Local Government Energy Audit Report

Salem County Jail

April 30, 2019

Prepared for:

Salem County
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Pilesgrove, NJ 08098

Prepared by:

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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

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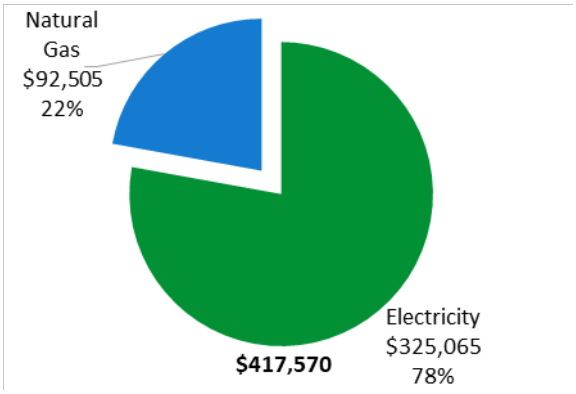
1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for the Salem County Jail. 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: $417,570 Electricity: 2,497,190 kWh Natural Gas: 86,090 Therms	
ENERGY STAR® Benchmarking Score	**N/A** *(1-100 scale)*	A standard energy use benchmark is not available for this facility type. This report contains suggestions about how to improve building performance and reduce energy costs.

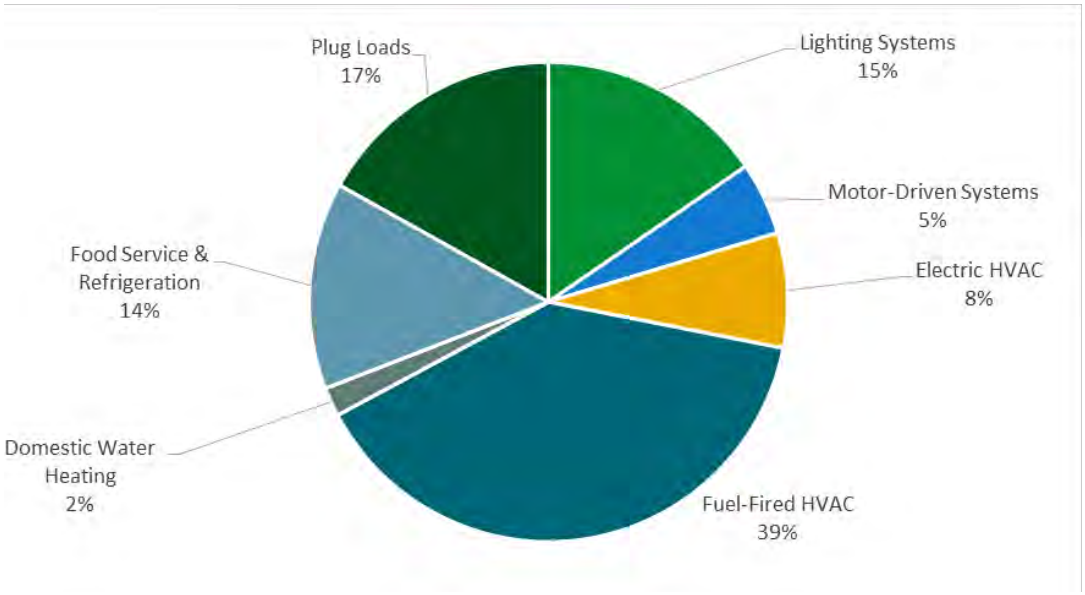


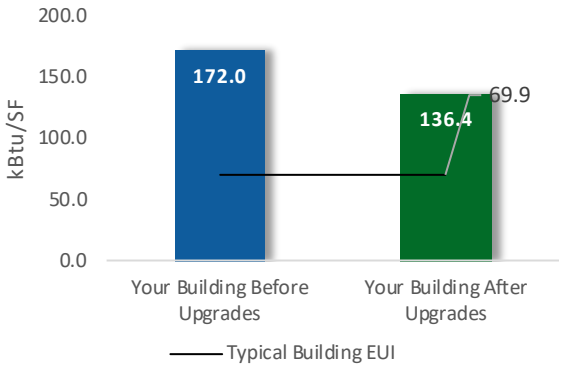
Figure 1 - Energy Use by System

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.

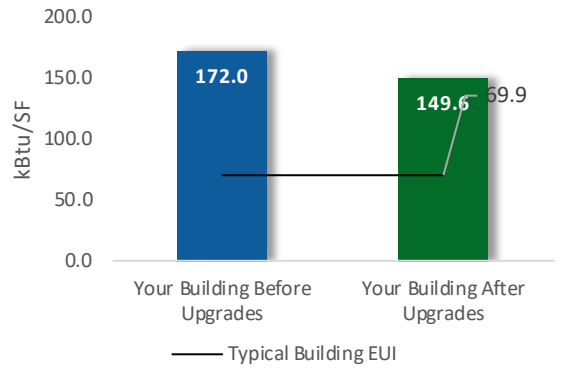
Scenario 1: Full Package (all evaluated measures)

Installation Cost	$858,371
Potential Rebates & Incentives[1]	$85,615
Annual Cost Savings	$109,822
Annual Energy Savings	Electricity: 767,411 kWh Natural Gas: 9,237 Therms
Greenhouse Gas Emission Savings	440 Tons
Simple Payback	7.0 Years
Site Energy Savings (all utilities)	21%



Scenario 2: Cost Effective Package[2]

Installation Cost	$353,887
Potential Rebates & Incentives	$45,199
Annual Cost Savings	$82,423
Annual Energy Savings	Electricity: 625,418 kWh Natural Gas: 940 Therms
Greenhouse Gas Emission Savings	320 Tons
Simple Payback	3.7 Years
Site Energy Savings (all utilities)	13%



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		**546,086**	**101.2**	**-106**	**$69,941**	**$1,049,121**	**$250,341**	**$42,164**	**$208,177**	**3.0**	**537,439**
ECM 1	Install LED Fixtures	205,349	32.5	-34	$26,361	$395,410	$157,164	$25,900	$131,264	5.0	202,752
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	193,806	45.0	-41	$24,785	$371,771	$56,081	$8,644	$47,437	1.9	190,329
ECM 3	Retrofit Fixtures with LED Lamps	146,930	23.8	-31	$18,796	$281,940	$37,096	$7,620	$29,476	1.6	144,359
Lighting Control Measures		**17,882**	**4.6**	**-4**	**$2,287**	**$18,295**	**$24,840**	**$2,660**	**$22,180**	**9.7**	**17,561**
ECM 4	Install Occupancy Sensor Lighting Controls	17,882	4.6	-4	$2,287	$18,295	$24,840	$2,660	$22,180	9.7	17,561
Motor Upgrades		**5,485**	**2.0**	**0**	**$714**	**$10,710**	**$40,918**	**$0**	**$40,918**	**57.3**	**5,523**
ECM 5	Premium Efficiency Motors	5,485	2.0	0	$714	$10,710	$40,918	$0	$40,918	57.3	5,523
Variable Frequency Drive (VFD) Measures		**97,898**	**33.8**	**0**	**$12,744**	**$191,155**	**$130,735**	**$8,000**	**$122,735**	**9.6**	**98,583**
	Install VFDs on Constant Volume (CV) Fans	66,114	29.0	0	$8,606	$129,093	$114,730	$8,000	$106,730	12.4	66,576
ECM 6	Install VFDs on Heating Water Pumps	31,784	4.8	0	$4,137	$62,062	$16,005	$0	$16,005	3.9	32,007
Electric Unitary HVAC Measures		**75,879**	**24.1**	**0**	**$9,877**	**$148,161**	**$206,400**	**$11,296**	**$195,104**	**19.8**	**76,410**
	Install High Efficiency Air Conditioning Units	75,879	24.1	0	$9,877	$148,161	$206,400	$11,296	$195,104	19.8	76,410
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**830**	**$8,915**	**$178,309**	**$183,353**	**$21,120**	**$162,233**	**18.2**	**97,149**
	Install High Efficiency Hot Water Boilers	0	0.0	830	$8,915	$178,309	$183,353	$21,120	$162,233	18.2	97,149
HVAC System Improvements		**7,342**	**0.0**	**204**	**$3,151**	**$47,264**	**$12,235**	**$0**	**$12,235**	**3.9**	**31,314**
ECM 7	Implement Demand Control Ventilation (DCV)	7,342	0.0	204	$3,151	$47,264	$12,235	$0	$12,235	3.9	31,314
Food Service & Refrigeration Measures		**16,839**	**1.1**	**0**	**$2,192**	**$27,315**	**$9,548**	**$375**	**$9,173**	**4.2**	**16,957**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	3,289	0.4	0	$428	$6,422	$1,820	$0	$1,820	4.3	3,312
ECM 9	Refrigeration Controls	8,432	0.1	0	$1,098	$17,563	$6,578	$375	$6,203	5.7	8,491
ECM 10	Vending Machine Control	5,118	0.6	0	$666	$3,331	$1,150	$0	$1,150	1.7	5,153
TOTALS		**767,411**	**166.9**	**924**	**$109,822**	**$1,670,330**	**$858,371**	**$85,615**	**$772,756**	**7.0**	**880,936**

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

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

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's 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 Fluorescent Fixtures with LED Lamps and Drivers	X		X
ECM 3	Retrofit Fixtures with LED Lamps	X		X
ECM 4	Install Occupancy Sensor Lighting Controls	X		X
ECM 5	Premium Efficiency Motors			X
ECM 6	Install VFDs on Hot Water Pumps	X		X
ECM 7	Implement Demand Control Ventilation			X
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors			X
ECM 9	Refrigeration Controls	X		X
ECM 10	Vending Machine Control			X

Figure 3 – Funding Options

New Jersey's 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. 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.

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 Salem County Jail. 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 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 26 and September 27, 2018, TRC performed an energy audit at the Salem County Jail located in Pilesgrove, New Jersey. TRC met with Sam Willis to review the facility operations and help focus our investigation on specific energy-using systems.

The Salem County Jail is a two-story, 99,594 square foot building built in 1993. Spaces include: holding cells, recreational rooms, infirmary, offices, cafeteria, corridors, stairwells, chapel, library, dining rooms, a commercial kitchen, outdoor kennels, and various mechanical and storage spaces.

Over the last five years the facility has replaced all its existing T12 fluorescent fixtures with T8 fluorescent fixtures, and more recently with LED tubes.

Facility concerns include: high electric bills.

2.2 Building Occupancy

The facility is occupied 24/7 year-round. Offices in the administration area are occupied Monday through Friday from 8:00 AM to 4:30 PM. On a typical day, occupancy is 136 staff and 300 inmates.

Building Name	Weekday/Weekend	Operating Schedule
Salem County Jail	Weekday	12:00 AM to 12:00 AM
	Weekend	12:00 AM to 12:00 AM

Figure 4 - Building Occupancy Schedule

2.3 Building Envelope

Building walls are concrete block over structural steel with a textured stone facade. The roof is flat and covered with black membrane and loose stone ballast and in fair condition.

The walls are made of concrete masonry units (CMUs) with a decorative CMU veneer and painted CMU interior finish. The flat roof is supported with steel trusses and a reinforced concrete deck and finished with an insulated layer and a covering of EPDM with loose stone ballast.

Most of the windows are double glazed and have aluminum frames with a thermal break. The glass-to-frame seals are in good condition. The operable window weather seals are in fair condition, showing little evidence of excessive wear. Exterior doors have aluminum frames and are in good condition with undamaged door seals. Degraded window and door seals increase drafts and outside air infiltration.

There is a mobile trailer at this facility containing additional offices and kitchen area, known as the Annex. The Annex is a double-wide, wood-framed mobile trailer with double-glazed windows.

Exterior Front

Building Wall

Exterior Recreation Yard(s)

Annex

2.4 Lighting Systems

The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps. There are also several 40-Watt T12 fixtures. Additionally, there are some compact fluorescent lamps (CFL), and LED general purpose lamps. Typically, T8 fluorescent lamps use electronic ballasts and T12 fluorescent lamps use magnetic ballasts.

