe Insulation	12,889	0.0	3,600.3	\$17,162	\$109,255	\$6,682	\$102,573	6.0	434,530
<b>Domestic Water Heating Upgrade</b>		<b>102,811</b>	<b>0.0</b>	<b>704.9</b>	<b>\$18,132</b>	<b>\$36,669</b>	<b>\$11,021</b>	<b>\$25,648</b>	<b>1.4</b>	<b>186,068</b>
ECM 23	Install Low-Flow DHW Devices	102,811	0.0	704.9	\$18,132	\$36,669	\$11,021	\$25,648	1.4	186,068
<b>Food Service &amp; Refrigeration Measures</b>		<b>108,961</b>	<b>11.5</b>	<b>0.0</b>	<b>\$16,030</b>	<b>\$60,359</b>	<b>\$6,175</b>	<b>\$54,184</b>	<b>3.4</b>	<b>109,723</b>
ECM 24	Refrigerator/Freezer Case Electrically Commutated Motors	13,551	1.6	0.0	\$1,994	\$13,649	\$1,800	\$11,849	5.9	13,646
ECM 25	Refrigeration Controls	10,182	0.2	0.0	\$1,498	\$14,830	\$825	\$14,005	9.3	10,253
ECM 26	Replace Refrigeration Equipment	20,996	2.4	0.0	\$3,089	\$17,391	\$1,600	\$15,791	5.1	21,142
ECM 27	Vending Machine Control	64,232	7.3	0.0	\$9,449	\$14,490	\$1,950	\$12,540	1.3	64,681
<b>Custom Measures</b>		<b>1,149,390</b>	<b>0.0</b>	<b>9,820.1</b>	<b>\$211,159</b>	<b>\$1,021,195</b>	<b>\$0</b>	<b>\$1,021,195</b>	<b>4.8</b>	<b>2,287,832</b>
ECM 28	Retro-Commissioning Study	310,744	0.0	5,397.8	\$68,865	\$443,389	\$0	\$443,389	6.4	944,927
ECM 29	Installation of an Energy Management System	24,681	0.0	713.4	\$6,649	\$40,000	\$0	\$40,000	6.0	108,380
ECM 30	Sub Metering	353,162	0.0	3,709.0	\$67,853	\$425,600	\$0	\$425,600	6.3	770,500
ECM 31	Install Heat Pump Water Heat	460,803	0.0	0.0	\$67,792	\$70,206	\$0	\$70,206	1.0	464,025
ECM 33	Connect Existing Plant Steam Flow Meter & Install a Chilled Water Flow Meter	0	0.0	0.0	\$0	\$42,000	\$0	\$42,000	0.0	0
<b>TOTALS</b>		<b>9,199,534</b>	<b>1,101.1</b>	<b>13,053.4</b>	<b>\$1,408,987</b>	<b>\$5,043,559</b>	<b>\$696,675</b>	<b>\$4,346,884</b>	<b>3.1</b>	<b>10,772,837</b>

\* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# ELY ALLEN BREWSTER HOUSE

#	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>72,279</b>	<b>6.0</b>	<b>-16</b>	<b>\$10,566</b>	<b>\$14,959</b>	<b>\$3,132</b>	<b>\$11,827</b>	<b>1.1</b>	<b>70,926</b>
ECM 1	Install LED Fixtures	Yes	2,961	0.0	0	\$436	\$1,120	\$200	\$920	2.1	2,982
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	872	0.1	0	\$127	\$138	\$20	\$118	0.9	855
ECM 3	Retrofit Fixtures with LED Lamps	Yes	68,446	6.0	-16	\$10,003	\$13,701	\$2,912	\$10,789	1.1	67,089
<b>Lighting Control Measures</b>			<b>12,468</b>	<b>0.8</b>	<b>-3</b>	<b>\$1,822</b>	<b>\$16,657</b>	<b>\$5,285</b>	<b>\$11,372</b>	<b>6.2</b>	<b>12,220</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	4,957	0.3	-1	\$724	\$8,332	\$175	\$8,157	11.3	4,858
ECM 5	Install High/Low Lighting Controls	Yes	7,512	0.5	-2	\$1,098	\$8,325	\$5,110	\$3,215	2.9	7,362
<b>Motor Upgrades</b>			<b>563</b>	<b>0.1</b>	<b>0</b>	<b>\$83</b>	<b>\$1,153</b>	<b>\$0</b>	<b>\$1,153</b>	<b>13.9</b>	<b>567</b>
ECM 6	Premium Efficiency Motors	No	563	0.1	0	\$83	\$1,153	\$0	\$1,153	13.9	567
<b>Variable Frequency Drive (VFD) Measures</b>			<b>19,285</b>	<b>2.0</b>	<b>0</b>	<b>\$2,837</b>	<b>\$65,726</b>	<b>\$2,000</b>	<b>\$63,726</b>	<b>22.5</b>	<b>19,420</b>
ECM 7	Install VFDs on Heating Water Pumps	No	19,285	2.0	0	\$2,837	\$65,726	\$2,000	\$63,726	22.5	19,420
<b>Unitary HVAC Measures</b>			<b>7,004</b>	<b>0.9</b>	<b>0</b>	<b>\$1,030</b>	<b>\$11,697</b>	<b>\$0</b>	<b>\$11,697</b>	<b>11.4</b>	<b>7,053</b>
ECM 8	Install High Efficiency Air Conditioning Units	Yes	7,004	0.9	0	\$1,030	\$11,697	\$0	\$11,697	11.4	7,053
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>27</b>	<b>\$114</b>	<b>\$409</b>	<b>\$228</b>	<b>\$181</b>	<b>1.6</b>	<b>3,144</b>
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	27	\$114	\$409	\$228	\$181	1.6	3,144
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,566</b>	<b>0.4</b>	<b>0</b>	<b>\$525</b>	<b>\$690</b>	<b>\$100</b>	<b>\$590</b>	<b>1.1</b>	<b>3,591</b>
ECM 10	Vending Machine Control	Yes	3,566	0.4	0	\$525	\$690	\$100	\$590	1.1	3,591
<b>Custom Measures</b>			<b>3,372</b>	<b>0.0</b>	<b>83</b>	<b>\$847</b>	<b>\$9,100</b>	<b>\$0</b>	<b>\$9,100</b>	<b>10.7</b>	<b>13,121</b>
ECM 11	Sub Metering	Yes	3,372	0.0	83	\$847	\$9,100	\$0	\$9,100	10.7	13,121
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>98,689</b>	<b>8.2</b>	<b>91</b>	<b>\$14,904</b>	<b>\$53,512</b>	<b>\$8,745</b>	<b>\$44,767</b>	<b>3.0</b>	<b>110,053</b>
<b>TOTALS (ALL MEASURES)</b>			<b>118,537</b>	<b>10.2</b>	<b>91</b>	<b>\$17,824</b>	<b>\$120,392</b>	<b>\$10,745</b>	<b>\$109,647</b>	<b>6.2</b>	<b>130,040</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# ARMSTRONG 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>107,371</b>	<b>30.0</b>	<b>-22</b>	<b>\$15,701</b>	<b>\$54,687</b>	<b>\$11,489</b>	<b>\$43,198</b>	<b>2.8</b>	<b>105,594</b>
ECM 1	Install LED Fixtures	Yes	33,431	9.0	-6	\$4,890	\$20,650	\$3,075	\$17,575	3.6	32,915
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	519	0.2	0	\$76	\$361	\$55	\$306	4.0	510
ECM 3	Retrofit Fixtures with LED Lamps	Yes	73,421	20.7	-15	\$10,735	\$33,675	\$8,359	\$25,316	2.4	72,169
<b>Lighting Control Measures</b>			<b>31,517</b>	<b>7.5</b>	<b>-6</b>	<b>\$4,610</b>	<b>\$31,367</b>	<b>\$9,159</b>	<b>\$22,208</b>	<b>4.8</b>	<b>31,035</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	20,378	6.0	-4	\$2,979	\$24,354	\$3,559	\$20,795	7.0	20,021
ECM 5	Install High/Low Lighting Controls	Yes	11,139	1.6	-2	\$1,631	\$7,013	\$5,600	\$1,413	0.9	11,014
<b>Motor Upgrades</b>			<b>6,553</b>	<b>2.0</b>	<b>0</b>	<b>\$964</b>	<b>\$4,832</b>	<b>\$0</b>	<b>\$4,832</b>	<b>5.0</b>	<b>6,599</b>
ECM 6	Premium Efficiency Motors	Yes	6,553	2.0	0	\$964	\$4,832	\$0	\$4,832	5.0	6,599
<b>Variable Frequency Drive (VFD) Measures</b>			<b>57,463</b>	<b>17.0</b>	<b>0</b>	<b>\$8,454</b>	<b>\$71,405</b>	<b>\$6,900</b>	<b>\$64,505</b>	<b>7.6</b>	<b>57,865</b>
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	Yes	29,385	11.9	0	\$4,323	\$32,470	\$3,775	\$28,695	6.6	29,590
ECM 8	Install VFDs on Constant Volume (CV) Fans	No	3,921	1.3	0	\$577	\$17,085	\$325	\$16,760	29.1	3,949
ECM 9	Install VFDs on Heating Water Pumps	Yes	24,157	3.8	0	\$3,554	\$21,850	\$2,800	\$19,050	5.4	24,326
<b>Unitary HVAC Measures</b>			<b>4,356</b>	<b>4.1</b>	<b>4</b>	<b>\$659</b>	<b>\$26,952</b>	<b>\$1,511</b>	<b>\$25,441</b>	<b>38.6</b>	<b>4,878</b>
ECM 10	Install High Efficiency Air Conditioning Units	No	4,356	4.1	4	\$659	\$26,952	\$1,511	\$25,441	38.6	4,878
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>1</b>	<b>\$6</b>	<b>\$14</b>	<b>\$4</b>	<b>\$10</b>	<b>1.8</b>	<b>150</b>
ECM 11	Install Pipe Insulation	Yes	0	0.0	1	\$6	\$14	\$4	\$10	1.8	150
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$19</b>	<b>\$65</b>	<b>\$36</b>	<b>\$29</b>	<b>1.5</b>	<b>500</b>
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$19	\$65	\$36	\$29	1.5	500
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,551</b>	<b>0.2</b>	<b>0</b>	<b>\$228</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.8</b>	<b>1,562</b>
ECM 13	Vending Machine Control	Yes	1,551	0.2	0	\$228	\$460	\$50	\$410	1.8	1,562
<b>Custom Measures</b>			<b>10,208</b>	<b>0.0</b>	<b>362</b>	<b>\$3,102</b>	<b>\$40,294</b>	<b>\$0</b>	<b>\$40,294</b>	<b>13.0</b>	<b>52,643</b>
ECM 14	Retro-Commissioning Study	Yes	5,983	0.0	213	\$1,820	\$21,494	\$0	\$21,494	11.8	30,905
ECM 15	Sub Metering	Yes	4,226	0.0	149	\$1,282	\$18,800	\$0	\$18,800	14.7	21,737
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>210,742</b>	<b>55.4</b>	<b>340</b>	<b>\$32,507</b>	<b>\$186,039</b>	<b>\$27,313</b>	<b>\$158,726</b>	<b>4.9</b>	<b>251,999</b>
<b>TOTALS (ALL MEASURES)</b>			<b>219,019</b>	<b>60.8</b>	<b>344</b>	<b>\$33,743</b>	<b>\$230,076</b>	<b>\$29,149</b>	<b>\$200,927</b>	<b>6.0</b>	<b>260,826</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# ART & IMM

