Local Government Energy Audit Report

Forum

February 8, 2019

Prepared for:

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Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information about financial incentives that may be available. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC Energy Services (TRC) reviewed the energy conservation measures and estimates of energy savings were reviewed for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated installation costs on our experience at similar facilities, pricing from local contractors and vendors, and/or cost estimates from RS Means. We encourage the owner of the facility is encouraged to independently confirm these cost estimates and to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on individual measures and conditions. TRC and NJBPU do not guarantee installed cost estimates and shall in no event be held liable should actual installed costs vary from estimates.

The New Jersey Clean Energy Program (NJCEP) incentive values provided in this report are estimates based on program information available at the time of the report. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

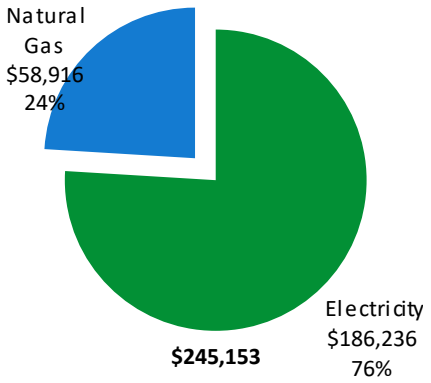
The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state and federal requirements.

Table of Contents

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for the Forum Building. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC Energy Services (TRC) conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $245,153 Electricity: 1,864,524 kWh Natural Gas: 40,641 Therms	
ENERGY STAR® Benchmarking Score	98 *(1-100 scale)*	Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance and lower your energy bills even more.

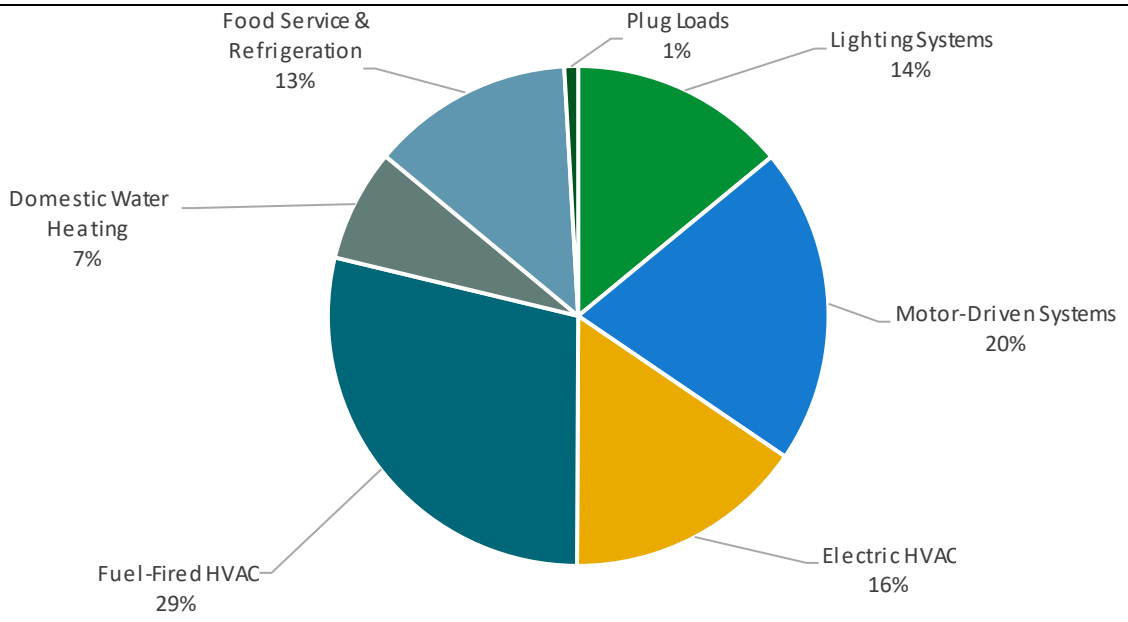


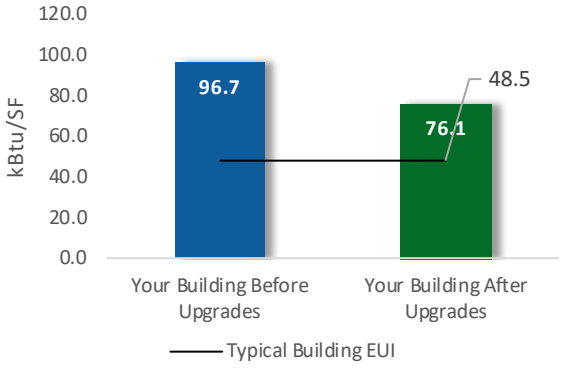
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

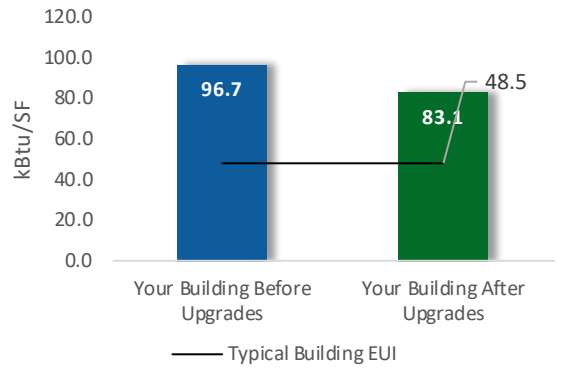
Scenario 1: Full Package (all evaluated measures)

Installation Cost	$690,632
Potential Rebates & Incentives[1]	$40,045
Annual Cost Savings	$55,452
Annual Energy Savings	Electricity: 461,703 kWh Natural Gas: 6,440 Therms
Greenhouse Gas Emission Savings	270 Tons
Simple Payback	11.7 Years
Site Energy Savings (all utilities)	21%



Scenario 2: Cost Effective Package[2]

Installation Cost	$154,126
Potential Rebates & Incentives	$22,380
Annual Cost Savings	$42,362
Annual Energy Savings	Electricity: 417,041 kWh Natural Gas: 487 Therms
Greenhouse Gas Emission Savings	213 Tons
Simple Payback	3.1 Years
Site Energy Savings (all utilities)	14%



On-site Generation Potential

Photovoltaic	High
Combined Heat and Power	None

[1] Incentives are based on current SmartStart Prescriptive incentives. Other program incentives may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Lifetime Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**263,394**	**40.8**	**-54**	**$25,522**	**$382,832**	**$81,528**	**$14,515**	**$67,013**	**2.6**	**258,881**
ECM 1	Install LED Fixtures	104,975	16.4	-22	$10,172	$152,583	$41,399	$4,555	$36,844	3.6	103,180
ECM 2	Retrofit Fixtures with LED Lamps	158,418	24.4	-33	$15,350	$230,249	$40,129	$9,960	$30,169	2.0	155,701
Lighting Control Measures		**57,220**	**8.8**	**-12**	**$5,542**	**$44,336**	**$35,036**	**$3,690**	**$31,346**	**5.7**	**56,220**
ECM 3	Install Occupancy Sensor Lighting Controls	51,545	7.9	-11	$4,992	$39,939	$33,636	$3,690	$29,946	6.0	50,644
ECM 4	Install High/Low Lighting Controls	5,675	0.9	-1	$550	$4,397	$1,400	$0	$1,400	2.5	5,576
Motor Upgrades		**2,666**	**0.5**	**0**	**$266**	**$3,994**	**$11,110**	**$0**	**$11,110**	**41.7**	**2,684**
	Premium Efficiency Motors	2,666	0.5	0	$266	$3,994	$11,110	$0	$11,110	41.7	2,684
Variable Frequency Drive (VFD) Measures		**86,723**	**19.2**	**52**	**$9,420**	**$141,307**	**$30,955**	**$4,175**	**$26,780**	**2.8**	**93,453**
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	80,887	19.2	0	$8,079	$121,190	$28,227	$3,575	$24,652	3.1	81,453
ECM 6	Install VFDs on Kitchen Hood Fan Motors	5,836	0.0	52	$1,341	$20,117	$2,729	$600	$2,129	1.6	12,001
Electric Unitary HVAC Measures		**39,439**	**25.9**	**0**	**$3,939**	**$59,089**	**$382,818**	**$8,190**	**$374,628**	**95.1**	**39,714**
	Install High Efficiency Air Conditioning Units	39,439	25.9	0	$3,939	$59,089	$382,818	$8,190	$374,628	95.1	39,714
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**333**	**$4,831**	**$96,625**	**$61,707**	**$3,200**	**$58,507**	**12.1**	**39,021**
	Install High Efficiency Furnaces	0	0.0	333	$4,831	$96,625	$61,707	$3,200	$58,507	12.1	39,021
Domestic Water Heating Upgrade		**0**	**0.0**	**63**	**$908**	**$9,079**	**$158**	**$0**	**$158**	**0.2**	**7,333**
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	$908	$9,079	$158	$0	$158	0.2	7,333
Food Service & Refrigeration Measures		**12,262**	**1.7**	**262**	**$5,023**	**$59,542**	**$87,319**	**$6,275**	**$81,044**	**16.1**	**43,025**
	Food Service Equipment Replacement	2,558	0.6	262	$4,054	$48,645	$80,871	$6,275	$74,596	18.4	33,254
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	$131	$1,964	$607	$0	$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	$677	$8,128	$5,612	$0	$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	$161	$805	$230	$0	$230	1.4	1,623
TOTALS		**461,703**	**97.0**	**644**	**$55,452**	**$796,805**	**$690,632**	**$40,045**	**$650,587**	**11.7**	**540,332**

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

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

Figure 2 – Evaluated Energy Improvements

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

New Jersey Clean Energy Programs give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives before purchasing materials or starting installation.

The potential ECMs identified for this building likely qualify for multiple incentive and funding programs. Based on current program rules and requirements, your measures are likely to qualify for the following programs:

Energy Conservation Measure		SmartStart	Direct Install	Pay For Performance
ECM 1	Install LED Fixtures	X		X
ECM 2	Retrofit Fixtures with LED Lamps	X		X
ECM 3	Install Occupancy Sensor Lighting Controls	X		X
ECM 4	Install High/Low Lighting Controls			X
ECM 5	Install VFD on Variable Air Volume (VAV) HVAC	X		X
ECM 6	Install VFDs on Single-Speed Kitchen Hoods	X		X
ECM 7	Install Low-Flow Domestic Hot Water Devices			X
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors			X
ECM 9	Replace Refrigeration Equipment			X
ECM 10	Vending Machine Control			X

Figure 3 – Funding Options

New Jersey Clean Energy Programs At-A-Glance

	SmartStart Flexibility to install at your own pace	**Direct Install** Turnkey installation	**Pay for Performance** Whole building upgrades
Who should use it?	Buildings installing individual measures or small group of measures.	Small to mid-size facilities that can bundle multiple measures together. Peak demand should be below 200 kW. Not suitable for significant building shell issues.	Mid to large size facilities looking to implement as many measures as possible at one time. Peak demand should be over 200 kW.
How does it work?	Use in-house staff or your preferred contractor.	Pre-approved contractors pass savings along to you via reduced material and labor costs.	Whole-building approach to energy upgrades designed to reduce energy use by at least 15%. The more you save, the higher the incentives.
What are the Incentives?	Fixed incentives for specific energy efficiency measures.	Incentives pay up to 70% of eligible costs, up to $125,000 per project. You pay the remaining 30% directly to the contractor.	Up to 25% of installation cost, calculated based on level of energy savings per square foot.
How do I participate?	Submit an application for the specific equipment to be installed.	Contact a participating contractor in your region.	Contact a pre-qualified partner to develop your energy reduction plan and set your energy savings targets.

Take the next step by visiting **www.njcleanenergy.com** for program details, applications, and to contact a qualified contractor.

Individual Measures with SmartStart

For facilities wishing to pursue only selected individual measures (or planning to phase implementation of selected measures over multiple years), incentives are available through the SmartStart program. To participate, you can use internal resources or an outside firm or contractor to perform the final design of the ECM(s) and install the equipment. Program pre-approval is required for some SmartStart incentives, so only after receiving pre-approval should you proceed with ECM installation.

Turnkey Installation with Direct Install

The Direct Install program provides turnkey installation of multiple measures through an authorized network of participating contractors. This program can provide substantially higher incentives than SmartStart, up to 70% of the cost of selected measures. Direct Install contractors will assess and verify individual measure eligibility, and, in most cases, they perform the installation work. The Direct Install program is available to sites with an average peak demand of less than 200 kW.