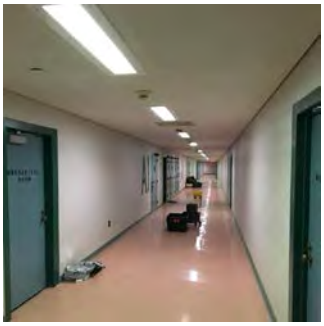
Fixture types include 2-lamp, 3-lamp or 4-lamp, 2-foot or 4-foot long troffer, recessed, and surface mounted fixtures all with linear tube lamps.

Most fixtures are in fair condition.

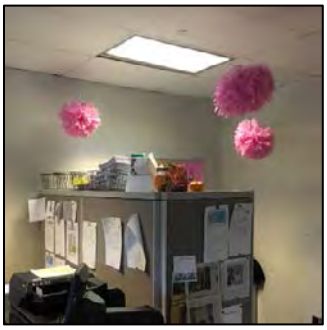
The indoor recreation rooms, vehicle sally port, lobby, multi-purpose room, housing blocks, and gymnasium fixtures have high bay high intensity discharge (HID) fixtures with metal halide lamps and are manually controlled by wall switches.

All exit signs are LED units.

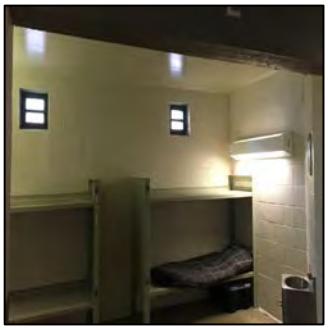
Interior lighting levels were generally sufficiently lit.



Typical Interior Corridor Fixtures



Office Lighting



24/7 Cell Lighting

LED Exit Signs

Interior lighting fixtures throughout the building are controlled by wall switches.

Exterior fixtures include wall packs, flood lights, pole-mounted fixtures, and parking lot lights. The pole-mounted fixtures have high intensity discharge (HID) metal halide lamps. Exterior light fixtures are controlled by a time clock, or switch, depending on the fixture.

Exterior Lighting Timer Control

Exterior Lighting Fixtures

2.5 Air Handling Systems

Packaged AC Units

A-wing and B-wing corridors, kitchen, offices, central control, medical area, and booking area are served with packaged rooftop air conditioners with direct expansion cooling systems. The A-wing and B-wing corridor units have 4-ton, SEER 9.0 units. The kitchen area and C-Wing corridor are served by two, 6-ton units. The booking area is served by a 7.5-ton unit, the medical area is served by a 12.5-ton unit, and the central control room is served by a 3-ton unit.

Refer to Appendix A for detailed information about each unit.

Air Conditioners

Housing blocks A1, A2, A3, B1, B2, B3, B4, B5, and B6, including the maintenance shop, use split-system air conditioning (AC) units serving the DX cooling components in air handler units throughout the building. These vary in capacity between 2-tons and 15-tons. The units vary in condition and efficiency. Units serving the A1, A2, A3, and B5 housing units, as well as the administration area are new high-efficiency 14.0 EER, ENERGY STAR® labeled units manufactured by Heatcraft. Units serving the B1, B2, B3, B4, and B6 housing units, as well as the B-Wing upper corridor, maintenance shop, law library, and training room are served by older Trane units with an efficiency of 9.0 EER.

The server room is served by a newer 3-ton Trane unit, and a rated efficiency of 13 SEER.

The HVAC system uses DDC controls with thermostats located in the space.

Through-the-Wall & Window Air Conditioners

The Annex building is served by two through-the-wall AC units with a cooling capacity of 36,000 Btus. Each unit is manufactured by Bard and has an efficiency of 9.0 EER. The outdoor kennels are conditioned by two window air conditioners with a capacity of 12,000 Btus.

Packaged Rooftop Air Conditioners

Split System Air Conditioner Condenser

Packaged Rooftop Air Conditioner

Through-The Wall Air Conditioner

2.6 Heating Hot Water System

Two Cleaver Brooks 4,800 MBh hot water boilers serve the building heating load. The burners are modulating with a nominal efficiency of 80%. The boilers are configured in a lead-lag control scheme. Both boilers are required under high load conditions. They were installed in 2011 and are in good condition. There is a service contract in place.

The hydronic distribution system is a two-pipe heating only system.

The boilers are configured in a constant flow primary distribution with two 25 hp constant speed hot water pumps operating with an automated control scheme. The boilers provide hot water to air handler units throughout the building.

Hot water is supplied at 180°F when the outside air temperature is low, and the setpoint is adjusted linearly to 165°F when the outside air is above 65°F. The hot water return temperature is typically 150°F. The system is locked out at an outside temperature of 72°F.

Heating Hot Water Boilers

Heating Hot Water Boilers

Unit heaters

Unit Heaters

2.7 Domestic Hot Water

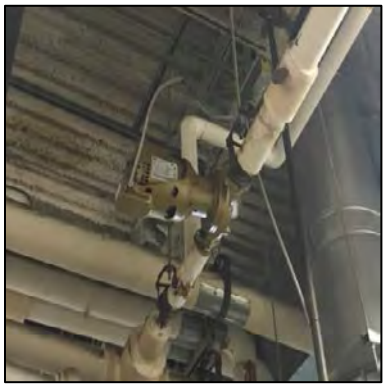
Hot water is produced by two Raypak 1,260 MBh gas-fired water heaters with an 85% efficiency with a separate 1,616 gallon storage tank.

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

Two 1/3 hp circulation pumps distribute water to the whole building. The circulation pumps operate based on an aquastat set at 115°F

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

Domestic Hot Water Equipment



DHW Distribution Pumps

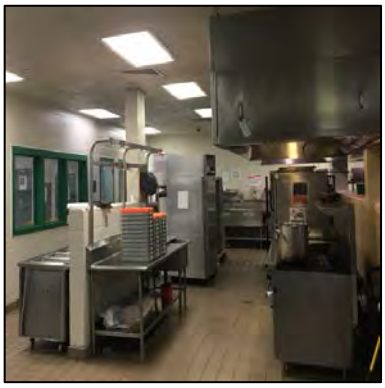
2.8 Food Service & Laundry Equipment

The kitchen has mixed gas and electric equipment that is used to prepare meals for inmates and staff. Most cooking is done using gas-fired ovens, stoves and steamers. Bulk prepared foods are held in several electric holding cabinets. Equipment is high efficiency and is in good condition.

The tray washer is an ENERGY STAR® high temperature, doo- type unit. There is an electric booster heater located under the unit.

There is a laundry facility at this building with four commercial washers, and three commercial dryers. Two of the washers are made by Pellerin Milnor Corporation in 2009, and have a load capacity of 55 lbs. The other two washers are manufactured by Uni-Mac, and have a load capacity of 125 lbs. and 85 lbs. The dryers are all natural-gas fired and made by Huebsch Originators. The washers and dryers are used daily.

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



Cooking Equipment

Tray Washer

Laundry Equipment - Washers

Laundry Equipment - Dryers

2.9 Refrigeration

There are two walk-in refrigerators and one walk-in low temperature freezer served by a 14 ton compressor located outdoors next to the kitchen. Each walk-in has two evaporator fans, and no defrost or fan controls.

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

Walk-In Refrigerator

Walk-In Freezer

2.10 Plug Load & Vending Machines

The utility bill analysis indicates that plug loads consume approximately 16.9% of total building energy use. This is higher than a typical building.

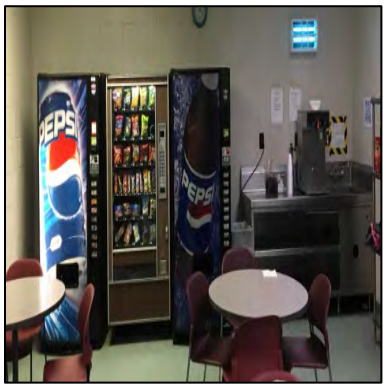
You may wish to consider paying particular attention to minimizing your plug load usage. This report makes suggestions for ECMs in this area as well as Energy Efficient Best Practices.

There are approximately 93 computer work stations, and 30 laptop computers throughout the facility. Plug loads throughout the building include security cameras, LCD TVs, coffee makers, microwave ovens, and various woodshop equipment. There is also some general office equipment including desk printers, scanners, projectors, and photocopiers.

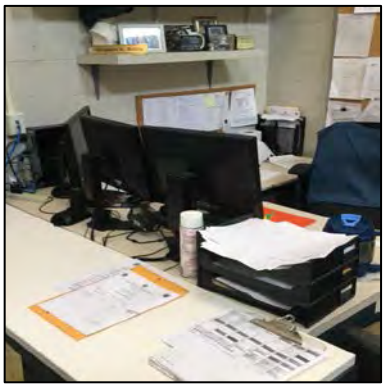
There are 21 residential-style refrigerators throughout the building that are used to store food and beverages. These vary in size, condition, and efficiency.

There are three refrigerated beverage vending machines and three non-refrigerated vending machines. Vending machines are not equipped with occupancy-based controls.

Microwave and Coffee Maker



Vending Machines



Desktop Computers

Photocopier

2.11 Water-Using Systems

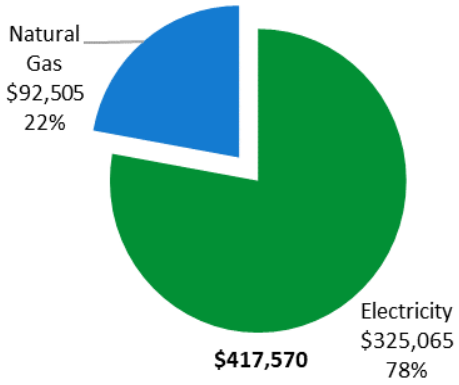
There are 39 restrooms with toilets, urinals, and sinks. Faucet flow rates are at 2.0 gallons per minute (gpm) or lower. Toilets are rated at 2.5 gallons per flush (gpf) and urinals are rated at 1.6 gpf. Each cell also has a stainless steel toilet with a rating of 2.0 gpf.

There are 33 showers, and showerheads are rated at 2.5 gpm.

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	2,497,190 kWh	$325,065
Natural Gas	86,090 Therms	$92,505
Total		**$417,570**



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.