#	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>132,105</b>	<b>16.8</b>	<b>-30</b>	<b>\$19,308</b>	<b>\$41,789</b>	<b>\$6,675</b>	<b>\$35,114</b>	<b>1.8</b>	<b>129,508</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	132,105	16.8	-30	\$19,308	\$41,789	\$6,675	\$35,114	1.8	129,508
<b>Lighting Control Measures</b>			<b>39,514</b>	<b>4.6</b>	<b>-9</b>	<b>\$5,775</b>	<b>\$25,010</b>	<b>\$9,270</b>	<b>\$15,740</b>	<b>2.7</b>	<b>38,727</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	33,523	4.0	-8	\$4,899	\$16,010	\$2,070	\$13,940	2.8	32,855
ECM 3	Install High/Low Lighting Controls	Yes	5,991	0.7	-1	\$876	\$9,000	\$7,200	\$1,800	2.1	5,872
<b>Variable Frequency Drive (VFD) Measures</b>			<b>11,891</b>	<b>2.0</b>	<b>0</b>	<b>\$1,749</b>	<b>\$40,384</b>	<b>\$1,200</b>	<b>\$39,184</b>	<b>22.4</b>	<b>11,974</b>
ECM 4	Install VFD on Variable Air Volume (VAV) Fans	Yes	6,564	1.4	0	\$966	\$4,076	\$900	\$3,176	3.3	6,610
ECM 5	Install VFDs on Heating Water Pumps	No	5,327	0.6	0	\$784	\$36,308	\$300	\$36,008	46.0	5,364
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>10</b>	<b>\$42</b>	<b>\$151</b>	<b>\$84</b>	<b>\$67</b>	<b>1.6</b>	<b>1,167</b>
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	10	\$42	\$151	\$84	\$67	1.6	1,167
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 7	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>10,367</b>	<b>0.0</b>	<b>149</b>	<b>\$2,157</b>	<b>\$18,800</b>	<b>\$0</b>	<b>\$18,800</b>	<b>8.7</b>	<b>27,928</b>
ECM 8	Sub Metering	Yes	10,367	0.0	149	\$2,157	\$18,800	\$0	\$18,800	8.7	27,928
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>190,505</b>	<b>23.1</b>	<b>120</b>	<b>\$28,535</b>	<b>\$90,286</b>	<b>\$16,979</b>	<b>\$73,307</b>	<b>2.6</b>	<b>205,907</b>
<b>TOTALS (ALL MEASURES)</b>			<b>195,831</b>	<b>23.7</b>	<b>120</b>	<b>\$29,319</b>	<b>\$126,594</b>	<b>\$17,279</b>	<b>\$109,315</b>	<b>3.7</b>	<b>211,271</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# ADMINISTRATIVE SERVICE 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>80,608</b>	<b>12.6</b>	<b>-16</b>	<b>\$11,726</b>	<b>\$23,065</b>	<b>\$5,501</b>	<b>\$17,564</b>	<b>1.5</b>	<b>79,248</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	80,608	12.6	-16	\$11,726	\$23,065	\$5,501	\$17,564	1.5	79,248
<b>Lighting Control Measures</b>			<b>19,832</b>	<b>3.3</b>	<b>-4</b>	<b>\$2,884</b>	<b>\$19,058</b>	<b>\$4,245</b>	<b>\$14,813</b>	<b>5.1</b>	<b>19,486</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	14,307	2.8	-3	\$2,081	\$13,658	\$1,640	\$12,018	5.8	14,057
ECM 3	Install High/Low Lighting Controls	Yes	5,525	0.6	-1	\$803	\$5,400	\$2,605	\$2,795	3.5	5,429
<b>Motor Upgrades</b>			<b>2,847</b>	<b>0.2</b>	<b>0</b>	<b>\$419</b>	<b>\$3,552</b>	<b>\$0</b>	<b>\$3,552</b>	<b>8.5</b>	<b>2,867</b>
ECM 4	Premium Efficiency Motors	Yes	2,847	0.2	0	\$419	\$3,552	\$0	\$3,552	8.5	2,867
<b>Unitary HVAC Measures</b>			<b>43,119</b>	<b>17.2</b>	<b>40</b>	<b>\$6,667</b>	<b>\$111,832</b>	<b>\$8,052</b>	<b>\$103,780</b>	<b>15.6</b>	<b>48,094</b>
ECM 5	Install High Efficiency Air Conditioning Units	No	43,119	17.2	40	\$6,667	\$111,832	\$8,052	\$103,780	15.6	48,094
<b>Gas Heating (HVAC/Process) Replacement</b>			<b>0</b>	<b>0.0</b>	<b>64</b>	<b>\$515</b>	<b>\$27,259</b>	<b>\$2,126</b>	<b>\$25,133</b>	<b>48.8</b>	<b>7,438</b>
ECM 6	Install High Efficiency Hot Water Boilers	No	0	0.0	64	\$515	\$27,259	\$2,126	\$25,133	48.8	7,438
<b>Domestic Water Heating Upgrade</b>			<b>278</b>	<b>0.0</b>	<b>0</b>	<b>\$41</b>	<b>\$14</b>	<b>\$8</b>	<b>\$6</b>	<b>0.2</b>	<b>280</b>
ECM 7	Install Low-Flow DHW Devices	Yes	278	0.0	0	\$41	\$14	\$8	\$6	0.2	280
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 8	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>20,819</b>	<b>0.0</b>	<b>27</b>	<b>\$3,282</b>	<b>\$13,783</b>	<b>\$0</b>	<b>\$13,783</b>	<b>4.2</b>	<b>24,126</b>
ECM 9	Retro-Commissioning Study	Yes	7,993	0.0	27	\$1,395	\$9,000	\$0	\$9,000	6.5	11,210
ECM 10	Sub Metering	Yes	7,196	0.0	0	\$1,059	\$2,400	\$0	\$2,400	2.3	7,246
ECM 11	Install Heat Pump Water Heater	Yes	5,630	0.0	0	\$828	\$2,383	\$0	\$2,383	2.9	5,669
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>126,338</b>	<b>16.4</b>	<b>6</b>	<b>\$18,639</b>	<b>\$59,933</b>	<b>\$9,804</b>	<b>\$50,129</b>	<b>2.7</b>	<b>127,973</b>
<b>TOTALS (ALL MEASURES)</b>			<b>169,457</b>	<b>33.6</b>	<b>110</b>	<b>\$25,822</b>	<b>\$199,023</b>	<b>\$19,982</b>	<b>\$179,041</b>	<b>6.9</b>	<b>183,506</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# BIOLOGY 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 Reduction (lbs)
<b>Lighting Upgrades</b>			<b>225,051</b>	<b>21.5</b>	<b>-51</b>	<b>\$32,891</b>	<b>\$72,699</b>	<b>\$13,595</b>	<b>\$59,104</b>	<b>1.8</b>	<b>220,623</b>
ECM 1	Install LED Fixtures	Yes	1,404	0.0	0	\$207	\$583	\$100	\$483	2.3	1,414
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,430	0.2	-1	\$355	\$528	\$80	\$448	1.3	2,382
ECM 3	Retrofit Fixtures with LED Lamps	Yes	221,217	21.3	-51	\$32,330	\$71,588	\$13,415	\$58,173	1.8	216,827
<b>Lighting Control Measures</b>			<b>69,970</b>	<b>6.4</b>	<b>-16</b>	<b>\$10,226</b>	<b>\$44,424</b>	<b>\$9,295</b>	<b>\$35,129</b>	<b>3.4</b>	<b>68,575</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	60,230	5.6	-14	\$8,802	\$37,224	\$4,695	\$32,529	3.7	59,029
ECM 5	Install High/Low Lighting Controls	Yes	9,740	0.8	-2	\$1,423	\$7,200	\$4,600	\$2,600	1.8	9,546
<b>Motor Upgrades</b>			<b>9,662</b>	<b>1.3</b>	<b>0</b>	<b>\$1,421</b>	<b>\$22,657</b>	<b>\$0</b>	<b>\$22,657</b>	<b>15.9</b>	<b>9,730</b>
ECM 6	Premium Efficiency Motors	No	9,662	1.3	0	\$1,421	\$22,657	\$0	\$22,657	15.9	9,730
<b>Variable Frequency Drive (VFD) Measures</b>			<b>75,963</b>	<b>11.4</b>	<b>0</b>	<b>\$11,175</b>	<b>\$29,373</b>	<b>\$6,000</b>	<b>\$23,373</b>	<b>2.1</b>	<b>76,494</b>
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	Yes	64,778	9.5	0	\$9,530	\$20,053	\$4,000	\$16,053	1.7	65,231
ECM 8	Install VFDs on Water Supply Pump	Yes	11,185	1.8	0	\$1,646	\$9,320	\$2,000	\$7,320	4.4	11,263
<b>Unitary HVAC Measures</b>			<b>21,362</b>	<b>3.3</b>	<b>0</b>	<b>\$3,143</b>	<b>\$44,545</b>	<b>\$3,400</b>	<b>\$41,145</b>	<b>13.1</b>	<b>21,512</b>
ECM 9	Install High Efficiency Air Conditioning Units	No	21,362	3.3	0	\$3,143	\$44,545	\$3,400	\$41,145	13.1	21,512
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>19</b>	<b>\$81</b>	<b>\$143</b>	<b>\$80</b>	<b>\$63</b>	<b>0.8</b>	<b>2,222</b>
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	19	\$81	\$143	\$80	\$63	0.8	2,222
<b>Food Service &amp; Refrigeration Measures</b>			<b>5,108</b>	<b>0.4</b>	<b>0</b>	<b>\$751</b>	<b>\$8,858</b>	<b>\$665</b>	<b>\$8,193</b>	<b>10.9</b>	<b>5,144</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,572	0.2	0	\$231	\$1,820	\$240	\$1,580	6.8	1,583
ECM 12	Refrigeration Controls	No	1,984	0.1	0	\$292	\$6,578	\$375	\$6,203	21.2	1,998
ECM 13	Vending Machine Control	Yes	1,551	0.2	0	\$228	\$460	\$50	\$410	1.8	1,562
<b>Custom Measures</b>			<b>51,053</b>	<b>0.0</b>	<b>730</b>	<b>\$10,606</b>	<b>\$42,168</b>	<b>\$0</b>	<b>\$42,168</b>	<b>4.0</b>	<b>136,845</b>
ECM 14	Retro-Commissioning Study	Yes	26,575	0.0	406	\$5,631	\$23,368	\$0	\$23,368	4.1	74,264
ECM 15	Sub Metering	Yes	24,477	0.0	324	\$4,975	\$18,800	\$0	\$18,800	3.8	62,581
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>425,159</b>	<b>39.7</b>	<b>681</b>	<b>\$65,439</b>	<b>\$191,087</b>	<b>\$29,260</b>	<b>\$161,827</b>	<b>2.5</b>	<b>507,904</b>
<b>TOTALS (ALL MEASURES)</b>			<b>458,168</b>	<b>44.3</b>	<b>681</b>	<b>\$70,295</b>	<b>\$264,867</b>	<b>\$33,035</b>	<b>\$231,832</b>	<b>3.3</b>	<b>541,144</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# BLISS HALL & BLISS 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>83,316</b>	<b>14.0</b>	<b>-19</b>	<b>\$12,176</b>	<b>\$31,729</b>	<b>\$8,309</b>	<b>\$23,420</b>	<b>1.9</b>	<b>81,655</b>
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	30	0.0	0	\$4	\$69	\$10	\$59	13.6	29
ECM 2	Retrofit Fixtures with LED Lamps	Yes	83,287	14.0	-19	\$12,172	\$31,661	\$8,299	\$23,362	1.9	81,626
<b>Lighting Control Measures</b>			<b>23,929</b>	<b>3.6</b>	<b>-6</b>	<b>\$3,497</b>	<b>\$35,955</b>	<b>\$8,785</b>	<b>\$27,170</b>	<b>7.8</b>	<b>23,452</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	15,016	2.7	-3	\$2,194	\$29,430	\$3,815	\$25,615	11.7	14,716
ECM 4	Install High/Low Lighting Controls	Yes	8,913	0.9	-2	\$1,303	\$6,525	\$4,970	\$1,555	1.2	8,736
<b>Motor Upgrades</b>			<b>1,204</b>	<b>0.3</b>	<b>0</b>	<b>\$177</b>	<b>\$3,190</b>	<b>\$0</b>	<b>\$3,190</b>	<b>18.0</b>	<b>1,212</b>
ECM 5	Premium Efficiency Motors	No	1,204	0.3	0	\$177	\$3,190	\$0	\$3,190	18.0	1,212
<b>Variable Frequency Drive (VFD) Measures</b>			<b>70,814</b>	<b>18.5</b>	<b>0</b>	<b>\$10,418</b>	<b>\$77,998</b>	<b>\$7,500</b>	<b>\$70,498</b>	<b>6.8</b>	<b>71,309</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	64,947	17.4	0	\$9,555	\$32,346	\$5,700	\$26,646	2.8	65,401
ECM 7	Install VFDs on Heating Water Pumps	No	5,867	1.1	0	\$863	\$45,652	\$1,800	\$43,852	50.8	5,908
<b>Unitary HVAC Measures</b>			<b>5,009</b>	<b>1.4</b>	<b>0</b>	<b>\$737</b>	<b>\$13,636</b>	<b>\$315</b>	<b>\$13,321</b>	<b>18.1</b>	<b>5,044</b>
ECM 8	Install High Efficiency Air Conditioning Units	No	5,009	1.4	0	\$737	\$13,636	\$315	\$13,321	18.1	5,044
<b>HVAC System Improvements</b>			<b>955</b>	<b>0.0</b>	<b>0</b>	<b>\$140</b>	<b>\$52</b>	<b>\$18</b>	<b>\$34</b>	<b>0.2</b>	<b>961</b>
ECM 9	Install Pipe Insulation	Yes	955	0.0	0	\$140	\$52	\$18	\$34	0.2	961
<b>Domestic Water Heating Upgrade</b>			<b>3,475</b>	<b>0.0</b>	<b>0</b>	<b>\$511</b>	<b>\$179</b>	<b>\$100</b>	<b>\$79</b>	<b>0.2</b>	<b>3,500</b>
ECM 10	Install Low-Flow DHW Devices	Yes	3,475	0.0	0	\$511	\$179	\$100	\$79	0.2	3,500
<b>Food Service &amp; Refrigeration Measures</b>			<b>343</b>	<b>0.0</b>	<b>0</b>	<b>\$50</b>	<b>\$230</b>	<b>\$0</b>	<b>\$230</b>	<b>4.6</b>	<b>345</b>
ECM 11	Vending Machine Control	Yes	343	0.0	0	\$50	\$230	\$0	\$230	4.6	345
<b>Custom Measures</b>			<b>16,313</b>	<b>0.0</b>	<b>433</b>	<b>\$4,233</b>	<b>\$38,158</b>	<b>\$0</b>	<b>\$38,158</b>	<b>9.0</b>	<b>67,131</b>
ECM 12	Retro-Commissioning Study	Yes	5,949	0.0	249	\$1,927	\$16,975	\$0	\$16,975	8.8	35,095
ECM 13	Sub Metering	Yes	5,452	0.0	184	\$1,583	\$18,800	\$0	\$18,800	11.9	27,090
ECM 14	Install Heat Pump Water Heater	Yes	4,912	0.0	0	\$723	\$2,383	\$0	\$2,383	3.3	4,946
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>193,278</b>	<b>35.0</b>	<b>408</b>	<b>\$30,163</b>	<b>\$138,649</b>	<b>\$22,912</b>	<b>\$115,737</b>	<b>3.8</b>	<b>242,445</b>
<b>TOTALS (ALL MEASURES)</b>			<b>205,357</b>	<b>37.8</b>	<b>408</b>	<b>\$31,940</b>	<b>\$201,127</b>	<b>\$25,027</b>	<b>\$176,100</b>	<b>5.5</b>	<b>254,609</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# BROWER STUDENT 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>31,199</b>	<b>2.5</b>	<b>-4</b>	<b>\$4,566</b>	<b>\$10,454</b>	<b>\$1,930</b>	<b>\$8,524</b>	<b>1.9</b>	<b>30,896</b>
ECM 1	Install LED Fixtures	Yes	11,844	0.0	0	\$1,741	\$4,436	\$400	\$4,036	2.3	11,926
ECM 2	Retrofit Fixtures with LED Lamps	Yes	19,356	2.5	-4	\$2,825	\$6,018	\$1,530	\$4,488	1.6	18,970
<b>Lighting Control Measures</b>			<b>6,690</b>	<b>0.6</b>	<b>-2</b>	<b>\$976</b>	<b>\$7,195</b>	<b>\$6,760</b>	<b>\$435</b>	<b>0.4</b>	<b>6,557</b>
ECM 3	Install High/Low Lighting Controls	Yes	6,690	0.6	-2	\$976	\$7,195	\$6,760	\$435	0.4	6,557
<b>Variable Frequency Drive (VFD) Measures</b>			<b>39,147</b>	<b>2.0</b>	<b>57</b>	<b>\$6,021</b>	<b>\$32,476</b>	<b>\$1,900</b>	<b>\$30,576</b>	<b>5.1</b>	<b>46,136</b>
ECM 4	Install VFDs on Constant Volume (CV) Fans	Yes	7,152	1.2	0	\$1,051	\$10,189	\$250	\$9,939	9.5	7,202
ECM 5	Install VFDs on Kitchen Hood Fan Motors	Yes	26,811	0.1	57	\$4,208	\$14,770	\$1,250	\$13,520	3.2	33,714
ECM 6	Install VFDs on Condensate Pumps	Yes	5,184	0.7	0	\$762	\$7,518	\$400	\$7,118	9.3	5,220
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,224</b>	<b>0.4</b>	<b>0</b>	<b>\$474</b>	<b>\$460</b>	<b>\$100</b>	<b>\$360</b>	<b>0.8</b>	<b>3,246</b>
ECM 7	Vending Machine Control	Yes	3,224	0.4	0	\$474	\$460	\$100	\$360	0.8	3,246
<b>Custom Measures</b>			<b>0</b>	<b>0.0</b>	<b>149</b>	<b>\$690</b>	<b>\$9,700</b>	<b>\$0</b>	<b>\$9,700</b>	<b>14.1</b>	<b>17,390</b>
ECM 8	Sub Metering	Yes	0	0.0	149	\$690	\$9,700	\$0	\$9,700	14.1	17,390
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>80,260</b>	<b>5.4</b>	<b>200</b>	<b>\$12,727</b>	<b>\$60,285</b>	<b>\$10,690</b>	<b>\$49,595</b>	<b>3.9</b>	<b>104,225</b>
<b>TOTALS (ALL MEASURES)</b>			<b>80,260</b>	<b>5.4</b>	<b>200</b>	<b>\$12,727</b>	<b>\$60,285</b>	<b>\$10,690</b>	<b>\$49,595</b>	<b>3.9</b>	<b>104,225</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# SCHOOL OF BUSINESS

