Local Government Energy Audit Report

Richard C. Clement Law Enforcement Center

November 19, 2020

Prepared for:

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Disclaimer

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

TRC reviewed the energy conservation measures and estimates of energy savings 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. Cost estimates include material and labor pricing associated with installation of primary recommended equipment only. Cost estimates do not include demolition or removal of hazardous waste. We encourage the owner of the facility 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.

New Jersey's 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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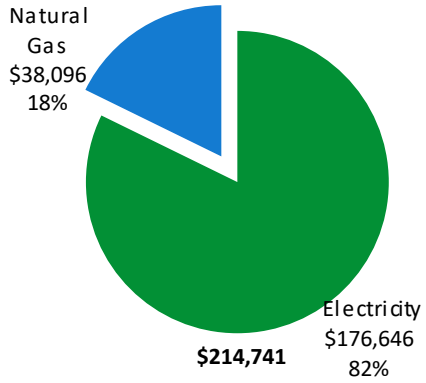
1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Richard C. Clement Law Enforcement Center. 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 conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $214,741 Electricity: 1,415,520 kWh Natural Gas: 35,528 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.

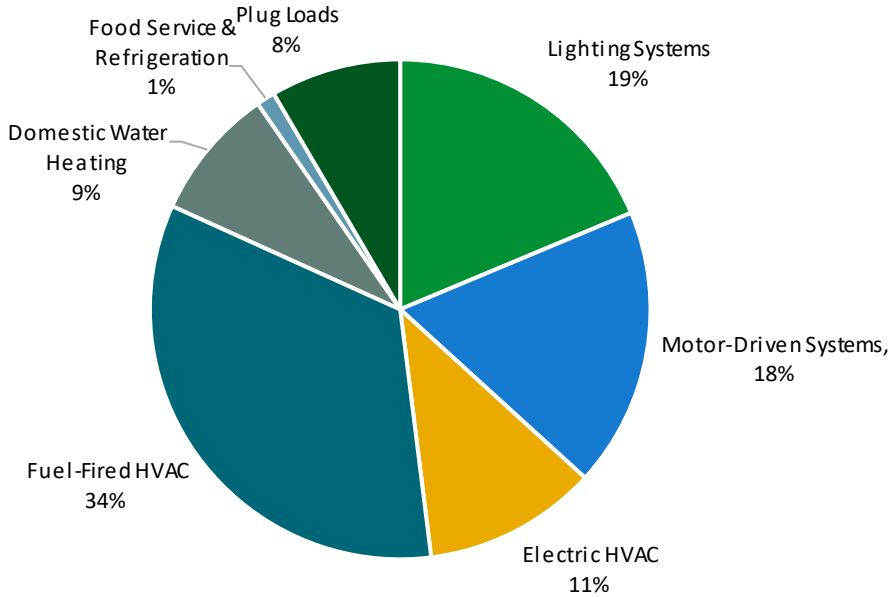


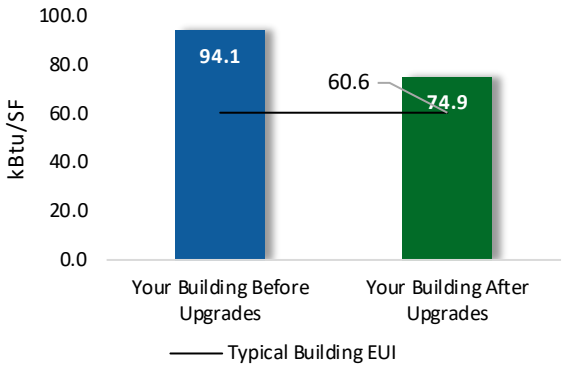
Figure 1 - Energy Use by System

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.

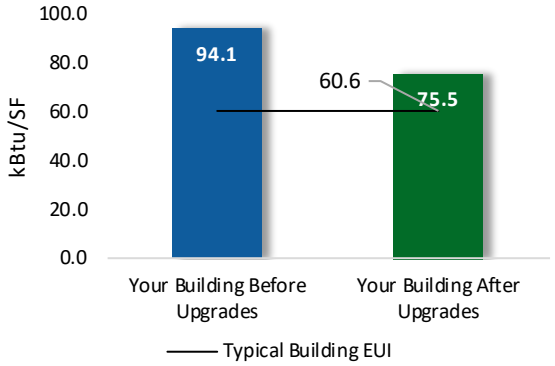
Scenario 1: Full Package (all evaluated measures)

Installation Cost	$301,530
Potential Rebates & Incentives[1]	$81,275
Annual Cost Savings	$63,323
Annual Energy Savings	Electricity: 510,507 kWh
Greenhouse Gas Emission Savings	255 Tons
Simple Payback	3.5 Years
Site Energy Savings (all utilities)	20%



Scenario 2: Cost Effective Package[2]

Installation Cost	$207,682
Potential Rebates & Incentives	$69,555
Annual Cost Savings	$61,414
Annual Energy Savings	Electricity: 495,210 kWh
Greenhouse Gas Emission Savings	247 Tons
Simple Payback	2.2 Years
Site Energy Savings (all utilities)	20%



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	Cost Effective?	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			**241,633**	**40.2**	**-51**	**$29,607**	**$58,448**	**$25,644**	**$32,804**	**1.1**	**237,352**
ECM 1	Install LED Fixtures	Yes	5,448	1.0	-1	$672	$2,377	$160	$2,217	3.3	5,399
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,418	0.4	0	$174	$481	$140	$341	2.0	1,393
ECM 3	Retrofit Fixtures with LED Lamps	Yes	234,766	38.8	-50	$28,761	$55,590	$25,344	$30,246	1.1	230,561
Lighting Control Measures			**69,237**	**10.0**	**-13**	**$8,497**	**$46,011**	**$16,510**	**$29,501**	**3.5**	**68,160**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	52,636	8.5	-10	$6,463	$38,586	$9,355	$29,231	4.5	51,856
ECM 5	Install High/Low Lighting Controls	Yes	16,601	1.6	-4	$2,034	$7,425	$7,155	$270	0.1	16,303
Variable Frequency Drive (VFD) Measures			**181,177**	**33.1**	**0**	**$22,609**	**$102,282**	**$26,950**	**$75,332**	**3.3**	**182,443**
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	Yes	135,972	25.5	0	$16,968	$71,277	$18,600	$52,677	3.1	136,923
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	26,349	5.6	0	$3,288	$16,152	$5,800	$10,352	3.1	26,533
ECM 8	Install VFDs on Chilled Water Pumps	Yes	11,756	1.6	0	$1,467	$5,321	$2,000	$3,321	2.3	11,839
ECM 9	Install VFDs on Heating Water Pumps	Yes	7,099	0.5	0	$886	$9,532	$550	$8,982	10.1	7,149
Electric Unitary HVAC Measures			**3,511**	**1.1**	**0**	**$438**	**$11,345**	**$920**	**$10,425**	**23.8**	**3,536**
ECM 10	Install High Efficiency Heat Pumps	No	3,511	1.1	0	$438	$11,345	$920	$10,425	23.8	3,536
Electric Chiller Replacement			**11,786**	**6.1**	**0**	**$1,471**	**$82,504**	**$10,800**	**$71,704**	**48.8**	**11,869**
ECM 11	Install High Efficiency Chillers	No	11,786	6.1	0	$1,471	$82,504	$10,800	$71,704	48.8	11,869
Domestic Water Heating Upgrade			**0**	**0.0**	**29**	**$306**	**$251**	**$251**	**$0**	**0.0**	**3,340**
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	29	$306	$251	$251	$0	0.0	3,340
Food Service & Refrigeration Measures			**3,163**	**0.4**	**0**	**$395**	**$690**	**$200**	**$490**	**1.2**	**3,185**
ECM 13	Vending Machine Control	Yes	3,163	0.4	0	$395	$690	$200	$490	1.2	3,185
TOTALS (COST EFFECTIVE MEASURES)			**495,210**	**83.7**	**-36**	**$61,414**	**$207,682**	**$69,555**	**$138,127**	**2.2**	**494,480**
TOTALS (ALL MEASURES)			**510,507**	**90.9**	**-36**	**$63,323**	**$301,530**	**$81,275**	**$220,255**	**3.5**	**509,885**

* - 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

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures**.