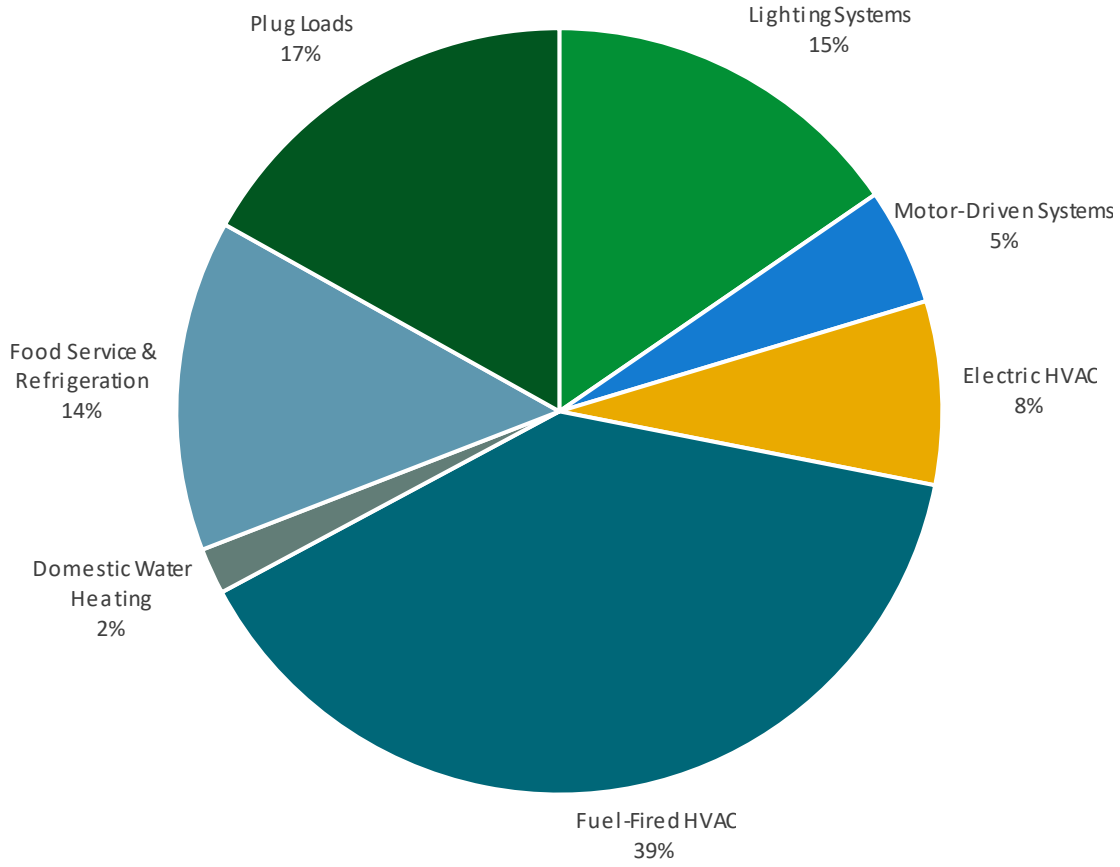
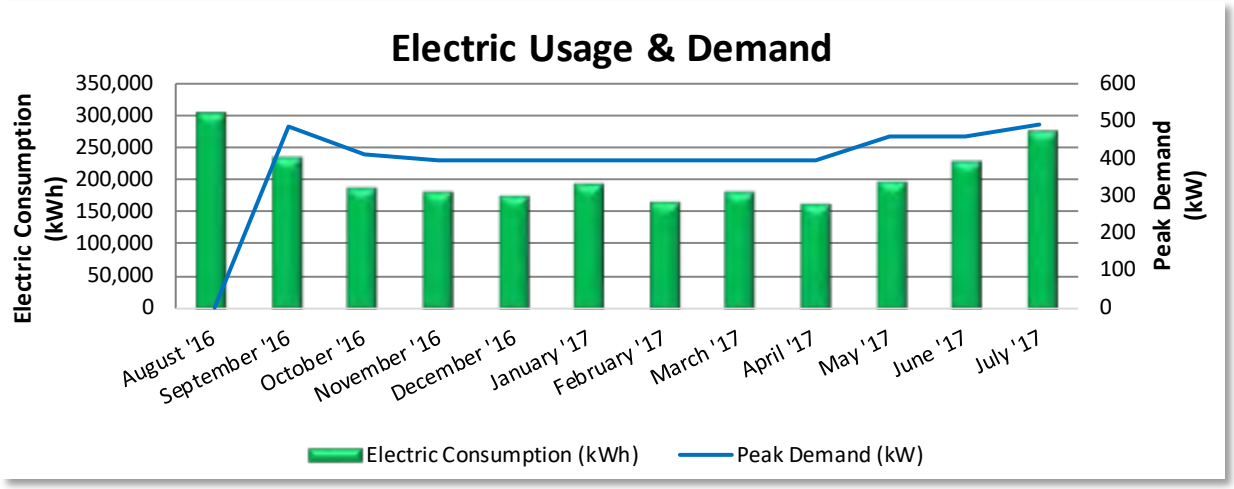


Figure 5 - Energy Balance

3.1 Electricity

Atlantic City Electric delivers electricity under rate class General Service, with electric production provided by New Energy, a third-party supplier.



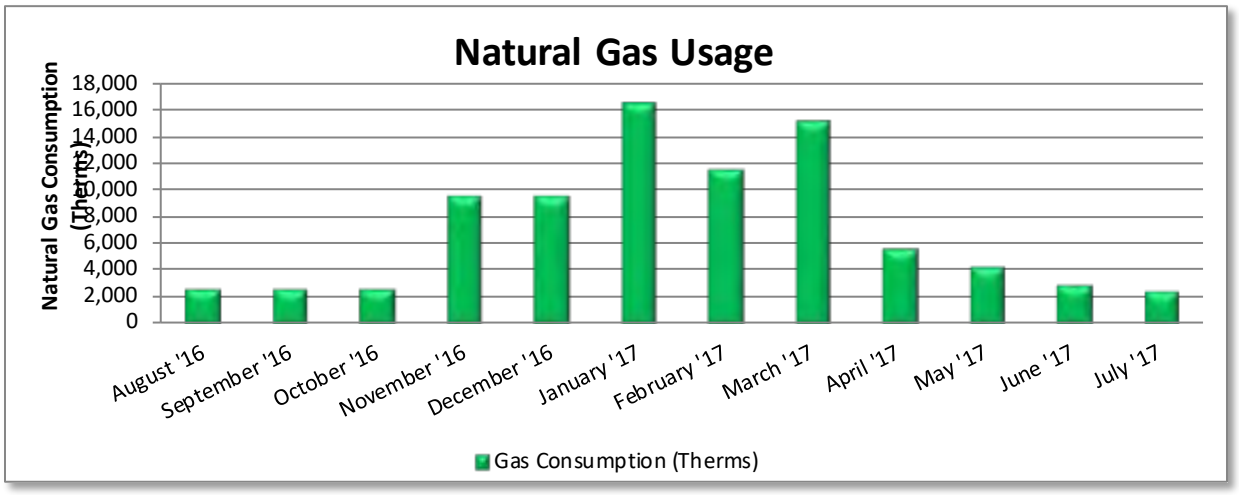
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
8/18/16	30	303,188			$38,601
9/19/16	32	233,303	486	$4,288	$30,960
10/19/16	30	187,147	412	$3,759	$24,920
11/17/16	27	179,974	395	$3,488	$23,814
12/17/16	29	173,044	395	$3,372	$22,905
1/18/17	35	194,588	395	$3,833	$25,769
2/17/17	28	163,589	395	$3,252	$21,705
3/17/17	28	181,514	395	$3,600	$24,062
4/19/17	33	161,661	395	$3,252	$21,499
5/17/17	28	197,587	461	$4,472	$26,753
6/20/17	34	228,540	458	$4,036	$28,625
7/18/17	28	272,530	492	$4,484	$32,779
Totals	**362**	**2,476,665**	**492**	**$41,834**	**$322,394**
Annual	**365**	**2,497,190**	**492**	**$42,181**	**$325,065**

Notes:

- Peak demand of 492 kW occurred in July 2017.
- There was no information in the utility bills on kW demand for August ‘16
- The average electric cost over the past 12 months was $0.130/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.

3.2 Natural Gas

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



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
8/18/16	30	2,685	$3,013
9/19/16	32	2,583	$2,965
10/19/16	30	2,683	$3,096
11/17/16	27	9,594	$9,627
12/17/16	29	9,575	$9,953
1/18/17	35	16,466	$17,843
2/17/17	28	11,446	$12,431
3/17/17	28	15,099	$16,238
4/19/17	33	5,565	$5,987
5/17/17	28	4,261	$4,628
6/20/17	34	2,963	$3,259
7/18/17	28	2,462	$2,706
Totals	**362**	**85,382**	**$91,745**
Annual	**365**	**86,090**	**$92,505**

Notes:

- The average gas cost for the past 12 months is $1.075/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 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	**N/A**

Due to its unique characteristics, this building type is not able to receive a benchmarking score. This report contains suggestions about how to improve building performance and reduce energy costs.

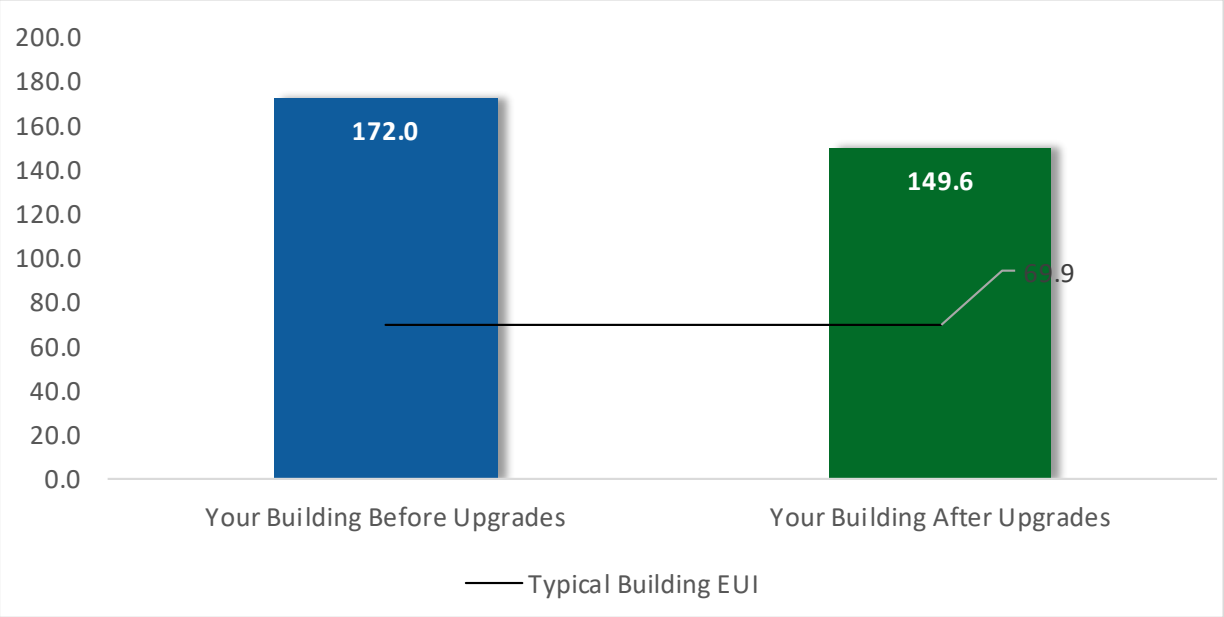


Figure 6 - Energy Use Intensity Comparison

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. A number of factors can cause a 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 on a monthly basis 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's 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

The appendix 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		**546,086**	**101.2**	**-106**	**$69,941**	**$250,341**	**$42,164**	**$208,177**	**3.0**	**537,439**
ECM 1	Install LED Fixtures	205,349	32.5	-34	$26,361	$157,164	$25,900	$131,264	5.0	202,752
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	193,806	45.0	-41	$24,785	$56,081	$8,644	$47,437	1.9	190,329
ECM 3	Retrofit Fixtures with LED Lamps	146,930	23.8	-31	$18,796	$37,096	$7,620	$29,476	1.6	144,359
Lighting Control Measures		**17,882**	**4.6**	**-4**	**$2,287**	**$24,840**	**$2,660**	**$22,180**	**9.7**	**17,561**
ECM 4	Install Occupancy Sensor Lighting Controls	17,882	4.6	-4	$2,287	$24,840	$2,660	$22,180	9.7	17,561
Motor Upgrades		**5,485**	**2.0**	**0**	**$714**	**$40,918**	**$0**	**$40,918**	**57.3**	**5,523**
ECM 5	Premium Efficiency Motors	5,485	2.0	0	$714	$40,918	$0	$40,918	57.3	5,523
Variable Frequency Drive (VFD) Measures		**97,898**	**33.8**	**0**	**$12,744**	**$130,735**	**$8,000**	**$122,735**	**9.6**	**98,583**
	Install VFDs on Constant Volume (CV) Fans	66,114	29.0	0	$8,606	$114,730	$8,000	$106,730	12.4	66,576
ECM 6	Install VFDs on Heating Water Pumps	31,784	4.8	0	$4,137	$16,005	$0	$16,005	3.9	32,007
Electric Unitary HVAC Measures		**75,879**	**24.1**	**0**	**$9,877**	**$206,400**	**$11,296**	**$195,104**	**19.8**	**76,410**
	Install High Efficiency Air Conditioning Units	75,879	24.1	0	$9,877	$206,400	$11,296	$195,104	19.8	76,410
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**830**	**$8,915**	**$183,353**	**$21,120**	**$162,233**	**18.2**	**97,149**
	Install High Efficiency Hot Water Boilers	0	0.0	830	$8,915	$183,353	$21,120	$162,233	18.2	97,149
HVAC System Improvements		**7,342**	**0.0**	**204**	**$3,151**	**$12,235**	**$0**	**$12,235**	**3.9**	**31,314**
ECM 7	Implement Demand Control Ventilation (DCV)	7,342	0.0	204	$3,151	$12,235	$0	$12,235	3.9	31,314
Food Service & Refrigeration Measures		**16,839**	**1.1**	**0**	**$2,192**	**$9,548**	**$375**	**$9,173**	**4.2**	**16,957**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	3,289	0.4	0	$428	$1,820	$0	$1,820	4.3	3,312
ECM 9	Refrigeration Controls	8,432	0.1	0	$1,098	$6,578	$375	$6,203	5.7	8,491
ECM 10	Vending Machine Control	5,118	0.6	0	$666	$1,150	$0	$1,150	1.7	5,153
TOTALS		**767,411**	**166.9**	**924**	**$109,822**	**$858,371**	**$85,615**	**$772,756**	**7.0**	**880,936**