#	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>90,948</b>	<b>12.4</b>	<b>-21</b>	<b>\$13,292</b>	<b>\$34,339</b>	<b>\$7,619</b>	<b>\$26,720</b>	<b>2.0</b>	<b>89,135</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	90,948	12.4	-21	\$13,292	\$34,339	\$7,619	\$26,720	2.0	89,135
<b>Lighting Control Measures</b>			<b>26,722</b>	<b>3.4</b>	<b>-6</b>	<b>\$3,905</b>	<b>\$25,425</b>	<b>\$5,775</b>	<b>\$19,650</b>	<b>5.0</b>	<b>26,189</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	21,895	2.8	-5	\$3,200	\$20,250	\$2,625	\$17,625	5.5	21,458
ECM 3	Install High/Low Lighting Controls	Yes	4,827	0.6	-1	\$705	\$5,175	\$3,150	\$2,025	2.9	4,731
<b>Motor Upgrades</b>			<b>6,543</b>	<b>1.2</b>	<b>0</b>	<b>\$963</b>	<b>\$18,601</b>	<b>\$0</b>	<b>\$18,601</b>	<b>19.3</b>	<b>6,589</b>
ECM 4	Premium Efficiency Motors	No	6,543	1.2	0	\$963	\$18,601	\$0	\$18,601	19.3	6,589
<b>HVAC System Improvements</b>			<b>636</b>	<b>0.0</b>	<b>0</b>	<b>\$94</b>	<b>\$35</b>	<b>\$12</b>	<b>\$23</b>	<b>0.2</b>	<b>641</b>
ECM 5	Install Pipe Insulation	Yes	636	0.0	0	\$94	\$35	\$12	\$23	0.2	641
<b>Domestic Water Heating Upgrade</b>			<b>1,946</b>	<b>0.0</b>	<b>0</b>	<b>\$286</b>	<b>\$100</b>	<b>\$56</b>	<b>\$44</b>	<b>0.2</b>	<b>1,960</b>
ECM 6	Install Low-Flow DHW Devices	Yes	1,946	0.0	0	\$286	\$100	\$56	\$44	0.2	1,960
<b>Food Service &amp; Refrigeration Measures</b>			<b>2,760</b>	<b>0.3</b>	<b>0</b>	<b>\$406</b>	<b>\$690</b>	<b>\$100</b>	<b>\$590</b>	<b>1.5</b>	<b>2,780</b>
ECM 7	Vending Machine Control	Yes	2,760	0.3	0	\$406	\$690	\$100	\$590	1.5	2,780
<b>Custom Measures</b>			<b>16,480</b>	<b>0.0</b>	<b>299</b>	<b>\$3,688</b>	<b>\$34,983</b>	<b>\$0</b>	<b>\$34,983</b>	<b>9.5</b>	<b>51,560</b>
ECM 8	Retro-Commissioning Study	Yes	6,187	0.0	199	\$1,753	\$13,800	\$0	\$13,800	7.9	29,540
ECM 9	Sub Metering	Yes	6,131	0.0	100	\$1,323	\$18,800	\$0	\$18,800	14.2	17,829
ECM 10	Install Heat Pump Water Heater	Yes	4,162	0.0	0	\$612	\$2,383	\$0	\$2,383	3.9	4,191
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>139,492</b>	<b>16.1</b>	<b>272</b>	<b>\$21,671</b>	<b>\$95,572</b>	<b>\$13,562</b>	<b>\$82,010</b>	<b>3.8</b>	<b>172,263</b>
<b>TOTALS (ALL MEASURES)</b>			<b>146,035</b>	<b>17.3</b>	<b>272</b>	<b>\$22,633</b>	<b>\$114,174</b>	<b>\$13,562</b>	<b>\$100,612</b>	<b>4.4</b>	<b>178,852</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# CENTENNIAL 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>72,693</b>	<b>6.8</b>	<b>-16</b>	<b>\$10,628</b>	<b>\$22,112</b>	<b>\$4,185</b>	<b>\$17,927</b>	<b>1.7</b>	<b>71,364</b>
ECM 1	Install LED Fixtures	Yes	2,720	0.0	0	\$400	\$1,523	\$150	\$1,373	3.4	2,739
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	80	0.0	0	\$12	\$69	\$10	\$59	5.1	78
ECM 3	Retrofit Fixtures with LED Lamps	Yes	69,894	6.8	-16	\$10,216	\$20,520	\$4,025	\$16,495	1.6	68,547
<b>Lighting Control Measures</b>			<b>18,103</b>	<b>1.2</b>	<b>-4</b>	<b>\$2,646</b>	<b>\$9,360</b>	<b>\$4,105</b>	<b>\$5,255</b>	<b>2.0</b>	<b>17,742</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	9,695	0.7	-2	\$1,417	\$4,860	\$560	\$4,300	3.0	9,502
ECM 5	Install High/Low Lighting Controls	Yes	8,408	0.6	-2	\$1,229	\$4,500	\$3,545	\$955	0.8	8,240
<b>Variable Frequency Drive (VFD) Measures</b>			<b>11,878</b>	<b>1.2</b>	<b>0</b>	<b>\$1,747</b>	<b>\$45,652</b>	<b>\$1,800</b>	<b>\$43,852</b>	<b>25.1</b>	<b>11,961</b>
ECM 6	Install VFDs on Heating Water Pumps	No	11,878	1.2	0	\$1,747	\$45,652	\$1,800	\$43,852	25.1	11,961
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>66</b>	<b>\$277</b>	<b>\$2,959</b>	<b>\$606</b>	<b>\$2,353</b>	<b>8.5</b>	<b>7,672</b>
ECM 7	Install Low-Flow DHW Devices	Yes	0	0.0	66	\$277	\$2,959	\$606	\$2,353	8.5	7,672
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,551</b>	<b>0.2</b>	<b>0</b>	<b>\$228</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.8</b>	<b>1,562</b>
ECM 8	Vending Machine Control	Yes	1,551	0.2	0	\$228	\$460	\$50	\$410	1.8	1,562
<b>Custom Measures</b>			<b>3,618</b>	<b>0.0</b>	<b>66</b>	<b>\$811</b>	<b>\$9,100</b>	<b>\$0</b>	<b>\$9,100</b>	<b>11.2</b>	<b>11,368</b>
ECM 9	Sub Metering	Yes	3,618	0.0	66	\$811	\$9,100	\$0	\$9,100	11.2	11,368
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>95,966</b>	<b>8.2</b>	<b>112</b>	<b>\$14,590</b>	<b>\$43,991</b>	<b>\$8,946</b>	<b>\$35,045</b>	<b>2.4</b>	<b>109,708</b>
<b>TOTALS (ALL MEASURES)</b>			<b>107,844</b>	<b>9.3</b>	<b>112</b>	<b>\$16,338</b>	<b>\$89,643</b>	<b>\$10,746</b>	<b>\$78,897</b>	<b>4.8</b>	<b>121,669</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# CROMWELL 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>73,903</b>	<b>11.3</b>	<b>-15</b>	<b>\$10,807</b>	<b>\$21,431</b>	<b>\$4,154</b>	<b>\$17,277</b>	<b>1.6</b>	<b>72,617</b>
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,737	0.2	-1	\$400	\$404	\$40	\$364	0.9	2,689
ECM 2	Retrofit Fixtures with LED Lamps	Yes	71,167	11.1	-15	\$10,407	\$21,027	\$4,114	\$16,913	1.6	69,928
<b>Lighting Control Measures</b>			<b>22,440</b>	<b>2.0</b>	<b>-5</b>	<b>\$3,281</b>	<b>\$29,856</b>	<b>\$13,525</b>	<b>\$16,331</b>	<b>5.0</b>	<b>22,048</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	7,776	0.9	-2	\$1,137	\$9,606	\$890	\$8,716	7.7	7,640
ECM 4	Install High/Low Lighting Controls	Yes	14,664	1.1	-3	\$2,144	\$20,250	\$12,635	\$7,615	3.6	14,407
<b>Variable Frequency Drive (VFD) Measures</b>			<b>5,626</b>	<b>0.6</b>	<b>0</b>	<b>\$828</b>	<b>\$30,268</b>	<b>\$400</b>	<b>\$29,868</b>	<b>36.1</b>	<b>5,666</b>
ECM 5	Install VFDs on Heating Water Pumps	No	5,626	0.6	0	\$828	\$30,268	\$400	\$29,868	36.1	5,666
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,551</b>	<b>0.2</b>	<b>0</b>	<b>\$228</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.8</b>	<b>1,562</b>
ECM 6	Vending Machine Control	Yes	1,551	0.2	0	\$228	\$460	\$50	\$410	1.8	1,562
<b>Custom Measures</b>			<b>8,626</b>	<b>0.0</b>	<b>327</b>	<b>\$2,655</b>	<b>\$12,100</b>	<b>\$0</b>	<b>\$12,100</b>	<b>4.6</b>	<b>47,032</b>
ECM 7	Retro-Commissioning Study	Yes	3,706	0.0	218	\$1,469	\$3,000	\$0	\$3,000	2.0	29,295
ECM 8	Sub Metering	Yes	4,920	0.0	109	\$1,186	\$9,100	\$0	\$9,100	7.7	17,737
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>106,521</b>	<b>13.5</b>	<b>307</b>	<b>\$16,972</b>	<b>\$63,847</b>	<b>\$17,729</b>	<b>\$46,118</b>	<b>2.7</b>	<b>143,258</b>
<b>TOTALS (ALL MEASURES)</b>			<b>112,147</b>	<b>14.1</b>	<b>307</b>	<b>\$17,800</b>	<b>\$94,115</b>	<b>\$18,129</b>	<b>\$75,986</b>	<b>4.3</b>	<b>148,924</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# DECKER 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>111,028</b>	<b>14.4</b>	<b>-25</b>	<b>\$16,222</b>	<b>\$44,472</b>	<b>\$9,066</b>	<b>\$35,406</b>	<b>2.2</b>	<b>108,839</b>
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,034	0.1	0	\$151	\$118	\$20	\$98	0.7	1,013
ECM 2	Retrofit Fixtures with LED Lamps	Yes	109,994	14.3	-25	\$16,071	\$44,354	\$9,046	\$35,308	2.2	107,826
<b>Lighting Control Measures</b>			<b>59,728</b>	<b>4.7</b>	<b>-14</b>	<b>\$8,726</b>	<b>\$36,071</b>	<b>\$16,785</b>	<b>\$19,286</b>	<b>2.2</b>	<b>58,537</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	9,993	1.7	-2	\$1,460	\$11,996	\$1,385	\$10,611	7.3	9,793
ECM 4	Install High/Low Lighting Controls	Yes	49,735	3.0	-11	\$7,266	\$24,075	\$15,400	\$8,675	1.2	48,744
<b>Variable Frequency Drive (VFD) Measures</b>			<b>83,368</b>	<b>11.9</b>	<b>0</b>	<b>\$12,265</b>	<b>\$131,260</b>	<b>\$6,900</b>	<b>\$124,360</b>	<b>10.1</b>	<b>83,951</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	55,162	9.6	0	\$8,115	\$41,389	\$4,300	\$37,089	4.6	55,547
ECM 6	Install VFDs on Heating Water Pumps	No	22,408	1.7	0	\$3,297	\$82,308	\$2,200	\$80,108	24.3	22,565
ECM 7	Install VFDs on Condensate Pumps	Yes	5,798	0.6	0	\$853	\$7,562	\$400	\$7,162	8.4	5,838
<b>Unitary HVAC Measures</b>			<b>64,827</b>	<b>21.5</b>	<b>48</b>	<b>\$9,751</b>	<b>\$112,577</b>	<b>\$7,265</b>	<b>\$105,312</b>	<b>10.8</b>	<b>70,912</b>
ECM 8	Install High Efficiency Air Conditioning Units	Yes	64,827	21.5	48	\$9,751	\$112,577	\$7,265	\$105,312	10.8	70,912
<b>HVAC System Improvements</b>			<b>410</b>	<b>0.0</b>	<b>0</b>	<b>\$60</b>	<b>\$58</b>	<b>\$20</b>	<b>\$38</b>	<b>0.6</b>	<b>413</b>
ECM 9	Install Pipe Insulation	Yes	410	0.0	0	\$60	\$58	\$20	\$38	0.6	413
<b>Domestic Water Heating Upgrade</b>			<b>556</b>	<b>0.0</b>	<b>45</b>	<b>\$282</b>	<b>\$710</b>	<b>\$396</b>	<b>\$314</b>	<b>1.1</b>	<b>5,838</b>
ECM 10	Install Low-Flow DHW Devices	Yes	556	0.0	45	\$282	\$710	\$396	\$314	1.1	5,838
<b>Food Service &amp; Refrigeration Measures</b>			<b>2,760</b>	<b>0.3</b>	<b>0</b>	<b>\$406</b>	<b>\$690</b>	<b>\$100</b>	<b>\$590</b>	<b>1.5</b>	<b>2,780</b>
ECM 11	Vending Machine Control	Yes	2,760	0.3	0	\$406	\$690	\$100	\$590	1.5	2,780
<b>Custom Measures</b>			<b>20,046</b>	<b>0.0</b>	<b>407</b>	<b>\$4,754</b>	<b>\$17,170</b>	<b>\$0</b>	<b>\$17,170</b>	<b>3.6</b>	<b>67,806</b>
ECM 12	Retro-Commissioning Study	Yes	8,659	0.0	275	\$2,493	\$6,000	\$0	\$6,000	2.4	40,882
ECM 13	Sub Metering	Yes	9,387	0.0	132	\$1,967	\$9,100	\$0	\$9,100	4.6	24,910
ECM 14	Install Heat Pump Water Heater	Yes	2,001	0.0	0	\$294	\$2,070	\$0	\$2,070	7.0	2,014
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>320,315</b>	<b>51.2</b>	<b>461</b>	<b>\$49,169</b>	<b>\$260,700</b>	<b>\$38,332</b>	<b>\$222,368</b>	<b>4.5</b>	<b>376,512</b>
<b>TOTALS (ALL MEASURES)</b>			<b>342,723</b>	<b>52.9</b>	<b>461</b>	<b>\$52,466</b>	<b>\$343,009</b>	<b>\$40,532</b>	<b>\$302,477</b>	<b>5.8</b>	<b>399,076</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# EDUCATION 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>157,818</b>	<b>15.9</b>	<b>-35</b>	<b>\$23,069</b>	<b>\$44,081</b>	<b>\$8,094</b>	<b>\$35,987</b>	<b>1.6</b>	<b>154,794</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	157,818	15.9	-35	\$23,069	\$44,081	\$8,094	\$35,987	1.6	154,794
<b>Lighting Control Measures</b>			<b>40,285</b>	<b>3.3</b>	<b>-8</b>	<b>\$5,891</b>	<b>\$33,808</b>	<b>\$15,965</b>	<b>\$17,843</b>	<b>3.0</b>	<b>39,576</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	19,942	1.9	-5	\$2,914	\$17,608	\$2,480	\$15,128	5.2	19,544
ECM 3	Install High/Low Lighting Controls	Yes	20,343	1.4	-4	\$2,976	\$16,200	\$13,485	\$2,715	0.9	20,031
<b>Variable Frequency Drive (VFD) Measures</b>			<b>14,165</b>	<b>1.0</b>	<b>0</b>	<b>\$2,084</b>	<b>\$7,974</b>	<b>\$1,800</b>	<b>\$6,174</b>	<b>3.0</b>	<b>14,264</b>
ECM 4	Install VFDs on Water Supply Pump	Yes	14,165	1.0	0	\$2,084	\$7,974	\$1,800	\$6,174	3.0	14,264
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,224</b>	<b>0.4</b>	<b>0</b>	<b>\$474</b>	<b>\$460</b>	<b>\$100</b>	<b>\$360</b>	<b>0.8</b>	<b>3,246</b>
ECM 5	Vending Machine Control	Yes	3,224	0.4	0	\$474	\$460	\$100	\$360	0.8	3,246
<b>Custom Measures</b>			<b>194,542</b>	<b>0.0</b>	<b>497</b>	<b>\$30,723</b>	<b>\$49,518</b>	<b>\$0</b>	<b>\$49,518</b>	<b>1.6</b>	<b>254,112</b>
ECM 6	Retro-Commissioning Study	Yes	19,726	0.0	331	\$4,304	\$23,966	\$0	\$23,966	5.6	58,670
ECM 7	Sub Metering	Yes	0	0.0	166	\$701	\$16,400	\$0	\$16,400	23.4	0
ECM 8	Install Heat Pump Water Heaters	Yes	174,816	0.0	0	\$25,718	\$9,152	\$0	\$9,152	0.4	176,038
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>410,034</b>	<b>20.5</b>	<b>453</b>	<b>\$62,241</b>	<b>\$135,841</b>	<b>\$25,959</b>	<b>\$109,882</b>	<b>1.8</b>	<b>465,993</b>
<b>TOTALS (ALL MEASURES)</b>			<b>410,034</b>	<b>20.5</b>	<b>453</b>	<b>\$62,241</b>	<b>\$135,841</b>	<b>\$25,959</b>	<b>\$109,882</b>	<b>1.8</b>	<b>465,993</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# EICKHOFF 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>321,428</b>	<b>23.7</b>	<b>-60</b>	<b>\$47,016</b>	<b>\$52,620</b>	<b>\$6,347</b>	<b>\$46,273</b>	<b>1.0</b>	<b>316,673</b>
ECM 1	Install LED Fixtures	Yes	3,458	0.0	0	\$509	\$2,399	\$300	\$2,099	4.1	3,483
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	13,847	1.1	-3	\$2,024	\$2,823	\$290	\$2,533	1.3	13,605
ECM 3	Retrofit Fixtures with LED Lamps	Yes	304,123	22.6	-57	\$44,484	\$47,398	\$5,757	\$41,641	0.9	299,586
<b>Lighting Control Measures</b>			<b>60,139</b>	<b>3.1</b>	<b>-7</b>	<b>\$8,815</b>	<b>\$26,291</b>	<b>\$14,250</b>	<b>\$12,041</b>	<b>1.4</b>	<b>59,710</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	23,772	1.9	-5	\$3,475	\$12,116	\$1,475	\$10,641	3.1	23,356
ECM 5	Install High/Low Lighting Controls	Yes	36,368	1.1	-2	\$5,340	\$14,175	\$12,775	\$1,400	0.3	36,354
<b>Motor Upgrades</b>			<b>5,577</b>	<b>0.6</b>	<b>0</b>	<b>\$821</b>	<b>\$10,972</b>	<b>\$0</b>	<b>\$10,972</b>	<b>13.4</b>	<b>5,616</b>
ECM 6	Premium Efficiency Motors	No	5,577	0.6	0	\$821	\$10,972	\$0	\$10,972	13.4	5,616
<b>Variable Frequency Drive (VFD) Measures</b>			<b>165,053</b>	<b>19.1</b>	<b>60</b>	<b>\$24,553</b>	<b>\$276,339</b>	<b>\$11,900</b>	<b>\$264,439</b>	<b>10.8</b>	<b>173,196</b>
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	Yes	44,449	7.2	0	\$6,539	\$17,084	\$2,350	\$14,734	2.3	44,760
ECM 8	Install VFDs on Constant Volume (CV) Fans	Yes	35,583	6.1	0	\$5,235	\$28,300	\$2,450	\$25,850	4.9	35,832
ECM 9	Install VFDs on Heating Water Pumps	No	21,100	5.1	0	\$3,104	\$207,905	\$3,750	\$204,155	65.8	21,248
ECM 10	Install VFDs on Kitchen Hood Fan Motors	Yes	62,067	0.3	60	\$9,402	\$16,269	\$3,200	\$13,069	1.4	69,489
ECM 11	Install VFDs on Condensate Pumps	No	1,854	0.3	0	\$273	\$6,781	\$150	\$6,631	24.3	1,867
<b>Unitary HVAC Measures</b>			<b>7,603</b>	<b>1.7</b>	<b>0</b>	<b>\$1,118</b>	<b>\$11,695</b>	<b>\$525</b>	<b>\$11,170</b>	<b>10.0</b>	<b>7,656</b>
ECM 12	Install High Efficiency Air Conditioning Units	Yes	7,603	1.7	0	\$1,118	\$11,695	\$525	\$11,170	10.0	7,656
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>5</b>	<b>\$22</b>	<b>\$43</b>	<b>\$12</b>	<b>\$31</b>	<b>1.4</b>	<b>557</b>
ECM 13	Install Pipe Insulation	Yes	0	0.0	5	\$22	\$43	\$12	\$31	1.4	557
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>149</b>	<b>\$676</b>	<b>\$11,159</b>	<b>\$2,221</b>	<b>\$8,938</b>	<b>13.2</b>	<b>17,440</b>
ECM 14	Install Low-Flow DHW Devices	No	0	0.0	149	\$676	\$11,159	\$2,221	\$8,938	13.2	17,440
<b>Food Service &amp; Refrigeration Measures</b>			<b>36,198</b>	<b>3.2</b>	<b>0</b>	<b>\$5,325</b>	<b>\$38,573</b>	<b>\$3,525</b>	<b>\$35,048</b>	<b>6.6</b>	<b>36,451</b>
ECM 15	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	5,819	0.6	0	\$856	\$7,583	\$1,000	\$6,583	7.7	5,860
ECM 16	Refrigeration Controls	Yes	10,182	0.2	0	\$1,498	\$14,830	\$825	\$14,005	9.3	10,253
ECM 17	Replace Refrigeration Equipment	Yes	17,094	2.0	0	\$2,515	\$15,241	\$1,600	\$13,641	5.4	17,213
ECM 18	Vending Machine Control	Yes	3,103	0.4	0	\$456	\$920	\$100	\$820	1.8	3,124
<b>Custom Measures</b>			<b>54,026</b>	<b>0.0</b>	<b>581</b>	<b>\$10,581</b>	<b>\$56,311</b>	<b>\$0</b>	<b>\$56,311</b>	<b>5.3</b>	<b>122,381</b>
ECM 19	Retro-Commissioning Study	Yes	24,186	0.0	313	\$4,980	\$37,511	\$0	\$37,511	7.5	61,056
ECM 20	Sub Metering	Yes	29,840	0.0	267	\$5,601	\$18,800	\$0	\$18,800	3.4	61,325
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>621,493</b>	<b>45.3</b>	<b>578</b>	<b>\$94,053</b>	<b>\$247,186</b>	<b>\$32,659</b>	<b>\$214,527</b>	<b>2.3</b>	<b>693,509</b>
<b>TOTALS (ALL MEASURES)</b>			<b>650,025</b>	<b>51.3</b>	<b>727</b>	<b>\$98,926</b>	<b>\$484,003</b>	<b>\$38,780</b>	<b>\$445,223</b>	<b>4.5</b>	<b>739,680</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# FORCINA 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>105,459</b>	<b>21.9</b>	<b>-24</b>	<b>\$15,414</b>	<b>\$51,730</b>	<b>\$13,296</b>	<b>\$38,434</b>	<b>2.5</b>	<b>103,420</b>
ECM 1	Install LED Fixtures	Yes	1,480	0.0	0	\$218	\$555	\$50	\$505	2.3	1,491
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	67	0.0	0	\$10	\$150	\$13	\$137	14.0	66
ECM 3	Retrofit Fixtures with LED Lamps	Yes	103,911	21.9	-24	\$15,187	\$51,026	\$13,233	\$37,793	2.5	101,864
<b>Lighting Control Measures</b>			<b>31,887</b>	<b>6.5</b>	<b>-7</b>	<b>\$4,660</b>	<b>\$54,353</b>	<b>\$14,925</b>	<b>\$39,428</b>	<b>8.5</b>	<b>31,252</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	21,901	5.1	-5	\$3,201	\$42,878	\$5,995	\$36,883	11.5	21,464
ECM 5	Install High/Low Lighting Controls	Yes	9,987	1.4	-2	\$1,459	\$11,475	\$8,930	\$2,545	1.7	9,788
<b>Variable Frequency Drive (VFD) Measures</b>			<b>3,614</b>	<b>1.1</b>	<b>0</b>	<b>\$532</b>	<b>\$9,946</b>	<b>\$225</b>	<b>\$9,721</b>	<b>18.3</b>	<b>3,639</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	No	3,614	1.1	0	\$532	\$9,946	\$225	\$9,721	18.3	3,639
<b>HVAC System Improvements</b>			<b>2,214</b>	<b>0.0</b>	<b>0</b>	<b>\$326</b>	<b>\$115</b>	<b>\$40</b>	<b>\$75</b>	<b>0.2</b>	<b>2,230</b>
ECM 7	Install Pipe Insulation	Yes	2,214	0.0	0	\$326	\$115	\$40	\$75	0.2	2,230
<b>Domestic Water Heating Upgrade</b>			<b>4,866</b>	<b>0.0</b>	<b>0</b>	<b>\$716</b>	<b>\$251</b>	<b>\$140</b>	<b>\$111</b>	<b>0.2</b>	<b>4,900</b>
ECM 8	Install Low-Flow DHW Devices	Yes	4,866	0.0	0	\$716	\$251	\$140	\$111	0.2	4,900
<b>Custom Measures</b>			<b>31,866</b>	<b>0.0</b>	<b>315</b>	<b>\$6,021</b>	<b>\$46,590</b>	<b>\$0</b>	<b>\$46,590</b>	<b>7.7</b>	<b>68,981</b>
ECM 9	Retro-Commissioning Study	Yes	5,760	0.0	165	\$1,545	\$23,214	\$0	\$23,214	15.0	25,098
ECM 10	Sub Metering	Yes	5,762	0.0	150	\$1,483	\$18,800	\$0	\$18,800	12.7	23,396
ECM 11	Install Heat Pump Water Heater	Yes	20,345	0.0	0	\$2,993	\$4,576	\$0	\$4,576	1.5	20,487
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>176,292</b>	<b>28.5</b>	<b>284</b>	<b>\$27,137</b>	<b>\$153,040</b>	<b>\$28,401</b>	<b>\$124,639</b>	<b>4.6</b>	<b>210,782</b>
<b>TOTALS (ALL MEASURES)</b>			<b>179,906</b>	<b>29.6</b>	<b>284</b>	<b>\$27,669</b>	<b>\$162,985</b>	<b>\$28,626</b>	<b>\$134,359</b>	<b>4.9</b>	<b>214,421</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# GREEN 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>151,357</b>	<b>16.7</b>	<b>-32</b>	<b>\$22,134</b>	<b>\$27,237</b>	<b>\$7,091</b>	<b>\$20,146</b>	<b>0.9</b>	<b>148,713</b>
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	189	0.1	0	\$28	\$118	\$20	\$98	3.6	186
ECM 2	Retrofit Fixtures with LED Lamps	Yes	151,168	16.6	-32	\$22,106	\$27,119	\$7,071	\$20,048	0.9	148,527
<b>Lighting Control Measures</b>			<b>37,136</b>	<b>4.2</b>	<b>-8</b>	<b>\$5,430</b>	<b>\$24,707</b>	<b>\$5,285</b>	<b>\$19,422</b>	<b>3.6</b>	<b>36,486</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	33,388	3.8	-7	\$4,882	\$22,232	\$3,155	\$19,077	3.9	32,804
ECM 4	Install High/Low Lighting Controls	Yes	3,748	0.4	-1	\$548	\$2,475	\$2,130	\$345	0.6	3,682
<b>Variable Frequency Drive (VFD) Measures</b>			<b>28,589</b>	<b>3.0</b>	<b>0</b>	<b>\$4,206</b>	<b>\$25,930</b>	<b>\$2,450</b>	<b>\$23,480</b>	<b>5.6</b>	<b>28,789</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	8,331	1.3	0	\$1,226	\$10,189	\$250	\$9,939	8.1	8,390
ECM 6	Install VFDs on Heating Water Pumps	Yes	6,092	0.7	0	\$896	\$7,768	\$400	\$7,368	8.2	6,134
ECM 7	Install VFDs on Water Supply Pump	Yes	14,165	1.0	0	\$2,084	\$7,974	\$1,800	\$6,174	3.0	14,264
<b>Unitary HVAC Measures</b>			<b>35,244</b>	<b>10.5</b>	<b>0</b>	<b>\$5,185</b>	<b>\$78,047</b>	<b>\$5,253</b>	<b>\$72,794</b>	<b>14.0</b>	<b>35,490</b>
ECM 8	Install High Efficiency Air Conditioning Units	Yes	24,868	7.4	0	\$3,659	\$50,239	\$3,675	\$46,564	12.7	25,042
ECM 9	Install High Efficiency Heat Pumps	No	10,376	3.1	0	\$1,526	\$27,808	\$1,578	\$26,230	17.2	10,448
<b>HVAC System Improvements</b>			<b>3,311</b>	<b>0.0</b>	<b>0</b>	<b>\$487</b>	<b>\$231</b>	<b>\$80</b>	<b>\$151</b>	<b>0.3</b>	<b>3,334</b>
ECM 10	Install Pipe Insulation	Yes	3,311	0.0	0	\$487	\$231	\$80	\$151	0.3	3,334
<b>Domestic Water Heating Upgrade</b>			<b>3,614</b>	<b>0.0</b>	<b>0</b>	<b>\$532</b>	<b>\$93</b>	<b>\$52</b>	<b>\$41</b>	<b>0.1</b>	<b>3,640</b>
ECM 11	Install Low-Flow DHW Devices	Yes	3,614	0.0	0	\$532	\$93	\$52	\$41	0.1	3,640
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,209</b>	<b>0.1</b>	<b>0</b>	<b>\$178</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>1.0</b>	<b>1,217</b>
ECM 12	Vending Machine Control	Yes	1,209	0.1	0	\$178	\$230	\$50	\$180	1.0	1,217
<b>Custom Measures</b>			<b>101,383</b>	<b>0.0</b>	<b>252</b>	<b>\$15,982</b>	<b>\$32,712</b>	<b>\$0</b>	<b>\$32,712</b>	<b>2.0</b>	<b>131,601</b>
ECM 13	Retro-Commissioning Study	Yes	11,664	0.0	168	\$2,427	\$21,542	\$0	\$21,542	8.9	31,418
ECM 14	Sub Metering	Yes	16,059	0.0	84	\$2,718	\$9,100	\$0	\$9,100	3.3	26,008
ECM 15	Install Heat Pump Water Heater	Yes	73,660	0.0	0	\$10,837	\$2,070	\$0	\$2,070	0.2	74,175
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>351,467</b>	<b>31.3</b>	<b>213</b>	<b>\$52,607</b>	<b>\$161,380</b>	<b>\$18,683</b>	<b>\$142,697</b>	<b>2.7</b>	<b>378,821</b>
<b>TOTALS (ALL MEASURES)</b>			<b>361,843</b>	<b>34.4</b>	<b>213</b>	<b>\$54,134</b>	<b>\$189,187</b>	<b>\$20,261</b>	<b>\$168,927</b>	<b>3.1</b>	<b>389,270</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# HAUSDOERFFER & PHELPS HALLS