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		
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	X		
ECM 3	Retrofit Fixtures with LED Lamps	X		
ECM 4	Install Occupancy Sensor Lighting Controls	X		
ECM 5	Install High/Low Lighting Controls	X		
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	X		
ECM 7	Install VFDs on Constant Volume (CV) Fans	X		
ECM 8	Install VFDs on Chilled Water Pumps	X		
ECM 9	Install VFDs on Heating Water Pumps	X		
ECM 10	Install High Efficiency Heat Pumps	X		
ECM 11	Install High Efficiency Chillers	X		
ECM 12	Install Low-Flow DHW Devices	X		
ECM 13	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 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 Richard C. Clement Law Enforcement Center. 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 July 11, 2020, TRC performed an energy audit at Richard C. Clement Law Enforcement Center located in Toms River, New Jersey. TRC met with Craig Ambrosio to review the facility operations and help focus our investigation on specific energy-using systems.

Richard C. Clement Law Enforcement Center is a three-story, 89,100 square foot building built in 1975. Spaces include police offices, chief's office, jail cells, locker rooms, restrooms, court room, storage areas, offices, corridors, stairwells, mechanical and electrical rooms, shooting range, armory room, annex, kitchen, communications room, records area, surveillance area, IT room, and basement space.

Recent improvements include: Over the last several years the facility has replaced most of its existing T12 fluorescent fixtures with T8 fluorescent fixtures. The chiller was also replaced recently.

2.2 Building Occupancy

The facility is occupied year-round 24 hours a day and seven days a week. There are approximately 200 staff that occupy the building in normal day operations.

Building Name	Weekday/Weekend	Operating Schedule
Richard C. Clement Law Enforcement Center	Weekday	24/7
	Weekend	24/7

Figure 4 - Building Occupancy Schedule

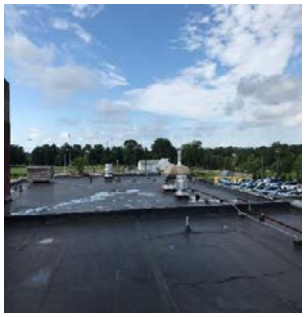
2.3 Building Envelope

The building is divided into three sections: administration section, main building, and the newly added annex. Administration and the main building sections have two floors and a basement space. The annex is single story.

The walls are made of concrete masonry units (CMUs) over structural steel with a brick veneer and painted CMU interior finish.

The flat black and white rubber roof is supported with steel trusses and a reinforced concrete deck. It is finished with an insulated layer and a covering of modified bitumen.

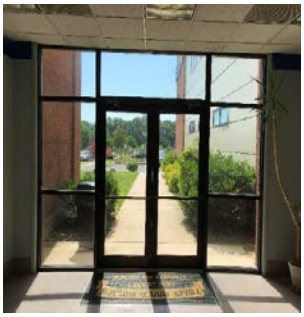
Windows are clear, double glazed with storm windows and have aluminum frames with a thermal break. The glass-to-frame seals are in good condition. The operable window weather seals are in good condition, showing no evidence of excessive wear. Exterior doors have metal and glass frames and are in good condition with undamaged door seals.



Roof

Building Walls

Vehicle Garage



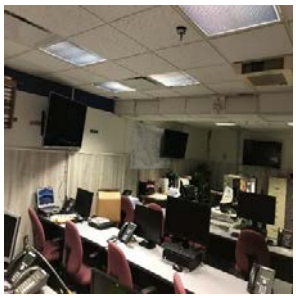
Main Doors

2.4 Lighting Systems

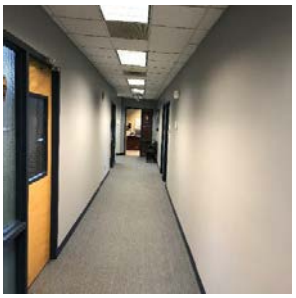
The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps. There are also several 40-Watt T12 fixtures. Additionally, there are some compact fluorescent lamps (CFL), incandescent, and LED general purpose lamps. Typically, T8 fluorescent lamps use electronic ballasts and T12 fluorescent lamps use magnetic ballasts. Fixture configurations mainly include 1-lamp, 2-lamp, 3-lamp, or 4-lamp four-foot fixtures, and 2-lamp and 4-lamp 8-foot fixtures. Fixture types include recessed troffers and surface mounted fixtures. There are several 2-foot fixtures that operate U-bend tube T8 lamps.

The records room is illuminated with recessed LED fixtures in various configurations. The crime lab and first floor administration hall fixtures contain manually controlled 75-Watt halogen incandescent lamps. The mechanics garage is illuminated by manually controlled 200-Watt high-bay, high-pressure sodium lamps. Most fixtures are in good condition. All exit signs are LED units. Interior lighting levels were generally sufficient.

Court Room



Communications Room

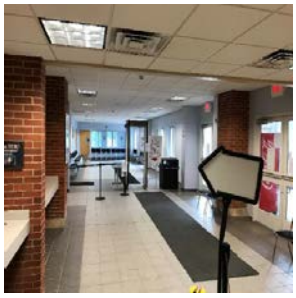


Hallway

Conference Room

Lighting fixtures in the court room area are controlled by occupancy sensors. The dispatch and file area lighting are controlled by dimming switch.

Wall Sconces



Lobby Lighting

T12 Fixtures

Pole Lighting

Exterior fixtures include pole lights, wall lights, wall sconces, and walkway lights with LED lamps and high-pressure sodium flood lamps. Exterior light fixtures are controlled by a time clock, or photocell, depending on the fixture.

Wall Sconces Exterior

Wall-pack

2.5 Air Handling Systems

Electric Heating

The switchgear room is heated by a 5-kW Chromalox ceiling hung heater.

Packaged Units

The server room is conditioned by two Mitsubishi ductless mini-split heat pump units controlled by room thermostats. These 13.70 EER units have a heating capacity of 80 MBh and 6-ton cooling capacity.

The control room is heated by two Trane packaged terminal heat pump (PTHP) units controlled by room thermostats. These 9.30 EER units each have a 5-ton cooling capacity; one unit has a heating capacity of 7.2 kW while the other has a heating capacity of 18.7 kW.

The evidence room and court IT room are cooled by three Carrier split-system air conditioning (SAC) units controlled by room thermostats. These 9.70 EER units each have a 2-ton cooling capacity.

The police department is served by multiple packaged roof top units equipped with supply fan motors ranging in size from 1 hp to 7.5 hp. They are equipped with gas-fired furnaces as indicated:

Unit	Area Served	Cooling Capacity	Heating Capacity
RTU-1	second Fl Police Admin	3 Tons	203 MBh
RTU-2	first Fl Police, Admin Meeting Rm	6 Tons	56 MBh
RTU-3	first Fl Police Admin Hall	7.5 Tons	64 MBh
RTU-4	second Fl Police Admin Elevator Hallway	6-Tons	56 MBh
RTU-5	second Fl Police Admin	4-Tons	48 MBh
RTU-6	second Fl Police Admin Elevator Lobby	12.50 Tons	203 MBh
RTU-9	Community Police	4-Tons	48 MBh
RTU-13	Courtroom	17.50 Tons	203 MBh
RTU-14	Courtroom	4-Tons	48 MBh
RTU-15	Courtroom	5-Tons	54 MBh

Three air handling units serve the basement, first, and second floors. These units are equipped with supply fan motors ranging in size from 5 hp to 7.5 hp. The police and court room deck areas are served by a multizone air handling unit equipped with three supply fan motors ranging in size from 10 hp to 20 hp and two 5 hp return fan motors. The police evidence garage is served by a heating and ventilation unit (HV-1) equipped with a 2 hp supply fan motor and a 1 hp heating hot water pump.

The workshop garage is served by two 120 MBh Reznor gas-fired ceiling hung unit heaters, each with a heating efficiency rating of 82%.

The basement shooting range is served by a makeup air unit that includes a gas-fired heater. This unit has heating capacity of 998 MBh at 80% rated heating efficiency.