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

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

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		**546,086**	**101.2**	**-106**	**$69,941**	**$250,341**	**$42,164**	**$208,177**	**3.0**	**537,439**
ECM 1	Install LED Fixtures	205,349	32.5	-34	$26,361	$157,164	$25,900	$131,264	5.0	202,752
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	193,806	45.0	-41	$24,785	$56,081	$8,644	$47,437	1.9	190,329
ECM 3	Retrofit Fixtures with LED Lamps	146,930	23.8	-31	$18,796	$37,096	$7,620	$29,476	1.6	144,359
Lighting Control Measures		**17,882**	**4.6**	**-4**	**$2,287**	**$24,840**	**$2,660**	**$22,180**	**9.7**	**17,561**
ECM 4	Install Occupancy Sensor Lighting Controls	17,882	4.6	-4	$2,287	$24,840	$2,660	$22,180	9.7	17,561
Motor Upgrades		**5,485**	**2.0**	**0**	**$714**	**$40,918**	**$0**	**$40,918**	**57.3**	**5,523**
ECM 5	Premium Efficiency Motors	5,485	2.0	0	$714	$40,918	$0	$40,918	57.3	5,523
Variable Frequency Drive (VFD) Measures		**97,898**	**33.8**	**0**	**$12,744**	**$130,735**	**$8,000**	**$122,735**	**9.6**	**98,583**
ECM 6	Install VFDs on Heating Water Pumps	31,784	4.8	0	$4,137	$16,005	$0	$16,005	3.9	32,007
HVAC System Improvements		**7,342**	**0.0**	**204**	**$3,151**	**$12,235**	**$0**	**$12,235**	**3.9**	**31,314**
ECM 7	Implement Demand Control Ventilation (DCV)	7,342	0.0	204	$3,151	$12,235	$0	$12,235	3.9	31,314
Food Service & Refrigeration Measures		**16,839**	**1.1**	**0**	**$2,192**	**$9,548**	**$375**	**$9,173**	**4.2**	**16,957**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	3,289	0.4	0	$428	$1,820	$0	$1,820	4.3	3,312
ECM 9	Refrigeration Controls	8,432	0.1	0	$1,098	$6,578	$375	$6,203	5.7	8,491
ECM 10	Vending Machine Control	5,118	0.6	0	$666	$1,150	$0	$1,150	1.7	5,153
TOTALS		**767,411**	**166.9**	**924**	**$109,822**	**$858,371**	**$85,615**	**$772,756**	**7.0**	**880,936**

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

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

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		**546,086**	**101.2**	**-106**	**$69,941**	**$250,341**	**$42,164**	**$208,177**	**3.0**	**537,439**
ECM 1	Install LED Fixtures	205,349	32.5	-34	$26,361	$157,164	$25,900	$131,264	5.0	202,752
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	193,806	45.0	-41	$24,785	$56,081	$8,644	$47,437	1.9	190,329
ECM 3	Retrofit Fixtures with LED Lamps	146,930	23.8	-31	$18,796	$37,096	$7,620	$29,476	1.6	144,359

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 of 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 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: sally port, lobby, multi-purpose rooms, housing blocks, recreation yards, gymnasium, exterior fixtures

ECM 2: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Retrofit fluorescent fixtures by removing the fluorescent tubes and ballasts and replacing them with LED tubes and LED drivers (if necessary), which are designed to be used in retrofitted fluorescent fixtures.

The measure uses the existing fixture housing but replaces the electric components with more efficient lighting technology which use less power than other lighting technologies but provides equivalent lighting output. Maintenance savings may also be achieved since LED tubes last longer than fluorescent tubes and therefore do not need to be replaced as often.

Affected building areas: all areas throughout the building with fluorescent fixtures with T12 tubes.

ECM 3: Retrofit Fixtures with LED Lamps

Replace fluorescent and 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 throughout the building with fluorescent fixtures with T8 tubes. Areas with compact fluorescent and incandescent lamps including showers, lobby, cells, visiting rooms, and nurse's office.

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		**17,882**	**4.6**	**-4**	**$2,287**	**$24,840**	**$2,660**	**$22,180**	**9.7**	**17,561**
ECM 4	Install Occupancy Sensor Lighting Controls	17,882	4.6	-4	$2,287	$24,840	$2,660	$22,180	9.7	17,561

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 4: 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, kitchen, classrooms, gymnasium, library, restrooms, laundry area, infirmary, mechanical rooms, conference room, exercise room, chapel, dining rooms, and administration rooms.

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		**5,485**	**2.0**	**0**	**$714**	**$40,918**	**$0**	**$40,918**	**57.3**	**5,523**
ECM 5	Premium Efficiency Motors	5,485	2.0	0	$714	$40,918	$0	$40,918	57.3	5,523

ECM 5: 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.

Affected motors:

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Mechanical / Boiler Room	Heating Hot Water	1	Heating Hot Water Pump	25.0	
Mechanical / Boiler Room	Heating Hot Water	1	Heating Hot Water Pump	25.0	
Mechanical Room 6	B6 Housing AHU	1	Return Fan	2.0	
Mechanical Room 6	B6 Housing AHU	1	Supply Fan	3.0	
Mechanical Room 5	B5 Housing AHU	1	Return Fan	2.0	
Mechanical Room 5	B5 Housing AHU	1	Supply Fan	3.0	
Mechanical Room 4	B4 Housing AHU	1	Return Fan	2.0	
Mechanical Room 4	B4 Housing AHU	1	Supply Fan	3.0	
Mechanical Room 3	B3 Housing AHU	1	Return Fan	2.0	
Mechanical Room 3	B3 Housing AHU	1	Supply Fan	3.0	
Mechanical Room 2	B2 Housing AHU	1	Return Fan	2.0	
Mechanical Room 2	B2 Housing AHU	1	Supply Fan	3.0	

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Mechanical Room 1	B1 Housing AHU	1	Return Fan	2.0	
Mechanical Room 1	B1 Housing AHU	1	Supply Fan	3.0	
A Wing Mechancal Room 1	A Wing	5	Return Fan	2.0	
A Wing Mechancal Room 1	A Wing	5	Supply Fan	3.0	
Mechanical Room Loft	Admin, Lobby, Library, Maintenance, Communications	5	Return Fan	2.0	
Mechanical Room Loft	Admin, Lobby, Library, Maintenance, Communications	5	Supply Fan	3.0	
Mechanical Room A2	A1, A2, A3 Housing	3	Return Fan	2.0	
Mechanical Room A2	A1, A2, A3 Housing	3	Supply Fan	3.0	
Boiler Room	Boiler Room / WoodShop	1	Return Fan	2.0	
Boiler Room	Boiler Room / WoodShop	1	Supply Fan	3.0	

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)

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.

#	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		**97,898**	**33.8**	**0**	**$12,744**	**$130,735**	**$8,000**	**$122,735**	**9.6**	**98,583**
	Install VFDs on Constant Volume (CV) Fans	66,114	29.0	0	$8,606	$114,730	$8,000	$106,730	12.4	66,576
ECM 6	Install VFDs on Heating Water Pumps	31,784	4.8	0	$4,137	$16,005	$0	$16,005	3.9	32,007

ECM 6: Install VFDs on Constant Volume (CV) Fans

Install VFDs to control constant volume fan motor speeds. This converts a constant-volume, single-zone air handling system into a variable-air-volume (VAV) system. A separate VFD is usually required to control the return fan motor or dedicated exhaust fan motor, if the air handler has one.

Zone thermostats signal the VFD to adjust fan speed to maintain the appropriate temperature in the zone, while maintaining a constant supply air temperature.

For air handlers with direct expansion (DX) cooling systems, the minimum air flow across the cooling coil required to prevent the coil from freezing must be determined during the final project design. The control system programming should maintain the minimum air flow whenever the compressor is operating.

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

Affected air handlers: A-Wing AHUs (5), A1 & A2 & A3 Housing Block AHUs (3), Administration AHU (1), Lobby AHU (1), Library AHU (1), Maintenance AHU (1), Communications AHU (1), Boiler Room AHU (1), B1 through B6 Housing Block AHUs (6). Total: 20

ECM 7: Install VFDs on Heating Water Pumps

Install variable frequency drives (VFD) to control heating water pumps. Two-way valves must serve the hot water coils and the hot water loop must have a differential pressure sensor installed. If three-way valves or a bypass leg are used in the hot water distribution they will need to be modified when this measure is implemented. As the hot water valves close, the differential pressure increases and the VFD modulates the pump speed to maintain a differential pressure setpoint.

Energy savings result from reducing pump motor speed (and power) as hot water valves close. The magnitude of energy savings is based on the estimated amount of time that the system will operate at reduced load.

Affected pumps: heating hot water pumps 25HP (2)

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		**75,879**	**24.1**	**0**	**$9,877**	**$206,400**	**$11,296**	**$195,104**	**19.8**	**76,410**
	Install High Efficiency Air Conditioning Units	75,879	24.1	0	$9,877	$206,400	$11,296	$195,104	19.8	76,410

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 air conditioners are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 8: Install High Efficiency Air Conditioning Units

Replace standard efficiency 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.

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**	**830**	**$8,915**	**$183,353**	**$21,120**	**$162,233**	**18.2**	**97,149**
	Install High Efficiency Hot Water Boilers	0	0.0	830	$8,915	$183,353	$21,120	$162,233	18.2	97,149

ECM 9: Install High Efficiency Hot Water Boilers

Replace older inefficient hot water boilers with high efficiency hot water boilers. Energy savings results from improved combustion efficiency and reduced standby losses at low loads.

The most notable efficiency improvement is condensing hydronic boilers which can achieve over 90% efficiency under the proper conditions. Condensing hydronic boilers typically operate at efficiencies between 85% and 87% (comparable to other high efficiency boilers) when the return water temperature is above 130°F. The boiler efficiency increases as the return water temperature drops below 130°F. Therefore, condensing hydronic boilers are evaluated when the return water temperature is less than 130°F during most of the operating hours.

For the purposes of this analysis, we evaluated the replacement of boilers on a one-for-one basis with equipment of the same capacity. We recommend that you work with your mechanical design team to select boilers that are sized appropriately for the heating load at this facility. In many cases installing multiple modular boilers rather than one or two large boilers will result in higher overall plant efficiency while providing additional system redundancy.

Replacing the boilers has a long payback and may not be justifiable based simply on energy considerations. However, the boilers [are nearing, have reached] the end of their normal useful life. Typically, the marginal cost of purchasing high efficiency boilers can be justified by the marginal savings from the improved efficiency. When the boiler is eventually replaced, consider purchasing boilers that exceed the minimum efficiency required by building codes. We also recommend working with your mechanical design team to determine whether the heating system can operate with return water temperatures below 130°F, which would allow the use of condensing boilers.

4.7 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)
HVAC System Improvements		**7,342**	**0.0**	**204**	**$3,151**	**$12,235**	**$0**	**$12,235**	**3.9**	**31,314**
ECM 7	Implement Demand Control Ventilation (DCV)	7,342	0.0	204	$3,151	$12,235	$0	$12,235	3.9	31,314

ECM 10: Implement Demand Control Ventilation (DCV)

Demand control ventilation (DCV) monitors the indoor air's carbon dioxide (CO_2) content to measure room occupancy. This data is used to regulate the amount of outdoor air provided to the space for ventilation.

Standard ventilation systems often provide outside air based on a space's estimated maximum occupancy but not actual occupancy. During low occupancy periods, the space may then be over ventilated. This wastes energy through excessive fan motor usage as well as heating and cooling the excess outside air flow. DCV reduces unnecessary outdoor air intake by regulating ventilation based on actual occupancy levels. DCV is most suited for facilities where occupancy levels vary significantly from hour to hour and day to day.

Energy savings associated with DCV are based on hours of operation, space occupancy, system air flow, outside air reduction, and other factors. Energy savings results from eliminating unnecessary ventilation and space conditioning.