Whole Building Approach with Pay for Performance

Pay for Performance can be a good option for medium to large sized facilities to achieve deep energy savings. Pay for Performance allows you to install as many measures as possible under a single project as well as address measures that may not qualify for other programs. Many facilities pursuing an Energy Savings Improvement Program (ESIP) loan also use this program. Pay for Performance works for larger customers with a peak demand over 200 kW. The minimum installed scope of work must include at least two unique measures resulting in at least 15% energy savings, where lighting cannot make up the majority of the savings.

More Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat & Power (CHP)

The CHP program provides incentives for combined heat and power (aka cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce their electric demand during times of peak demand, the grid is made more reliable and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for the Forum Building. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs. This report also contains valuable information on financial incentives from New Jersey's Clean Energy Program (NJCEP) for implementing ECMs.

TRC Energy Services (TRC) conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On September 5, 2018, TRC performed an energy audit at the Forum Building located in Richland, NJ. TRC met with Kathryn Bauer to review the facility operations and help focus our investigation on specific energy-using systems.

The Forum is a two-story, 107,796 square foot building built in 2007. Spaces include: classrooms, gymnasium, wrestling room, offices, cafeteria, corridors, stairwells, chapel hall, staff rooms, a commercial kitchen and basement mechanical space.

2.2 Building Occupancy

The facility is occupied year-round. Typical weekday occupancy is 110 staff and 340 students.

Summer occupancy includes a summer day camp and continuing maintenance activities. There are sports activities happening on weekend.

Building Name	Weekday/Weekend	Operating Schedule
Forum	Weekday	7:00 AM - 9:00 PM
	Weekend	8:00 AM - 2:00 PM

Figure 4 - Building Occupancy Schedule

2.3 Building Envelope

Building walls are made of concrete block over structural steel. The roof is flat as well as shingles and covered with white membrane, and it is in good condition.

The walls are made of concrete masonry units (CMUs) with a brick veneer and gypsum drywall interior finish.

The flat roof section is supported with ribbed steel trusses and a metal deck and finished with an insulated layer and a covering of PVC.

Steel trusses support a pitched roof with a metal deck covered with metal slate shingles. The roof encloses conditioned space.

Most of the windows are double glazed with low-e glass and have aluminum frames with a thermal break fiberglass wood frames. The glass-to-frame seals are in good condition. The operable window weather seals are in good condition, showing little evidence of excessive wear. Exterior doors have aluminum wood frames and are in good condition with undamaged door seals.

Image 1 Roof

Image 2 Extended Roof

Image 3 Building Exterior

Image 4 Building Exterior

2.4 Lighting Systems

The primary interior lighting system primarily uses 32-Watt linear fluorescent T8 lamps. Additionally, there are some compact fluorescent lamps (CFL), incandescent and LED general purpose lamps. Typically, T8 fluorescent lamps use electronic ballasts.

T8 fixture types include 2- 3- or 4-lamp, 2- or 4-foot long troffer mounted fixtures and 2-foot fixtures with U-bend and linear tube lamps.

Most fixtures are in good condition.

Gymnasium fixtures have high bay LED 154-Watt fixtures and are manually controlled.

All exit signs are LED.

Interior lighting levels were generally sufficient.

Image 5 Interior CFL Lamp

Image 6 CFL 2-pin Lamp

Image 7 LED Lamp

Image 8 Halogen floods sample

Lighting fixtures in wrestling room are controlled by occupancy sensors whereas lighting fixtures in dining hall and in hallways controlled by high/low fixtures. Most other lighting fixtures are manually controlled by wall switches. All exit signs are LED.

Exterior fixtures include wall sconces and wall packs with CFL lamps, high intensity discharge (HID) flood lamps.

The porch mounted wall fixtures and wall mounted area fixtures have with 70-Watt and 40-Watt LED fixtures respectively.

Exterior light fixtures are controlled by photocells.

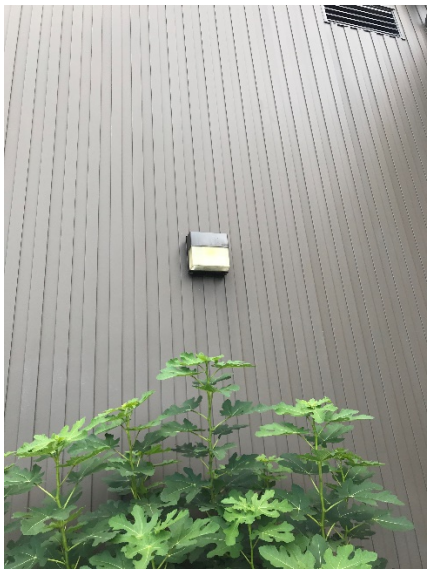


Image 9 Outdoor wall mounted fixtures

Image 10 HID lamp fixture

2.5 Air Handling Systems

Packaged Units

Building area is served by 12 Trane packaged roof top units (RTUs) ranging in size from 7.5 to 40-ton cooling capacity with gas-fired furnace units ranging in size from 162 to 697 MBh heating capacity. These units are equipped with economizers that are in good condition. RTU-1 is equipped with 15 hp supply fan and two 1 hp exhaust fan serves basement area. RTU-2 has a single 5 hp supply fan serves the nurse's office while RTU-3,4 & RTU-7 to 12 are equipped with 3 hp supply fan each and serves faculty dining, kitchen, locker rooms and the gym respectively. RTU-5 provides air with 10 hp supply fan and two 1 hp exhaust fan that serves the administration office. RTU-6 is equipped with 40 hp supply fan and 15 hp exhaust fan serves 1st floor lobby and 2nd floor classrooms. These units have an EER rating ranging from 8.00 to 9.30. All RTU units are controlled by Trane trace building energy management system (EMS) from the maintenance office.

There are 16 electric resistance unit heaters that provide heating in staff rooms and class rooms ranging from 5.12 to 102MBh capacity.

There is a 71.75-ton Poolpack commercial dehumidifier unit that maintains relative humidity in swimming pool area with 25 hp supply fan and 30 hp return fan and has EER of 10.20.

A staff room area is served with packaged terminal heat pump (PTHP) units controlled by the Trane trace summit EMS. These 10.20 EER unit have a heating capacity of 6.60 MBh and 0.66-ton cooling capacity.

Refer to Appendix A for detailed information about each unit.

Image 11 Trane RTU

Image 12 RTUs on roof

Image 13 Trane RTU

Image 14 Poolpack dehumidifier

2.6 Heating Hot Water Systems

One Lochinvar 1600 MBh non-condensing hot water boiler serves the swimming pool heating load with a nominal efficiency of 89%. The boiler feed water is provided by a single 0.75 hp VFD controlled pump motor.

The boiler serves a primary only distribution system with one VFD controlled 30 hp heating hot water pump. Boiler is controlled by the building EMS as well and operates on a fix schedule of six hours a day from Monday to Friday during school operating months. Hot water is supplied at 180°F when the outside air temperature is below 50°F and the setpoint is reset to 155°F when the outside air is above 65°F.

Two 10 hp and one 5 hp hot water circulation pumps that distribute water to end uses. The circulation pumps operate via VFD control.

Image 15 Lochinvar Boiler

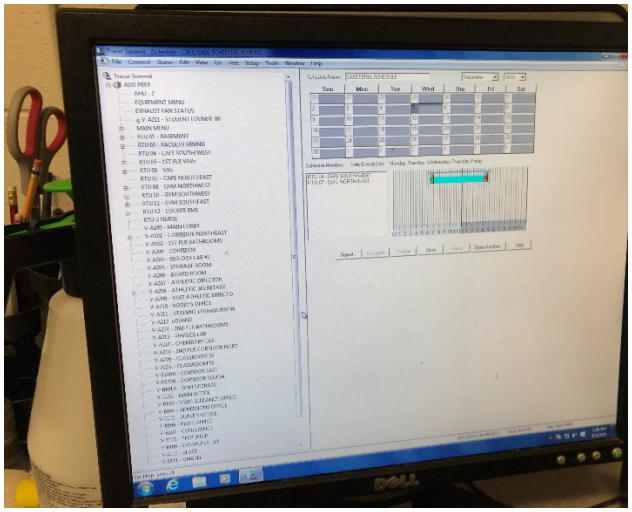
Image 16 Water supply pump

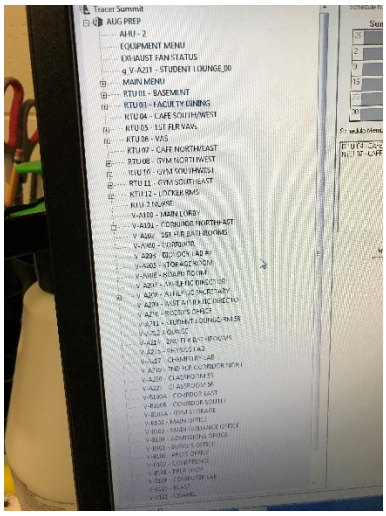
Image 17 Hot water circulation Pumps

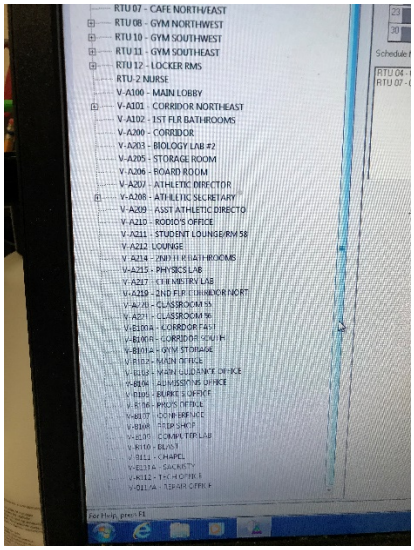
Image 18 VFDs for HW pumps

2.7 Building Energy Management Systems (EMS)

A Trane tracer summit EMS controls the HVAC equipment, the air handlers, the package units. The EMS provides equipment monitors and controls space temperatures, supply air temperatures, humidity and heating water loop temperatures. Based on building EMS information, the RTU units except the gym operate between 6:30 AM to 4:30 PM from Monday to Friday. The gym RTU units operate between 7:00 AM to 1:00 PM from Monday to Friday.







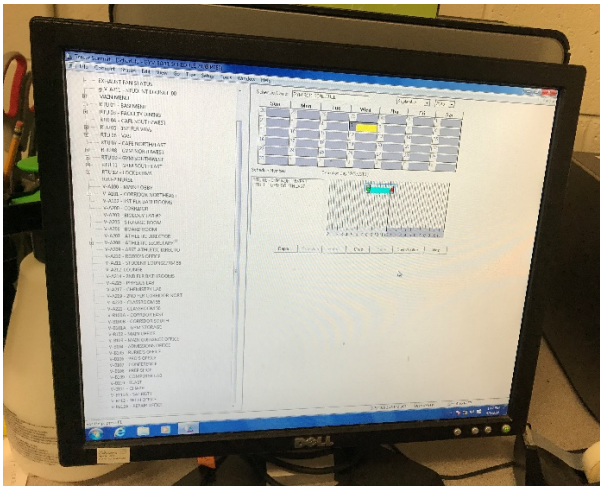


Image 19 BMS System

2.8 Domestic Hot Water

Hot water is produced with a 500-gallon Weben-Jarco 700 MBh gas-fired storage water heater with an 85% efficiency and an 80-gallon A.O. Smith 12 kW electric water heater.

At the time of the site visit, the domestic water heaters were set at 120°F.

The domestic hot water pipes are insulated, and the insulation is in good condition.

Image 20 DWH-1

Image 21 DWH-2

2.9 Food Service Equipment

The kitchen has mixed gas and electric equipment that is used to prepare lunches for students. Most cooking is done using four convection gas-fired oven. Bulk prepared foods are held in several electric holding cabinets. A long wide oven and 3-foot-wide gas griddle is used to prepare pizzas and grilled vegetables. Equipment is high efficiency and is in good condition.

The dishwasher is an ENERGY STAR® high temperature single tank conveyor type unit with an electric booster.

Visit https://www.energystar.gov/products/commercial_food_service_equipment for the latest information on high efficiency food service equipment.

Image 22 Kitchen Equipment

2.10 Refrigeration

The kitchen has six stand-up high efficiency refrigerators with either glass doors and one stand-up high efficiency refrigerator with solid door, all refrigerators are in good condition. There are two chest type freezers used to store cold beverages.

The walk-in refrigerator has an estimated 3.18-ton compressor located outside and a single fan evaporator with fan control and electric defrost control.

The walk-in low temperature freezer has a 4.24-ton compressor located outside and a single fan evaporator with fan control and electric defrost control.