There are 14 exhaust fans located on the roof serving different parts of the building. They are equipped with fan motors ranging in size from 0.1 hp to 0.5 hp.

Refer to Appendix A for detailed information about each unit.

Air Conditioners

The ammunition room and call center are cooled by 4-ton and 5-ton split system air conditioning units, respectively. The smaller unit has an efficiency rating of 10.70 EER while the efficiency of the larger unit is 9.30 EER. The units are in good condition and are ENERGY STAR® labeled. The annex meeting room is cooled by an 0.67-ton ENERGY STAR® labeled window air conditioning unit.

Unit Heater

Rooftop Unit


Packaged Unit


Split System AC

2.6 Heating Hot Water Systems

Two Patterson Kelly 1275 MBh non-condensing hot water boilers serve the building heating load needs. The burners are fully modulating with a nominal efficiency of 85%. The boilers are configured in an automated control scheme. Both boilers are required under high load conditions. Installed in 2007, they are in good operating condition. There is a service contract in place.

The boilers serve a primary/secondary distribution system with two constant speed 2 hp heating hot water pumps (P-1A and P-1B) circulating the primary loop, and three constant speed 0.3 hp heating hot water pumps (P2, P4, and P10) operating in lead/lag fashion on the secondary loop. The boilers provide hot water to air handling units throughout the building.

Hot water is supplied at 95.7°F when the outside air temperature is 79.1°F, and outside air humidity level is 85.1%. The hot water return temperature is typically 91.5°F. These temperatures are on typical hot day when boilers were locked out.

Boilers

Heating hot water pumps

2.7 Chilled Water Systems

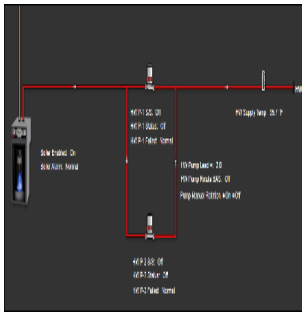
The chiller plant consists of a 60-ton, Trane, R-22, variable speed air-cooled scroll chiller (CH-1). The chiller is supplied by a dedicated 7.5 hp primary pump. Evaporator leaving water temperature is 48.7°F and entering temperature is set to 62°F.

Chilled Water Pumps

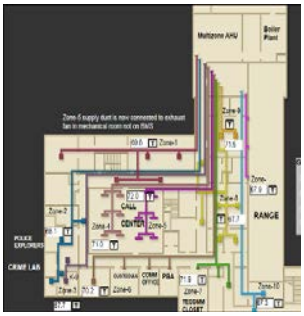
Chiller

2.8 Building Energy Management Systems (EMS)

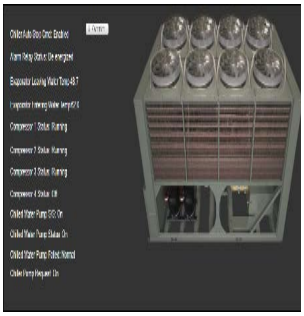
A Trane Tracer EMS controls the HVAC equipment, the boilers, the chiller, the air handlers, and the package units. The EMS provides equipment scheduling control and monitors and controls space temperatures, supply air temperatures, humidity, heating water loop temperatures, and chilled water loop temperatures.



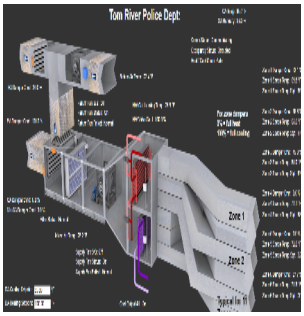
Court Schedule



Police Department



Chiller Unit



Basement Multi Zone AHU

2.9 Domestic Hot Water

Hot water for administration section restrooms is produced by a 6-gallon A.O. Smith 3 kW electric storage water heater. Hot water for main building restrooms and locker rooms is produced with a 100-gallon Bradford White 199.99 MBh gas-fired storage water heater with an 80% thermal efficiency rating, located in the basement storage. Hot water for the annex restrooms and locker rooms is produced with a 60-gallon A.O. Smith 120 MBh gas-fired storage water heater with an 80% thermal efficiency rating, located in annex storage. At the time of the site visit, the domestic water heaters were set at 120°F.

Two 1/12 hp circulation pumps distribute water to end uses in main building. The circulation pumps operate continuously. The domestic hot water pipes are insulated, and the insulation is in good condition.

Annex Storage

Basement Storage

DHW Circulation

DHW Circulation 2

2.10 Food Service Equipment

There are four kitchens with all-electric equipment that are available for staff to prepare their lunches. Most cooking is done using four electric stoves with combination oven. Equipment is high efficiency and is in good condition.

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

2.11 Plug Load & Vending Machines

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 475 computer workstations throughout the facility. Plug loads throughout the building include general police department and office equipment. There are loads typically found in workshops and garages, including vehicle lifts, rolling doors and workshop tools. The workshop garage has a 5 hp air compressor used to power pneumatic tools.

There are several residential-style refrigerators located throughout the building. They are used to store cold beverages and staff lunches. These vary in condition and efficiency.

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

Maintenance Storage

Electric File Organizer

Vending Machines

Vehicle Lift

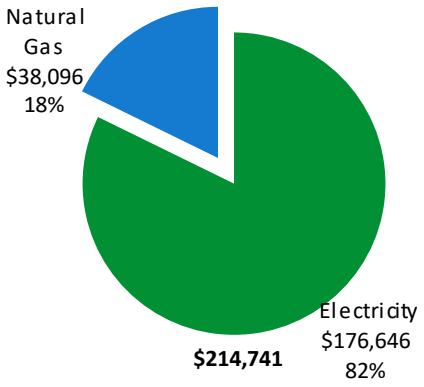
2.12 Water-Using Systems

There are 15 restrooms with toilets, urinals, and sinks. Faucet flow rates are at 1.5 gallons per minute (gpm) or higher. Toilets are rated at 1.6 gallons per flush (gpf) and urinals are rated at 1 gpf. Police officer's locker rooms are used frequently. The 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	1,415,520 kWh	$176,646
Natural Gas	35,528 Therms	$38,096
Total		**$214,741**



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.