Affected building areas: housing blocks A1, A2, A3, B1, B2, B3, B4, B5, B6

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		**16,839**	**1.1**	**0**	**$2,192**	**$9,548**	**$375**	**$9,173**	**4.2**	**16,957**
ECM 8	Refrigerator/Freezer Case Electrically Commutated Motors	3,289	0.4	0	$428	$1,820	$0	$1,820	4.3	3,312
ECM 9	Refrigeration Controls	8,432	0.1	0	$1,098	$6,578	$375	$6,203	5.7	8,491
ECM 10	Vending Machine Control	5,118	0.6	0	$666	$1,150	$0	$1,150	1.7	5,153

ECM 11: 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 12: Refrigeration Controls

Install additional controls to optimize the operation of walk-in coolers and freezers.

Many walk-in coolers and freezers have continuously operating electric heaters on the doors to prevent condensation formation. This measure adds a control system feature to shut off the door heaters when the humidity level is low enough that condensation will not occur if the heaters are off. This is done by measuring the ambient humidity and temperature of the store, comparing that to the dewpoint, and using pulse width modulation to control the anti-sweat door heaters.

Defrost controllers can be used to override defrost of evaporator fans when the defrost operation is not necessary, which reduces annual energy consumption. This measure is applicable to existing evaporator fans with a traditional electric defrost mechanism.

Many walk-in coolers and freezers have evaporator fans that run continuously. The measure adds a control system feature to automatically shut off evaporator fans when not needed.

Energy savings for each of the control measures account for reduction in compressor and fan operating hours as well as reduction in the refrigeration heat load as appropriate.

ECM 13: 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.

Weatherization

Caulk or weather strip leaky doors and windows to reduce drafts and loss of heated or cooled air. Sealing cracks and openings can reduce heating and cooling costs, improve building durability, and create a healthier indoor environment.

Lighting Maintenance

Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

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 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

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

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°F-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.

Duct Sealing

Duct leakage in commercial buildings can account for five to twenty-five percent of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Boiler Maintenance

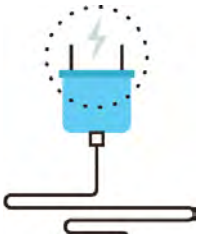
Many boiler problems develop slowly over time, so regular inspection and maintenance is essential to keeping the heating system running efficiently and preventing expensive repairs. Annual tune-ups should include a combustion analysis to analyze the exhaust from the boilers and to ensure the boiler is 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.

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.

Computer Monitor Replacement

ENERGY STAR® labeled computer monitors can be up to 25% more efficient than standard monitors. ENERGY STAR® rated monitors have power consumption requirements for different operating modes such as on, idle, and sleep.

[5] For additional information refer to "Assessing and Reducing Plug and Process Loads in Office Buildings" http://www.nrel.gov/docs/fy13osti/54175.pdf, or "Plug Load Best Practices Guide" http://www.advancedbuildings.net/plug-load-best-practices-guide-offices

Computer Power Management Software

Many computers consume power during nights, weekends, and holidays. Screen savers are commonly confused as a power management strategy. This contributes to avoidable, excessive electrical energy consumption. There are innovative power management software packages available that are designed to deliver significant energy saving and provide ongoing tracking measurements. A central power management platform helps enforce energy savings policies as well as identify and eliminate underutilized devices.

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 current 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 has a **high** potential for installing a PV array.

The amount of free area, ease of installation (location), and the lack of shading elements contribute to the **high** potential. A PV array located on the roof, ground, and/or parking lot may be feasible. If you are interested in pursuing the installation of PV, we recommend conducting a full feasibility study.

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.

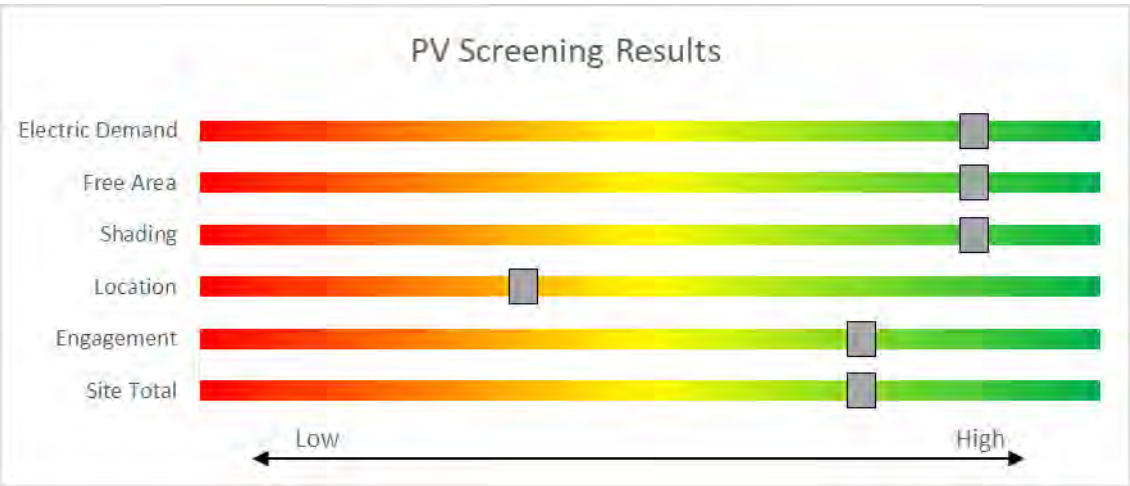


Figure 9 - Photovoltaic Screening

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.

Based on a preliminary analysis, the facility **does not** appear to meet the minimum requirements for a cost-effective CHP installation. The lack an absorption chiller and of space for siting the equipment are the most significant factors contributing to the lack of CHP potential. However, if these issues are resolved, the CHP potential changes significantly.

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.

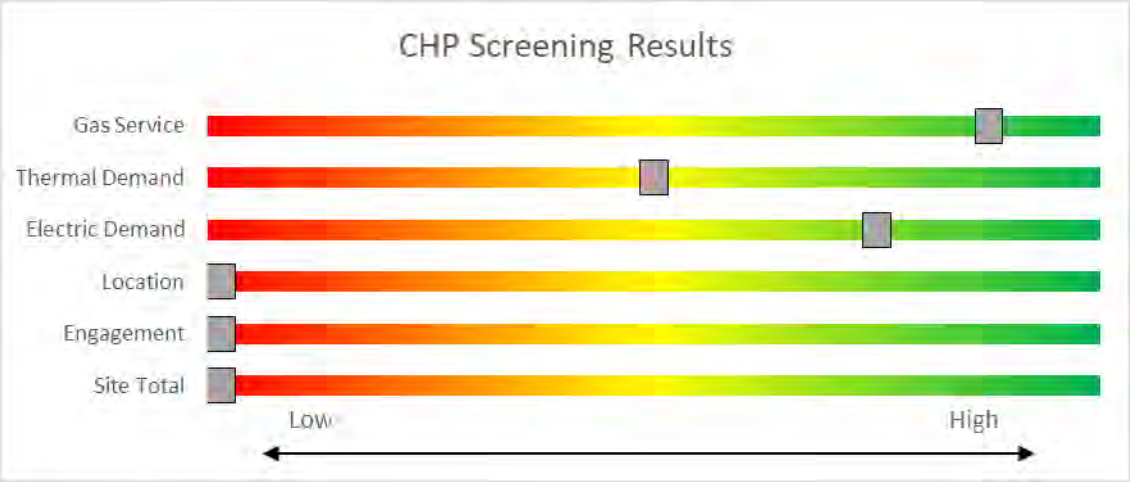


Figure 10 - Combined Heat and Power Screening

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? New Jersey's 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 in New Jersey's 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-efficient 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 Direct Install

Direct Install is a turnkey program available to existing small to medium-sized facilities with an average peak electric demand that does not exceed 200 kW over the recent 12-month period. You work directly with a pre-approved contractor who will perform a free energy assessment at your facility, identify specific eligible measures, and provide a clear scope of work for installation of selected measures. Energy efficiency measures may include lighting and lighting controls, refrigeration, HVAC, motors, variable speed drives and controls.

Incentives

The program pays up to 70% of the total installed cost of eligible measures, up to $125,000 per project. Each entity is limited to incentives up to $250,000 per fiscal year.

How to Participate

To participate in Direct Install, you will need to contact the participating contractor assigned to the region of the state where your facility is located. A complete list of Direct Install program partners is provided on the Direct Install website linked below. The contractor will be paid the measure incentives directly by the program, which will pass on to you in the form of reduced material and implementation costs. This means up to 70% of eligible costs are covered by the program, subject to program caps and eligibility, while the remaining 30% of the cost is paid to the contractor by the customer.

Detailed program descriptions and applications can be found at: www.njcleanenergy.com/DI.

7.3 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.

7.4 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 description 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.

7.5 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. SRECs 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 SRECs 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
Mechancial / Boiler Room	23	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	1.4	1,849	0	$236	$2,122	$230	8.0
Mechancial / Boiler 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
Electrical Room	6	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.3	210	0	$27	$413	$60	13.2
Electrical 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
Air Compressor Room	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	378	0.2	161	0	$21	$545	$40	24.6
Dock	16	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	16	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.8	4,465	-1	$571	$1,100	$160	1.6
Dock	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
Custodial Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Restroom	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Maintenance Shop	5	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 4	Relamp & Reballast	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.3	1,608	0	$206	$614	$85	2.6
Maintenance Shop	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.0	156	0	$20	$37	$10	1.3
Tool Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	643	0	$82	$408	$55	4.3
Spare Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,511	0.1	322	0	$41	$408	$55	8.6
Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Supply Room	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	S	15	548		None	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	548	0.0	0	0	$0	$0	$0	0.0
IT Office (Trailer)	6	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 4	Relamp & Reballast	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.4	1,930	0	$247	$683	$95	2.4
Corridor	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.2	1,245	0	$159	$219	$60	1.0
Corridor	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
Supply Closet 1	11	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	11	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.6	384	0	$49	$756	$110	13.2
Supply Closet 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.0	20	0	$2	$37	$10	10.6
Supply Closet 2	6	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.3	210	0	$27	$413	$60	13.2
Corridor	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	17	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.7	5,293	-1	$677	$931	$255	1.0
Corridor	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
Property Room	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.7	3,575	-1	$457	$1,197	$250	2.1
Vault Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.0	78	0	$10	$37	$10	2.7

	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
Shower Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.0	117	0	$15	$55	$15	2.7
Group Transit Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Booking Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	596	0	$76	$380	$65	4.1
Booking Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,380	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,022	0.1	596	0	$76	$380	$65	4.1
Booking Office	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.5	2,573	-1	$329	$743	$115	1.9
Holding Interview Room 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.0	78	0	$10	$37	$10	2.7
Booking Control	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.2	1,116	0	$143	$237	$40	1.4
Holding Room 3	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.2	558	0	$71	$237	$40	2.8
Holding Room 2	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.1	279	0	$36	$118	$20	2.8
Holding Room 1	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.1	279	0	$36	$118	$20	2.8
Holding Female Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.1	279	0	$36	$118	$20	2.8
Holding Female Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.0	78	0	$10	$37	$10	2.7
Interview Room 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.0	78	0	$10	$37	$10	2.7
Female Shower	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.1	279	0	$36	$118	$20	2.8
Female Shower	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	2,190	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 3L	Wall Switch	14	2,190	0.0	32	0	$4	$76	$0	18.5
Pat Search Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.0	78	0	$10	$37	$10	2.7
Pat Search Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.1	140	0	$18	$69	$10	3.3
Pat Search Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
Pat Search 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
Vehicle Sally Port	8	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	4,380	1	Fixture Replacement	No	8	LED - Fixtures: High-Bay	Wall Switch	75	4,380	1.6	8,326	-2	$1,065	$6,199	$1,200	4.7
Booking Office RR	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	1,095	0.0	0	0	$0	$0	$0	0.0
Operations Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	795	0	$102	$416	$75	3.4
Mid-Atlantic Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
Liber's Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Custodial Closet	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	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
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
Release Sally Port	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	558	0	$71	$138	$20	1.6
Release Sally Port	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
Central Control	6	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	5,824	2	Relamp & Reballast	No	6	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,824	0.6	4,453	-1	$570	$710	$120	1.0
Lobby	10	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	4,380	1	Fixture Replacement	No	10	LED - Fixtures: High-Bay	Wall Switch	45	4,380	1.3	6,859	-1	$877	$7,749	$1,500	7.1
Lobby	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.2	837	0	$107	$206	$30	1.6
Lobby	3	Halogen Incandescent: PL (50W) - 1L	Wall Switch	S	50	4,380	3	Relamp	No	3	LED Screw-In Lamps: LED PL: 8W (1L)	Wall Switch	8	4,380	0.1	603	0	$77	$82	$0	1.1
Lobby	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
Lobby Men's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	780	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	780	0.1	83	0	$11	$110	$30	7.5
Lobby Supply Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Lobby Women's RR	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	780	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	780	0.2	149	0	$19	$206	$30	9.2
Admin (Secretary Open Area)	9	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	1.1	2,921	-1	$374	$1,335	$215	3.0
Admin (Secretary Open 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
Admin Desk Lights	4	Linear Fluorescent - T12: 4' T12 (40W) - 1L	Wall Switch	S	46	2,210	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,525	0.1	344	0	$44	$472	$55	9.5
Admin Corridor	7	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,210	2, 4	Relamp & Reballast	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,525	0.4	1,136	0	$145	$751	$105	4.4
Paper Shredder Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.2	649	0	$83	$507	$75	5.2
Break Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,210	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,210	0.0	79	0	$10	$37	$10	2.6
Training Room	8	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	1.0	2,596	-1	$332	$1,217	$195	3.1
Payroll Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.2	649	0	$83	$507	$75	5.2
Billing/Purchasing Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.2	649	0	$83	$507	$75	5.2
Closet 1	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
Closet 2	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
Admin Captain Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.2	649	0	$83	$507	$75	5.2
Warden Assistant Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.2	649	0	$83	$507	$75	5.2
Warden Office	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,210	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,525	0.5	1,298	0	$166	$743	$115	3.8