Visit https://www.energystar.gov/products/commercial_food_service_equipment for the latest information on high efficiency food service equipment.

Image 23 Walk in Cooler

Image 24 Outdoor compressors

2.11 Plug Load & Vending Machines

The utility bill analysis indicates that plug loads consume approximately 0.89% percent of total building energy use. This is lower than a typical building.

You seem to already be doing a great job managing your electrical plug loads. This report makes additional suggestions for ECMs in this area as well as Energy Efficient Best Practices.

There are approximately 47 computer work stations throughout the facility. Plug loads throughout the building include general café and office equipment. There are classroom typical loads such as smart boards, projectors, and fans.

There are several residential style refrigerators throughout the building that are used to store staff lunches and cold beverage. These vary in condition and efficiency.

There are one refrigerated beverage vending machine. Vending machines are not equipped with occupancy-based controls.

Image 25 Residential type Refrigerator

Image 26 Washer and Dryer Unit

Image 27 Vending Machine Controls

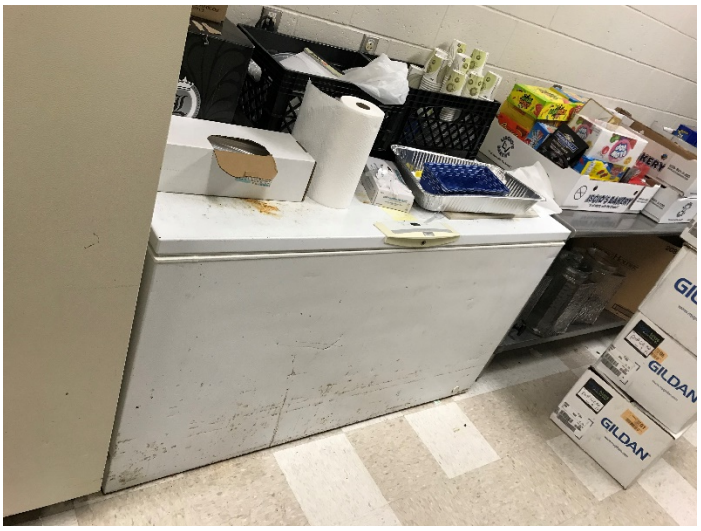


Image 28 Kitchen equipment

2.12 On-Site Generation

The Forum has a 338-kW photovoltaic (PV) array with approximately 1080 panels that was installed in 2010. This system provides approximately 25% of the electricity used at this facility.

The Forum has an emergency generator that, in the event of a power outage, serves critical services (lighting, elevator, heating - boiler and pumps) and is only used for emergency needs.

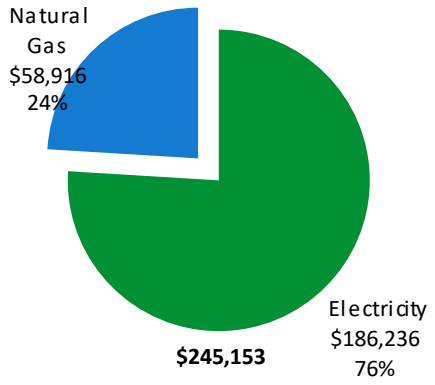
Image 29 Solar Plant on roof

Image 30 Outdoor Emergency Generator

3 ENERGY USE AND COSTS

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	1,864,524 kWh	$186,236
Natural Gas	40,641 Therms	$58,916
Total		**$245,153**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

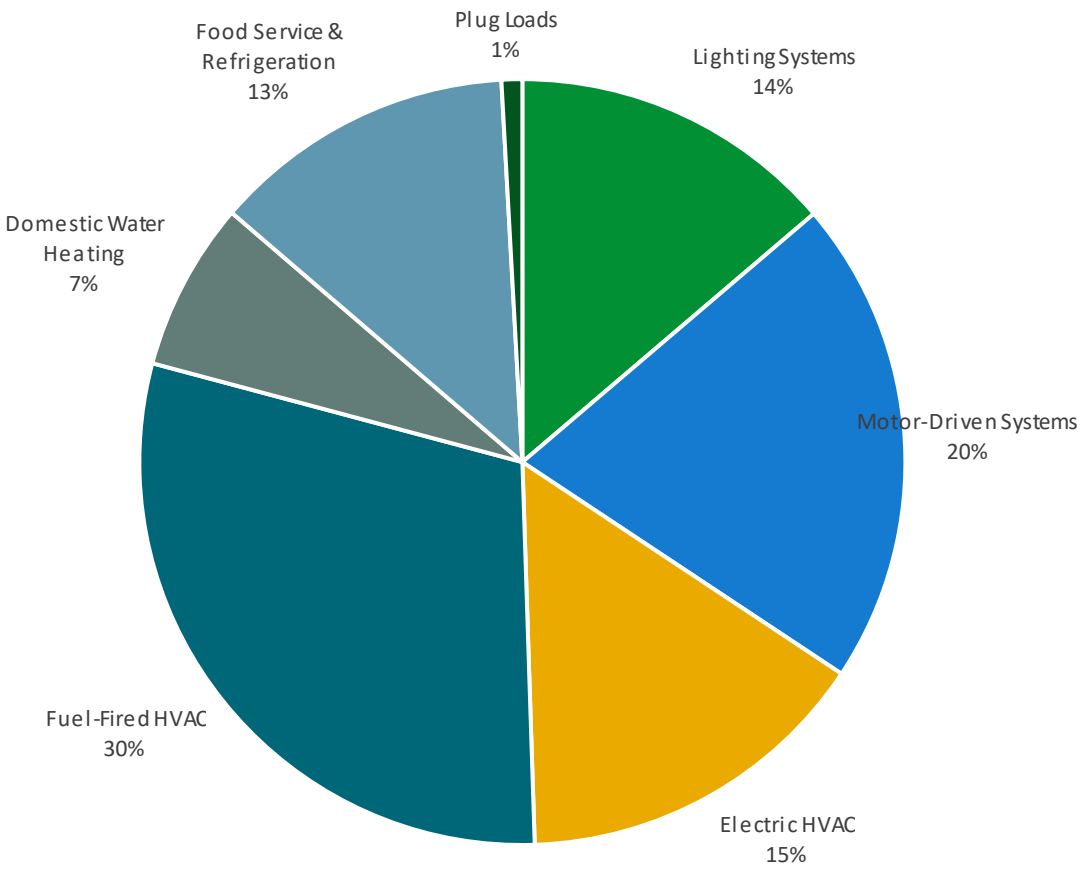
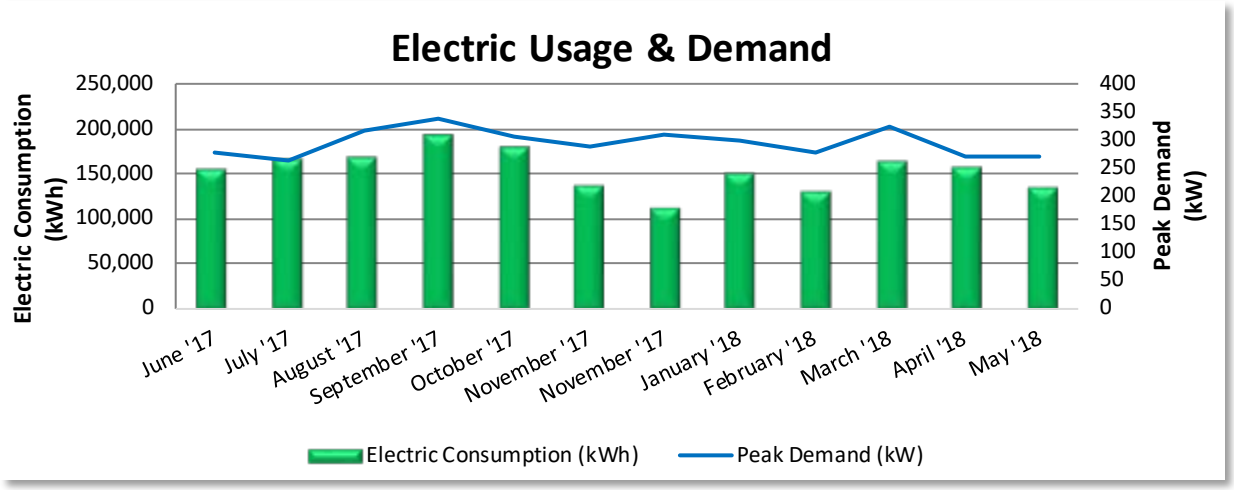


Figure 5 - Energy Balance

3.1 Electricity

Atlantic City Electric delivers electricity under rate class monthly general service secondary, with electric production provided by DG Solar Ventures, LLC, a third-party supplier.



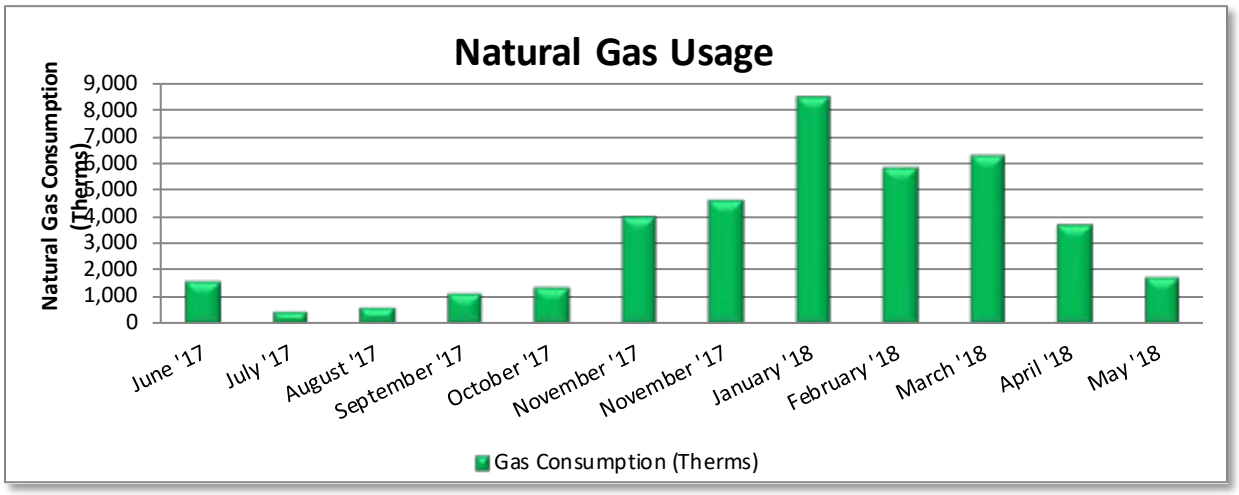
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
6/29/17	35	153,749	278	$2,942	$18,942
7/26/17	26	164,661	262	$2,083	$17,200
8/25/17	29	166,072	316	$2,787	$16,904
9/26/17	31	190,998	338	$3,180	$16,642
10/25/17	28	177,047	306	$2,851	$15,159
11/27/17	32	135,413	290	$3,117	$17,099
12/2/17	24	111,111	308	$2,508	$11,968
1/26/18	34	149,090	300	$3,414	$16,382
2/23/18	27	129,130	278	$2,530	$13,880
3/27/18	31	161,615	324	$3,370	$17,309
4/25/18	28	156,567	270	$2,713	$4,420
5/29/18	33	133,313	270	$2,893	$16,760
Totals	**358**	**1,828,766**	**338**	**$34,388**	**$182,665**
Annual	**365**	**1,864,524**	**338**	**$35,060**	**$186,236**

Notes:

- Peak demand of 338 kW occurred in September 2017.
- The average electric cost over the past 12 months was $0.100/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.
- Some of the electricity generated on-site is used on-site and the remainder is exported to the grid.

3.2 Natural Gas

South Jersey Gas delivers natural gas under rate class general service, with natural gas supply provided by South Jersey Energy, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
6/29/17	35	1,634	$1,752
7/26/17	26	447	$532
8/25/17	29	622	$852
9/26/17	31	1,163	$1,219
10/25/17	28	1,348	$1,363
11/27/17	32	3,974	$4,454
12/2/17	24	4,629	$5,878
1/26/18	34	8,459	$12,449
2/23/18	27	5,798	$11,042
3/27/18	31	6,261	$11,949
4/25/18	28	3,734	$4,257
5/29/18	33	1,792	$2,040
Totals	**358**	**39,861**	**$57,786**
Annual	**365**	**40,641**	**$58,916**

Notes:

- The average gas cost for the past 12 months is $1.450/therm, which is the blended rate used throughout the analysis.

3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's Portfolio Manager® software. Benchmarking compares your building's energy use to that of similar buildings across the county, while neutralizing variations due to location, occupancy and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is the best.