#	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>198,084</b>	<b>23.4</b>	<b>-45</b>	<b>\$28,848</b>	<b>\$61,743</b>	<b>\$10,446</b>	<b>\$51,297</b>	<b>1.8</b>	<b>194,257</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	198,084	23.4	-45	\$28,848	\$61,743	\$10,446	\$51,297	1.8	194,257
<b>Lighting Control Measures</b>			<b>85,213</b>	<b>8.2</b>	<b>-20</b>	<b>\$12,407</b>	<b>\$48,182</b>	<b>\$18,770</b>	<b>\$29,412</b>	<b>2.4</b>	<b>83,514</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	22,264	3.4	-5	\$3,242	\$27,932	\$3,650	\$24,282	7.5	21,820
ECM 3	Install High/Low Lighting Controls	Yes	62,949	4.7	-14	\$9,165	\$20,250	\$15,120	\$5,130	0.6	61,694
<b>Variable Frequency Drive (VFD) Measures</b>			<b>3,609</b>	<b>1.2</b>	<b>0</b>	<b>\$531</b>	<b>\$7,246</b>	<b>\$200</b>	<b>\$7,046</b>	<b>13.3</b>	<b>3,634</b>
ECM 4	Install VFDs on Constant Volume (CV) Fans	No	3,609	1.2	0	\$531	\$7,246	\$200	\$7,046	13.3	3,634
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>13</b>	<b>\$87</b>	<b>\$173</b>	<b>\$60</b>	<b>\$113</b>	<b>1.3</b>	<b>1,542</b>
ECM 5	Install Pipe Insulation	Yes	0	0.0	13	\$87	\$173	\$60	\$113	1.3	1,542
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>6</b>	<b>\$38</b>	<b>\$43</b>	<b>\$24</b>	<b>\$19</b>	<b>0.5</b>	<b>667</b>
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	6	\$38	\$43	\$24	\$19	0.5	667
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,909</b>	<b>0.4</b>	<b>0</b>	<b>\$575</b>	<b>\$920</b>	<b>\$100</b>	<b>\$820</b>	<b>1.4</b>	<b>3,936</b>
ECM 7	Vending Machine Control	Yes	3,909	0.4	0	\$575	\$920	\$100	\$820	1.4	3,936
<b>Custom Measures</b>			<b>27,014</b>	<b>0.0</b>	<b>0</b>	<b>\$3,974</b>	<b>\$4,800</b>	<b>\$0</b>	<b>\$4,800</b>	<b>1.2</b>	<b>27,203</b>
ECM 8	Sub Metering	Yes	27,014	0.0	0	\$3,974	\$4,800	\$0	\$4,800	1.2	27,203
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>314,219</b>	<b>32.0</b>	<b>-45</b>	<b>\$45,928</b>	<b>\$115,861</b>	<b>\$29,400</b>	<b>\$86,461</b>	<b>1.9</b>	<b>311,118</b>
<b>TOTALS (ALL MEASURES)</b>			<b>317,828</b>	<b>33.2</b>	<b>-45</b>	<b>\$46,459</b>	<b>\$123,107</b>	<b>\$29,600</b>	<b>\$93,507</b>	<b>2.0</b>	<b>314,752</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# KENDALL 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>175,083</b>	<b>23.2</b>	<b>-40</b>	<b>\$25,589</b>	<b>\$63,444</b>	<b>\$9,431</b>	<b>\$54,013</b>	<b>2.1</b>	<b>171,623</b>
ECM 1	Install LED Fixtures	Yes	31,865	4.9	-7	\$4,657	\$23,544	\$2,450	\$21,094	4.5	31,243
ECM 2	Retrofit Fixtures with LED Lamps	Yes	143,219	18.3	-33	\$20,931	\$39,899	\$6,981	\$32,918	1.6	140,381
<b>Lighting Control Measures</b>			<b>28,819</b>	<b>3.6</b>	<b>-7</b>	<b>\$4,212</b>	<b>\$34,557</b>	<b>\$6,745</b>	<b>\$27,812</b>	<b>6.6</b>	<b>28,244</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	26,890	3.3	-6	\$3,930	\$30,282	\$4,120	\$26,162	6.7	26,354
ECM 4	Install High/Low Lighting Controls	Yes	1,929	0.2	0	\$282	\$4,275	\$2,625	\$1,650	5.9	1,891
<b>Variable Frequency Drive (VFD) Measures</b>			<b>178,988</b>	<b>29.5</b>	<b>0</b>	<b>\$26,332</b>	<b>\$191,917</b>	<b>\$11,800</b>	<b>\$180,117</b>	<b>6.8</b>	<b>180,240</b>
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	Yes	113,012	21.3	0	\$16,626	\$34,029	\$5,800	\$28,229	1.7	113,802
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	17,549	3.0	0	\$2,582	\$8,152	\$1,800	\$6,352	2.5	17,671
ECM 7	Install VFDs on Chilled Water Pumps	No	6,469	2.0	0	\$952	\$23,152	\$1,800	\$21,352	22.4	6,515
ECM 8	Install VFDs on Heating Water Pumps	No	41,958	3.1	0	\$6,173	\$126,582	\$2,400	\$124,182	20.1	42,252
<b>Unitary HVAC Measures</b>			<b>24,229</b>	<b>7.7</b>	<b>0</b>	<b>\$3,565</b>	<b>\$33,105</b>	<b>\$2,670</b>	<b>\$30,435</b>	<b>8.5</b>	<b>24,398</b>
ECM 9	Install High Efficiency Air Conditioning Units	Yes	24,229	7.7	0	\$3,565	\$33,105	\$2,670	\$30,435	8.5	24,398
<b>Domestic Water Heating Upgrade</b>			<b>1,963</b>	<b>0.0</b>	<b>0</b>	<b>\$289</b>	<b>\$172</b>	<b>\$96</b>	<b>\$76</b>	<b>0.3</b>	<b>1,976</b>
ECM 10	Install Low-Flow DHW Devices	Yes	1,963	0.0	0	\$289	\$172	\$96	\$76	0.3	1,976
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,612</b>	<b>0.2</b>	<b>0</b>	<b>\$237</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>0.8</b>	<b>1,623</b>
ECM 11	Vending Machine Control	Yes	1,612	0.2	0	\$237	\$230	\$50	\$180	0.8	1,623
<b>Custom Measures</b>			<b>40,999</b>	<b>0.0</b>	<b>336</b>	<b>\$7,454</b>	<b>\$48,276</b>	<b>\$0</b>	<b>\$48,276</b>	<b>6.5</b>	<b>80,644</b>
ECM 12	Retro-Commissioning Study	Yes	9,846	0.0	195	\$2,272	\$24,900	\$0	\$24,900	11.0	32,715
ECM 13	Sub Metering	Yes	9,790	0.0	141	\$2,039	\$18,800	\$0	\$18,800	9.2	26,417
ECM 14	Install Heat Pump Water Heater	Yes	21,362	0.0	0	\$3,143	\$4,576	\$0	\$4,576	1.5	21,511
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>403,265</b>	<b>59.0</b>	<b>290</b>	<b>\$60,552</b>	<b>\$221,966</b>	<b>\$26,592</b>	<b>\$195,374</b>	<b>3.2</b>	<b>439,983</b>
<b>TOTALS (ALL MEASURES)</b>			<b>451,693</b>	<b>64.1</b>	<b>290</b>	<b>\$67,677</b>	<b>\$371,701</b>	<b>\$30,792</b>	<b>\$340,909</b>	<b>5.0</b>	<b>488,749</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# MAINTENANCE 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>62,677</b>	<b>6.2</b>	<b>-13</b>	<b>\$9,166</b>	<b>\$16,014</b>	<b>\$3,879</b>	<b>\$12,135</b>	<b>1.3</b>	<b>61,583</b>
ECM 1	Install LED Fixtures	Yes	5,703	0.0	0	\$839	\$2,209	\$200	\$2,009	2.4	5,743
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,586	0.1	0	\$232	\$344	\$50	\$294	1.3	1,554
ECM 3	Retrofit Fixtures with LED Lamps	Yes	55,389	6.0	-13	\$8,095	\$13,462	\$3,629	\$9,833	1.2	54,286
<b>Lighting Control Measures</b>			<b>8,391</b>	<b>0.8</b>	<b>-2</b>	<b>\$1,226</b>	<b>\$8,190</b>	<b>\$1,470</b>	<b>\$6,720</b>	<b>5.5</b>	<b>8,224</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	7,328	0.7	-2	\$1,071	\$7,290	\$805	\$6,485	6.1	7,182
ECM 5	Install High/Low Lighting Controls	Yes	1,063	0.1	0	\$155	\$900	\$665	\$235	1.5	1,042
<b>Variable Frequency Drive (VFD) Measures</b>			<b>9,496</b>	<b>0.9</b>	<b>0</b>	<b>\$1,397</b>	<b>\$7,960</b>	<b>\$1,100</b>	<b>\$6,860</b>	<b>4.9</b>	<b>9,563</b>
ECM 6	Install VFDs on Heating Water Pumps	Yes	9,496	0.9	0	\$1,397	\$7,960	\$1,100	\$6,860	4.9	9,563
<b>Unitary HVAC Measures</b>			<b>11,641</b>	<b>4.0</b>	<b>0</b>	<b>\$1,713</b>	<b>\$43,890</b>	<b>\$418</b>	<b>\$43,473</b>	<b>25.4</b>	<b>11,723</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	9,320	3.6	0	\$1,371	\$32,282	\$298	\$31,985	23.3	9,385
ECM 8	Install High Efficiency PTAC/PTHP	No	2,321	0.4	0	\$341	\$11,608	\$120	\$11,488	33.6	2,337
<b>Domestic Water Heating Upgrade</b>			<b>417</b>	<b>0.0</b>	<b>0</b>	<b>\$61</b>	<b>\$22</b>	<b>\$12</b>	<b>\$10</b>	<b>0.2</b>	<b>420</b>
ECM 9	Install Low-Flow DHW Devices	Yes	417	0.0	0	\$61	\$22	\$12	\$10	0.2	420
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 10	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>7,104</b>	<b>0.0</b>	<b>27</b>	<b>\$1,160</b>	<b>\$23,345</b>	<b>\$0</b>	<b>\$23,345</b>	<b>20.1</b>	<b>10,343</b>
ECM 11	Sub Metering	Yes	2,822	0.0	27	\$530	\$18,800	\$0	\$18,800	35.5	6,031
ECM 12	Install Heat Pump Water Heater	Yes	4,282	0.0	0	\$630	\$4,545	\$0	\$4,545	7.2	4,312
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>90,040</b>	<b>8.0</b>	<b>12</b>	<b>\$13,298</b>	<b>\$55,991</b>	<b>\$6,511</b>	<b>\$49,480</b>	<b>3.7</b>	<b>92,100</b>
<b>TOTALS (ALL MEASURES)</b>			<b>101,681</b>	<b>12.1</b>	<b>12</b>	<b>\$15,010</b>	<b>\$99,881</b>	<b>\$6,929</b>	<b>\$92,952</b>	<b>6.2</b>	<b>103,822</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# MUSIC 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>143,371</b>	<b>24.4</b>	<b>-33</b>	<b>\$20,955</b>	<b>\$32,363</b>	<b>\$5,707</b>	<b>\$26,656</b>	<b>1.3</b>	<b>140,566</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	143,371	24.4	-33	\$20,955	\$32,363	\$5,707	\$26,656	1.3	140,566
<b>Lighting Control Measures</b>			<b>24,470</b>	<b>2.3</b>	<b>-6</b>	<b>\$3,576</b>	<b>\$30,022</b>	<b>\$10,470</b>	<b>\$19,552</b>	<b>5.5</b>	<b>23,982</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	14,887	1.4	-3	\$2,176	\$19,672	\$2,035	\$17,637	8.1	14,590
ECM 3	Install High/Low Lighting Controls	Yes	9,584	0.9	-2	\$1,401	\$10,350	\$8,435	\$1,915	1.4	9,392
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>9</b>	<b>\$39</b>	<b>\$134</b>	<b>\$36</b>	<b>\$98</b>	<b>2.5</b>	<b>1,087</b>
ECM 4	Install Pipe Insulation	Yes	0	0.0	9	\$39	\$134	\$36	\$98	2.5	1,087
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$17</b>	<b>\$265</b>	<b>\$78</b>	<b>\$187</b>	<b>10.8</b>	<b>478</b>
ECM 5	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$17	\$265	\$78	\$187	10.8	478
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 6	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>21,547</b>	<b>0.0</b>	<b>300</b>	<b>\$4,439</b>	<b>\$33,860</b>	<b>\$0</b>	<b>\$33,860</b>	<b>7.6</b>	<b>56,802</b>
ECM 7	Retro-Commissioning Study	Yes	12,256	0.0	176	\$2,549	\$15,060	\$0	\$15,060	5.9	32,983
ECM 8	Sub Metering	Yes	9,291	0.0	124	\$1,890	\$18,800	\$0	\$18,800	9.9	23,819
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>191,343</b>	<b>26.9</b>	<b>275</b>	<b>\$29,314</b>	<b>\$97,104</b>	<b>\$16,341</b>	<b>\$80,763</b>	<b>2.8</b>	<b>224,883</b>
<b>TOTALS (ALL MEASURES)</b>			<b>191,343</b>	<b>26.9</b>	<b>275</b>	<b>\$29,314</b>	<b>\$97,104</b>	<b>\$16,341</b>	<b>\$80,763</b>	<b>2.8</b>	<b>224,883</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# NEW RESIDENCE 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>80,215</b>	<b>8.8</b>	<b>-18</b>	<b>\$11,725</b>	<b>\$26,052</b>	<b>\$5,143</b>	<b>\$20,909</b>	<b>1.8</b>	<b>78,664</b>
ECM 1	Install LED Fixtures	Yes	1,822	0.0	0	\$268	\$774	\$60	\$714	2.7	1,835
ECM 2	Retrofit Fixtures with LED Lamps	Yes	78,393	8.8	-18	\$11,457	\$25,278	\$5,083	\$20,195	1.8	76,830
<b>Lighting Control Measures</b>			<b>17,135</b>	<b>1.1</b>	<b>-4</b>	<b>\$2,504</b>	<b>\$11,970</b>	<b>\$5,775</b>	<b>\$6,195</b>	<b>2.5</b>	<b>16,794</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,931	0.1	0	\$282	\$1,620	\$175	\$1,445	5.1	1,893
ECM 4	Install High/Low Lighting Controls	Yes	15,204	1.0	-3	\$2,222	\$10,350	\$5,600	\$4,750	2.1	14,901
<b>Motor Upgrades</b>			<b>1,069</b>	<b>0.2</b>	<b>0</b>	<b>\$157</b>	<b>\$3,075</b>	<b>\$0</b>	<b>\$3,075</b>	<b>19.6</b>	<b>1,076</b>
ECM 5	Premium Efficiency Motors	No	1,069	0.2	0	\$157	\$3,075	\$0	\$3,075	19.6	1,076
<b>Variable Frequency Drive (VFD) Measures</b>			<b>59,457</b>	<b>9.8</b>	<b>0</b>	<b>\$8,747</b>	<b>\$90,269</b>	<b>\$5,400</b>	<b>\$84,869</b>	<b>9.7</b>	<b>59,872</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	50,052	8.0	0	\$7,363	\$24,543	\$3,400	\$21,143	2.9	50,402
ECM 7	Install VFDs on Heating Water Pumps	No	9,405	1.8	0	\$1,384	\$65,726	\$2,000	\$63,726	46.1	9,471
<b>HVAC System Improvements</b>			<b>3,810</b>	<b>0.0</b>	<b>0</b>	<b>\$561</b>	<b>\$104</b>	<b>\$30</b>	<b>\$74</b>	<b>0.1</b>	<b>3,837</b>
ECM 8	Install Pipe Insulation	Yes	3,810	0.0	0	\$561	\$104	\$30	\$74	0.1	3,837
<b>Domestic Water Heating Upgrade</b>			<b>16,358</b>	<b>0.0</b>	<b>112</b>	<b>\$2,879</b>	<b>\$12,756</b>	<b>\$2,520</b>	<b>\$10,236</b>	<b>3.6</b>	<b>29,547</b>
ECM 9	Install Low-Flow DHW Devices	Yes	16,358	0.0	112	\$2,879	\$12,756	\$2,520	\$10,236	3.6	29,547
<b>Food Service &amp; Refrigeration Measures</b>			<b>343</b>	<b>0.0</b>	<b>0</b>	<b>\$50</b>	<b>\$230</b>	<b>\$0</b>	<b>\$230</b>	<b>4.6</b>	<b>345</b>
ECM 10	Vending Machine Control	Yes	343	0.0	0	\$50	\$230	\$0	\$230	4.6	345
<b>Custom Measures</b>			<b>17,142</b>	<b>0.0</b>	<b>395</b>	<b>\$4,192</b>	<b>\$40,708</b>	<b>\$0</b>	<b>\$40,708</b>	<b>9.7</b>	<b>63,476</b>
ECM 11	Retro-Commissioning Study	Yes	4,427	0.0	233	\$1,638	\$17,363	\$0	\$17,363	10.6	31,755
ECM 12	Sub Metering	Yes	5,590	0.0	162	\$1,506	\$18,800	\$0	\$18,800	12.5	24,547
ECM 13	Install Heat Pump Water Heater	Yes	7,124	0.0	0	\$1,048	\$4,545	\$0	\$4,545	4.3	7,174
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>185,055</b>	<b>18.0</b>	<b>484</b>	<b>\$29,274</b>	<b>\$116,362</b>	<b>\$16,868</b>	<b>\$99,494</b>	<b>3.4</b>	<b>243,064</b>
<b>TOTALS (ALL MEASURES)</b>			<b>195,528</b>	<b>19.9</b>	<b>484</b>	<b>\$30,815</b>	<b>\$185,163</b>	<b>\$18,868</b>	<b>\$166,295</b>	<b>5.4</b>	<b>253,611</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# NORSWORTHY 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>7,620</b>	<b>0.0</b>	<b>0</b>	<b>\$1,121</b>	<b>\$2,817</b>	<b>\$258</b>	<b>\$2,559</b>	<b>2.3</b>	<b>7,672</b>
ECM 1	Install LED Fixtures	Yes	7,524	0.0	0	\$1,107	\$2,759	\$250	\$2,509	2.3	7,576
ECM 2	Retrofit Fixtures with LED Lamps	Yes	97	0.0	0	\$14	\$58	\$8	\$50	3.5	96
<b>Lighting Control Measures</b>			<b>1,241</b>	<b>0.1</b>	<b>0</b>	<b>\$181</b>	<b>\$1,890</b>	<b>\$210</b>	<b>\$1,680</b>	<b>9.3</b>	<b>1,216</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	1,241	0.1	0	\$181	\$1,890	\$210	\$1,680	9.3	1,216
<b>Motor Upgrades</b>			<b>765</b>	<b>0.1</b>	<b>0</b>	<b>\$112</b>	<b>\$2,797</b>	<b>\$0</b>	<b>\$2,797</b>	<b>24.9</b>	<b>770</b>
ECM 4	Premium Efficiency Motors	No	765	0.1	0	\$112	\$2,797	\$0	\$2,797	24.9	770
<b>Variable Frequency Drive (VFD) Measures</b>			<b>6,675</b>	<b>1.1</b>	<b>0</b>	<b>\$982</b>	<b>\$12,390</b>	<b>\$250</b>	<b>\$12,140</b>	<b>12.4</b>	<b>6,721</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	No	6,675	1.1	0	\$982	\$12,390	\$250	\$12,140	12.4	6,721
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>50</b>	<b>\$211</b>	<b>\$2,330</b>	<b>\$464</b>	<b>\$1,866</b>	<b>8.8</b>	<b>5,849</b>
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	50	\$211	\$2,330	\$464	\$1,866	8.8	5,849
<b>Food Service &amp; Refrigeration Measures</b>			<b>343</b>	<b>0.0</b>	<b>0</b>	<b>\$50</b>	<b>\$230</b>	<b>\$0</b>	<b>\$230</b>	<b>4.6</b>	<b>345</b>
ECM 7	Vending Machine Control	Yes	343	0.0	0	\$50	\$230	\$0	\$230	4.6	345
<b>Custom Measures</b>			<b>4,447</b>	<b>0.0</b>	<b>181</b>	<b>\$1,422</b>	<b>\$10,396</b>	<b>\$0</b>	<b>\$10,396</b>	<b>7.3</b>	<b>25,710</b>
ECM 8	Retro-Commissioning Study	Yes	1,898	0.0	120	\$786	\$1,296	\$0	\$1,296	1.6	15,923
ECM 9	Sub Metering	Yes	2,549	0.0	62	\$636	\$9,100	\$0	\$9,100	14.3	9,788
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>13,651</b>	<b>0.2</b>	<b>231</b>	<b>\$2,986</b>	<b>\$17,662</b>	<b>\$932</b>	<b>\$16,730</b>	<b>5.6</b>	<b>40,792</b>
<b>TOTALS (ALL MEASURES)</b>			<b>21,090</b>	<b>1.4</b>	<b>231</b>	<b>\$4,081</b>	<b>\$32,850</b>	<b>\$1,182</b>	<b>\$31,668</b>	<b>7.8</b>	<b>48,283</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# PACKER 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>349,397</b>	<b>35.3</b>	<b>-73</b>	<b>\$51,093</b>	<b>\$62,853</b>	<b>\$11,276</b>	<b>\$51,577</b>	<b>1.0</b>	<b>343,289</b>
ECM 1	Install LED Fixtures	Yes	194,351	17.9	-41	\$28,421	\$33,070	\$3,790	\$29,280	1.0	190,952
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	378	0.0	0	\$55	\$69	\$10	\$59	1.1	371
ECM 3	Retrofit Fixtures with LED Lamps	Yes	154,668	17.4	-32	\$22,618	\$29,715	\$7,476	\$22,239	1.0	151,966
<b>Lighting Control Measures</b>			<b>64,862</b>	<b>6.8</b>	<b>-14</b>	<b>\$9,485</b>	<b>\$35,829</b>	<b>\$10,405</b>	<b>\$25,424</b>	<b>2.7</b>	<b>63,727</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	53,769	5.6	-11	\$7,863	\$27,504	\$3,780	\$23,724	3.0	52,829
ECM 5	Install High/Low Lighting Controls	Yes	11,093	1.2	-2	\$1,622	\$8,325	\$6,625	\$1,700	1.0	10,899
<b>Motor Upgrades</b>			<b>1,185</b>	<b>0.2</b>	<b>0</b>	<b>\$174</b>	<b>\$4,049</b>	<b>\$0</b>	<b>\$4,049</b>	<b>23.2</b>	<b>1,193</b>
ECM 6	Premium Efficiency Motors	No	1,185	0.2	0	\$174	\$4,049	\$0	\$4,049	23.2	1,193
<b>Variable Frequency Drive (VFD) Measures</b>			<b>71,543</b>	<b>7.1</b>	<b>0</b>	<b>\$10,525</b>	<b>\$184,098</b>	<b>\$8,150</b>	<b>\$175,948</b>	<b>16.7</b>	<b>72,043</b>
ECM 7	Install VFD on Variable Air Volume (VAV) Fans	Yes	17,719	2.6	0	\$2,607	\$16,484	\$600	\$15,884	6.1	17,843
ECM 8	Install VFDs on Heating Water Pumps	No	52,506	4.2	0	\$7,725	\$161,833	\$7,450	\$154,383	20.0	52,874
ECM 9	Install VFDs on Condensate Pumps	No	1,318	0.3	0	\$194	\$5,780	\$100	\$5,680	29.3	1,327
<b>Unitary HVAC Measures</b>			<b>12,025</b>	<b>2.9</b>	<b>0</b>	<b>\$1,769</b>	<b>\$25,397</b>	<b>\$1,106</b>	<b>\$24,291</b>	<b>13.7</b>	<b>12,109</b>
ECM 10	Install High Efficiency Air Conditioning Units	Yes	12,025	2.9	0	\$1,769	\$25,397	\$1,106	\$24,291	13.7	12,109
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>14</b>	<b>\$61</b>	<b>\$153</b>	<b>\$38</b>	<b>\$115</b>	<b>1.9</b>	<b>1,675</b>
ECM 11	Install Pipe Insulation	Yes	0	0.0	14	\$61	\$153	\$38	\$115	1.9	1,675
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>31</b>	<b>\$132</b>	<b>\$7,806</b>	<b>\$1,465</b>	<b>\$6,341</b>	<b>48.0</b>	<b>3,657</b>
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	31	\$132	\$7,806	\$1,465	\$6,341	48.0	3,657
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 13	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>53,806</b>	<b>0.0</b>	<b>1,638</b>	<b>\$14,846</b>	<b>\$170,998</b>	<b>\$0</b>	<b>\$170,998</b>	<b>11.5</b>	<b>245,973</b>
ECM 14	Retro-Commissioning Study	Yes	29,671	0.0	365	\$5,908	\$29,898	\$0	\$29,898	5.1	72,579
ECM 15	Sub Metering	Yes	24,135	0.0	183	\$4,326	\$18,800	\$0	\$18,800	4.3	45,769
ECM 16	Automatic Pool Cover	No	0	0.0	1,090	\$4,612	\$122,300	\$0	\$122,300	26.5	127,625
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>499,762</b>	<b>47.9</b>	<b>507</b>	<b>\$75,668</b>	<b>\$197,681</b>	<b>\$24,940</b>	<b>\$172,741</b>	<b>2.3</b>	<b>562,617</b>
<b>TOTALS (ALL MEASURES)</b>			<b>554,772</b>	<b>52.5</b>	<b>1,597</b>	<b>\$88,373</b>	<b>\$491,643</b>	<b>\$32,490</b>	<b>\$459,153</b>	<b>5.2</b>	<b>745,636</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# ATHLETIC RECREATION 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>342,821</b>	<b>31.2</b>	<b>-74</b>	<b>\$50,121</b>	<b>\$117,700</b>	<b>\$13,641</b>	<b>\$104,059</b>	<b>2.1</b>	<b>336,521</b>
ECM 1	Install LED Fixtures	Yes	294,847	25.6	-63	\$43,110	\$103,747	\$10,110	\$93,637	2.2	289,503
ECM 2	Retrofit Fixtures with LED Lamps	Yes	47,921	5.6	-11	\$7,003	\$13,881	\$3,531	\$10,350	1.5	46,966
ECM 3	Install LED Exit Signs	Yes	53	0.0	0	\$8	\$72	\$0	\$72	9.4	52
<b>Lighting Control Measures</b>			<b>52,092</b>	<b>5.0</b>	<b>-12</b>	<b>\$7,613</b>	<b>\$26,172</b>	<b>\$4,840</b>	<b>\$21,332</b>	<b>2.8</b>	<b>51,054</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	49,797	4.8	-11	\$7,277	\$23,472	\$3,440	\$20,032	2.8	48,804
ECM 5	Install High/Low Lighting Controls	Yes	2,296	0.2	-1	\$336	\$2,700	\$1,400	\$1,300	3.9	2,250
<b>Variable Frequency Drive (VFD) Measures</b>			<b>177,677</b>	<b>26.1</b>	<b>0</b>	<b>\$26,139</b>	<b>\$74,599</b>	<b>\$11,000</b>	<b>\$63,599</b>	<b>2.4</b>	<b>178,920</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	177,677	26.1	0	\$26,139	\$74,599	\$11,000	\$63,599	2.4	178,920
<b>Domestic Water Heating Upgrade</b>			<b>1,807</b>	<b>0.0</b>	<b>0</b>	<b>\$266</b>	<b>\$93</b>	<b>\$52</b>	<b>\$41</b>	<b>0.2</b>	<b>1,820</b>
ECM 7	Install Low-Flow DHW Devices	Yes	1,807	0.0	0	\$266	\$93	\$52	\$41	0.2	1,820
<b>Food Service &amp; Refrigeration Measures</b>			<b>4,372</b>	<b>0.5</b>	<b>0</b>	<b>\$643</b>	<b>\$920</b>	<b>\$150</b>	<b>\$770</b>	<b>1.2</b>	<b>4,403</b>
ECM 8	Vending Machine Control	Yes	4,372	0.5	0	\$643	\$920	\$150	\$770	1.2	4,403
<b>Custom Measures</b>			<b>92,063</b>	<b>0.0</b>	<b>317</b>	<b>\$14,884</b>	<b>\$53,758</b>	<b>\$0</b>	<b>\$53,758</b>	<b>3.6</b>	<b>129,779</b>
ECM 9	Retro-Commissioning Study	Yes	14,563	0.0	211	\$3,035	\$16,158	\$0	\$16,158	5.3	39,379
ECM 10	Sub Metering	Yes	15,953	0.0	106	\$2,794	\$18,800	\$0	\$18,800	6.7	28,422
ECM 11	Install Heat Pump Water Heater	Yes	61,547	0.0	0	\$9,055	\$18,800	\$0	\$18,800	2.1	61,977
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>670,833</b>	<b>62.8</b>	<b>230</b>	<b>\$99,666</b>	<b>\$273,243</b>	<b>\$29,683</b>	<b>\$243,560</b>	<b>2.4</b>	<b>702,496</b>
<b>TOTALS (ALL MEASURES)</b>			<b>670,833</b>	<b>62.8</b>	<b>230</b>	<b>\$99,666</b>	<b>\$273,243</b>	<b>\$29,683</b>	<b>\$243,560</b>	<b>2.4</b>	<b>702,496</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# ROSCOE L WEST 68 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>82,386</b>	<b>7.7</b>	<b>-19</b>	<b>\$12,041</b>	<b>\$17,728</b>	<b>\$4,821</b>	<b>\$12,907</b>	<b>1.1</b>	<b>80,769</b>
ECM 1	Install LED Fixtures	Yes	972	0.0	0	\$143	\$618	\$150	\$468	3.3	979
ECM 2	Retrofit Fixtures with LED Lamps	Yes	81,413	7.7	-19	\$11,898	\$17,109	\$4,671	\$12,438	1.0	79,790
<b>Lighting Control Measures</b>			<b>7,199</b>	<b>0.6</b>	<b>-2</b>	<b>\$1,052</b>	<b>\$5,338</b>	<b>\$1,105</b>	<b>\$4,233</b>	<b>4.0</b>	<b>7,056</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	6,393	0.5	-1	\$934	\$4,438	\$615	\$3,823	4.1	6,265
ECM 4	Install High/Low Lighting Controls	Yes	806	0.1	0	\$118	\$900	\$490	\$410	3.5	790
<b>Variable Frequency Drive (VFD) Measures</b>			<b>25,645</b>	<b>2.4</b>	<b>0</b>	<b>\$3,773</b>	<b>\$49,729</b>	<b>\$2,700</b>	<b>\$47,029</b>	<b>12.5</b>	<b>25,824</b>
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	Yes	10,165	1.4	0	\$1,495	\$4,076	\$900	\$3,176	2.1	10,236
ECM 6	Install VFDs on Heating Water Pumps	Yes	15,480	1.0	0	\$2,277	\$45,652	\$1,800	\$43,852	19.3	15,588
<b>HVAC System Improvements</b>			<b>1,552</b>	<b>0.0</b>	<b>0</b>	<b>\$228</b>	<b>\$72</b>	<b>\$20</b>	<b>\$52</b>	<b>0.2</b>	<b>1,563</b>
ECM 7	Install Pipe Insulation	Yes	1,552	0.0	0	\$228	\$72	\$20	\$52	0.2	1,563
<b>Domestic Water Heating Upgrade</b>			<b>2,666</b>	<b>0.0</b>	<b>0</b>	<b>\$392</b>	<b>\$143</b>	<b>\$80</b>	<b>\$63</b>	<b>0.2</b>	<b>2,685</b>
ECM 8	Install Low-Flow DHW Devices	Yes	2,666	0.0	0	\$392	\$143	\$80	\$63	0.2	2,685
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,954</b>	<b>0.2</b>	<b>0</b>	<b>\$288</b>	<b>\$460</b>	<b>\$50</b>	<b>\$410</b>	<b>1.4</b>	<b>1,968</b>
ECM 9	Vending Machine Control	Yes	1,954	0.2	0	\$288	\$460	\$50	\$410	1.4	1,968
<b>Custom Measures</b>			<b>50,339</b>	<b>0.0</b>	<b>298</b>	<b>\$8,667</b>	<b>\$41,700</b>	<b>\$0</b>	<b>\$41,700</b>	<b>4.8</b>	<b>85,596</b>
ECM 10	Retro-Commissioning Study	Yes	4,551	0.0	199	\$1,510	\$13,500	\$0	\$13,500	8.9	27,853
ECM 11	Sub Metering	Yes	5,344	0.0	99	\$1,207	\$18,800	\$0	\$18,800	15.6	17,016
ECM 12	Install Heat Pump Water Heater	Yes	40,444	0.0	0	\$5,950	\$9,400	\$0	\$9,400	1.6	40,727
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>171,742</b>	<b>10.9</b>	<b>278</b>	<b>\$26,441</b>	<b>\$115,170</b>	<b>\$8,776</b>	<b>\$106,394</b>	<b>4.0</b>	<b>205,461</b>
<b>TOTALS (ALL MEASURES)</b>			<b>171,742</b>	<b>10.9</b>	<b>278</b>	<b>\$26,441</b>	<b>\$115,170</b>	<b>\$8,776</b>	<b>\$106,394</b>	<b>4.0</b>	<b>205,461</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# CHEMISTRY (AND ADDITION), PHYSICS, AND MATHEMATICS 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>239,137</b>	<b>24.2</b>	<b>-55</b>	<b>\$34,949</b>	<b>\$69,828</b>	<b>\$15,039</b>	<b>\$54,789</b>	<b>1.6</b>	<b>234,386</b>
ECM 1	Install LED Fixtures	Yes	307	0.0	0	\$45	\$331	\$100	\$231	5.1	309
ECM 2	Retrofit Fixtures with LED Lamps	Yes	238,830	24.2	-55	\$34,903	\$69,497	\$14,939	\$54,558	1.6	234,077
<b>Lighting Control Measures</b>			<b>65,362</b>	<b>6.3</b>	<b>-15</b>	<b>\$9,552</b>	<b>\$48,033</b>	<b>\$7,980</b>	<b>\$40,053</b>	<b>4.2</b>	<b>64,059</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	60,177	5.8	-14	\$8,794	\$44,208	\$5,655	\$38,553	4.4	58,977
ECM 4	Install High/Low Lighting Controls	Yes	5,186	0.5	-1	\$758	\$3,825	\$2,325	\$1,500	2.0	5,082
<b>Motor Upgrades</b>			<b>4,611</b>	<b>0.7</b>	<b>0</b>	<b>\$678</b>	<b>\$10,386</b>	<b>\$0</b>	<b>\$10,386</b>	<b>15.3</b>	<b>4,644</b>
ECM 5	Premium Efficiency Motors	No	4,611	0.7	0	\$678	\$10,386	\$0	\$10,386	15.3	4,644
<b>Variable Frequency Drive (VFD) Measures</b>			<b>363,052</b>	<b>60.7</b>	<b>0</b>	<b>\$53,411</b>	<b>\$131,999</b>	<b>\$15,900</b>	<b>\$116,099</b>	<b>2.2</b>	<b>365,590</b>
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	Yes	29,962	5.3	0	\$4,408	\$18,644	\$2,250	\$16,394	3.7	30,172
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	311,380	53.3	0	\$45,809	\$99,549	\$10,750	\$88,799	1.9	313,557
ECM 8	Install VFDs on Water Supply Pump	Yes	21,710	2.1	0	\$3,194	\$13,806	\$2,900	\$10,906	3.4	21,862
<b>Domestic Water Heating Upgrade</b>			<b>26,691</b>	<b>0.0</b>	<b>0</b>	<b>\$3,927</b>	<b>\$229</b>	<b>\$128</b>	<b>\$101</b>	<b>0.0</b>	<b>26,878</b>
ECM 9	Install Low-Flow DHW Devices	Yes	26,691	0.0	0	\$3,927	\$229	\$128	\$101	0.0	26,878
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,209</b>	<b>0.1</b>	<b>0</b>	<b>\$178</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>1.0</b>	<b>1,217</b>
ECM 10	Vending Machine Control	Yes	1,209	0.1	0	\$178	\$230	\$50	\$180	1.0	1,217
<b>Custom Measures</b>			<b>65,866</b>	<b>0.0</b>	<b>928</b>	<b>\$13,628</b>	<b>\$67,025</b>	<b>\$0</b>	<b>\$67,025</b>	<b>4.9</b>	<b>175,026</b>
ECM 11	Retro-Commissioning Study	Yes	48,075	0.0	807	\$10,497	\$45,825	\$0	\$45,825	4.4	142,932
ECM 12	Sub Metering	Yes	17,791	0.0	121	\$3,131	\$21,200	\$0	\$21,200	6.8	32,093
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>761,317</b>	<b>91.3</b>	<b>858</b>	<b>\$115,645</b>	<b>\$317,345</b>	<b>\$39,097</b>	<b>\$278,248</b>	<b>2.4</b>	<b>867,156</b>
<b>TOTALS (ALL MEASURES)</b>			<b>765,928</b>	<b>92.0</b>	<b>858</b>	<b>\$116,323</b>	<b>\$327,731</b>	<b>\$39,097</b>	<b>\$288,634</b>	<b>2.5</b>	<b>871,800</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# SOCIAL SCIENCE 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>88,299</b>	<b>15.4</b>	<b>-19</b>	<b>\$12,910</b>	<b>\$46,658</b>	<b>\$6,746</b>	<b>\$39,912</b>	<b>3.1</b>	<b>86,698</b>
ECM 1	Install LED Fixtures	Yes	5,922	0.0	0	\$871	\$2,240	\$400	\$1,840	2.1	5,963
ECM 2	Retrofit Fixtures with LED Lamps	Yes	82,377	15.4	-19	\$12,039	\$44,418	\$6,346	\$38,072	3.2	80,735
<b>Lighting Control Measures</b>			<b>50,902</b>	<b>8.9</b>	<b>-12</b>	<b>\$7,439</b>	<b>\$58,305</b>	<b>\$13,670</b>	<b>\$44,635</b>	<b>6.0</b>	<b>49,887</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	41,701	7.7	-10	\$6,094	\$50,430	\$7,270	\$43,160	7.1	40,870
ECM 4	Install High/Low Lighting Controls	Yes	9,201	1.2	-2	\$1,345	\$7,875	\$6,400	\$1,475	1.1	9,018
<b>Variable Frequency Drive (VFD) Measures</b>			<b>17,000</b>	<b>5.2</b>	<b>0</b>	<b>\$2,501</b>	<b>\$19,062</b>	<b>\$2,850</b>	<b>\$16,212</b>	<b>6.5</b>	<b>17,119</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	15,535	4.9	0	\$2,285	\$12,591	\$2,700	\$9,891	4.3	15,643
ECM 6	Install VFDs on Water Supply Pump	No	1,465	0.3	0	\$216	\$6,471	\$150	\$6,321	29.3	1,475
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,612</b>	<b>0.2</b>	<b>0</b>	<b>\$237</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>0.8</b>	<b>1,623</b>
ECM 7	Vending Machine Control	Yes	1,612	0.2	0	\$237	\$230	\$50	\$180	0.8	1,623
<b>Custom Measures</b>			<b>18,894</b>	<b>0.0</b>	<b>236</b>	<b>\$3,780</b>	<b>\$31,300</b>	<b>\$0</b>	<b>\$31,300</b>	<b>8.3</b>	<b>46,709</b>
ECM 8	Retro-Commissioning Study	Yes	10,199	0.0	158	\$2,167	\$22,200	\$0	\$22,200	10.2	28,725
ECM 9	Sub Metering	Yes	8,695	0.0	79	\$1,613	\$9,100	\$0	\$9,100	5.6	17,983
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>175,242</b>	<b>29.4</b>	<b>206</b>	<b>\$26,652</b>	<b>\$149,083</b>	<b>\$23,166</b>	<b>\$125,917</b>	<b>4.7</b>	<b>200,560</b>
<b>TOTALS (ALL MEASURES)</b>			<b>176,706</b>	<b>29.7</b>	<b>206</b>	<b>\$26,867</b>	<b>\$155,555</b>	<b>\$23,316</b>	<b>\$132,239</b>	<b>4.9</b>	<b>202,035</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# SPIRITUAL 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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>10,255</b>	<b>1.2</b>	<b>-2</b>	<b>\$1,501</b>	<b>\$3,146</b>	<b>\$503</b>	<b>\$2,643</b>	<b>1.8</b>	<b>10,100</b>
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	320	0.0	0	\$47	\$69	\$10	\$59	1.3	314
ECM 2	Retrofit Fixtures with LED Lamps	Yes	9,935	1.2	-2	\$1,454	\$3,077	\$493	\$2,584	1.8	9,786
<b>Lighting Control Measures</b>			<b>4,025</b>	<b>0.5</b>	<b>-1</b>	<b>\$589</b>	<b>\$3,832</b>	<b>\$245</b>	<b>\$3,587</b>	<b>6.1</b>	<b>3,954</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,196	0.4	-1	\$467	\$2,932	\$245	\$2,687	5.7	3,140
ECM 4	Install High/Low Lighting Controls	Yes	828	0.1	0	\$121	\$900	\$0	\$900	7.4	814
<b>Variable Frequency Drive (VFD) Measures</b>			<b>12,444</b>	<b>1.8</b>	<b>0</b>	<b>\$1,831</b>	<b>\$7,768</b>	<b>\$400</b>	<b>\$7,368</b>	<b>4.0</b>	<b>12,531</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	12,444	1.8	0	\$1,831	\$7,768	\$400	\$7,368	4.0	12,531
<b>Unitary HVAC Measures</b>			<b>8,992</b>	<b>2.9</b>	<b>0</b>	<b>\$1,323</b>	<b>\$28,000</b>	<b>\$2,492</b>	<b>\$25,508</b>	<b>19.3</b>	<b>9,055</b>
ECM 6	Install High Efficiency Air Conditioning Units	No	8,992	2.9	0	\$1,323	\$28,000	\$2,492	\$25,508	19.3	9,055
<b>Domestic Water Heating Upgrade</b>			<b>278</b>	<b>0.0</b>	<b>0</b>	<b>\$41</b>	<b>\$14</b>	<b>\$8</b>	<b>\$6</b>	<b>0.2</b>	<b>280</b>
ECM 7	Install Low-Flow DHW Devices	Yes	278	0.0	0	\$41	\$14	\$8	\$6	0.2	280
<b>Custom Measures</b>			<b>2,433</b>	<b>0.0</b>	<b>14</b>	<b>\$418</b>	<b>\$10,435</b>	<b>\$0</b>	<b>\$10,435</b>	<b>25.0</b>	<b>4,115</b>
ECM 8	Retro-Commissioning Study	Yes	1,402	0.0	9	\$246	\$1,335	\$0	\$1,335	5.4	2,522
ECM 9	Sub Metering	Yes	1,031	0.0	5	\$172	\$9,100	\$0	\$9,100	52.9	1,593
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>29,435</b>	<b>3.6</b>	<b>11</b>	<b>\$4,379</b>	<b>\$25,196</b>	<b>\$1,156</b>	<b>\$24,040</b>	<b>5.5</b>	<b>30,980</b>
<b>TOTALS (ALL MEASURES)</b>			<b>38,426</b>	<b>6.4</b>	<b>11</b>	<b>\$5,702</b>	<b>\$53,196</b>	<b>\$3,648</b>	<b>\$49,548</b>	<b>8.7</b>	<b>40,035</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# R BARBARA GITENSTEIN LIBRARY