	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
Kitchen W.I. Freezer	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,190	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.1	156	0	$20	$73	$20	2.7
Kitchen Dry Storage 2	12	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,920	2, 4	Relamp & Reballast	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,015	0.7	2,573	-1	$329	$1,365	$120	3.8
Storage Corridor	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	241	0	$31	$476	$65	13.3
Storage Corridor	1	Linear Fluorescent - T12: 2' T12 (20W) - 3L	Wall Switch	S	75	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	1,095	0.0	59	0	$7	$92	$9	11.0
Storage Corridor	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 Corridor	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Kitchen Hood	8	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 4	Relamp & Reballast	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.5	2,573	-1	$329	$820	$115	2.1
Break Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
Restroom	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Officer Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Officer Office Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Kitchen Management Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Officer's Dining Room	5	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2, 4	Relamp & Reballast	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,511	0.3	804	0	$103	$614	$85	5.1
Officer's Dining Room	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.5	1,286	0	$165	$743	$115	3.8
Officer's Dining Room RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Lt. Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Shift Supervisor's Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
B Wing Corridor	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	20	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.9	6,227	-1	$796	$1,095	$300	1.0
B Wing Corridor	6	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	5,824	2	Relamp & Reballast	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.4	3,151	-1	$403	$585	$90	1.2
B Wing Corridor	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	S	44	5,824		None	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.0	0	0	$0	$0	$0	0.0
B Wing Corridor	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
B6 Female Intake	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.1	234	0	$30	$110	$30	2.7
B6 Interview Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.2	558	0	$71	$237	$40	2.8
B6 Housing	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	7	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.2	1,453	0	$186	$256	$70	1.0
B6 Restroom 1	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	1,095	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
B6 Custodial Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B6 Restroom 2	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	1,095	0.0	0	0	$0	$0	$0	0.0
B6 Shower 1	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
B6 Shower 2	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
B6 Cells 1-24	24	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	24	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.1	1,022	0	$131	$605	$0	4.6
B6 Cells 1-24	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.4	2,491	-1	$319	$438	$120	1.0
B6 Cells 1-24	12	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.6	4,453	-1	$570	$825	$120	1.2
B6 MPR	3	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	3	LED - Fixtures: High-Bay	Wall Switch	75	5,824	0.6	4,151	-1	$531	$2,325	$450	3.5
B6 Housing	6	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	6	LED - Fixtures: High-Bay	Wall Switch	75	5,824	1.2	8,303	-2	$1,062	$4,649	$900	3.5
B6 Housing	13	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	13	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.7	4,824	-1	$617	$894	$130	1.2
B6 Housing Rec Yard	1	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	5,824	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	5,824	0.1	844	0	$110	$966	$100	7.9
B6 Shower 3	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
B6 Video Call Room	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
B5 Housing Foyer	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
B5 Interview Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	2,190	2	Relamp & Reballast	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.1	395	0	$51	$195	$30	3.3
B5 Housing	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.4	2,491	-1	$319	$438	$120	1.0
B5 Housing	12	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.6	4,453	-1	$570	$825	$120	1.2
B5 Housing	8	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	8	LED - Fixtures: High-Bay	Wall Switch	75	5,824	1.6	11,070	-2	$1,416	$6,199	$1,200	3.5
B5 Housing RR 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
B5 Shower 1 & 2	2	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	2	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	21	0	$3	$101	$0	37.1
B5 Shower 3 & 4	2	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	2	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	21	0	$3	$101	$0	37.1
B5 Custodial Closet	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
B5 Housing RR 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
B5 Indoor Rec Room	3	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	3	LED - Fixtures: High-Bay	Wall Switch	75	5,824	0.6	4,151	-1	$531	$2,325	$450	3.5
B5 Cells 1-32	32	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	32	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.1	1,362	0	$174	$807	$0	4.6

	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
B5 Cells 1-32	32	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	32	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.9	6,642	-1	$849	$1,168	$320	1.0
B5 Rec Yard	1	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	5,824	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	5,824	0.1	844	0	$110	$966	$100	7.9
B Wing Electrical Room 1	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
B Wing Electrical Room 2	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
B Wing Custodial Closet	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
B Wing Restroom	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
SIU Office	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.5	2,573	-1	$329	$743	$115	1.9
Powershift Office	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.5	2,573	-1	$329	$743	$115	1.9
Powershift Office Storage	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
B Wing MPR	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,380	3	Relamp	No	10	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.5	2,649	-1	$339	$730	$200	1.6
B Wing Sewing Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.1	322	0	$41	$388	$55	8.1
B Wing Sewing Room RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
B Wing Custodial Storage	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.2	105	0	$13	$206	$30	13.2
B Wing Tactical Room	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	241	0	$31	$476	$65	13.3
B Wing Custodial Storage 2	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.2	105	0	$13	$206	$30	13.2
B Wing Electrical Room	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.2	105	0	$13	$206	$30	13.2
B1, B3, B4 Intake Foyer	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.3	1,868	0	$239	$329	$90	1.0
B1, B3, B4 Interview Room	6	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	6	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.6	1,675	0	$214	$710	$120	2.8
B1, B3, B4 Housing	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	30	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.9	6,227	-1	$796	$1,095	$300	1.0
B1, B3, B4 Housing	30	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	30	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	1.6	11,133	-2	$1,424	$2,063	$300	1.2
B1, B3, B4 Housing	24	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	24	LED - Fixtures: High-Bay	Wall Switch	75	5,824	4.7	33,211	-7	$4,247	$18,597	$3,600	3.5
B1, B3, B4 Restroom 1	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.2	209	0	$27	$206	$30	6.6
B1, B3, B4 Shower 1	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	32	0	$4	$151	$0	37.1
B1, B3, B4 Custodial Closet	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B1, B3, B4 Shower 2	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	32	0	$4	$151	$0	37.1

	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
B1, B3, B4 Restroom 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	117	0	$15	$110	$30	5.3
B1, B3, B4 Rec Yard	3	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	75	5,824	0.4	3,844	0	$500	$2,898	$300	5.2
B1, B3, B4 Cells 1-24	72	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	72	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.3	3,065	-1	$392	$1,816	$0	4.6
B1, B3, B4 Cells 1-24	36	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	36	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	1.9	13,360	-3	$1,709	$2,476	$360	1.2
B1, B3, B4 Cells 1-24	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	36	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	1.1	7,472	-2	$956	$1,315	$360	1.0
B2 Intake Foyer	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.1	623	0	$80	$110	$30	1.0
B2 Interview Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.2	558	0	$71	$237	$40	2.8
B2 Locker Room	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3	Relamp	No	5	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.2	585	0	$75	$274	$75	2.7
B2 Storage Closet	1	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	548	0.1	49	0	$6	$98	$15	13.1
B2 Housing	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.4	2,491	-1	$319	$438	$120	1.0
B2 Housing	8	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	5,824	2	Relamp & Reballast	No	8	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.6	4,202	-1	$537	$780	$120	1.2
B2 Housing	9	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	9	LED - Fixtures: High-Bay	Wall Switch	75	5,824	1.8	12,454	-3	$1,593	$6,974	$1,350	3.5
B2 Housing RR 1	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	1,095		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	1,095	0.0	0	0	$0	$0	$0	0.0
B2 Housing RR 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
B2 Shower 1 & 2	2	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	2	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	21	0	$3	$101	$0	37.1
B2 Custodial Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B2 Rec Yard	1	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	5,824	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	5,824	0.1	844	0	$110	$966	$100	7.9
Chapel	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,190	3, 4	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.3	875	0	$112	$635	$135	4.5
Chapel	4	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.5	1,286	0	$165	$743	$115	3.8
Chapel RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	780	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	780	0.1	50	0	$6	$69	$10	9.2
Chapel Closet	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
Chapel Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Disiplinary Unit	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.1	279	0	$36	$118	$20	2.8
Phone Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	780	2	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	780	0.2	199	0	$25	$237	$40	7.7
Disiplinary Unit Cells 1-10	10	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	10	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.0	426	0	$54	$252	$0	4.6

	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
Disiplinary Unit Cells 1-10	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.3	2,076	0	$265	$365	$100	1.0
Disiplinary Unit Corridor	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	45	5,824		None	No	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	45	5,824	0.0	0	0	$0	$0	$0	0.0
Disiplinary Unit Corridor RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Disiplinary Unit Corridor Custodial Closet	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
Disiplinary Unit Corridor Shower	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
A Wing Corridor	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.8	5,604	-1	$717	$986	$270	1.0
A Wing Corridor	8	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	5,824	2	Relamp & Reballast	No	8	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.6	4,202	-1	$537	$780	$120	1.2
A Wing Corridor	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	S	44	5,824		None	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.0	0	0	$0	$0	$0	0.0
A Wing Corridor	4	Exit Signs: LED - 2 W Lamp	Wall Switch	S	6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	Wall Switch	6	8,760	0.0	0	0	$0	$0	$0	0.0
A1, A2, A3 Housing Intake Area	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.3	702	0	$90	$329	$90	2.7
A1, A2, A3 Interview Room	6	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2	Relamp & Reballast	No	6	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,190	0.6	1,675	0	$214	$710	$120	2.8
A1, A2, A3 Housing	93	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	93	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	2.7	19,304	-4	$2,469	$3,396	$930	1.0
A1, A2, A3 Housing	39	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	5,824	1	Fixture Replacement	No	39	LED - Fixtures: High-Bay	Wall Switch	75	5,824	7.6	53,968	-11	$6,902	$30,220	$5,850	3.5
A1, A2, A3 Housing Rec Yard	3	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	5,824	1	Fixture Replacement	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	5,824	0.3	2,533	0	$330	$2,898	$300	7.9
A1, A2, A3 Indoor Rec Room	9	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	4,380	1	Fixture Replacement	No	9	LED - Fixtures: High-Bay	Wall Switch	75	4,380	1.8	9,366	-2	$1,198	$6,974	$1,350	4.7
A1, A2, A3 Custodial Closet	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.2	105	0	$13	$206	$30	13.2
A1, A2, A3 Shower 1	3	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	1,095	0.0	16	0	$2	$76	$0	37.1
A1, A2, A3 Shower 2	3	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	1,095	0.0	16	0	$2	$76	$0	37.1
A1, A2, A3 Shower 3	3	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	1,095	0.0	16	0	$2	$76	$0	37.1
A1, A2, A3 Shower 4	3	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	1,095	0.0	16	0	$2	$76	$0	37.1
A1, A2, A3 Housing RR 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	117	0	$15	$110	$30	5.3
A1, A2, A3 Housing RR 2	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.2	209	0	$27	$206	$30	6.6
A1, A2, A3 Visiting Room 1	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	32	0	$4	$151	$0	37.1
A1, A2, A3 Visiting Room 2	3	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	3	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	32	0	$4	$151	$0	37.1
A1, A2, A3 Housing Cells 1-48	72	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	72	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	2.1	14,945	-3	$1,911	$2,629	$720	1.0