This ENERGY STAR® benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	98

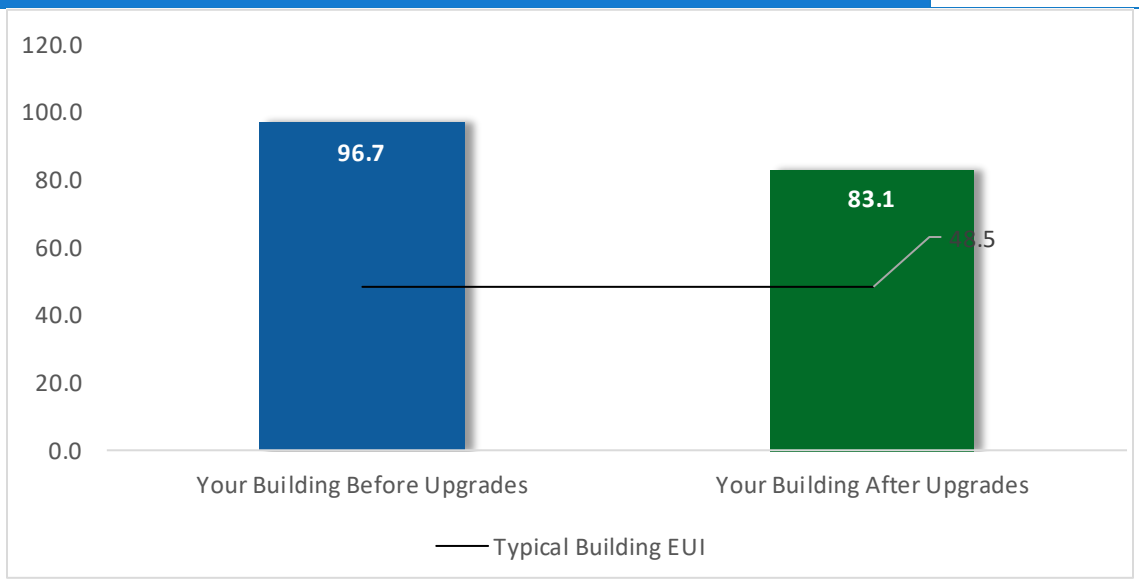


Figure 6 - Energy Use Intensity Comparison

Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause as building to vary from the "typical" energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

Tracking Your Energy Performance

Keeping track of your energy use monthly is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager® regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager® account for your facility and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR® Portfolio Manager® to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR® and Portfolio Manager®, visit their website[3].

[3] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements, provide information about the cost effectiveness of those improvements, and recognize potential financial incentives from NJBPU. Most energy conservation measures have received preliminary analysis of feasibility which identifies expected ranges of savings and costs. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on the current NJCEP prescriptive SmartStart program. A higher level of investigation may be necessary to support any SmartStart Custom, Pay for Performance, or Direct Install incentive applications. Some measures and proposed upgrades may be eligible for higher incentives than those shown below through other NJCEP programs described in a following section of this report.

Appendix A: Equipment Inventory & Recommendations provides a detailed list of the locations and recommended upgrades for each energy conservation measure.

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**263,394**	**40.8**	**-54**	**$25,522**	**$81,528**	**$14,515**	**$67,013**	**2.6**	**258,881**
ECM 1	Install LED Fixtures	104,975	16.4	-22	$10,172	$41,399	$4,555	$36,844	3.6	103,180
ECM 2	Retrofit Fixtures with LED Lamps	158,418	24.4	-33	$15,350	$40,129	$9,960	$30,169	2.0	155,701
Lighting Control Measures		**57,220**	**8.8**	**-12**	**$5,542**	**$35,036**	**$3,690**	**$31,346**	**5.7**	**56,220**
ECM 3	Install Occupancy Sensor Lighting Controls	51,545	7.9	-11	$4,992	$33,636	$3,690	$29,946	6.0	50,644
ECM 4	Install High/Low Lighting Controls	5,675	0.9	-1	$550	$1,400	$0	$1,400	2.5	5,576
Motor Upgrades		**2,666**	**0.5**	**0**	**$266**	**$11,110**	**$0**	**$11,110**	**41.7**	**2,684**
	Premium Efficiency Motors	2,666	0.5	0	$266	$11,110	$0	$11,110	41.7	2,684
Variable Frequency Drive (VFD) Measures		**86,723**	**19.2**	**52**	**$9,420**	**$30,955**	**$4,175**	**$26,780**	**2.8**	**93,453**
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	80,887	19.2	0	$8,079	$28,227	$3,575	$24,652	3.1	81,453
ECM 6	Install VFDs on Kitchen Hood Fan Motors	5,836	0.0	52	$1,341	$2,729	$600	$2,129	1.6	12,001
Electric Unitary HVAC Measures		**39,439**	**25.9**	**0**	**$3,939**	**$382,818**	**$8,190**	**$374,628**	**95.1**	**39,714**
	Install High Efficiency Air Conditioning Units	39,439	25.9	0	$3,939	$382,818	$8,190	$374,628	95.1	39,714
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**333**	**$4,831**	**$61,707**	**$3,200**	**$58,507**	**12.1**	**39,021**
	Install High Efficiency Furnaces	0	0.0	333	$4,831	$61,707	$3,200	$58,507	12.1	39,021
Domestic Water Heating Upgrade		**0**	**0.0**	**63**	**$908**	**$158**	**$0**	**$158**	**0.2**	**7,333**
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	$908	$158	$0	$158	0.2	7,333
Food Service & Refrigeration Measures		**12,262**	**1.7**	**262**	**$5,023**	**$87,319**	**$6,275**	**$81,044**	**16.1**	**43,025**
	Food Service Equipment Replacement	2,558	0.6	262	$4,054	$80,871	$6,275	$74,596	18.4	33,254
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	$131	$607	$0	$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	$677	$5,612	$0	$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	$161	$230	$0	$230	1.4	1,623
TOTALS		**461,703**	**97.0**	**644**	**$55,452**	**$690,632**	**$40,045**	**$650,587**	**11.7**	**540,332**

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

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

Figure 7 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**263,394**	**40.8**	**-54**	**$25,522**	**$81,528**	**$14,515**	**$67,013**	**2.6**	**258,881**
ECM 1	Install LED Fixtures	104,975	16.4	-22	$10,172	$41,399	$4,555	$36,844	3.6	103,180
ECM 2	Retrofit Fixtures with LED Lamps	158,418	24.4	-33	$15,350	$40,129	$9,960	$30,169	2.0	155,701
Lighting Control Measures		**57,220**	**8.8**	**-12**	**$5,542**	**$35,036**	**$3,690**	**$31,346**	**5.7**	**56,220**
ECM 3	Install Occupancy Sensor Lighting Controls	51,545	7.9	-11	$4,992	$33,636	$3,690	$29,946	6.0	50,644
ECM 4	Install High/Low Lighting Controls	5,675	0.9	-1	$550	$1,400	$0	$1,400	2.5	5,576
Variable Frequency Drive (VFD) Measures		**86,723**	**19.2**	**52**	**$9,420**	**$30,955**	**$4,175**	**$26,780**	**2.8**	**93,453**
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	80,887	19.2	0	$8,079	$28,227	$3,575	$24,652	3.1	81,453
ECM 6	Install VFDs on Kitchen Hood Fan Motors	5,836	0.0	52	$1,341	$2,729	$600	$2,129	1.6	12,001
Domestic Water Heating Upgrade		**0**	**0.0**	**63**	**$908**	**$158**	**$0**	**$158**	**0.2**	**7,333**
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	$908	$158	$0	$158	0.2	7,333
Food Service & Refrigeration Measures		**9,704**	**1.1**	**0**	**$969**	**$6,449**	**$0**	**$6,449**	**6.7**	**9,772**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	$131	$607	$0	$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	$677	$5,612	$0	$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	$161	$230	$0	$230	1.4	1,623
TOTALS		**417,041**	**69.9**	**49**	**$42,362**	**$154,126**	**$22,380**	**$131,746**	**3.1**	**425,659**

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

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

Figure 8 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**263,394**	**40.8**	**-54**	**$25,522**	**$81,528**	**$14,515**	**$67,013**	**2.6**	**258,881**
ECM 1	Install LED Fixtures	104,975	16.4	-22	$10,172	$41,399	$4,555	$36,844	3.6	103,180
ECM 2	Retrofit Fixtures with LED Lamps	158,418	24.4	-33	$15,350	$40,129	$9,960	$30,169	2.0	155,701

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources are proposed, we suggest converting all a specific lighting type (e.g. linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

Replace existing fixtures containing HID, fluorescent, or incandescent lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixture(s).

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: gymnasium storage and offices, kitchen, lobby, exterior fixtures

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent or incandescent lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies.

This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected building areas: all areas with fluorescent fixtures with T8 tubes

4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**57,220**	**8.8**	**-12**	**$5,542**	**$35,036**	**$3,690**	**$31,346**	**5.7**	**56,220**
ECM 3	Install Occupancy Sensor Lighting Controls	51,545	7.9	-11	$4,992	$33,636	$3,690	$29,946	6.0	50,644
ECM 4	Install High/Low Lighting Controls	5,675	0.9	-1	$550	$1,400	$0	$1,400	2.5	5,576

Lighting controls reduce energy use by turning off or lowering, lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 3: Install Occupancy Sensor Lighting Controls

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

Affected building areas: offices, conference room, classrooms, restrooms, and storage rooms

ECM 4: Install High/Low Lighting Controls

Install occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety requirements. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

Affected building areas: hallways

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage must be provided to ensure that lights turn on in each area as an occupant approaches.

4.3 Motors

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Motor Upgrades		**2,666**	**0.5**	**0**	**$266**	**$11,110**	**$0**	**$11,110**	**41.7**	**2,684**
	Premium Efficiency Motors	2,666	0.5	0	$266	$11,110	$0	$11,110	41.7	2,684

Premium Efficiency Motors

Replace standard efficiency motors with IHP 2014 efficiency motors. This evaluation assumes that existing motors will be replaced with motors of equivalent size and type. In some cases, additional savings may be possible by downsizing motors to better meet the motor's current load requirements.

Replacing the motors has a long payback period and may not be justifiable based simply on energy considerations. However, most of the motors at this facility are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency motor can be justified by the marginal savings from the improved efficiency. When the standard motor is eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

Affected motors:

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Roof	RTU-12 Lockers	1	Supply Fan	3.0	Supply Fan
Roof	DHU-1	1	Supply Fan	25.0	Supply Fan
Roof	DHU-1	1	Return Fan	30.0	Return Fan
Roof	MUA-1	1	Makeup Air Fan	2.0	Make up Unit

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Roof Curb	KEF-2	1	Kitchen Hood Exhaust Fan	2.0	Exhaust Fan

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Roof	RTU-10 Gym	1	Supply Fan	3.0	Supply Fan
Roof	RTU-11 Gym	1	Supply Fan	3.0	Supply Fan

Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours. The base case motor energy consumption is estimated using the efficiencies found on nameplates or estimated based on the age of the motor and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the current *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*.

4.4 Variable Frequency Drives (VFD)

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		**86,723**	**19.2**	**157**	**$9,420**	**$30,955**	**$4,175**	**$26,780**	**2.8**	**105,702**
ECM 5	Install VFD on Variable Air Volume (VAV) Fans	80,887	19.2	0	$8,079	$28,227	$3,575	$24,652	3.1	81,453
ECM 6	Install VFDs on Kitchen Hood Fan Motors	5,836	0.0	52	$1,341	$2,729	$600	$2,129	1.6	12,001

Variable frequency drives control motors for fans, pumps, and process equipment based on the actual output required of the driven equipment. Energy savings result from more efficient control of motor energy usage when equipment operates at partial load. The magnitude of energy savings depends on the estimated amount of time that the motor would operate at partial load. For equipment with proposed VFDs, we have included replacing the controlled motor with a new motor —unless the existing motor meets or exceeds IHP 2014 standards—to conservatively account for the cost of an inverter duty rated motor. The savings and cost associated with the new motor are presented with the Premium Efficiency Motor measures. If the proposed VFD measure is not selected for implementation the motor replacement should be reevaluated.

ECM 5: Install VFD on Variable Air Volume (VAV) Fans

Replace existing air volume control devices on variable volume fans, such as inlet vanes and variable pitch fan blades, with VFDs. Inlet guide vanes and variable pitch fan blades are an inefficient means of controlling the air volume compared to VFDs. The existing volume control device will be removed or permanently disabled, and the control signal will be redirected to the VFD to determine proper fan motor speed.