#	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>441,199</b>	<b>43.8</b>	<b>-101</b>	<b>\$64,482</b>	<b>\$102,817</b>	<b>\$25,994</b>	<b>\$76,823</b>	<b>1.2</b>	<b>432,490</b>
ECM 1	Install LED Fixtures	Yes	8,620	0.7	-2	\$1,261	\$3,320	\$340	\$2,980	2.4	8,488
ECM 2	Retrofit Fixtures with LED Lamps	Yes	432,579	43.1	-99	\$63,221	\$99,497	\$25,654	\$73,843	1.2	424,002
<b>Lighting Control Measures</b>			<b>107,470</b>	<b>10.5</b>	<b>-25</b>	<b>\$15,706</b>	<b>\$59,383</b>	<b>\$10,670</b>	<b>\$48,713</b>	<b>3.1</b>	<b>105,327</b>
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	103,062	10.1	-24	\$15,062	\$54,658	\$7,070	\$47,588	3.2	101,007
ECM 4	Install High/Low Lighting Controls	Yes	4,408	0.4	-1	\$644	\$4,725	\$3,600	\$1,125	1.7	4,320
<b>Motor Upgrades</b>			<b>19,425</b>	<b>2.5</b>	<b>0</b>	<b>\$2,858</b>	<b>\$29,793</b>	<b>\$0</b>	<b>\$29,793</b>	<b>10.4</b>	<b>19,561</b>
ECM 5	Premium Efficiency Motors	Yes	19,425	2.5	0	\$2,858	\$29,793	\$0	\$29,793	10.4	19,561
<b>Variable Frequency Drive (VFD) Measures</b>			<b>11,881</b>	<b>1.9</b>	<b>0</b>	<b>\$1,748</b>	<b>\$13,687</b>	<b>\$325</b>	<b>\$13,362</b>	<b>7.6</b>	<b>11,964</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	11,881	1.9	0	\$1,748	\$13,687	\$325	\$13,362	7.6	11,964
<b>Unitary HVAC Measures</b>			<b>8,694</b>	<b>6.2</b>	<b>0</b>	<b>\$1,279</b>	<b>\$13,527</b>	<b>\$800</b>	<b>\$12,727</b>	<b>10.0</b>	<b>8,755</b>
ECM 7	Install High Efficiency Heat Pumps	Yes	8,694	6.2	0	\$1,279	\$13,527	\$800	\$12,727	10.0	8,755
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,209</b>	<b>0.1</b>	<b>0</b>	<b>\$178</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>1.0</b>	<b>1,217</b>
ECM 8	Vending Machine Control	Yes	1,209	0.1	0	\$178	\$230	\$50	\$180	1.0	1,217
<b>Custom Measures</b>			<b>56,669</b>	<b>0.0</b>	<b>427</b>	<b>\$10,145</b>	<b>\$58,155</b>	<b>\$0</b>	<b>\$58,155</b>	<b>5.7</b>	<b>107,103</b>
ECM 9	Retro-Commissioning Study	Yes	30,349	0.0	327	\$5,848	\$46,055	\$0	\$46,055	7.9	68,847
ECM 10	Sub Metering	Yes	26,319	0.0	100	\$4,297	\$12,100	\$0	\$12,100	2.8	38,257
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>646,547</b>	<b>65.1</b>	<b>302</b>	<b>\$96,396</b>	<b>\$277,592</b>	<b>\$37,839</b>	<b>\$239,753</b>	<b>2.5</b>	<b>686,418</b>
<b>TOTALS (ALL MEASURES)</b>			<b>646,547</b>	<b>65.1</b>	<b>302</b>	<b>\$96,396</b>	<b>\$277,592</b>	<b>\$37,839</b>	<b>\$239,753</b>	<b>2.5</b>	<b>686,418</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# TRAVERS WOLFE 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>401,739</b>	<b>57.5</b>	<b>-84</b>	<b>\$58,749</b>	<b>\$114,256</b>	<b>\$25,537</b>	<b>\$88,719</b>	<b>1.5</b>	<b>394,757</b>
ECM 1	Install LED Fixtures	Yes	678	0.0	0	\$100	\$509	\$50	\$459	4.6	683
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	867	0.5	0	\$127	\$756	\$110	\$646	5.1	852
ECM 3	Retrofit Fixtures with LED Lamps	Yes	400,193	57.0	-83	\$58,522	\$112,991	\$25,377	\$87,614	1.5	393,222
<b>Lighting Control Measures</b>			<b>95,406</b>	<b>12.2</b>	<b>-20</b>	<b>\$13,951</b>	<b>\$197,203</b>	<b>\$14,209</b>	<b>\$182,994</b>	<b>13.1</b>	<b>93,737</b>
ECM 4	Install Occupancy Sensor Lighting Controls	No	61,472	9.4	-13	\$8,989	\$180,778	\$3,779	\$176,999	19.7	60,397
ECM 5	Install High/Low Lighting Controls	Yes	33,934	2.8	-7	\$4,962	\$16,425	\$10,430	\$5,995	1.2	33,341
<b>Variable Frequency Drive (VFD) Measures</b>			<b>224,715</b>	<b>25.1</b>	<b>0</b>	<b>\$33,060</b>	<b>\$402,564</b>	<b>\$13,750</b>	<b>\$388,814</b>	<b>11.8</b>	<b>226,287</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	116,375	17.2	0	\$17,121	\$40,560	\$5,675	\$34,885	2.0	117,189
ECM 7	Install VFDs on Heating Water Pumps	No	66,530	4.9	0	\$9,788	\$192,309	\$4,400	\$187,909	19.2	66,996
ECM 8	Install VFDs on Kitchen Hood Fan Motors	Yes	2,426	0.4	0	\$357	\$3,391	\$75	\$3,316	9.3	2,443
ECM 9	Install VFDs on Water Supply Pump	No	39,384	2.6	0	\$5,794	\$166,305	\$3,600	\$162,705	28.1	39,659
<b>Unitary HVAC Measures</b>			<b>131,551</b>	<b>30.3</b>	<b>0</b>	<b>\$19,353</b>	<b>\$170,784</b>	<b>\$14,898</b>	<b>\$155,886</b>	<b>8.1</b>	<b>132,471</b>
ECM 10	Install High Efficiency Air Conditioning Units	Yes	131,551	30.3	0	\$19,353	\$170,784	\$14,898	\$155,886	8.1	132,471
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>332</b>	<b>\$1,403</b>	<b>\$5,012</b>	<b>\$2,796</b>	<b>\$2,216</b>	<b>1.6</b>	<b>38,832</b>
ECM 11	Install Low-Flow DHW Devices	Yes	0	0.0	332	\$1,403	\$5,012	\$2,796	\$2,216	1.6	38,832
<b>Food Service &amp; Refrigeration Measures</b>			<b>14,434</b>	<b>1.7</b>	<b>0</b>	<b>\$2,124</b>	<b>\$7,316</b>	<b>\$710</b>	<b>\$6,606</b>	<b>3.1</b>	<b>14,535</b>
ECM 12	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	6,160	0.8	0	\$906	\$4,246	\$560	\$3,686	4.1	6,203
ECM 13	Replace Refrigeration Equipment	Yes	3,902	0.4	0	\$574	\$2,150	\$0	\$2,150	3.7	3,929
ECM 14	Vending Machine Control	Yes	4,372	0.5	0	\$643	\$920	\$150	\$770	1.2	4,403
<b>Custom Measures</b>			<b>53,022</b>	<b>0.0</b>	<b>1,084</b>	<b>\$12,386</b>	<b>\$49,100</b>	<b>\$0</b>	<b>\$49,100</b>	<b>4.0</b>	<b>180,302</b>
ECM 15	Installation of an Energy Management System	Yes	24,681	0.0	713	\$6,649	\$40,000	\$0	\$40,000	6.0	108,380
ECM 16	Sub Metering	Yes	28,340	0.0	371	\$5,737	\$9,100	\$0	\$9,100	1.6	71,922
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>753,480</b>	<b>109.9</b>	<b>1,325</b>	<b>\$116,455</b>	<b>\$406,843</b>	<b>\$60,121</b>	<b>\$346,723</b>	<b>3.0</b>	<b>913,869</b>
<b>TOTALS (ALL MEASURES)</b>			<b>920,866</b>	<b>126.7</b>	<b>1,312</b>	<b>\$141,026</b>	<b>\$946,235</b>	<b>\$71,900</b>	<b>\$874,335</b>	<b>6.2</b>	<b>1,080,920</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# TOWNHOUSE WEST-EAST (CLUSTER #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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>37,721</b>	<b>9.6</b>	<b>0</b>	<b>\$5,549</b>	<b>\$39,324</b>	<b>\$3,561</b>	<b>\$35,763</b>	<b>6.4</b>	<b>37,985</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	37,721	9.6	0	\$5,549	\$39,324	\$3,561	\$35,763	6.4	37,985
<b>Lighting Control Measures</b>			<b>8,480</b>	<b>2.4</b>	<b>0</b>	<b>\$1,248</b>	<b>\$23,428</b>	<b>\$3,970</b>	<b>\$19,458</b>	<b>15.6</b>	<b>8,539</b>
ECM 2	Install Occupancy Sensor Lighting Controls	No	8,480	2.4	0	\$1,248	\$23,428	\$3,970	\$19,458	15.6	8,539
<b>Unitary HVAC Measures</b>			<b>90,135</b>	<b>40.5</b>	<b>0</b>	<b>\$13,260</b>	<b>\$380,653</b>	<b>\$13,770</b>	<b>\$366,883</b>	<b>27.7</b>	<b>90,765</b>
ECM 3	Install High Efficiency Heat Pumps	No	90,135	40.5	0	\$13,260	\$380,653	\$13,770	\$366,883	27.7	90,765
<b>Domestic Water Heating Upgrade</b>			<b>20,771</b>	<b>0.0</b>	<b>0</b>	<b>\$3,056</b>	<b>\$1,821</b>	<b>\$1,016</b>	<b>\$805</b>	<b>0.3</b>	<b>20,916</b>
ECM 4	Install Low-Flow DHW Devices	Yes	20,771	0.0	0	\$3,056	\$1,821	\$1,016	\$805	0.3	20,916
<b>Food Service &amp; Refrigeration Measures</b>			<b>3,909</b>	<b>0.4</b>	<b>0</b>	<b>\$575</b>	<b>\$920</b>	<b>\$100</b>	<b>\$820</b>	<b>1.4</b>	<b>3,936</b>
ECM 5	Vending Machine Control	Yes	3,909	0.4	0	\$575	\$920	\$100	\$820	1.4	3,936
<b>Custom Measures</b>			<b>125,832</b>	<b>0.0</b>	<b>0</b>	<b>\$18,511</b>	<b>\$333,285</b>	<b>\$0</b>	<b>\$333,285</b>	<b>18.0</b>	<b>126,712</b>
ECM 6	Retro-Commissioning Study	No	10,267	0.0	0	\$1,510	\$40,125	\$0	\$40,125	26.6	10,339
ECM 7	Sub Metering	Yes	12,986	0.0	0	\$1,910	\$2,400	\$0	\$2,400	1.3	13,077
ECM 8	Install Heat Pump Water Heater	No	102,579	0.0	0	\$15,091	\$290,760	\$0	\$290,760	19.3	103,296
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>75,387</b>	<b>10.1</b>	<b>0</b>	<b>\$11,090</b>	<b>\$44,466</b>	<b>\$4,677</b>	<b>\$39,789</b>	<b>3.6</b>	<b>75,914</b>
<b>TOTALS (ALL MEASURES)</b>			<b>286,848</b>	<b>52.9</b>	<b>0</b>	<b>\$42,199</b>	<b>\$779,432</b>	<b>\$22,417</b>	<b>\$757,015</b>	<b>17.9</b>	<b>288,853</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# POWER HOUSE - COGEN