	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
A1, A2, A3 Housing Cells 1-48	72	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	5,824	2	Relamp & Reballast	No	72	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	3.8	26,720	-6	$3,417	$4,952	$720	1.2
A1, A2, A3 Housing Cells 1-48	144	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	144	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.6	6,131	-1	$784	$3,632	$0	4.6
A Wing Electrical Room 1	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
A Wing Electrical Room 2	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
A Wing Custodial Closet	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
A Wing RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
A Wing MPR	6	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2	Relamp & Reballast	No	6	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.6	3,349	-1	$428	$710	$120	1.4
A Wing MPR	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,380	3	Relamp	No	6	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.3	1,589	0	$203	$438	$120	1.6
A Wing MPR Closet 1	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
A Wing MPR Closet 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.0	20	0	$2	$37	$10	10.6
A Wing MPR Closet 3	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
A Wing MPR Restroom	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Library Office	6	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.7	3,859	-1	$494	$980	$155	1.7
Library Research Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,380	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.3	1,400	0	$179	$562	$115	2.5
Library	7	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	7	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.8	4,503	-1	$576	$1,099	$175	1.6
Library	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,380	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.4	2,100	0	$269	$708	$155	2.1
Electrical Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
Group Rec Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,190	0.0	117	0	$15	$55	$15	2.7
Group Rec Room	3	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	2,190	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,511	0.3	688	0	$88	$563	$80	5.5
Gym	19	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	2,190	1	Fixture Replacement	No	19	LED - Fixtures: High-Bay	Wall Switch	75	2,190	3.7	9,887	-2	$1,264	$14,723	$2,850	9.4
Gym	6	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2	Relamp & Reballast	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,190	0.3	837	0	$107	$413	$60	3.3
Gym RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
Gym Custodial Closet	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Gym Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
Gym Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3

	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
Gym Supply Closet	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
Response Team Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	643	0	$82	$408	$55	4.3
Laundry Area	7	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2, 4	Relamp & Reballast	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,511	0.4	1,126	0	$144	$751	$105	4.5
Laundry Area	13	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,190	2, 4	Relamp & Reballast	Yes	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,511	0.8	2,091	0	$267	$1,434	$200	4.6
Laundry Area Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
Laundry Area Custodial Closet	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	S	27	548		None	No	1	Compact Fluorescent: PL (9W) - 3L	Wall Switch	27	548	0.0	0	0	$0	$0	$0	0.0
Laundry Area Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
Laundry Area Cleaner Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.0	20	0	$2	$37	$10	10.6
Laundry Area Clothes Storage	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.2	140	0	$18	$275	$40	13.2
Infirmary Entry	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,380	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,022	0.1	596	0	$76	$380	$65	4.1
Infirmary Corridor	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.4	1,986	0	$254	$635	$135	2.0
Infirmary Cells 2-9	8	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.4	2,233	0	$286	$550	$80	1.6
Infirmary Back Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,380	3	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.1	530	0	$68	$146	$40	1.6
Infirmary Shower Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2	Relamp & Reballast	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.1	558	0	$71	$118	$20	1.4
Infirmary Cell 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	468	0	$60	$110	$30	1.3
Infirmary Cell A	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	279	0	$36	$69	$10	1.6
Infirmary Cell A	1	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	1	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.0	43	0	$5	$25	$0	4.6
Infirmary Cell B	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	279	0	$36	$69	$10	1.6
Infirmary Cell B	1	Compact Fluorescent: PL (9W) - 1L	Wall Switch	S	9	8,760	3	Relamp	No	1	LED Screw-In Lamps: LED PL9 (4.5W) - 1L	Wall Switch	5	8,760	0.0	43	0	$5	$25	$0	4.6
Infirmary RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
Infirmary Closet	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	S	15	548		None	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	548	0.0	0	0	$0	$0	$0	0.0
Tub Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.0	20	0	$2	$37	$10	10.6
Female Infirmary	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2	Relamp & Reballast	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.2	1,116	0	$143	$275	$40	1.6
Female Infirmary Shower	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	1,095	3	Relamp	No	1	LED Screw-In Lamps: LED PL: (4.5W) - 2L	Wall Switch	9	1,095	0.0	11	0	$1	$50	$0	37.1
Female Infirmary Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	548	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	548	0.0	29	0	$4	$55	$15	10.6

	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
Female Infirmary Holding Cell	1	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	4,380	2	Relamp & Reballast	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,380	0.1	395	0	$51	$98	$15	1.6
Medical Waiting Area	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	S	29	4,380		None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.0	0	0	$0	$0	$0	0.0
Medical Waiting Area RR	1	Linear Fluorescent - T12: 4' T12 (40W) - 3L	Wall Switch	S	127	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,095	0.1	99	0	$13	$98	$15	6.5
Nurse's Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	795	0	$102	$416	$75	3.4
Nurse's Office	3	Linear Fluorescent - T12: 4' T12 (40W) - 1L	Wall Switch	S	46	4,380	2	Relamp & Reballast	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,380	0.1	447	0	$57	$152	$15	2.4
Nurse's Office Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	39	0	$5	$73	$20	10.6
Nurse's Office Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.0	20	0	$2	$37	$10	10.6
Nurse's Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
Nurse's Office Area	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Admin Nurse's Office	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	4,380	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,022	0.2	1,286	0	$165	$507	$75	2.6
Admin Nurse's Office	4	Compact Fluorescent: Screw-In: (13W) - 1L	Wall Switch	S	13	4,380	3	Relamp	No	4	LED Screw-In Lamps: LED Screw-In: (9W) - 1L	Wall Switch	9	4,380	0.0	76	0	$10	$69	$4	6.7
Exam Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,511	0.1	298	0	$38	$380	$65	8.3
Exam Room	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	S	176	2,190	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,511	0.2	643	0	$82	$507	$75	5.2
File Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,511	0.1	298	0	$38	$380	$65	8.3
File Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,190	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,511	0.1	298	0	$38	$380	$65	8.3
File Room Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,190	3	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,190	0.0	124	0	$16	$55	$15	2.5
Stairwell 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.1	934	0	$119	$164	$45	1.0
Stairwell 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.1	934	0	$119	$164	$45	1.0
Stairwell 3	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.1	934	0	$119	$164	$45	1.0
Electrical/Server Room	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	548	3	Relamp	No	11	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.3	215	0	$27	$402	$110	10.6
B Wing 2nd Floor	25	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	25	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.7	5,189	-1	$664	$913	$250	1.0
B Wing 2nd Floor	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
B Wing 2nd Floor Housing Access Cells 1-9	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,824	3	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	5,824	0.8	5,604	-1	$717	$986	$270	1.0
B Wing 2nd Floor Storage Rooms	28	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	28	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Mechanical Room 6	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	322	0	$41	$545	$40	12.3

	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
Mechanical Room 5	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	322	0	$41	$545	$40	12.3
Mechanical Room 5	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	78	0	$10	$73	$20	5.3
Staff Exercise Room	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,460	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,007	0.2	429	0	$55	$545	$75	8.6
Mechanical Room 4	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	322	0	$41	$545	$40	12.3
Mechanical Room 3	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	241	0	$31	$476	$30	14.5
Mechanical Room 3	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.0	39	0	$5	$37	$10	5.3
B Wing 2nd Floor Storage Closet 1	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B Wing 2nd Floor Storage Closet 2	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B Wing 2nd Floor Storage Closet 3	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
B Wing 2nd Floor Storage Closet 4	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	S	18	548		None	No	1	Compact Fluorescent: PL (9W) - 2L	Wall Switch	18	548	0.0	0	0	$0	$0	$0	0.0
Mechanical Room 2	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	322	0	$41	$545	$40	12.3
Mechanical Room 1	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.2	322	0	$41	$545	$40	12.3
A Wing 2nd Floor	24	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	5,824	3	Relamp	No	24	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,824	0.4	2,642	-1	$338	$438	$120	0.9
A Wing 2nd Floor	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
Mechanical Room Loft	8	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.5	643	0	$82	$820	$80	9.0
Belt Room	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	70	0	$9	$69	$10	6.6
A Wing Mechancial Room (HV)	9	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.5	724	0	$93	$889	$90	8.6
A Wing Mechancial Room (HV)	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	78	0	$10	$73	$20	5.3
A Wing 2nd Floor Mechanical Room 1	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.3	397	0	$51	$562	$80	9.5
A Wing 2nd Floor Mechanical Room 2	5	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,095	2, 4	Relamp & Reballast	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	756	0.3	402	0	$51	$614	$50	11.0
A Wing 2nd Floor Mechanical Room 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,095	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.1	78	0	$10	$73	$20	5.3
A Wing 2nd Floor Storage Room 1	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
A Wing 2nd Floor Storage Room 2	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	548	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	548	0.1	35	0	$4	$69	$10	13.2
Annex Corridor	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,824	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,824	0.1	623	0	$80	$110	$30	1.0
Annex Corridor	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

	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
Annex Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
Rehab Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
Annex Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
Internal Affairs	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
Conference Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,022	0.1	596	0	$76	$380	$65	4.1
Conference 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
Annex Office 3	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,380	0.1	312	0	$40	$73	$20	1.3
Annex Restroom	1	Compact Fluorescent: Screw-In: (13W) - 1L	Wall Switch	S	13	1,095		None	No	1	Compact Fluorescent: Screw-In: (13W) - 1L	Wall Switch	13	1,095	0.0	0	0	$0	$0	$0	0.0
Parking Lot Lights	10	Metal Halide: (1) 250W Lamp	Timeclock	S	295	4,380	1	Fixture Replacement	No	10	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	75	4,380	1.5	9,636	0	$1,254	$9,660	$1,000	6.9
Parking Lot Lights	11	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	S	75	4,320		None	No	11	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	75	4,320	0.0	0	0	$0	$0	$0	0.0
Annex Exterior	3	Incandescent: Screw-In: (60W) - 1L	Wall Switch	S	60	4,380	3	Relamp	No	3	LED Screw-In Lamps: LED Screw-In: (9W) - 1L	Wall Switch	9	4,380	0.1	670	0	$87	$52	$3	0.6
Overhang	3	LED Screw-In Lamps: Screw-In: LED (20W) - 1L	Wall Switch	S	20	4,380		None	No	3	LED Screw-In Lamps: Screw-In: LED (20W) - 1L	Wall Switch	20	4,380	0.0	0	0	$0	$0	$0	0.0
Wall Lights	20	Metal Halide: (1) 150W Lamp	Wall Switch	S	190	4,380	1	Fixture Replacement	No	20	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	4,380	1.9	12,702	0	$1,653	$19,319	$2,000	10.5
Flag Lights	3	Incandescent: Screw-In: (175W) - 1L	Timeclock	S	175	4,320	3	Relamp	No	3	LED Screw-In Lamps: LED Screw-In: (26W) - 1L	Timeclock	26	4,320	0.3	1,931	0	$251	$52	$3	0.2
Building Lights	7	Metal Halide: (1) 250W Lamp	Timeclock	S	295	4,320	1	Fixture Replacement	No	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	75	4,320	1.0	6,653	0	$866	$6,762	$700	7.0
Pole Lights	6	Metal Halide: (1) 250W Lamp	Timeclock	S	295	4,320	1	Fixture Replacement	No	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	75	4,320	0.9	5,702	0	$742	$5,796	$600	7.0