Energy savings result from using a more efficient control device to regulate the air flow provided by the fan. Additional maintenance savings may result from this measure. VFDs are solid state electronic devices, which generally requires less maintenance than mechanical air volume control devices.

Affected air handlers: RTU 1-4 & RTU 7-12

ECM 6: Install VFDs on Kitchen Hood Fan Motors

Install VFDs and sensors to control the kitchen hood fan motors. The air flow of the hood is varied based on two key inputs: temperature and smoke/cooking fumes. The VFD controls the amount of exhaust (and kitchen make-up air) based on temperature—the lower the temperature the lower the flow. If the optic sensor is triggered by smoke or cooking fumes, the speed of the fan ramps up to 100%.

Energy savings result from reducing the hood fan speed (and power) when conditions allow for reduced air flow.

4.5 Electric Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Electric Unitary HVAC Measures		**39,439**	**25.9**	**0**	**$3,939**	**$382,818**	**$8,190**	**$374,628**	**95.1**	**39,714**
	Install High Efficiency Air Conditioning Units	39,439	25.9	0	$3,939	$382,818	$8,190	$374,628	95.1	39,714

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units at this facility are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the RTUs are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

Install High Efficiency Air Conditioning Units

Replace standard efficiency RTU-1 to 9 packaged air conditioning units with high efficiency packaged air conditioning units. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling load, and the estimated annual operating hours.

This measure is part of a measure to replace package units at this site and as such must be considered in combination with ECM-Install High Efficiency Furnaces.

4.6 Gas-Fired Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**333**	**$4,831**	**$61,707**	**$3,200**	**$58,507**	**12.1**	**39,021**
	Install High Efficiency Furnaces	0	0.0	333	$4,831	$61,707	$3,200	$58,507	12.1	39,021

Install High Efficiency Furnaces

Replace standard efficiency furnaces of RTU-1 to 9 with condensing furnaces. Improved combustion technology and heat exchanger design optimize heat recovery from the combustion gases which can significantly improve furnace efficiency. Savings result from improved system efficiency.

Note: these units produce acidic condensate that requires proper drainage.

This measure is part of a measure to replace package units at this site and as such must be considered in combination with ECM-Install High Efficiency Air Conditioning Units.

4.7 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**63**	**$908**	**$158**	**$0**	**$158**	**0.2**	**7,333**
ECM 7	Install Low-Flow DHW Devices	0	0.0	63	$908	$158	$0	$158	0.2	7,333

ECM 7: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing.

Additional cost savings may result from reduced water usage.

4.8 Food Service & Refrigeration Measures

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Food Service & Refrigeration Measures		**12,262**	**1.7**	**262**	**$5,023**	**$87,319**	**$6,275**	**$81,044**	**16.1**	**43,025**
	Food Service Equipment Replacement	2,558	0.6	262	$4,054	$80,871	$6,275	$74,596	18.4	33,254
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	1,311	0.2	0	$131	$607	$0	$607	4.6	1,320
ECM 9	Replace Refrigeration Equipment	6,781	0.8	0	$677	$5,612	$0	$5,612	8.3	6,829
ECM 10	Vending Machine Control	1,612	0.2	0	$161	$230	$0	$230	1.4	1,623

Food Service Equipment Replacement

Buildings that use a lot of food service equipment are often among the most energy intensive commercial buildings. Replace existing food service equipment with new high efficiency equipment. Consider replacing the following equipment with high efficiency or ENERGY STAR® labeled versions:

Location	Quantity	Equipment Type	Manufacturer	Model
Kitchen	2	Gas Convection Oven (Full Size)	Vulcan	VC44GD
Kitchen	1	Gas Combination Oven/Steam Cooker (<15 Pans)	Vulcan	SX36-6BN
Kitchen	2	Gas Convection Oven (Full Size)	Vulcan	VC44GD
Kitchen	1	Gas Griddle (3 Feet Width)	Cleveland	SGL-40-T1
Kithcen	1	Gas Steamer	Cleveland	KDL-40-T
Kitchen	1	Insulated Food Holding Cabinet (Full Size)	Continental	DL2WE 57
Kitchen	1	Gas Convection Oven (Full Size)	Blodgett	BG3240
Kitchen	2	Insulated Food Holding Cabinet (Full Size)	Duke	DC-NG46CP

Replacing the food service equipment has a long payback period and may not be justifiable based simply on energy considerations. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency.

Visit https://www.energystar.gov/products/commercial_food_service_equipment for the latest information on high efficiency food service equipment.

ECM 8: Refrigerator/Freezer Case Electrically Commutated Motors

Replace shaded pole or permanent split capacitor (PSC) motors with electronically commutated (EC) motors in walk-in coolers and freezers. Fractional horsepower EC motors are significantly more efficient than mechanically commutated, brushed motors, particularly at low speeds or partial load. By using variable-speed technology, EC motors can optimize fan usage. Because these motors are brushless and use DC power, losses due to friction and phase shifting are eliminated.

Savings for this measure consider both the increased efficiency of the motor as well as the reduction in refrigeration load due to motor heat loss.

ECM 9: Replace Refrigeration Equipment

Replace existing chest freezers with new ENERGY STAR® rated equipment. The energy savings associated with this measure come from reduced energy usage, due to more efficient technology, and reduced run times.

ECM 10: Vending Machine Control

Vending machines operate continuously, even during unoccupied hours. Install occupancy sensor controls to reduce energy use. These controls power down vending machines when the vending machine area has been vacant for some time, and, they power up the machines at necessary regular intervals or when the surrounding area is occupied. Energy savings are dependent on the vending machine and activity level in the area surrounding the machines.

5 ENERGY EFFICIENT BEST PRACTICES

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs. You may already be doing some of these things— see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR® Portfolio Manager®

You've heard it before - you can't manage what you don't measure. ENERGY STAR® Portfolio Manager® is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions.[4] Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Doors and Windows

Close exterior doors and windows in heated and cooled areas. Leaving doors and windows open leads to a loss of heat during the winter and chilled air during the summer. Reducing air changes per hour (ACH) can lead to increased occupant comfort as well as heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

Window Treatments/Coverings

Use high-reflectivity films or cover windows with shades or shutters to reduce solar heat gain and reduce the load on cooling and heating systems. Older, single pane windows and east or west-facing windows are especially prone to solar heat gain. In addition, use shades or shutters at night during cold weather to reduce heat loss.

Lighting Controls

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly.

Motor Controls

Electric motors often run unnecessarily, and this is an overlooked opportunity to save energy. These motors should be identified and turned off when appropriate. For example, exhaust fans often run unnecessarily when ventilation requirements are already met. Whenever possible, use automatic devices such as twist timers or occupancy sensors to turn off motors when they are not needed.

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Thermostat Schedules and Temperature Resets

Use thermostat setback temperatures and schedules to reduce heating and cooling energy use during periods of low or no occupancy. Thermostats should be programmed for a setback of 5-10°F during low occupancy hours (reduce heating setpoints and increase cooling setpoints). Cooling load can be reduced by increasing the facility's occupied setpoint temperature. In general, during the cooling season, thermostats should be set as high as possible without sacrificing occupant comfort.

Economizer Maintenance

Economizers can significantly reduce cooling system load. A malfunctioning economizer can increase the amount of heating and mechanical cooling required by introducing excess amounts of cold or hot outside air. Common economizer malfunctions include broken outdoor thermostat or enthalpy control, or dampers that are stuck or improperly adjusted.

Periodic inspection and maintenance will keep economizers working in sync with the heating and cooling system. This maintenance should be part of annual system maintenance, and it should include proper setting of the outdoor thermostat/enthalpy control, inspection of control and damper operation, lubrication of damper connections, and adjustment of minimum damper position.

AC System Evaporator/Condenser Coil Cleaning

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

HVAC Filter Cleaning and Replacement

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less, and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

Boiler Maintenance

Many boiler problems develop slowly over time, so regular inspection and maintenance is essential to keeping the heating system running efficiently and preventing expensive repairs. Annual tune-ups should include a combustion analysis to analyze the exhaust from the boilers and to ensure the boiler is operating safely. Boilers should be cleaned according to the manufacturer's instructions to remove soot and scale from the water side or fire side of the boiler.

Furnace Maintenance

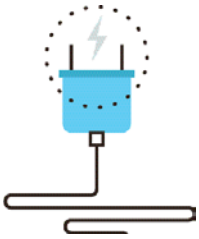
Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should: check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

Water Heater Maintenance

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

Plug Load Controls



Reducing plug loads is a common way to decrease your electrical use. Limiting the energy use of plug loads can include increasing occupant awareness, removing under-used equipment, installing hardware controls, and using software controls. Consider enabling the most aggressive power settings on existing devices or install load sensing or occupancy sensing (advanced) power strips[5]. Your local utility may offer incentives or rebates for this equipment.

[5] For additional information refer to "Plug Load Best Practices Guide" http://www.advancedbuildings.net/plug-load-best-practices-guide-offices.

Water Conservation

Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense™ ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense website[6] or download a copy of EPA's "WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities"[7] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR® or WaterSense™ products where available.

[6] https://www.epa.gov/watersense.

[7] https://www.epa.gov/watersense/watersense-work-0.

6 ON-SITE GENERATION

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions and reduced customer electricity purchases reduction, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening based on the facility's electric demand, size and location of free area, and shading elements shows that the facility still has high potential for installing a PV array.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

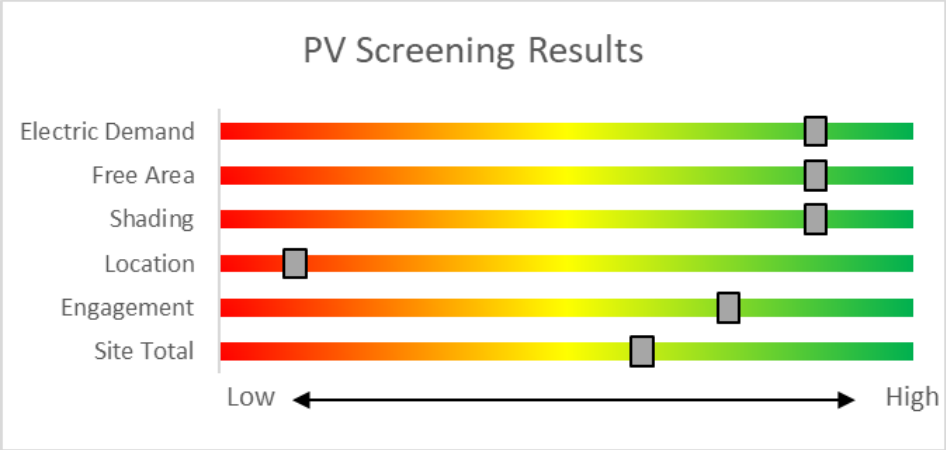


Figure 9 - Photovoltaic Screening

Solar Renewable Energy Certificate (SREC) Registration Program (SRP)

Rebates are not available for solar projects, but owners of solar projects MUST register their projects in the SREC Registration Program before starting construction. Once your PV system is up and running, you periodically earn credits, which can then be sold on the open market for up to 15 years.

If you are considering installing solar photovoltaics on your building, visit www.njcleanenergy.com/srec for more information about the SREC Registration Program.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar
- **NJ Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs
- **Approved Solar Installers in the NJ Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

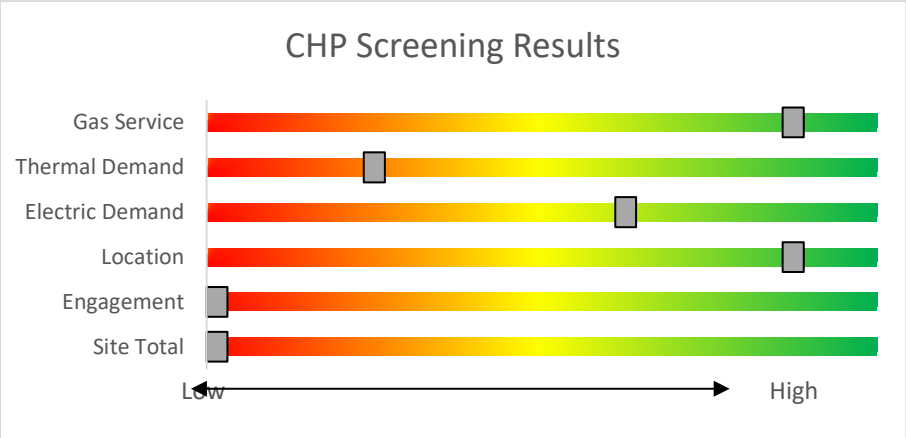


Figure 10 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/.