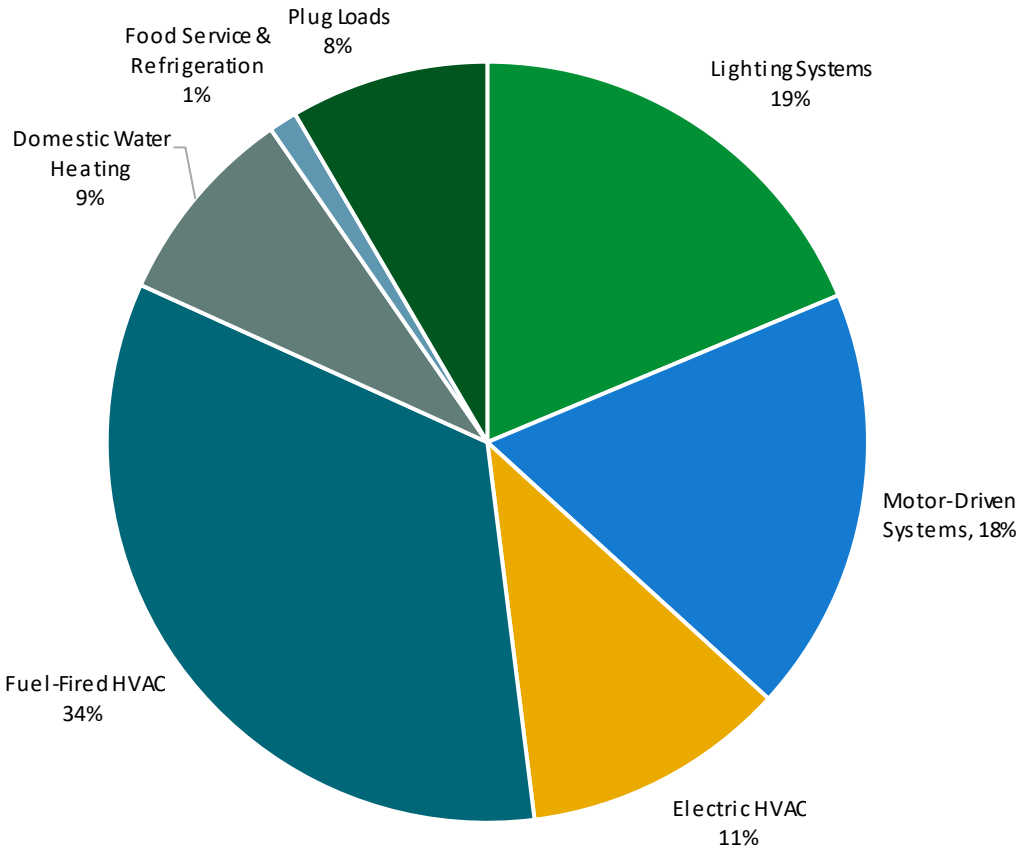
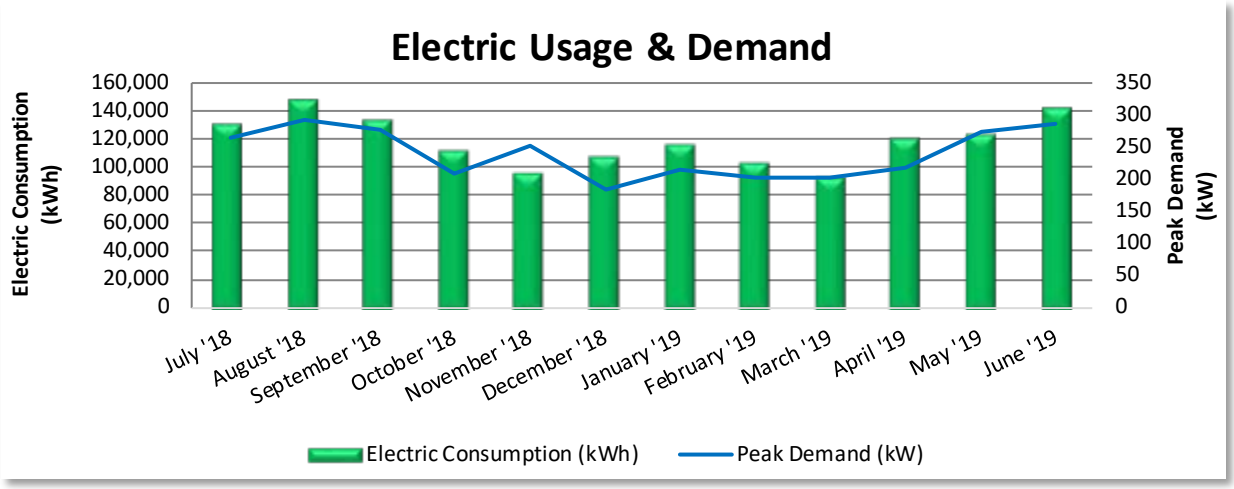


Figure 5 - Energy Balance

3.1 Electricity

JCP&L delivers electricity under rate class General Service Secondary JC_GS3_01F, with electric production provided by South Jersey Energy, a third-party supplier.



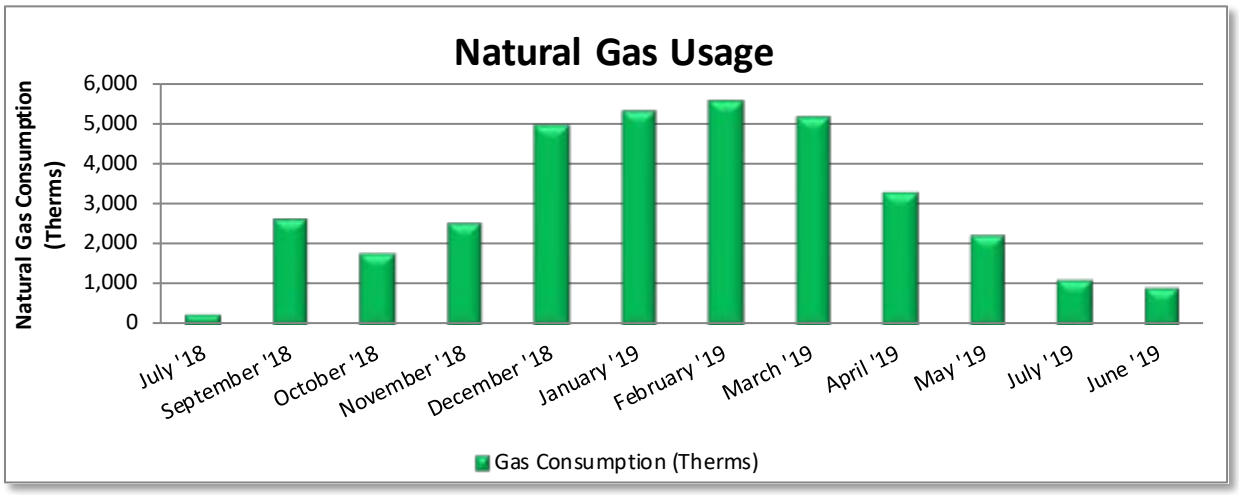
Electric Billing Data					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
8/7/18	29	129,520	265	-	$14,815
9/7/18	31	146,160	294	-	$17,153
10/8/18	31	132,640	276	-	$17,043
11/7/18	30	111,520	210	-	$14,143
12/6/18	29	95,520	252	-	$12,434
1/9/19	34	106,240	183	-	$12,994
2/7/19	29	115,520	216	$1,292	$14,174
3/8/19	29	102,240	202	-	$12,801
4/8/19	31	92,800	202	-	$12,171
5/8/19	30	119,920	219	-	$15,793
6/7/19	30	122,800	273	-	$15,858
7/9/19	32	140,640	287	-	$17,267
Totals	**365**	**1,415,520**	**294**	**$1,292**	**$176,646**
Annual	**365**	**1,415,520**	**294**	**$1,292**	**$176,646**

Notes:

- Peak demand of 294 kW occurred in August 2018.
- Average demand over the past 12 months was 240 kW. Demand cost from provided utility data was missing, if it was provided the average demand would have been much higher.
- The average electric cost over the past 12 months was $0.125/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

NJ Natural Gas delivers natural gas under rate class Monthly 006SNN4G, with natural gas supply provided by UGI Energy, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
8/13/18	26	257	$727
9/30/18	48	2,604	$2,959
10/15/18	15	1,754	$2,024
11/9/18	25	2,537	$2,702
12/12/18	33	4,909	$5,046
1/14/19	33	5,283	$5,361
2/12/19	29	5,508	$5,545
3/14/19	30	5,126	$5,181
4/12/19	29	3,300	$3,469
5/15/19	33	2,201	$2,438
6/14/19	30	1,115	$1,407
7/18/19	34	935	$1,236
Totals	**365**	**35,528**	**$38,096**
Annual	**365**	**35,528**	**$38,096**

Notes:

- The average gas cost for the past 12 months is $1.072/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 (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, 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.