#	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>51,510</b>	<b>4.2</b>	<b>-12</b>	<b>\$7,528</b>	<b>\$11,111</b>	<b>\$1,759</b>	<b>\$9,352</b>	<b>1.2</b>	<b>50,486</b>
ECM 1	Install LED Fixtures	Yes	20,426	1.6	-5	\$2,985	\$6,608	\$650	\$5,958	2.0	20,019
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,503	0.1	0	\$220	\$257	\$40	\$217	1.0	1,473
ECM 3	Retrofit Fixtures with LED Lamps	Yes	29,581	2.5	-7	\$4,323	\$4,246	\$1,069	\$3,177	0.7	28,994
<b>Lighting Control Measures</b>			<b>987</b>	<b>0.1</b>	<b>0</b>	<b>\$144</b>	<b>\$1,274</b>	<b>\$185</b>	<b>\$1,089</b>	<b>7.5</b>	<b>967</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	987	0.1	0	\$144	\$1,274	\$185	\$1,089	7.5	967
<b>Motor Upgrades</b>			<b>9,952</b>	<b>2.9</b>	<b>0</b>	<b>\$1,464</b>	<b>\$56,262</b>	<b>\$0</b>	<b>\$56,262</b>	<b>38.4</b>	<b>10,021</b>
ECM 5	Premium Efficiency Motors	No	9,952	2.9	0	\$1,464	\$56,262	\$0	\$56,262	38.4	10,021
<b>Variable Frequency Drive (VFD) Measures</b>			<b>170,691</b>	<b>60.6</b>	<b>0</b>	<b>\$25,112</b>	<b>\$143,228</b>	<b>\$22,650</b>	<b>\$120,578</b>	<b>4.8</b>	<b>171,884</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	9,359	2.6	0	\$1,377	\$17,270	\$450	\$16,820	12.2	9,424
ECM 7	Install VFDs on Cooling Tower Fans	Yes	34,628	-4.0	0	\$5,094	\$53,487	\$10,000	\$43,487	8.5	34,870
ECM 8	Install Boiler Draft Fan VFDs	Yes	27,373	14.9	0	\$4,027	\$17,501	\$3,000	\$14,501	3.6	27,565
ECM 9	Install VFDs on Boiler Feedwater Pumps	Yes	79,616	44.8	0	\$11,713	\$37,390	\$5,400	\$31,990	2.7	80,173
ECM 10	Install VFDs on Condensate Pumps	Yes	19,714	2.4	0	\$2,900	\$17,580	\$3,800	\$13,780	4.8	19,852
<b>Unitary HVAC Measures</b>			<b>3,350</b>	<b>2.3</b>	<b>0</b>	<b>\$493</b>	<b>\$17,949</b>	<b>\$948</b>	<b>\$17,001</b>	<b>34.5</b>	<b>3,373</b>
ECM 11	Install High Efficiency Air Conditioning Units	No	3,350	2.3	0	\$493	\$17,949	\$948	\$17,001	34.5	3,373
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>3,558</b>	<b>\$15,052</b>	<b>\$108,071</b>	<b>\$6,312</b>	<b>\$101,759</b>	<b>6.8</b>	<b>416,541</b>
ECM 12	Install Pipe Insulation	Yes	0	0.0	3,558	\$15,052	\$108,071	\$6,312	\$101,759	6.8	416,541
<b>Domestic Water Heating Upgrade</b>			<b>278</b>	<b>0.0</b>	<b>0</b>	<b>\$41</b>	<b>\$14</b>	<b>\$8</b>	<b>\$6</b>	<b>0.2</b>	<b>280</b>
ECM 13	Install Low-Flow DHW Devices	Yes	278	0.0	0	\$41	\$14	\$8	\$6	0.2	280
<b>Custom Measures</b>			<b>0</b>	<b>0.0</b>	<b>0</b>	<b>\$0</b>	<b>\$42,000</b>	<b>\$0</b>	<b>\$42,000</b>	<b>0.0</b>	<b>0</b>
ECM 14	Connect Existing Plant Steam Flow Meter & Install a Chilled Water Flow Meter	Yes	0	0.0	0	\$0	\$42,000	\$0	\$42,000	0.0	0
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>223,465</b>	<b>65.0</b>	<b>3,545</b>	<b>\$47,877</b>	<b>\$305,698</b>	<b>\$30,914</b>	<b>\$274,784</b>	<b>5.7</b>	<b>640,158</b>
<b>TOTALS (ALL MEASURES)</b>			<b>236,767</b>	<b>70.2</b>	<b>3,545</b>	<b>\$49,834</b>	<b>\$379,909</b>	<b>\$31,862</b>	<b>\$348,048</b>	<b>7.0</b>	<b>653,552</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