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? NJ Clean Energy Programs can help. Pick the program that works best for you. Incentive programs that may apply to this facility are identified in the Executive Summary. This section provides an overview of currently available NJ Clean Energy Programs.

	SmartStart *Flexibility to install at your own pace*	**Direct Install** *Turnkey installation*	**Pay for Performance** *Whole building upgrades*
Who should use it?	Buildings installing individual measures or small group of measures.	Small to mid-size facilities that can bundle multiple measures together. Average peak demand should be below 200 kW. Not suitable for significant building shell issues.	Mid to large size facilities looking to implement as many measures as possible at one time. Peak demand should be over 200 kW.
How does it work?	Use in-house staff or your preferred contractor.	Pre-approved contractors pass savings along to you via reduced material and labor costs.	Whole-building approach to energy upgrades designed to reduce energy use by at least 15%. The more you save, the higher the incentives.
What are the Incentives?	Fixed incentives for specific energy efficiency measures.	Incentives pay up to 70% of eligible costs, up to $125,000 per project. You pay the remaining 30% directly to the contractor.	Up to 25% of installation cost, calculated based on level of energy savings per square foot.
How do I participate?	Submit an application for the specific equipment to be installed.	Contact a participating contractor in your region.	Contact a pre-qualified Partner to develop your Energy Reduction Plan and set your energy savings targets.
Take the next step by visiting **www.njcleanenergy.com** for program details, applications, and to contact a qualified contractor.			

7.1 SmartStart

SmartStart offers incentives for installing prescriptive and custom energy efficiency measures at your facility. This program provides an effective mechanism for securing incentives for energy efficiency measures installed individually or as part of a package of energy upgrades. This program serves most common equipment types and sizes.

SmartStart routinely adds, removes, or modifies incentives from year-to-year for various energy efficiency equipment based on market trends and new technologies.

Equipment with Prescriptive Incentives Currently Available:

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

Incentives

The SmartStart Prescriptive program provides fixed incentives for specific energy efficiency measures. Prescriptive incentives vary by equipment type.

SmartStart Custom provides incentives for more unique or specialized technologies or systems that are not addressed through prescriptive incentives. Custom incentives are calculated at $0.16/kWh and $1.60/therm based on estimated annual savings. Incentives are capped at 50% of the total installed incremental project cost, or a project cost buy down to a one-year payback (whichever is less). Program incentives are capped at $500,000 per electric account and $500,000 per natural gas account, per fiscal year.

How to Participate

Submit an application for the specific equipment to be installed. Many applications are designed as rebates, although others require application approval prior to installation. You can work with your preferred contractor or use internal staff to install measures.

Visit www.njcleanenergy.com/SSB for a detailed program description, instructions for applying, and applications.

7.2 Pay for Performance - Existing Buildings

Pay for Performance works for larger customers with a peak demand over 200 kW. The minimum installed scope of work must include at least two unique measures that results in at least 15% source energy savings, and lighting cannot make up the majority of the savings. P4P is a generally a good option for medium-to-large sized facilities looking to implement as many measures as possible under a single project to achieve deep energy savings. This program has an added benefit of addressing measures that may not qualify for other programs. Many facilities pursuing an Energy Savings Improvement Program loan also use this program.

Incentives

Incentives are based on estimated and achieved energy savings ranging from $0.18-$0.22/kWh and $1.80-$2.50/therm, capped at the lesser of 50% total project cost, or $1 million per electric account and $1 million per natural gas account, per fiscal year, not to exceed $2 million per project. An incentive of $0.15/square foot is also available to offset the cost of developing the Energy Reduction Plan (see below) contingent on the project moving forward with measure installation.

How to Participate

Contact one of the pre-approved consultants and contractors ("Partners"). Under direct contract to you, they will help further evaluate the measures identified in this report through development of the energy reduction plan), assist you in implementing selected measures, and verify actual savings one year after the installation. Your Partner will also help you apply for incentives.

Approval of the final scope of work is required by the program prior to installation. Installation can be done by the contractor of your choice (some P4P Partners are also contractors) or by internal staff, but the Partner remains involved throughout construction to ensure compliance with the program requirements.

Detailed program descriptions, instructions for applying, applications and list of Partners can be found at: www.njcleanenergy.com/P4P.

7.3 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities and other public and state entities enter in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the ECMs, ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan (ESP) can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at: www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

7.4 SREC Registration Program

The SREC (Solar Renewable Energy Certificate) Registration Program (SRP) is used to register the intent to install solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SRECs. Registration of the intent to participate in New Jersey's solar marketplace provides market participants with information about the pipeline of anticipated new solar capacity and insight into future SREC pricing.

After the registration is accepted, construction is complete, and final paperwork has been submitted and is deemed complete, the project is issued a New Jersey certification number, which enables it to generate New Jersey SRECs. SREC's are generated once the solar project has been authorized to be energized by the Electric Distribution Company (EDC).

Each time a solar installation generates 1,000 kilowatt-hours (kWh) of electricity, an SREC is earned. Solar project owners report the energy production to the SREC Tracking System. This reporting allows SREC's to be placed in the customer's electronic account. SRECs can then be sold on the SREC Tracking System, providing revenue for the first 15 years of the project's life.

Electricity suppliers, the primary purchasers of SRECs, are required to pay a Solar Alternative Compliance Payment (SACP) if they do not meet the requirements of New Jersey's Solar Renewable Portfolio Standard. Purchasing SRECs can help them meet those requirements. As SRECs are traded in a competitive market, the price may vary significantly. The actual price of an SREC during a trading period fluctuates depending on supply and demand.

Information about the SRP can be found at: www.njcleanenergy.com/srec.

8 Energy Purchasing and Procurement Strategies

8.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. So, though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[8].

8.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market-based and that fluctuate monthly. The utility provides basic gas supply service (BGSS) to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[9].

[8] www.state.nj.us/bpu/commercial/shopping.html.

[9] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Board Room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	4,264	0.0	136	0	$13	$72	$10	4.7
Kitchen	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	4,264	0.0	136	0	$13	$72	$10	4.7
Swimming Pool	21	Metal Halide: (2) 400W Lamps	Wall Switch	S	916	4,264	1, 3	Fixture Replacement	Yes	21	LED - Fixtures: Other	Occupancy Sensor	120	2,942	12.6	82,069	-17	$7,949	$4,713	$175	0.6
Swimming Pool	11	Metal Halide: (1) 400W Lamp	Wall Switch	S	458	4,264	1, 3	Fixture Replacement	Yes	11	LED - Fixtures: High-Bay	Occupancy Sensor	120	2,942	3.0	19,358	-4	$1,875	$9,064	$1,720	3.9
Exterior	4	Mercury Vapor: (1) 100W Lamp	Photocell	S	125	4,380	1	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	30	4,380	0.2	1,664	0	$166	$3,864	$400	20.8
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,264	0.0	263	0	$25	$73	$20	2.1
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.1	694	0	$67	$416	$40	5.6
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.1	694	0	$67	$416	$40	5.6
School Store	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.1	694	0	$67	$416	$75	5.1
Women's Restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$95	3.9
Men's Restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$95	3.9
Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$60	4.3
Coach Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$95	3.9
Food Stand	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$95	3.9
Gym Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,041	0	$101	$489	$95	3.9
Stairs 3	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.2	1,388	0	$134	$562	$80	3.6
Serving Area	14	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	14	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	0.7	4,858	-1	$471	$1,562	$350	2.6
Workout Area	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	1.0	6,246	-1	$605	$1,855	$430	2.4
Dining Hall	49	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,264	2, 3	Relamp	Yes	49	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,942	2.6	17,003	-4	$1,647	$4,118	$1,050	1.9
Sprinker Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,264	0.0	232	0	$22	$55	$15	1.8
Women's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,264	0.0	232	0	$22	$55	$15	1.8
Kitchen Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,264	0.0	232	0	$22	$55	$15	1.8
Chemical Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	591	0	$57	$380	$30	6.1
Swimming Pool	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	591	0	$57	$380	$65	5.5
Pool Manager	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	591	0	$57	$380	$65	5.5

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	591	0	$57	$380	$30	6.1
Electric Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	591	0	$57	$380	$65	5.5
Server Closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$45	4.5
Kitchen	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$80	4.1
Director Of Transportation	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$80	4.1
Guidance Counseler	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$80	4.1
Chapel Hall	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$80	4.1
Stairs 4	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.1	886	0	$86	$434	$45	4.5
Prayer Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.2	1,182	0	$114	$489	$60	3.7
Tech Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.2	1,182	0	$114	$489	$95	3.4
Guidance Counseler	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.2	1,477	0	$143	$544	$110	3.0
Guidance Counseler	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.2	1,477	0	$143	$544	$110	3.0
Alumni Center	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.3	2,068	0	$200	$653	$140	2.6
58 Classroom	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.4	2,363	0	$229	$708	$155	2.4
Locker Room 4	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.4	2,659	-1	$258	$1,033	$205	3.2
Trainer Office	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.5	2,954	-1	$286	$1,088	$220	3.0
56 Classroom	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.5	3,545	-1	$343	$1,197	$250	2.8
Athletic Director Office	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.5	3,545	-1	$343	$1,197	$250	2.8
College Guidance	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.5	3,545	-1	$343	$1,197	$250	2.8
Video Viewing Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.5	3,545	-1	$343	$1,197	$250	2.8
Main Office	13	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	13	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.6	3,841	-1	$372	$1,252	$265	2.7
55 Classroom	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.7	4,727	-1	$458	$1,416	$310	2.4
Pool Viewing Area	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	17	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.8	5,022	-1	$486	$1,471	$325	2.4
53 Classroom	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	17	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.8	5,022	-1	$486	$1,471	$325	2.4
54 Chemistry Lab	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.8	5,318	-1	$515	$1,526	$340	2.3

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
52 Biology Lab	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.8	5,318	-1	$515	$1,526	$340	2.3
51 Biology Lab	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	0.8	5,318	-1	$515	$1,526	$340	2.3
Workout Room	42	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,264	2, 3	Relamp	Yes	42	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,942	1.9	12,408	-3	$1,202	$3,650	$805	2.4
Chemical Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Staff Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Guidance Counseler	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Staff Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,264	0.0	155	0	$15	$37	$10	1.8
Elevator Machine Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,942	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.0	107	0	$10	$37	$10	2.6
Server Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	394	0	$38	$343	$20	8.5
Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	394	0	$38	$343	$55	7.5
Electric Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	394	0	$38	$343	$20	8.5
Laundry	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	394	0	$38	$343	$20	8.5
Janitor Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	394	0	$38	$343	$20	8.5
Stair 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	591	0	$57	$380	$30	6.1
Stairs 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	591	0	$57	$380	$30	6.1
Stairs 4	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	591	0	$57	$380	$30	6.1
Board Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Dean of Academics	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Coach Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Trainer Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Men's Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Women's Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.1	788	0	$76	$416	$75	4.5
Storage	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	985	0	$95	$453	$50	4.2
Stairs 3	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	985	0	$95	$453	$50	4.2
Gym Storage	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,182	0	$114	$489	$60	3.7
Bag Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,182	0	$114	$489	$95	3.4
Nurse's Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,182	0	$114	$489	$95	3.4
Garage	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,379	0	$134	$526	$105	3.1
Pool Sotrage	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,576	0	$153	$562	$115	2.9
School Store	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.2	1,576	0	$153	$562	$115	2.9
Locker Room 3	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.3	1,773	0	$172	$599	$125	2.8
1st Fl Hallway	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 4	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,942	0.3	1,969	0	$191	$565	$100	2.4
Locker Room 4	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.3	1,969	0	$191	$905	$170	3.9
Locker Room 2	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.3	1,969	0	$191	$905	$170	3.9
Locker Room 1	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.3	1,969	0	$191	$905	$170	3.9
Alumni Hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 4	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,942	0.4	2,757	-1	$267	$711	$140	2.1
Guidance Lab	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.5	3,151	-1	$305	$1,124	$230	2.9
Break Room	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.5	3,151	-1	$305	$1,124	$230	2.9
Kitchen	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.6	3,939	-1	$382	$1,540	$305	3.2
Boiler Room	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 3	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.6	4,136	-1	$401	$1,577	$315	3.1
2nd Fl Hallway	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 4	Relamp	Yes	26	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,942	0.8	5,121	-1	$496	$1,149	$260	1.8
Wrestling Room	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,942	2	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,942	0.6	2,884	-1	$279	$986	$270	2.6
1st Fl Hallway	31	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,264	2, 4	Relamp	Yes	31	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,942	0.9	6,105	-1	$591	$1,332	$310	1.7
52 Biology Lab	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,264	2, 3	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,942	0.0	206	0	$20	$153	$30	6.1