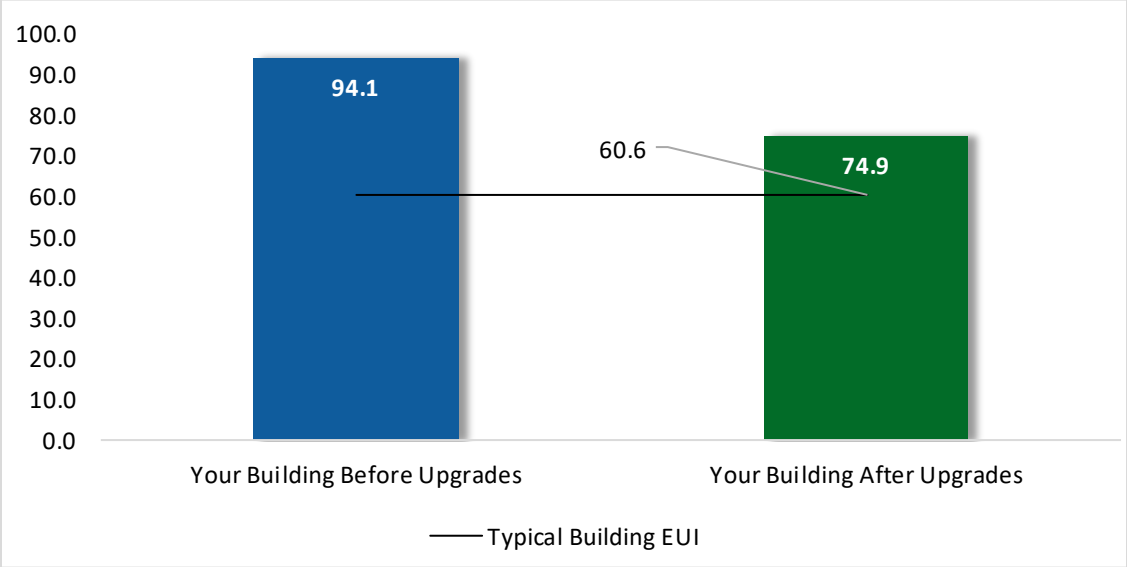


Figure 6 - Energy Use Intensity Comparison[3]

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.

[3] Based on all evaluated ECMs

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[4].

[4] 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.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	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			**241,633**	**40.2**	**-51**	**$29,607**	**$58,448**	**$25,644**	**$32,804**	**1.1**	**237,352**
ECM 1	Install LED Fixtures	Yes	5,448	1.0	-1	$672	$2,377	$160	$2,217	3.3	5,399
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,418	0.4	0	$174	$481	$140	$341	2.0	1,393
ECM 3	Retrofit Fixtures with LED Lamps	Yes	234,766	38.8	-50	$28,761	$55,590	$25,344	$30,246	1.1	230,561
Lighting Control Measures			**69,237**	**10.0**	**-13**	**$8,497**	**$46,011**	**$16,510**	**$29,501**	**3.5**	**68,160**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	52,636	8.5	-10	$6,463	$38,586	$9,355	$29,231	4.5	51,856
ECM 5	Install High/Low Lighting Controls	Yes	16,601	1.6	-4	$2,034	$7,425	$7,155	$270	0.1	16,303
Variable Frequency Drive (VFD) Measures			**181,177**	**33.1**	**0**	**$22,609**	**$102,282**	**$26,950**	**$75,332**	**3.3**	**182,443**
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	Yes	135,972	25.5	0	$16,968	$71,277	$18,600	$52,677	3.1	136,923
ECM 7	Install VFDs on Constant Volume (CV) Fans	Yes	26,349	5.6	0	$3,288	$16,152	$5,800	$10,352	3.1	26,533
ECM 8	Install VFDs on Chilled Water Pumps	Yes	11,756	1.6	0	$1,467	$5,321	$2,000	$3,321	2.3	11,839
ECM 9	Install VFDs on Heating Water Pumps	Yes	7,099	0.5	0	$886	$9,532	$550	$8,982	10.1	7,149
Electric Unitary HVAC Measures			**3,511**	**1.1**	**0**	**$438**	**$11,345**	**$920**	**$10,425**	**23.8**	**3,536**
ECM 10	Install High Efficiency Heat Pumps	No	3,511	1.1	0	$438	$11,345	$920	$10,425	23.8	3,536
Electric Chiller Replacement			**11,786**	**6.1**	**0**	**$1,471**	**$82,504**	**$10,800**	**$71,704**	**48.8**	**11,869**
ECM 11	Install High Efficiency Chillers	No	11,786	6.1	0	$1,471	$82,504	$10,800	$71,704	48.8	11,869
Domestic Water Heating Upgrade			**0**	**0.0**	**29**	**$306**	**$251**	**$251**	**$0**	**0.0**	**3,340**
ECM 12	Install Low-Flow DHW Devices	Yes	0	0.0	29	$306	$251	$251	$0	0.0	3,340
Food Service & Refrigeration Measures			**3,163**	**0.4**	**0**	**$395**	**$690**	**$200**	**$490**	**1.2**	**3,185**
ECM 13	Vending Machine Control	Yes	3,163	0.4	0	$395	$690	$200	$490	1.2	3,185
TOTALS			**510,507**	**90.9**	**-36**	**$63,323**	**$301,530**	**$81,275**	**$220,255**	**3.5**	**509,885**

* - 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		**241,633**	**40.2**	**-51**	**$29,607**	**$58,448**	**$25,644**	**$32,804**	**1.1**	**237,352**
ECM 1	Install LED Fixtures	5,448	1.0	-1	$672	$2,377	$160	$2,217	3.3	5,399
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,418	0.4	0	$174	$481	$140	$341	2.0	1,393
ECM 3	Retrofit Fixtures with LED Lamps	234,766	38.8	-50	$28,761	$55,590	$25,344	$30,246	1.1	230,561
Lighting Control Measures		**69,237**	**10.0**	**-13**	**$8,497**	**$46,011**	**$16,510**	**$29,501**	**3.5**	**68,160**
ECM 4	Install Occupancy Sensor Lighting Controls	52,636	8.5	-10	$6,463	$38,586	$9,355	$29,231	4.5	51,856
ECM 5	Install High/Low Lighting Controls	16,601	1.6	-4	$2,034	$7,425	$7,155	$270	0.1	16,303
Variable Frequency Drive (VFD) Measures		**181,177**	**33.1**	**0**	**$22,609**	**$102,282**	**$26,950**	**$75,332**	**3.3**	**182,443**
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	135,972	25.5	0	$16,968	$71,277	$18,600	$52,677	3.1	136,923
ECM 7	Install VFDs on Constant Volume (CV) Fans	26,349	5.6	0	$3,288	$16,152	$5,800	$10,352	3.1	26,533
ECM 8	Install VFDs on Chilled Water Pumps	11,756	1.6	0	$1,467	$5,321	$2,000	$3,321	2.3	11,839
ECM 9	Install VFDs on Heating Water Pumps	7,099	0.5	0	$886	$9,532	$550	$8,982	10.1	7,149
Domestic Water Heating Upgrade		**0**	**0.0**	**29**	**$306**	**$251**	**$251**	**$0**	**0.0**	**3,340**
ECM 12	Install Low-Flow DHW Devices	0	0.0	29	$306	$251	$251	$0	0.0	3,340
Food Service & Refrigeration Measures		**3,163**	**0.4**	**0**	**$395**	**$690**	**$200**	**$490**	**1.2**	**3,185**
ECM 13	Vending Machine Control	3,163	0.4	0	$395	$690	$200	$490	1.2	3,185
TOTALS		**495,210**	**83.7**	**-36**	**$61,414**	**$207,682**	**$69,555**	**$138,127**	**2.2**	**494,480**

* - 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		**241,633**	**40.2**	**-51**	**$29,607**	**$58,448**	**$25,644**	**$32,804**	**1.1**	**237,352**
ECM 1	Install LED Fixtures	5,448	1.0	-1	$672	$2,377	$160	$2,217	3.3	5,399
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,418	0.4	0	$174	$481	$140	$341	2.0	1,393
ECM 3	Retrofit Fixtures with LED Lamps	234,766	38.8	-50	$28,761	$55,590	$25,344	$30,246	1.1	230,561

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 high-pressure sodium 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 fixtures.

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: mechanics garage (interior) and switchgear room (exterior).

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: various T12 lamps: IT storage, court corridor filing, jail area, and dive locker room.

ECM 3: Retrofit Fixtures with LED Lamps

Replace linear fluorescent, CFL 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 with fluorescent fixtures with T8 tubes, compact fluorescent, and incandescent lamps as noted in Appendix A.

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		**69,237**	**10.0**	**-13**	**$8,497**	**$46,011**	**$16,510**	**$29,501**	**3.5**	**68,160**
ECM 4	Install Occupancy Sensor Lighting Controls	52,636	8.5	-10	$6,463	$38,586	$9,355	$29,231	4.5	51,856
ECM 5	Install High/Low Lighting Controls	16,601	1.6	-4	$2,034	$7,425	$7,155	$270	0.1	16,303

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 that 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: gun cleaning room and storage, armory, restrooms, phone room, records storage, crime lab, mechanics garage, evidence room, court corridor filing, judges chamber, admin offices, records room, annex, locker rooms, and storage closets.