ECM 12 has already been implemented. The measure is included to provide TCNJ an assessment of the savings associated with the implemented insulation project.

# TRENTON 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>61,350</b>	<b>10.2</b>	<b>-13</b>	<b>\$8,972</b>	<b>\$20,730</b>	<b>\$3,901</b>	<b>\$16,829</b>	<b>1.9</b>	<b>60,293</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	61,350	10.2	-13	\$8,972	\$20,730	\$3,901	\$16,829	1.9	60,293
<b>Lighting Control Measures</b>			<b>28,675</b>	<b>4.5</b>	<b>-6</b>	<b>\$4,193</b>	<b>\$18,198</b>	<b>\$5,160</b>	<b>\$13,038</b>	<b>3.1</b>	<b>28,174</b>
ECM 2	Install Occupancy Sensor Lighting Controls	Yes	22,738	3.6	-5	\$3,325	\$13,698	\$1,865	\$11,833	3.6	22,340
ECM 3	Install High/Low Lighting Controls	Yes	5,937	0.9	-1	\$868	\$4,500	\$3,295	\$1,205	1.4	5,834
<b>Motor Upgrades</b>			<b>5,754</b>	<b>0.8</b>	<b>0</b>	<b>\$846</b>	<b>\$9,571</b>	<b>\$0</b>	<b>\$9,571</b>	<b>11.3</b>	<b>5,794</b>
ECM 4	Premium Efficiency Motors	Yes	5,754	0.8	0	\$846	\$9,571	\$0	\$9,571	11.3	5,794
<b>Variable Frequency Drive (VFD) Measures</b>			<b>18,334</b>	<b>3.0</b>	<b>0</b>	<b>\$2,697</b>	<b>\$32,482</b>	<b>\$1,300</b>	<b>\$31,182</b>	<b>11.6</b>	<b>18,462</b>
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	15,682	2.6	0	\$2,307	\$10,960	\$1,100	\$9,860	4.3	15,792
ECM 6	Install VFDs on Heating Water Pumps	No	2,652	0.4	0	\$390	\$21,522	\$200	\$21,322	54.7	2,671
<b>Unitary HVAC Measures</b>			<b>33,784</b>	<b>4.4</b>	<b>0</b>	<b>\$4,970</b>	<b>\$163,163</b>	<b>\$5,938</b>	<b>\$157,225</b>	<b>31.6</b>	<b>34,020</b>
ECM 7	Install High Efficiency Heat Pumps	No	33,784	4.4	0	\$4,970	\$163,163	\$5,938	\$157,225	31.6	34,020
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,612</b>	<b>0.2</b>	<b>0</b>	<b>\$237</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>0.8</b>	<b>1,623</b>
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$237	\$230	\$50	\$180	0.8	1,623
<b>Custom Measures</b>			<b>68,708</b>	<b>0.0</b>	<b>52</b>	<b>\$10,328</b>	<b>\$22,352</b>	<b>\$0</b>	<b>\$22,352</b>	<b>2.2</b>	<b>75,250</b>
ECM 9	Retro-Commissioning Study	Yes	17,120	0.0	35	\$2,665	\$9,929	\$0	\$9,929	3.7	21,280
ECM 10	Sub Metering	Yes	11,069	0.0	17	\$1,702	\$9,100	\$0	\$9,100	5.3	13,167
ECM 11	Install Heat Pump Water Heater	Yes	40,519	0.0	0	\$5,961	\$3,323	\$0	\$3,323	0.6	40,802
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>181,782</b>	<b>18.2</b>	<b>33</b>	<b>\$26,884</b>	<b>\$82,041</b>	<b>\$10,211</b>	<b>\$71,830</b>	<b>2.7</b>	<b>186,925</b>
<b>TOTALS (ALL MEASURES)</b>			<b>218,218</b>	<b>23.1</b>	<b>33</b>	<b>\$32,244</b>	<b>\$266,726</b>	<b>\$16,349</b>	<b>\$250,377</b>	<b>7.8</b>	<b>223,616</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