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
Mechanical / Boiler Room	Heating Hot Water	1	Heating Hot Water Pump	25.0	89.5%	No	W	2,034	5, 6	Yes	93.6%	Yes	1	2.9	17,143	0	$2,232	$11,471	$0	5.1
Mechanical / Boiler Room	Heating Hot Water	1	Heating Hot Water Pump	25.0	89.5%	No	W	2,034	5, 6	Yes	93.6%	Yes	1	2.9	17,147	0	$2,232	$11,471	$0	5.1
Mechanical / Boiler Room	DHW Circulation	1	Water Supply Pump	0.3	65.0%	No	W	2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical / Boiler Room	DHW Circulation	1	Water Supply Pump	0.3	65.0%	No	W	2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 6	B6 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 6	B6 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 6	B6 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Mechanical Room 5	B5 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 5	B5 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 5	B5 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Mechanical Room 4	B4 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 4	B4 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 4	B4 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Mechanical Room 3	B3 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 3	B3 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 3	B3 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Mechanical Room 2	B2 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room 2	B2 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 2	B2 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Mechanical Room 1	B1 Housing AHU	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	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
Mechanical Room 1	B1 Housing AHU	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Mechanical Room 1	B1 Housing AHU	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
A Wing Mechancal Room 1	A Wing	5	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
A Wing Mechancal Room 1	A Wing	5	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	5	3.1	7,126	0	$928	$18,115	$800	18.7
A Wing Mechancal Room 1	A Wing	5	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	5	4.4	10,147	0	$1,321	$19,062	$1,200	13.5
Mechanical Room Loft	Admin, Lobby, Library, Maintenance, Communications	5	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room Loft	Admin, Lobby, Library, Maintenance, Communications	5	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	5	3.1	7,126	0	$928	$18,115	$800	18.7
Mechanical Room Loft	Admin, Lobby, Library, Maintenance, Communications	5	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	5	4.4	10,147	0	$1,321	$19,062	$1,200	13.5
Mechanical Room A2	A1, A2, A3 Housing	3	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room A2	A1, A2, A3 Housing	3	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	3	1.9	4,276	0	$557	$10,869	$480	18.7
Mechanical Room A2	A1, A2, A3 Housing	3	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	3	2.7	6,088	0	$793	$11,437	$720	13.5
Boiler Room	Boiler Room / WoodShop	1	Heating Hot Water Pump	0.3	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Boiler Room	Boiler Room / WoodShop	1	Return Fan	2.0	84.0%	No		2,034	5, NR	Yes	86.5%	Yes	1	0.6	1,425	0	$186	$3,623	$160	18.7
Boiler Room	Boiler Room / WoodShop	1	Supply Fan	3.0	87.5%	No		2,034	5, NR	Yes	89.5%	Yes	1	0.9	2,029	0	$264	$3,812	$240	13.5
Roof	Whole Facility	30	Exhaust Fan	0.5	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Boiler Room	Compressed Air System	1	Air Compressor	0.3	65.0%	No		697		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Boiler Room	Combustion Air Fan	2	Combustion Air Fan	0.5	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Packaged RTUs	23	Supply Fan	0.5	65.0%	No		2,034		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0

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	Maintenance Shop	1	Split-System AC	2.00		B	NR	Yes	1	Split-System AC	2.00		14.00		0.5	1,497	0	$195	$2,992	$184	14.4
Roof	Kitchen	1	Packaged AC	6.00		B	NR	Yes	1	Packaged AC	6.00		11.50		0.9	2,734	0	$356	$10,693	$438	28.8
Roof	C Wing Offices and Central Control	1	Packaged AC	6.00		N		No							0.0	0	0	$0	$0	$0	0.0
Roof	Server Room	1	Split-System AC	3.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	Booking Area	1	Packaged AC	7.50		B	NR	Yes	1	Packaged AC	7.50		11.50		1.1	3,417	0	$445	$13,366	$548	28.8
Roof	B Wing Corridor	1	Packaged AC	4.00		B	NR	Yes	1	Packaged AC	4.00		14.00		1.0	2,994	0	$390	$9,076	$368	22.3
Roof	B Wing Corridor	1	Packaged AC	4.00		B	NR	Yes	1	Packaged AC	4.00		14.00		1.0	2,994	0	$390	$9,076	$368	22.3
Roof	B1 Housing Unit	1	Split-System AC	15.00		B	NR	Yes	1	Split-System AC	15.00		11.50		2.2	6,835	0	$890	$17,398	$1,185	18.2
Roof	B2 Housing Unit	1	Split-System AC	15.00		B	NR	Yes	1	Split-System AC	15.00		11.50		2.2	6,835	0	$890	$17,398	$1,185	18.2
Roof	B Wing Upper Corridor	1	Split-System AC	4.00		B	NR	Yes	1	Split-System AC	4.00		14.00		1.0	2,994	0	$390	$5,985	$368	14.4
Roof	B3 Housing Unit	1	Split-System AC	15.00		B	NR	Yes	1	Split-System AC	15.00		11.50		2.2	6,835	0	$890	$17,398	$1,185	18.2
Roof	B4 Housing Unit	1	Split-System AC	15.00		B	NR	Yes	1	Split-System AC	15.00		11.50		2.2	6,835	0	$890	$17,398	$1,185	18.2
Roof	B Wing Upper Corridor	1	Packaged AC	4.00		B	NR	Yes	1	Packaged AC	4.00		14.00		1.0	2,994	0	$390	$9,076	$368	22.3
Roof	B5 Housing Unit	1	Split-System AC	9.00		N		No							0.0	0	0	$0	$0	$0	0.0
Roof	B6 Housing Unit	1	Split-System AC	15.00		B	NR	Yes	1	Split-System AC	15.00		11.50		2.2	6,835	0	$890	$17,398	$1,185	18.2
Roof	A Wing Upper Corridor	1	Packaged AC	4.00		B	NR	Yes	1	Packaged AC	4.00		14.00		1.0	2,994	0	$390	$9,076	$368	22.3
Roof	A Wing Corridor	1	Packaged AC	4.00		B	NR	Yes	1	Packaged AC	4.00		14.00		1.0	2,994	0	$390	$9,076	$368	22.3
Roof	A1 Housing Unit	1	Split-System AC	12.00		N		No							0.0	0	0	$0	$0	$0	0.0
Roof	Law Library	1	Split-System AC	3.00		B	NR	Yes	1	Split-System AC	3.00		14.00		0.7	2,246	0	$292	$4,489	$276	14.4
Roof	A2 & A3 Housing Unit	2	Split-System AC	12.00		N		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
Roof	Admin Area	1	Split-System AC	8.00		N		No							0.0	0	0	$0	$0	$0	0.0
Roof	Training Room	1	Split-System AC	10.00		B	NR	Yes	1	Split-System AC	10.00		11.50		1.4	4,557	0	$593	$11,638	$730	18.4
Roof	Medical Area	1	Packaged AC	12.50		B	NR	Yes	1	Packaged AC	12.50		11.50		1.8	5,696	0	$741	$17,423	$988	22.2
Kennels	Kennels	2	Window AC	1.00		W	NR	Yes	2	Window AC	1.00		12.00		0.1	449	0	$58	$2,178	$0	37.2
Annex	Annex	2	Through-The-Wall AC	3.00		W	NR	Yes	2	Through-The-Wall AC	3.00		12.00		1.0	3,144	0	$409	$5,270	$0	12.9
Mechanical Room	Central Control Room	1	Packaged AC	3.00		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
Mechanical / Boiler Room	Whole Building	1	Non-Condensing Hot Water Boiler	######	W	NR	Yes	3	Condensing Hot Water Boiler	######	91.00%	Et	0.0	0	415	$4,458	$91,677	$10,560	18.2
Mechanical / Boiler Room	Whole Building	1	Non-Condensing Hot Water Boiler	######	W	NR	Yes	3	Condensing Hot Water Boiler	######	91.00%	Et	0.0	0	415	$4,458	$91,677	$10,560	18.2

Demand Control Ventilation Recommendations

		Recommendation Inputs					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	ECM #	Number of Zones	Cooling Capacity of Controlled System (Tons)	Electric Heating Capacity of Controlled System (kBtu/hr)	Output Heating Capacity of Controlled System (MBh)	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
Housing Areas	Housing A1, A2, A3, B1, B2, B3, B4, B5, B6	7	9.00	120.00	0.00	4,800.00	0.0	7,342	204	$3,151	$12,235	$0	3.9

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
Mechanical /Boiler Room	Whole Building	1	Storage Tank Water Heater (> 50 Gal)	W		No						0.0	0	0	$0	$0	$0	0.0
Mechanical /Boiler Room	Whole Building	1	Storage Tank Water Heater (> 50 Gal)	W		No						0.0	0	0	$0	$0	$0	0.0

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 Area	1	Cooler (35F to 55F)	8, 9	Yes	Yes	Yes	0.2	3,391	0	$441	$2,799	$125	6.1
Kitchen Area	1	Cooler (35F to 55F)	8, 9	Yes	Yes	Yes	0.2	3,391	0	$441	$2,799	$125	6.1
Kitchen Area	1	Low Temp Freezer (-35F to -5F)	8, 9	Yes	Yes	Yes	0.2	4,940	0	$643	$2,799	$125	4.2

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 Area	1	Gas Rack Oven (Single)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen Area	2	Gas Rack Oven (Single)	No		No	0.0	0	0	$0	$0	$0	0.0
Kitchen Area	1	Gas Rack Oven (Single)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen Area	1	Insulated Food Holding Cabinet (1/2 Size)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen Area	1	Gas Griddle (4 Feet Width)	No		No	0.0	0	0	$0	$0	$0	0.0
Kitchen Area	2	Gas Steamer	Yes		No	0.0	0	0	$0	$0	$0	0.0

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 Area	1	Multi-Tank Conveyor (Low Temp)	Natural Gas	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?
Whole Facility	93	Desktop Computers	150.0	Yes
Whole Facility	21	Desk Printers	40.0	Yes
Whole Facility	19	LCD TVs	100.0	Yes
Whole Facility	30	Laptops	45.0	Yes
Whole Facility	11	Photocopier	600.0	Yes
Whole Facility	15	Mini-Fridge	153.0	Yes
Whole Facility	8	Coffee Maker	900.0	No
Whole Facility	2	Toaster Oven	1,200.0	No
Whole Facility	19	Microwave Oven	1,000.0	No
Whole Facility	6	Refrigerator	172.0	Yes
Whole Facility	3	CRT TVs	120.0	No
Whole Facility	2	Scanner	200.0	Yes
Whole Facility	1	Projector	200.0	Yes
Whole Facility	11	Water Fountain	600.0	No
Whole Facility	1	BOSS II Metal Detector	360.0	No
Whole Facility	1	Vacuum Sealer	450.0	No
Whole Facility	3	Paper Shredder	150.0	No
Whole Facility	4	Water Cooler	500.0	Yes
Whole Facility	4	Floor Fans	100.0	No
Whole Facility	2	Ice Machine	127.0	No
Whole Facility	132	Security Cameras	150.0	No
Whole Facility	3	Woodshop Equipment	800.0	No
Whole Facility	2	Dehumidifier	120.0	Yes
Whole Facility	282	Energized Security Doors	250.0	No
Kitchen	2	Standing Mixer	240.0	No

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
Lobby	1	Non-Refrigerated	10	Yes	0.0	343	0	$45	$230	$0	5.2
Lobby	1	Glass Fronted Refrigerated	10	Yes	0.1	1,209	0	$157	$230	$0	1.5
Officer's Dining Room	1	Non-Refrigerated	N/A	No	0.0	0	0	$0	$0	$0	0.0
Officer's Dining Room	1	Non-Refrigerated	10	Yes	0.0	343	0	$45	$230	$0	5.2
Officer's Dining Room	2	Refrigerated	10	Yes	0.4	3,224	0	$420	$460	$0	1.1

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

N/A

ENERGY STAR® Score[1]

Salem County Correctional Facility

Primary Property Type: Prison/Incarceration
Gross Floor Area (ft²): 99,594
Built: 1993

For Year Ending: June 30, 2017
Date Generated: December 18, 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
Salem County Correctional Facility 125 Cemetery Road Pilesgrove, New Jersey 08098	County of Salem 110 Fifth Street, Suite 400 Salem, NJ 08079 856-935-7510	Debby Turner 110 Fifth Street, Suite 400 Salem, NJ 08079 856-935-7510 Ext. 8601 Debby.Turner-Fox@salemcountynj.gov

Property ID: 6667564

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
170.4 kBtu/ft²

Source EUI
326.9 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	8,417,540 (50%)
Natural Gas (kBtu)	8,556,971 (50%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	81.5
National Median Source EUI (kBtu/ft²)	156.4
% Diff from National Median Source EUI	109%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,307

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

_____

(____)____-_____

_____

Professional Engineer Stamp
(if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
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.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
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 the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR®	ENERGY STAR® is the government-backed symbol for energy efficiency. The ENERGY STAR® program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gases:* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using 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.
MH	*Metal halide*: a type of HID lamp
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR® Portfolio Manager®.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense™	The symbol for water efficiency. The WaterSense™ program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.