ECM 5: Install High/Low Lighting Controls

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

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

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be taken into account when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

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

Affected building areas: court office hall, second floor lobby and hall, admin secretary stairs, administration hall, main building hall, and basement hall.

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

4.3 Variable Frequency Drives (VFD)

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		**181,177**	**33.1**	**0**	**$22,609**	**$102,282**	**$26,950**	**$75,332**	**3.3**	**182,443**
ECM 6	Install VFD on Variable Air Volume (VAV) Fans	135,972	25.5	0	$16,968	$71,277	$18,600	$52,677	3.1	136,923
ECM 7	Install VFDs on Constant Volume (CV) Fans	26,349	5.6	0	$3,288	$16,152	$5,800	$10,352	3.1	26,533
ECM 8	Install VFDs on Chilled Water Pumps	11,756	1.6	0	$1,467	$5,321	$2,000	$3,321	2.3	11,839
ECM 9	Install VFDs on Heating Water Pumps	7,099	0.5	0	$886	$9,532	$550	$8,982	10.1	7,149

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 inverter duty rated motor to conservatively account for the cost of an inverter duty rated motor.

ECM 6: Install VFD on Variable Air Volume (VAV) Fans

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

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

Affected air handlers: RTU-1 and 6, SF-1 and 2, RF-1 and 2, SF-3, RTU-13 courtroom, RTU-14 courtroom, RTU-1 second floor police administration, RTU-2 first floor police, administration meeting room, RTU-3 first floor police administration hall, RTU-4, RTU-5, RTU-9, and RTU-15 courtroom.

ECM 7: 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.

VAV system controls should not raise the supply air temperature at the expense of the fan power. A common mistake is to reset the supply air temperature to achieve chiller energy savings, which can lead to additional air flow requirements. Supply air temperature should be kept low (e.g. 55°F) until the minimum fan speed (typically about 50%) is met. At this point, it is efficient to raise the supply air temperature as the load decreases, but not such that additional air flow and thus fan energy is required.

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. Prior to implementation, verify minimum fan speed in cooling mode with the manufacturer. Note that savings will vary depending on the operating characteristics of each AHU.

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

Affected air handlers: AHU – second floor, AHU – basement, AHU – first floor, and HV-1.

ECM 8: Install VFDs on Chilled Water Pumps

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

For systems with variable chilled water flow through the chiller, the minimum flow to prevent the chiller from tripping off will need to be determined during the final project design. The control system should be programmed to maintain the minimum flow through the chiller and to prevent pump cavitation.

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

Affected pumps: chilled water pump.

ECM 9: 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: HV-1 circulation, P-1A, and P-1B.

4.4 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		**3,511**	**1.1**	**0**	**$438**	**$11,345**	**$920**	**$10,425**	**23.8**	**3,536**
ECM 10	Install High Efficiency Heat Pumps	3,511	1.1	0	$438	$11,345	$920	$10,425	23.8	3,536

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 heat pump is eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 10: Install High Efficiency Heat Pumps

We evaluated replacing the standard efficiency heat pumps with high efficiency heat pumps. A higher EER or SEER rating indicates a more efficient cooling system and a higher HSPF rating indicates more efficient heating mode. 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 heating and cooling loads, and the estimated annual operating hours.

Affected units: control room.

4.5 Electric Chillers

#	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 Chiller Replacement		**11,786**	**6.1**	**0**	**$1,471**	**$82,504**	**$10,800**	**$71,704**	**48.8**	**11,869**
ECM 11	Install High Efficiency Chillers	11,786	6.1	0	$1,471	$82,504	$10,800	$71,704	48.8	11,869

ECM 11: Install High Efficiency Chillers

We evaluated the replacement of the older inefficient electric chiller with a new high efficiency chiller. The type of chiller to be installed depends on the magnitude of the cooling load and variability of the cooling load profile, for example:

- Positive displacement chillers are usually under 600 tons of cooling capacity and centrifugal chillers generally start at 150 tons of cooling capacity.
- Constant speed chillers should be used to meet cooling loads with little or no variation while variable speed chillers are more efficient for variable cooling load profiles.
- Water cooled chillers are more efficient than air cooled chillers but require cooling towers and additional pumps to circulate the cooling water.
- In any given size range, variable speed chillers tend to have better partial load efficiency, but worse full load efficiency, than constant speed chillers.

Energy savings result from the improvement in chiller efficiency and matching the right type of chiller to the cooling load. The energy savings are calculated based on the cooling capacity of the new chiller, the improvement in efficiency compared with the base case equipment, the cooling load profile, and the estimated annual operating hours of the chiller before and after the upgrade.

For the purposes of this analysis, we evaluated the replacement of chillers on a one-for-one basis with equipment of the same capacity. We recommend that you work with your design team to select chillers that are sized appropriately for the cooling load at this facility. In some cases, the plant energy use can be reduced by selecting multiple chillers that match the facility load profile rather than one or two large chillers. This can also improve the chiller plant reliability through increased redundancy. Energy savings are maximized by proper selection of new equipment based on the cooling load profile.

Replacing the chiller has a long payback based on energy savings and may not be justifiable based simply on energy considerations. However, the chiller has reached the end of its normal useful life. Typically, the marginal cost of purchasing a high efficiency chiller can be justified by the marginal savings from the improved efficiency. When the chiller is eventually replaced, consider purchasing equipment that exceed the minimum efficiency required by building codes.

4.6 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**29**	**$306**	**$251**	**$251**	**$0**	**0.0**	**3,340**
ECM 12	Install Low-Flow DHW Devices	0	0.0	29	$306	$251	$251	$0	0.0	3,340

ECM 12: Install Low-Flow DHW Devices

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

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

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

Additional cost savings may result from reduced water usage.

4.7 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		**3,163**	**0.4**	**0**	**$395**	**$690**	**$200**	**$490**	**1.2**	**3,185**
ECM 13	Vending Machine Control	3,163	0.4	0	$395	$690	$200	$490	1.2	3,185

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.

4.8 Measures for Future Consideration

There are additional opportunities for improvement that Toms River Township may wish to consider. These potential upgrades typically require further analysis, involve substantial capital investment and/or include significant system reconfiguration. These measure(s) are therefore beyond the scope of this energy audit. These measure(s) are described here to support a whole building approach to energy efficiency and sustainability.

Toms River Township may wish to consider the Energy Savings Improvement Program (ESIP) or other whole building approach. With interest in implementing comprehensive, largescale and/or complex system wide projects, these measures may be pursued during development of a future energy savings plan. We recommend that you work with your energy service company (ESCO) and/or design team to:

- evaluate these measures further
- develop firm costs
- determine measure savings
- prepare detailed implementation plans.

Other modernization or capital improvement funds may be leveraged for these types of refurbishments. As you plan for capital upgrades, be sure to consider the energy impact of the building systems and controls being specified.

Retro-Commissioning Study

Due to the complexity of today's HVAC systems and controls a thorough analysis and rebalance of heating, ventilation, and cooling systems should periodically be conducted. There are indications at this site that systems may be not be operating correctly or as efficiently as they could be. One important tool available to building operators to ensure proper system operation is retro-commissioning.

Retro-commissioning is a common practice recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to be implemented every few years. We recommend that you contact a reputable engineering firm that specializes in energy control systems and retro-commissioning. Ask them to propose a scope of work and an outline of the procedures and processes to be implemented, including a schedule and the roles of all responsible parties.

Once goals and responsibilities are established, the objective of the investigation process is to understand how the building is currently operating, identify the issues, and determine the most cost-effective way to improve performance. The retro-commissioning agent will review building documentation, interview building occupants, and inspect and test the equipment. Information is then compiled into a report and shared with facility staff, who will select which recommendations to implement after reviewing the findings.

The implementation phase puts the selected processes into place. Typical measures may include sensor calibration, equipment schedule changes, damper linkage repair and similar relatively low-cost adjustments -- although more expensive sophisticated programming and building control system upgrades may be warranted. Approved measures may be implemented by the agent, the building staff, or by subcontractors. Typically, a combination of these individuals makes up the retro-commissioning team.