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Stair 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,264	2, 3	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,942	0.0	309	0	$30	$325	$15	10.3
53 Classroom	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,264	2, 3	Relamp	Yes	6	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,942	0.1	619	0	$60	$380	$65	5.2
53 Classroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	4,264	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,264	0.0	35	0	$3	$18	$5	3.9
Alumni Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	4,264	2	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,264	0.0	70	0	$7	$37	$10	3.9
Showcase	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,942	0.0	225	0	$22	$189	$40	6.8
Showcase	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	4,264	2, 3	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,942	0.0	225	0	$22	$189	$40	6.8
Dean of Academics	10	LED Screw-In Lamps: LED Bulb - 1L	Wall Switch	S	10	4,264	3	None	Yes	10	LED Screw-In Lamps: LED Bulb - 1L	Occupancy Sensor	10	2,942	0.0	138	0	$13	$116	$20	7.2
Board Room	13	LED Screw-In Lamps: LED Bulb - 1L	Wall Switch	S	10	4,264	3	None	Yes	13	LED Screw-In Lamps: LED Bulb - 1L	Occupancy Sensor	10	2,942	0.0	180	0	$17	$116	$20	5.5
Prayer Room	24	LED Screw-In Lamps: LED Bulb - 1L	Wall Switch	S	10	4,264	3	None	Yes	24	LED Screw-In Lamps: LED Bulb - 1L	Occupancy Sensor	10	2,942	0.1	332	0	$32	$270	$35	7.3
Exterior	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	S	40	4,380		None	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	40	4,380	0.0	0	0	$0	$0	$0	0.0
Exterior	14	LED - Fixtures: Outdoor Porch Wall Mount	Photocell	S	70	4,380		None	No	14	LED - Fixtures: Outdoor Porch Wall Mount	Photocell	70	4,380	0.0	0	0	$0	$0	$0	0.0
Gym	36	LED - Fixtures: High-Bay	Wall Switch	S	154	4,264	3	None	Yes	36	LED - Fixtures: High-Bay	Occupancy Sensor	154	2,942	1.2	8,061	-2	$781	$1,080	$140	1.2
1st Fl Hallway	1	LED - Fixtures: Decorative Pendant	Wall Switch	S	10	4,264		None	No	1	LED - Fixtures: Decorative Pendant	Wall Switch	10	4,264	0.0	0	0	$0	$0	$0	0.0
Elevator	6	Incandescent: Bulb - 1L	Wall Switch	S	15	4,264	2, 3	Relamp	Yes	6	LED - Fixtures: Other	Occupancy Sensor	2	2,942	0.1	378	0	$37	$226	$20	5.6
58 Classroom	6	Incandescent: Bulb - 1L	Wall Switch	S	50	4,264	2, 3	Relamp	Yes	6	LED - Fixtures: Other	Occupancy Sensor	8	2,942	0.2	1,261	0	$122	$380	$35	2.8
Video Viewing Room	8	Incandescent: Bulb - 1L	Wall Switch	S	53	4,264	2, 3	Relamp	Yes	8	LED - Fixtures: Other	Occupancy Sensor	8	2,942	0.3	1,783	0	$173	$416	$35	2.2
Break Room	10	Incandescent: Bulb - 1L	Wall Switch	S	50	4,264	2, 3	Relamp	Yes	10	LED - Fixtures: Other	Occupancy Sensor	8	2,942	0.3	2,102	0	$204	$723	$70	3.2
2nd Fl Hallway	7	Halogen Incandescent: Flood Lights - 1L	High/Low Control	S	50	2,942	1	Fixture Replacement	No	7	LED - Fixtures: Architectural Flood/Spot Luminaire	High/Low Control	8	2,942	0.2	963	0	$93	$3,622	$350	35.1
Prayer Room	14	Halogen Incandescent: Flood Lights - 1L	Wall Switch	S	50	4,264	1, 3	Fixture Replacement	Yes	14	LED - Fixtures: Architectural Flood/Spot Luminaire	Occupancy Sensor	8	2,942	0.5	2,943	-1	$285	$7,785	$770	24.6
Dining Hall	27	Halogen Incandescent: Flood Lights - 1L	High/Low Control	S	50	2,942	1	Fixture Replacement	No	27	LED - Fixtures: Architectural Flood/Spot Luminaire	High/Low Control	8	2,942	0.8	3,714	-1	$360	$13,972	$1,350	35.1
Locker Room 2	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Storage	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Garage	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Electric Room	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Stair 1	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Workout Area	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Stairs 3	1	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Pool Viewing Area	2	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Prayer Room	2	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
1st Fl Hallway	2	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Kitchen	2	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Wrestling Room	2	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Boiler Room	3	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Alumni Hallway	4	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Swimming Pool	4	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Workout Room	4	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
2nd Fl Hallway	5	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Gym	5	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Stairs 4	5	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
1st Fl Hallway	5	Exit Signs: LED - 2 W Lamp	None	S	6	8,760		None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Exterior	5	Compact Fluorescent: Wall Sconces	Photocell	S	52	4,380	2	Relamp	No	5	LED - Fixtures: Wall Sconces	Photocell	36	4,380	0.0	342	0	$34	$183	$0	5.4
2nd Fl Hallway	6	Compact Fluorescent: 4 Pin Bulb (32W) - 1L	Wall Switch	S	32	4,264	2, 4	Relamp	Yes	6	LED - Fixtures: Other	High/Low Control	22	2,942	0.1	466	0	$45	$419	$0	9.3
Women's Restroom	1	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2	Relamp	No	1	LED - Fixtures: Other	Wall Switch	36	4,264	0.0	73	0	$7	$37	$0	5.2
Men's Restroom	1	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2	Relamp	No	1	LED - Fixtures: Other	Wall Switch	36	4,264	0.0	73	0	$7	$37	$0	5.2
Janitor Closet	1	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2	Relamp	No	1	LED - Fixtures: Other	Wall Switch	36	4,264	0.0	73	0	$7	$37	$0	5.2
Men's Restroom	1	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2	Relamp	No	1	LED - Fixtures: Other	Wall Switch	36	4,264	0.0	73	0	$7	$37	$0	5.2
Women's Restroom	1	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2	Relamp	No	1	LED - Fixtures: Other	Wall Switch	36	4,264	0.0	73	0	$7	$37	$0	5.2
53 Classroom	4	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2, 3	Relamp	Yes	4	LED - Fixtures: Other	Occupancy Sensor	36	2,942	0.1	504	0	$49	$416	$35	7.8
1st Fl Hallway	11	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2, 4	Relamp	Yes	11	LED - Fixtures: Other	High/Low Control	36	2,942	0.2	1,387	0	$134	$602	$0	4.5
Exterior	27	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Photocell	S	52	4,380	2	Relamp	No	27	LED - Fixtures: Other	Photocell	36	4,380	0.2	1,845	0	$184	$986	$0	5.4

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
2nd Fl Hallway	28	Compact Fluorescent: 2 Pin Bulb (26W) - 2L	Wall Switch	S	52	4,264	2, 4	Relamp	Yes	28	LED - Fixtures: Other	High/Low Control	36	2,942	0.5	3,531	-1	$342	$1,223	$0	3.6

Motor Inventory & Recommendations

		Existing Conditions							Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	RTU-1 Basement	1	Supply Fan	15.0	93.0%	No	B	3,391	5, 6	Yes	93.0%	Yes	1	4.3	15,913	0	$1,589	$7,086	$1,800	3.3
Roof	RTU-1 Basement	2	Exhaust Fan	1.0	85.5%	No	B	2,745		No	85.5%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-2 Nurse Office	1	Supply Fan	5.0	89.5%	No	B	2,745	5, 6	Yes	89.5%	Yes	1	1.4	4,462	0	$446	$4,130	$775	7.5
Roof	RTU-3 Faculty Dining	1	Supply Fan	3.0	89.5%	No	B	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-4 Café/Kitchen	1	Supply Fan	3.0	89.5%	No	B	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-5 Admin Office	1	Supply Fan	10.0	91.7%	Yes	B	3,391		No	91.7%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-5 Admin Office	2	Exhaust Fan	1.0	85.5%	Yes	B	2,745		No	85.5%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-6 2nd Class,1st Lobby	1	Supply Fan	40.0	94.1%	Yes	B	4,067		No	94.1%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-6 2nd Class,1st Lobby	1	Exhaust Fan	15.0	93.0%	Yes	B	3,391		No	93.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-7 Café/Kitchen	1	Supply Fan	3.0	89.5%	No	B	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-8 Gym	1	Supply Fan	3.0	89.5%	No	B	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-12 Lockers	1	Supply Fan	3.0	89.5%	No	W	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	DHU-1	1	Supply Fan	25.0	93.6%	No	W	4,067	5, 6	Yes	93.6%	Yes	1	7.2	31,604	0	$3,157	$11,471	$1,625	3.1
Roof	DHU-1	1	Return Fan	30.0	94.1%	No	W	4,067		No	94.1%	No		0.0	0	0	$0	$0	$0	0.0
Roof	MUA-1	1	Makeup Air Fan	2.0	86.5%	No	W	2,745	5, 6	Yes	86.5%	Yes	1	0.6	1,847	0	$184	$3,623	$0	19.6
Mech Room	RP1	1	Other	0.2	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-1	1	Exhaust Fan	1.0	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-2	1	Exhaust Fan	0.2	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-3	1	Exhaust Fan	0.2	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-4	1	Exhaust Fan	0.3	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0

		Existing Conditions							Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof Curb	EF-5	1	Exhaust Fan	0.3	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-6	1	Exhaust Fan	0.2	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-7	1	Exhaust Fan	0.5	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Sidewall	EF-8	1	Exhaust Fan	0.2	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Ceiling Hung	EF-9	1	Exhaust Fan	0.3	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Ceiling Hung	EF-10	1	Exhaust Fan	0.1	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Sidewall	EF-11	1	Exhaust Fan	0.3	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Ceiling Hung	EF-12	1	Exhaust Fan	0.3	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Sidewall	EF-13	1	Exhaust Fan	0.1	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-14	1	Exhaust Fan	0.5	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	EF-15	1	Exhaust Fan	0.5	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Sidewall	EF-16	1	Exhaust Fan	0.5	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof Curb	KEF-1	1	Kitchen Hood Exhaust Fan	0.3	68.0%	No	W	5,250		No	68.0%	No		0.0	0	52	$0	$0	$0	0.0
Roof Curb	KEF-2	1	Kitchen Hood Exhaust Fan	2.0	86.5%	No	W	5,250	5, 7	Yes	86.5%	Yes	1	0.0	5,836	52	$1,341	$3,623	$600	2.3
Roof Curb	KEF-3	1	Kitchen Hood Exhaust Fan	0.3	68.0%	No	W	5,250		No	68.0%	No		0.0	0	52	$0	$0	$0	0.0
Mech Room	P-1	1	Heating Hot Water Pump	5.0	85.5%	Yes	W	2,745		No	85.5%	No		0.0	0	0	$0	$0	$0	0.0
Mech Room	P-2	1	Heating Hot Water Pump	10.0	88.5%	Yes	W	3,391		No	88.5%	No		0.0	0	0	$0	$0	$0	0.0
Mech Room	P-3	1	Heating Hot Water Pump	10.0	88.5%	Yes	W	3,391		No	88.5%	No		0.0	0	0	$0	$0	$0	0.0
Mech Room	Water Filter Pump	1	Process Pump	30.0	94.1%	Yes	W	4,067		No	94.1%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Commercial Dehumidifier	1	Process Blower	25.0	93.6%	No	W	4,067		No	93.6%	No		0.0	0	0	$0	$0	$0	0.0

		Existing Conditions							Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	Commercial Dehumidifier	6	Process Blower	3.0	89.5%	No	W	2,745		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Commercial Dehumidifier	7	Process Blower	3.0	89.5%	No	W	2,745		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Mech Room	Pool Water Heater	1	Water Supply Pump	0.8	68.0%	No	W	2,745		No	68.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-9 Gym	1	Supply Fan	3.0	89.5%	No	W	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-10 Gym	1	Supply Fan	3.0	89.5%	No	W	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3
Roof	RTU-11 Gym	1	Supply Fan	3.0	89.5%	No	W	2,745	5, 6	Yes	89.5%	Yes	1	0.9	2,677	0	$267	$3,812	$0	14.3