# TOWNHOUSE SOUTH (CLUSTER #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 <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>31,698</b>	<b>5.7</b>	<b>0</b>	<b>\$4,663</b>	<b>\$22,340</b>	<b>\$2,995</b>	<b>\$19,345</b>	<b>4.1</b>	<b>31,920</b>
ECM 1	Install LED Fixtures	Yes	5,676	0.0	0	\$835	\$3,152	\$600	\$2,552	3.1	5,716
ECM 2	Retrofit Fixtures with LED Lamps	Yes	26,022	5.7	0	\$3,828	\$19,188	\$2,395	\$16,793	4.4	26,204
<b>Lighting Control Measures</b>			<b>6,017</b>	<b>1.3</b>	<b>0</b>	<b>\$885</b>	<b>\$16,184</b>	<b>\$2,760</b>	<b>\$13,424</b>	<b>15.2</b>	<b>6,059</b>
ECM 3	Install Occupancy Sensor Lighting Controls	No	5,639	1.3	0	\$830	\$15,734	\$2,620	\$13,114	15.8	5,679
ECM 4	Install High/Low Lighting Controls	Yes	378	0.0	0	\$56	\$450	\$140	\$310	5.6	381
<b>Motor Upgrades</b>			<b>8,585</b>	<b>1.2</b>	<b>0</b>	<b>\$1,263</b>	<b>\$6,248</b>	<b>\$0</b>	<b>\$6,248</b>	<b>4.9</b>	<b>8,645</b>
ECM 5	Premium Efficiency Motors	Yes	8,585	1.2	0	\$1,263	\$6,248	\$0	\$6,248	4.9	8,645
<b>Unitary HVAC Measures</b>			<b>121,811</b>	<b>28.1</b>	<b>0</b>	<b>\$17,921</b>	<b>\$226,585</b>	<b>\$9,543</b>	<b>\$217,043</b>	<b>12.1</b>	<b>122,663</b>
ECM 6	Install High Efficiency Heat Pumps	Yes	121,811	28.1	0	\$17,921	\$226,585	\$9,543	\$217,043	12.1	122,663
<b>Domestic Water Heating Upgrade</b>			<b>16,846</b>	<b>0.0</b>	<b>0</b>	<b>\$2,478</b>	<b>\$875</b>	<b>\$488</b>	<b>\$387</b>	<b>0.2</b>	<b>16,963</b>
ECM 7	Install Low-Flow DHW Devices	Yes	16,846	0.0	0	\$2,478	\$875	\$488	\$387	0.2	16,963
<b>Food Service &amp; Refrigeration Measures</b>			<b>1,612</b>	<b>0.2</b>	<b>0</b>	<b>\$237</b>	<b>\$230</b>	<b>\$50</b>	<b>\$180</b>	<b>0.8</b>	<b>1,623</b>
ECM 8	Vending Machine Control	Yes	1,612	0.2	0	\$237	\$230	\$50	\$180	0.8	1,623
<b>Custom Measures</b>			<b>61,580</b>	<b>0.0</b>	<b>0</b>	<b>\$9,060</b>	<b>\$212,779</b>	<b>\$0</b>	<b>\$212,779</b>	<b>23.5</b>	<b>62,010</b>
ECM 9	Retro-Commissioning Study	No	15,121	0.0	0	\$2,225	\$19,500	\$0	\$19,500	8.8	15,227
ECM 10	Sub Metering	Yes	13,634	0.0	0	\$2,006	\$2,400	\$0	\$2,400	1.2	13,729
ECM 11	Install Heat Pump Water Heater	No	32,825	0.0	0	\$4,829	\$190,879	\$0	\$190,879	39.5	33,055
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>194,563</b>	<b>35.1</b>	<b>0</b>	<b>\$28,624</b>	<b>\$259,128</b>	<b>\$13,216</b>	<b>\$245,912</b>	<b>8.6</b>	<b>195,923</b>
<b>TOTALS (ALL MEASURES)</b>			<b>248,148</b>	<b>36.4</b>	<b>0</b>	<b>\$36,507</b>	<b>\$485,241</b>	<b>\$15,836</b>	<b>\$469,405</b>	<b>12.9</b>	<b>249,883</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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



# STEM BUILDING & FORUM

#	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>71,854</b>	<b>10.1</b>	<b>-16</b>	<b>\$10,503</b>	<b>\$23,779</b>	<b>\$6,262</b>	<b>\$17,517</b>	<b>1.7</b>	<b>70,469</b>
ECM 1	Retrofit Fixtures with LED Lamps	Yes	71,854	10.1	-16	\$10,503	\$23,779	\$6,262	\$17,517	1.7	70,469
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>71,854</b>	<b>10.1</b>	<b>-16</b>	<b>\$10,503</b>	<b>\$23,779</b>	<b>\$6,262</b>	<b>\$17,517</b>	<b>1.7</b>	<b>70,469</b>
<b>TOTALS (ALL MEASURES)</b>			<b>71,854</b>	<b>10.1</b>	<b>-16</b>	<b>\$10,503</b>	<b>\$23,779</b>	<b>\$6,262</b>	<b>\$17,517</b>	<b>1.7</b>	<b>70,469</b>

\* - All incentives presented in this table are based on NJ SmartStart equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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





# ENERGY EFFICIENT BEST PRACTICES

- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Use Window Treatments/Coverings
- Clean and/or Replace HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

***See individual reports for specific EE practices by building***

# SOLAR ENERGY GENERATION POTENTIAL

TCNJ	Armstrong	Art & IMM	Biology	Bower SC	Business	Centennial	Cromwell
<i>Potential:</i>	<b>HIGH</b>	<b>Medium</b>	<b>HIGH</b>	<b>HIGH</b>	<b>Medium</b>	<b>Medium</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	96	236	102	404	140	82	112
<i>Electric Generation: (kWh per year)</i>	114,371	177,577	121,520	481,314	105,342	61,700	133,433
<i>Displaced Cost: (per year)</i>	\$16,830	\$26,120	\$17,880	\$70,750	\$15,500	\$9,080	\$19,630

TCNJ	Decker	Education	Eickoff	Forcina	Hausdoeffer & Phelps	Kendall	Maintenance
<i>Potential:</i>	<b>Medium</b>	<b>HIGH</b>	<b>Medium</b>	<b>HIGH</b>	<b>Medium</b>	<b>Medium</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	214	322	121	131	250	215	64
<i>Electric Generation: (kWh per year)</i>	161,023	383,621	91,046	156,070	188,111	161,776	76,248
<i>Displaced Cost: (per year)</i>	\$23,690	\$56,440	\$13,390	\$22,960	\$27,670	\$23,800	\$11,220

# SOLAR ENERGY GENERATION POTENTIAL

TCNJ	Music	New Residence	Packer	Athletic Recreation	Roscoe L West_68	Chemistry (& Annex), Physics, Mathematics
<i>Potential:</i>	<b>HIGH</b>	<b>Medium</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	64	107	215	218	122	161
<i>Electric Generation: (kWh per year)</i>	76,248	80,512	256,145	307,373	145,347	191,811
<i>Displaced Cost: (per year)</i>	\$11,220	\$11,840	\$37,680	\$45,220	\$21,380	\$28,220

TCNJ	Library	Travers Wolfe	Trenton	Townhouse South	STEM & Forum
<i>Potential:</i>	<b>HIGH</b>	<b>Medium</b>	<b>HIGH</b>	<b>Medium</b>	<b>HIGH</b>
<i>System Potential: (kW)</i>	129	322	129	241	311
<i>Electric Generation: (kWh per year)</i>	153,687	242,287	153,687	181,339	370,516
<i>Displaced Cost: (per year)</i>	\$22,610	\$35,640	\$22,610	\$26,680	\$54,510

## Transition Incentive (TI) Program:

<https://www.njcleanenergy.com/renewable-energy/programs/transition-incentive-program>

## Community Solar Energy Pilot Program:

<http://www.NJCleanEnergy.com/CommunitySolar>

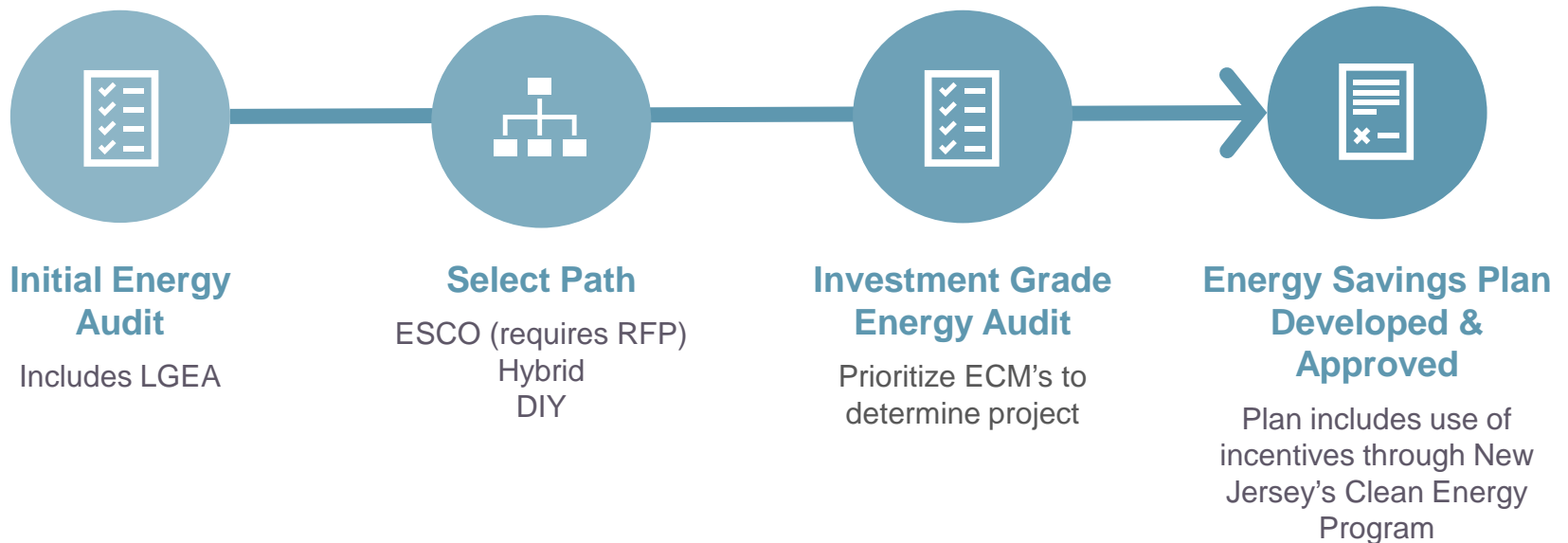
# FINANCING MECHANISM: ESIP

## ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Provides alternative financing for energy savings projects at public institutions
- Administered directly by the NJBPU
- Project is paid for with the value of its own energy savings
- 15 or 20-year repayment term
- NJCEP incentives/rebates are layered within an ESIP
- No upfront capital expenses
- Doesn't require voter approval



# FINANCING MECHANISM: ESIP



# ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

## FOR MORE INFORMATION

**Michelle Rossi**

ESIP Coordinator

ESIP@bpu.nj.gov

o: 609.633.9641

c: 609.915.0903

# CLEAN ENERGY PROGRAM PORTFOLIO

## ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit, Institutional and Multifamily

## INCENTIVE PROGRAMS

### Equipment Rebates:

- **SmartStart**
- **Customer Tailored Energy Efficiency Pilot (CTEEP)**
- Direct Install
- Large Energy Users

### Whole Buildings:

- **Pay for Performance**

### Energy Generation:

- Combined Heat and Power – Fuel Cells

## OTHER PROGRAMS

### Renewable Energy Generation:

- **Transition Incentive (TI) Program**
- **Community Solar**

# RECOMMENDED NJCEP INCENTIVES PER BUILDING

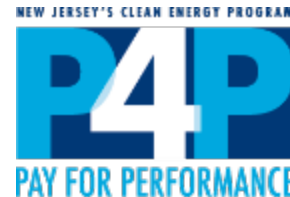
	Pay For Performance	SmartStart	CTEEP
TCNJ Campus	X	X	X





# PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



**What is P4P:** Comprehensive, whole-building approach to saving energy in existing or new facilities.

**Qualifications:** Annual peak demand 200 kW+ in the previous year for existing buildings

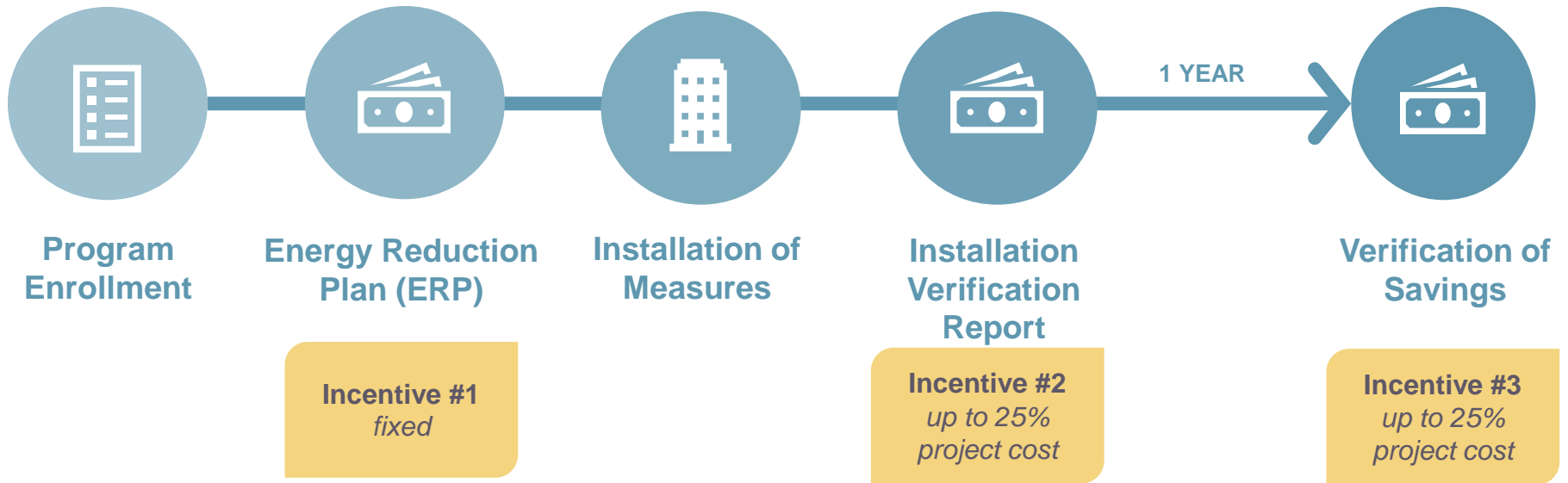
**About:** Customer choose from a network of pre-approved *Participating Partners*

**Incentives:**

- Incentives paid in *three* installments
  - Up to \$2MM per project( (\$4MM entity cap/year)
    - \$1 million for electric measures
    - \$1 million for gas measures
  - Up to 50% of project cost up to \$2MM per project / \$4MM per entity annually

# PAY FOR PERFORMANCE

NJCleanEnergy.com/P4P



# SMARTSTART

NJCleanEnergy.com/SSB

**What is SSB:** Individual high efficiency equipment rebates for new construction, renovation, remodeling, equipment replacement

**Qualifications:**

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

## About:

- Prescriptive and custom designed measures
- Pre-approval required only for lighting projects with incentives >\$100,000 and all custom projects
- For measures not requiring pre-approval, applications must be submitted to the program within one year of purchase.

## Incentives:

- Prescriptive: \$500,000 cap for each electric or gas account
- Custom, lesser of the following:
  - \$0.16/kWh and/or \$1.60/Therm saved annually
  - 50% of incremental installed cost
  - Buy-down to 1 year payback based on incremental cost and savings



# SMARTSTART

NJCleanEnergy.com/SSB



## PRESCRIPTIVE INCENTIVES

- Electric Chillers
- Gas Cooling
- Electric Unitary HVAC
- Ground Source Heat Pumps
- Gas Heating
- Variable Frequency Drives
- Gas Water Heating
- Lighting/Lighting Controls
- Refrigeration Doors
- Refrigeration Controls
- Food Service Equipment
- Refrigerator/Freezer Motors

**DOUBLE INCENTIVES  
ON ALL  
NON LIGHTING  
APPLICATIONS**  
for OZ/UEZ, local  
government (munis &  
counties), K-12 public  
school, or designated  
as affordable housing



## CUSTOM INCENTIVES

- New or innovative technologies proven to be cost-effective and not listed as prescriptive
- Must meet code for retrofit projects or exceed code for new construction
- Project pre and post inspection required



# CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

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

**What is CTEEP:** A streamlined/single application process for participants submitting multiple different technology types.

**Qualifications:**

- All C&I customer types contributing into the Societal Benefits Charge (SBC)

**About:**

- On site assistance available
- Additional technical incentive available to offset soft costs associated with developing and planning custom projects

**Incentives:**

- Up to \$500,000 for each electric or gas account
- Technical assistance incentives for custom project evaluation (up to \$10K)

**SAME INCENTIVE  
VALUES AS  
SMARTSTART**

# CTEEP: CUSTOMER TAILORED ENERGY EFFICIENCY PILOT

NJCleanEnergy.com/CTEEP



**SAME INCENTIVE  
VALUES AS  
SMARTSTART**



# FOR MORE INFORMATION

## *NJ Clean Energy Program*

**Jose Bermudez– LGEA Program Manager**

[JBermudez@trccompanies.com](mailto:JBermudez@trccompanies.com)

(516) 282-4075

**Sarah Walters– LGEA Account Manager**

[SWalters@trccompanies.com](mailto:SWalters@trccompanies.com)

(732) 589-7372

**Kush Patel – LGEA Auditor**

[KPatel@trccompanies.com](mailto:KPatel@trccompanies.com)

(848) 244-3397

**Moussa Traore – LGEA Auditor**

[MTraore@trccompanies.com](mailto:MTraore@trccompanies.com)

(732) 902-1797

**Tony O'Donnell– Outreach Account Manager**

[AODonnell@trccompanies.com](mailto:AODonnell@trccompanies.com)

(732) 259-4938



**NJCleanEnergy.com**  
**(866) 657-6278**

# QUESTIONS