After the approved measures are implemented, the team will verify that the changes are working as expected. Baseline and post-case measurements will allow building staff to monitor equipment and ensure that the benefits are maintained.

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save between 5 to 20 percent of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, planned capital upgrades, and incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and will outline procedures for measuring and reporting whether goals have been achieved.

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[5]. Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Doors and Windows

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

Window Treatments/Coverings

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

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

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. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

Motor Controls

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

Motor Short Cycling Reduction

Frequent stopping and starting of motors places substantial stress on rotors and other parts. This leads to wear and tear, lower efficiency, and higher maintenance costs. Adjust the load on the motor to limit the amount of unnecessary stopping and starting to improve motor performance.

Motor Maintenance

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

Fans to Reduce Cooling Load

Install ceiling fans to supplement your cooling system. Thermostat settings can typically be increased by 4°F with no change in overall occupant comfort due to the wind chill effect of moving air.

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.

Chiller Maintenance

Service chillers regularly to keep them operating properly. Chillers are responsible for a substantial portion of a commercial building's overall energy usage and when they do not work well, there is usually a noticeable increase in energy bills and increased occupant complaints. Regular diagnostics and service can save five to ten percent of the cost of operating your chiller. If you already have a maintenance contract in place, your existing service company should be able to provide these services.

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.

Ductwork Maintenance

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building - not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5% to 25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on-air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation

has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

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 and efficiently. Boilers should be cleaned according to the manufacturer's instructions to remove soot and scale from the boiler tubes to improve heat transfer.

Furnace Maintenance

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

Label HVAC Equipment

For improved coordination in maintenance practices, we recommend labeling or re-labeling the site HVAC equipment. Maintain continuity in labeling by following labeling conventions as indicated in the facility drawings or EMS building equipment list. Use weatherproof or heatproof labeling or stickers for permanence, but do not cover over original equipment nameplates, which should be kept clean and readable whenever possible. Besides equipment, label piping for service and direction of flow when possible. Ideally, maintain a log of HVAC equipment, including nameplate information, asset tag designation, areas served, installation year, service dates, and other pertinent information.

This investment in your equipment will enhance collaboration and communication between your staff and your contracted service providers and may help you with regulatory compliance.

Optimize HVAC Equipment Schedules

Energy Management Systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment 'start' and 'stop' times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the 'Optimal Start' feature of the EMS, if available, to optimize the building warmup sequence. Most EMS scheduling programs provide for "Holiday" schedules which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

Water Heater Maintenance

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, 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.

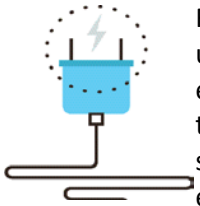
Compressed Air System Maintenance

Compressed air systems require periodic maintenance to operate at peak efficiency. A maintenance plan for compressed air systems should include:

- Inspection, cleaning, and replacement of inlet filter cartridges
- Cleaning of drain traps
- Daily inspection of lubricant levels to reduce unwanted friction
- Inspection of belt condition and tension
- Check for leaks and adjust loose connections
- Overall system cleaning

Contact a qualified technician for help with setting up periodic maintenance schedule.

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[6]. 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.

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[7] or download a copy of EPA's "WaterSense® at Work: Best Management Practices for Commercial and Institutional Facilities"[8] 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.

[6] 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.

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

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

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 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, 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.

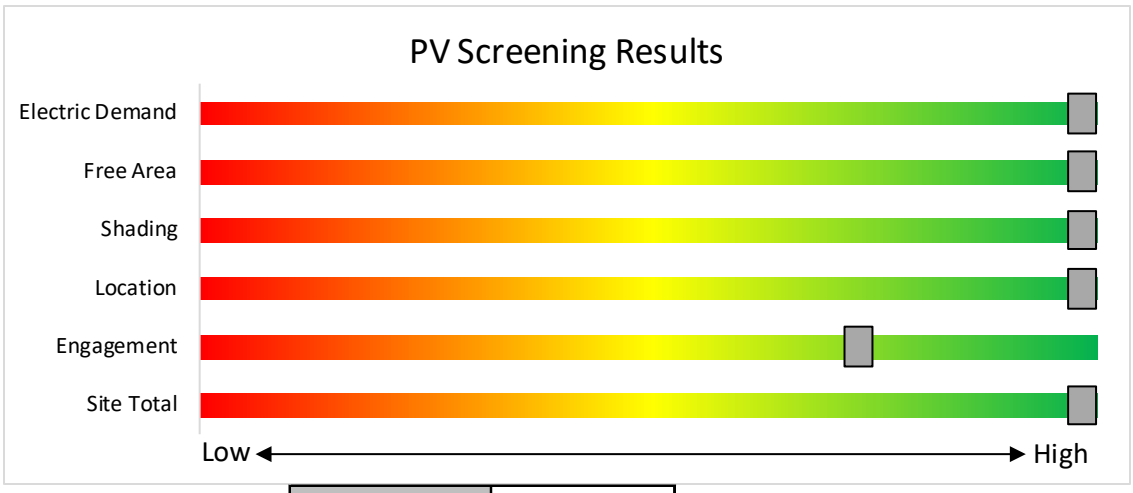
6.1 Solar Photovoltaic

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

The amount of free area, ease of installation (roof), and the lack of shading elements contribute to the high potential. A PV array located on the roof 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.



Potential	High	
System Potential	240	kW DC STC
Electric Generation	285,929	kWh/yr
Displaced Cost	$35,680	/yr
Installed Cost	$624,000	

Figure 9 - Photovoltaic Screening

Transition Incentive (TI) Program

The TI program is a bridge between the Legacy SREC Program and a to-be determined Successor Incentive Program. The program 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 TRECs (Transition Incentive Renewable Energy Certificates). The Transition Incentive is structured as a factorized renewable energy certificate. The factors allow the TI Program to provide differentiated financial incentives for different types of solar installation.

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:

Transition Incentive (TI) Program: https://www.njcleanenergy.com/renewable-energy/programs/transition-incentive-program

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

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

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

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

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

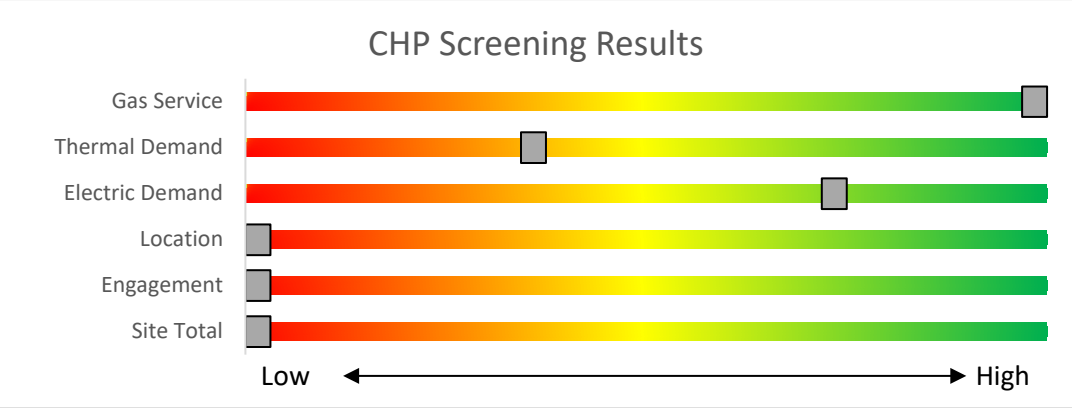


Figure 10 - CHP Screening

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 New Jersey 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.

Based on the site building and utility data provided, the facility does not meet the requirements of the current DI program.

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.

The scope of work presented in this audit report does not quite meet the requirements of the current P4P program. However, due to the size of the facility and existing conditions, should additional measures be identified at a later point in time, for example through further evaluation or the Energy Savings Improvement Program process, this facility could potentially meet the requirements necessary to participate in the P4P 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 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at: www.njcleanenergy.com/CHP.

7.5 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 into 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.