Electric HVAC Inventory & Recommendations

		Existing Conditions					Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	RTU-1 Basement	1	Packaged AC	40.00		B	NR	Yes	1	Packaged AC	40.00		9.50		4.7	7,200	0	$719	$88,639	$0	123.3
Roof	RTU-2 Nurse Office	1	Packaged AC	10.00		B	NR	Yes	1	Packaged AC	10.00		11.50		1.2	1,876	0	$187	$17,821	$730	91.2
Roof	RTU-3 Faculty Dining	1	Packaged AC	7.50		B	NR	Yes	1	Packaged AC	7.50		11.50		0.9	1,407	0	$141	$13,366	$548	91.2
Roof	RTU-4 Café/Kitchen	1	Packaged AC	15.00		B	NR	Yes	1	Packaged AC	15.00		11.50		1.9	2,814	0	$281	$20,908	$1,185	70.2
Roof	RTU-5 Admin Office	1	Packaged AC	27.50		B	NR	Yes	1	Packaged AC	27.50		10.50		2.0	3,082	0	$308	$46,403	$2,173	143.7
Roof	RTU-6 2nd Class,1st Lobby	1	Packaged AC	60.00		B	NR	Yes	1	Packaged AC	60.00		10.50		9.6	14,617	0	$1,460	$132,958	$0	91.1
Roof	RTU-7 Café/Kitchen	1	Packaged AC	15.00		B	NR	Yes	1	Packaged AC	15.00		11.50		1.9	2,814	0	$281	$20,908	$1,185	70.2
Roof	RTU-8 Gym	1	Packaged AC	15.00		B	NR	Yes	1	Packaged AC	15.00		11.50		1.9	2,814	0	$281	$20,908	$1,185	70.2
Roof	RTU-9 Gym	1	Packaged AC	15.00		B	NR	Yes	1	Packaged AC	15.00		11.50		1.9	2,814	0	$281	$20,908	$1,185	70.2
Ceiling Mounted	RTU-10 Gym	1	Split-System AC	15.00		W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Recessed	RTU-11 Gym	1	Split-System AC	15.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-12 Lockers	1	Packaged AC	10.00		W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	AHU-1	1	Split-System AC	1.00		W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Recessed	AHU-2	1	Split-System AC	1.50		W		No							0.0	0	0	$0	$0	$0	0.0
Cabinet Mounted	PTAC-1	1	Packaged Terminal HP	0.66	6.60	W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	EDH-1	1	Electric Resistance Heat		85.30	W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	EDH-2	1	Electric Resistance Heat		102.36	W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	EDH-3	1	Electric Resistance Heat		17.06	W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	EDH-4	1	Electric Resistance Heat		68.24	W		No							0.0	0	0	$0	$0	$0	0.0
Ceiling Mounted	EDH-5	1	Electric Resistance Heat		17.06	W		No							0.0	0	0	$0	$0	$0	0.0

		Existing Conditions					Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Ceiling Mounted	EDH-6	1	Electric Resistance Heat		34.12	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-1	1	Electric Resistance Heat		5.12	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-2	1	Electric Resistance Heat		6.14	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-3	1	Electric Resistance Heat		5.12	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-4	1	Electric Resistance Heat		5.12	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-5	1	Electric Resistance Heat		5.12	W		No							0.0	0	0	$0	$0	$0	0.0
Wall Mounted	EWH-6	1	Electric Resistance Heat		6.14	W		No							0.0	0	0	$0	$0	$0	0.0
Mech Room 008	EUH-1	1	Electric Resistance Heat		11.20	W		No							0.0	0	0	$0	$0	$0	0.0
Greenhouse	EUH-2	1	Electric Resistance Heat		11.20	W		No							0.0	0	0	$0	$0	$0	0.0
Maintenance Garage	EUH-3	1	Electric Resistance Heat		25.60	W		No							0.0	0	0	$0	$0	$0	0.0
Pool Equip. Room A011	EUH-4	1	Electric Resistance Heat		25.60	W		No							0.0	0	0	$0	$0	$0	0.0
Roof	DHU-1	1	Packaged AC	71.75		W		No							0.0	0	0	$0	$0	$0	0.0

Fuel Heating Inventory & Recommendations

		Existing Conditions				Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Mech Room	Swimming Pool	1	Non-Condensing Hot Water Boiler	######	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-1 Basement	1	Furnace	324.00	W	NR	Yes	1	Furnace	324.00	95.00%	AFUE	0.0	0	31	$449	$7,341	$400	15.5
Roof	RTU-2 Nurse Office	1	Furnace	202.50	W	NR	Yes	1	Furnace	202.50	95.00%	AFUE	0.0	0	19	$280	$4,588	$400	14.9
Roof	RTU-3 Faculty Dining	1	Furnace	162.00	W	NR	Yes	1	Furnace	162.00	95.00%	AFUE	0.0	0	15	$224	$3,670	$400	14.6
Roof	RTU-4 Café/Kitchen	1	Furnace	284.00	W	NR	Yes	1	Furnace	284.00	95.00%	AFUE	0.0	0	27	$389	$6,435	$400	15.5
Roof	RTU-5 Admin Office	1	Furnace	486.00	W	NR	Yes	1	Furnace	486.00	95.00%	AFUE	0.0	0	46	$673	$11,011	$400	15.8
Roof	RTU-6 2nd Class,1st Lobby	1	Furnace	697.00	W	NR	Yes	1	Furnace	697.00	95.00%	AFUE	0.0	0	61	$885	$15,792	$400	17.4
Roof	RTU-7 Café/Kitchen	1	Furnace	284.00	W	NR	Yes	1	Furnace	284.00	95.00%	AFUE	0.0	0	27	$389	$6,435	$400	15.5
Roof	RTU-8-11 Gym	1	Furnace	284.00	W	NR	Yes	1	Furnace	284.00	95.00%	AFUE	0.0	0	27	$389	$6,435	$400	15.5
Roof	RTU-12 Lockers	1	Furnace	162.00	W		No						0.0	0	0	$0	$0	$0	0.0

DHW Inventory & Recommendations

		Existing Conditions			Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gym Storage	DWH-2	1	Storage Tank Water Heater (> 50 Gal)	W		No						0.0	0	0	$0	$0	$0	0.0
Mechanical Room	DWH-1	1	Storage Tank Water Heater (> 50 Gal)	W		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Restroooms	8	22	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	63	$908	$158	$0	0.2

Walk-In Cooler/Freezer Inventory & Recommendations

	Existing Conditions		Proposed Conditions				Energy Impact & Financial Analysis						
Location	Cooler/ Freezer Quantity	Case Type/Temperature	ECM #	Install EC Evaporator Fan Motors?	Install Electric Defrost Control?	Install Evaporator Fan Control?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Cooler (35F to 55F)	9	Yes	No	No	0.1	655	0	$65	$303	$0	4.6
Kitchen	1	Low Temp Freezer (-35F to -5F)	9	Yes	No	No	0.1	655	0	$65	$303	$0	4.6

Commercial Refrigerator/Freezer Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen Storage	1	Freezer Chest	No	10	Yes	0.7	5,794	0	$579	$2,690	$0	4.6
Kitchen	4	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Stand-Up Refrigerator, Solid Door (>50 cu. ft.)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Refrigerator Chest	No	10	Yes	0.1	987	0	$99	$2,922	$0	29.6
Kitchen	1	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Stand-Up Refrigerator, Glass Door (16 - 30 cu. ft.)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Freezer Chest	No		No	0.0	0	0	$0	$0	$0	0.0

Commercial Ice Maker Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Ice Maker Type	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Trainer Office	1	Ice Making Head (≥450 lbs/day), Continuous	Yes		No	0.0	0	0	$0	$0	$0	0.0

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	ECM #	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	2	Gas Convection Oven (Full Size)	No	NR	Yes	0.0	0	60	$863	$18,580	$1,000	20.4
Kitchen	1	Gas Combination Oven/Steam Cooker (<15 Pans)	No	NR	Yes	0.0	0	74	$1,077	$16,599	$750	14.7
Kitchen	2	Gas Convection Oven (Full Size)	Yes	NR	Yes	0.0	0	60	$863	$18,580	$1,000	20.4
Kitchen	1	Gas Griddle (3 Feet Width)	No	NR	Yes	0.0	0	18	$257	$1,764	$125	6.4
Kithcen	1	Gas Steamer	No	NR	Yes	0.0	0	21	$306	$7,423	$2,000	17.7
Kitchen	1	Insulated Food Holding Cabinet (Full Size)	Yes	NR	Yes	0.2	853	0	$85	$2,878	$300	30.3
Kitchen	1	Gas Convection Oven (Full Size)	No	NR	Yes	0.0	0	30	$432	$9,290	$500	20.4
Kitchen	2	Insulated Food Holding Cabinet (Full Size)	No	NR	Yes	0.4	1,706	0	$170	$5,757	$600	30.3

Dishwasher Inventory & Recommendations

	Existing Conditions					Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Dishwasher Type	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Kitchen	1	Single Tank Conveyor (High Temp)	Electric	Electric	Yes		No	0.0	0	0	$0	$0	$0	0.0

Plug Load Inventory

	Existing Conditions			
Location	**Quantity**	**Equipment Description**	**Energy Rate (W)**	**ENERGY STAR Qualified?**
Clssrooms/Offices	47	Computers	120.0	No
Classrooms	18	Small Printer	46.0	Yes
Staffrooms	2	Medium Printer	55.0	Yes
Copy Room	2	Large Printer	600.0	Yes
Main Office	1	Paper Shredder	46.0	No
Classrooms	9	Projector	120.0	Yes
Break Room	9	Microwave	800.0	No
Staffrooms	4	Small Refrigerator	130.0	No
Office	1	Medium Refrigerator	150.0	Yes
Break Room	2	Large Refrigerator	255.0	Yes
Kitchen	1	Double Door Fridge	300.0	Yes
Staffrooms	4	Coffee Machine	1,500.0	Yes
Break Room	1	Toaster Oven	300.0	Yes
Classrooms	2	CRT TV	244.0	No
Classrooms	1	Plasma TV	124.0	No
Office	5	LCD TV	120.0	Yes
Conference Room	7	LED TV	120.0	Yes
Laundry	1	Washer & Dryer	1,200.0	Yes

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Vending Machine Type	ECM #	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Hallway	1	Refrigerated	11	Yes	0.2	1,612	0	$161	$230	$0	1.4

APPENDIX B: ENERGY STAR® STATEMENT OF ENERGY PERFORMANCE

EUI is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

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ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

St. Augustine Prep - Forum

Primary Property Type: K-12 School
Gross Floor Area (ft²): 107,796
Built: 2007

For Year Ending: April 30, 2018
Date Generated: October 24, 2018

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
St. Augustine Prep - Forum 611 Cedar Avenue Richland, New Jersey 08350	St. Augustine Preparatory School 611 Cedar Avenue Director of Facilities, NJ 08350 (856) 697-2600	Kathryn Bauer 611 Cedar Avenue Director of Facilities, NJ 08350 (856) 697-2600 Ext. 124 mrs.bauer@hermits.com

Property ID: 6567812

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
96.1 kBtu/ft²

Source EUI
114.9 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	4,030,643 (39%)
Electric - Solar (kBtu)	5,317,285 (51%)
Electric - Grid (kBtu)	1,012,682 (10%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	168.1
National Median Source EUI (kBtu/ft²)	200.9
% Diff from National Median Source EUI	-43%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	317

Signature & Stamp of Verifying Professional

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

Signature: _____ Date: _____

Licensed Professional

Kathryn Bauer
611 Cedar Avenue
Director of Facilities, NJ 08350
(856) 697-2600 Ext. 124
mrs.bauer@hermits.com

Professional Engineer Stamp (if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate return on investment. The blended rate is calculated by dividing the amount of your bill by the total kilowatt-hours consumed. For example, if your bill is $22,217.22, and you consumed 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
BTU (or therms)	British thermal unit—commonly referred to as therms. A BTU is the amount of heat required to increase the temperature of a pint of water (which weighs exactly 16 ounces) by one-degree Fahrenheit. Commonly used to measure natural gas consumption.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing energy management systems.
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
HVAC	Heating, ventilation, and air conditioning.
kW	Kilowatt. Equal to 1,000 Watts.
Load	The total amount of energy a building system is consuming at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MMBtu	One million British thermal units.
PSIG	Pounds per square inch.
Plug Load	Refers to the amount of energy used in a space by products that are powered by means of an ordinary AC plug.
Simple Payback	The amount of time needed to recoup the funds expended in an investment, or to reach the break-even point.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
Turnkey	Provision of a complete product or service that is ready for immediate use
Watt (W)	Unit of power commonly used to measure electricity use.