7.6 Transition Incentive (TI) Program

The TI program is a bridge between the Legacy SREC Program and a to-be determined Successor Incentive Program. The program 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 TRECs (Transition Incentive Renewable Energy Certificates). The Transition Incentive is structured as a factorized renewable energy certificate. The factors allow the TI Program to provide differentiated financial incentives for different types of solar installations. NJBPU calculates the value of a Transition Renewable Energy Certificate (TREC) by multiplying the base compensation rate ($152/MWh) by the project's assigned factor (i.e. $152 x 0.85 = $129.20/MWh). The TREC factors are defined based on the chart below:

Project Type	Factor
Subsection (t): landfill, brownfield, areas of historic fill	1.00
Grid supply (Subsection (r)) rooftop	1.00
Net metered non-residential rooftop and carport	1.00
Community solar	0.85
Grid supply (Subsection (r)) ground mount	0.60
Net metered residential ground mount	0.60
Net metered residential rooftop and carport	0.60
Net metered non-residential ground mount	0.60

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 TRECs.

Eligible projects may generate TRECs for 15 years following the commencement of commercial operations (also referred to as the "Transition Incentive Qualification Life"). After 15 years, projects may be eligible for a NJ Class I REC.

TRECs will be used by the identified compliance entities to satisfy a compliance obligation tied to a new Transition Incentive Renewable Portfolio Standard ("TI-RPS"), which will exist in parallel with, and completely separate from, the existing Solar RPS for Legacy SRECs. The TI-RPS is a carve-out of the current Class I RPS requirement. The creation of TRECs is based upon metered generation supplied to PJM-EIS General Attribute Tracking System ("GATS") by the owners of eligible facilities or their agents. GATS would create one TREC for each MWh of energy produced from a qualified facility.

TRECs will be purchased monthly by a TREC Administrator who will allocate the TRECs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan. The Transition Incentive Program online portal is now open to new applications effective May 1, 2020. There are instructions on "How and When to Transfer my SRP Registration to the Transition Incentive Program". If you are considering installing solar photovoltaics on your building, visit the following link for more information:

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

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[9].

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[10].

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

[10] 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
Dispatch Area	22	Incandescent: Recessed Bulbs - Canopy	Daylight Dimming	S	32	5,242	3, 4	Relamp	Yes	22	LED Lamps: Recessed Bulbs - Canopy	Occupancy Sensor	5	3,617	0.6	3,573	-1	$438	$980	$228	1.7
Dispatch Area	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,028	0.3	3,169	-1	$388	$562	$230	0.9
Storage	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,040	0.0	33	0	$4	$72	$20	13.1
IT Storage	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,040	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	718	0.1	153	0	$19	$408	$40	19.6
Comm. Equipment Rm	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,028	0.1	1,189	0	$146	$380	$130	1.7
Gun Cleaning Rm	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.2	686	0	$84	$489	$190	3.6
Gun Cleaning Rm	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.1	485	0	$59	$560	$150	6.9
Gun Cleaning Storage	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Armory	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	6,028	0.2	2,094	0	$257	$489	$190	1.2
Men Restroom	5	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460	4	None	Yes	5	LED Lamps: (1) 10.5W Plug-In Lamp	Occupancy Sensor	11	3,767	0.0	96	0	$12	$270	$0	23.0
Men Restroom Shower	1	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	5,460	0.0	326	0	$40	$17	$2	0.4
Women Restroom	5	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460	4	None	Yes	5	LED Lamps: (1) 10.5W Plug-In Lamp	Occupancy Sensor	11	3,767	0.0	96	0	$12	$270	$0	23.0
Phone Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	718	0.1	141	0	$17	$380	$130	14.4
Records/File Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.1	389	0	$48	$380	$60	6.7
Crime Lab	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.8	5,235	-1	$641	$1,146	$550	0.9
Crime Lab	2	Halogen Incandescent: MR16	Wall Switch	S	75	5,460	3, 4	Relamp	Yes	2	LED Lamps: MR16	Occupancy Sensor	11	3,767	0.1	793	0	$97	$54	$4	0.5
Crime Lab	1	Exit Signs: LED - 2 W Lamp	None		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
Evidence Area	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.6	3,962	-1	$485	$1,124	$460	1.4
Evidence Rm	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.2	1,486	0	$182	$489	$190	1.6
Evidence File Area	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.3	1,733	0	$212	$526	$210	1.5
Mechanics Garage	6	High-Pressure Sodium: (1) 200W Lamp	Wall Switch	S	250	2,860	1, 4	Fixture Replacement	Yes	6	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	60	1,973	1.1	3,866	-1	$474	$2,052	$190	3.9
Mechanics Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.1	457	0	$56	$416	$150	4.8
Mechanics Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,860	0.0	102	0	$12	$37	$20	1.3
Mechanics Pantry	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
Mechanics Restroom	1	Incandescent: Bulb - 1L	Wall Switch	S	65	2,860	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	2,860	0.0	171	0	$21	$17	$2	0.7

	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
Vehicle Maintenance Shop	58	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	58	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	2.2	7,523	-2	$922	$3,468	$1,510	2.1
Vehicle Maintenance Shop	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Parts Storage	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.3	1,038	0	$127	$562	$160	3.2
MC Locker	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
MC Locker Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	5,460	0.0	94	0	$12	$33	$12	1.8
Office Supply	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	718	0.1	166	0	$20	$416	$150	13.1
MC Office Area	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,460	3, 4	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,767	1.1	7,428	-2	$910	$1,635	$740	1.0
MC Office Area	10	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	10	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,767	0.3	2,313	0	$283	$995	$270	2.6
Copy Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.1	457	0	$56	$416	$150	4.8
MC Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
MC Office Area	8	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Court Admin	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	S	62	1,973	3	Relamp	No	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.1	247	0	$30	$290	$80	6.9
File Area	8	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Daylight Dimming	S	62	1,716	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,184	0.3	582	0	$71	$850	$230	8.7
Court Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.1	457	0	$56	$416	$150	4.8
Court Corridor Filing	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,860	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.1	420	0	$51	$254	$80	3.4
Court Corridor Filing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,860	0.0	102	0	$12	$37	$20	1.3
Court Corridor Filing	1	Exit Signs: LED - 2 W Lamp	None		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
112 Court Break Room	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,973	0.1	263	0	$32	$400	$118	8.8
112 Court Break Room	1	Exit Signs: LED - 2 W Lamp	None		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
112 Court Restroom	1	Compact Fluorescent: 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	1	LED Lamps: 4 Pin - 2L	Occupancy Sensor	36	1,973	0.0	33	0	$4	$27	$4	5.6
112 Court Restroom	1	LED - Fixtures: Linear Strip	Occupancy Sensor	S	40	1,973		None	No	1	LED - Fixtures: Linear Strip	Occupancy Sensor	40	1,973	0.0	0	0	$0	$0	$0	0.0
Judges Entrance	1	Compact Fluorescent: 4 Pin - 2L	Wall Switch	S	52	5,460	3	Relamp	No	1	LED Lamps: 4 Pin - 2L	Wall Switch	36	5,460	0.0	92	0	$11	$27	$4	2.0
Judges Entrance	1	Exit Signs: LED - 2 W Lamp	None		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
109 Judges Chamber	8	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,860	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,973	0.2	526	0	$64	$530	$166	5.7
109 JC Restroom	1	Compact Fluorescent: 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	1	LED Lamps: 4 Pin - 2L	Occupancy Sensor	36	1,973	0.0	33	0	$4	$27	$4	5.6

	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
109 JC Restroom	1	LED - Fixtures: Linear Strip	Occupancy Sensor	S	37	1,973		None	No	1	LED - Fixtures: Linear Strip	Occupancy Sensor	37	1,973	0.0	0	0	$0	$0	$0	0.0
Court Office Hall	11	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	S	62	6,028	3	Relamp	No	11	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	6,028	0.3	2,077	0	$254	$797	$220	2.3
Court Office Hall	4	Exit Signs: LED - 2 W Lamp	None		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
114 Training	4	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Occupancy Sensor	S	92	1,973	3	Relamp	No	4	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,973	0.2	362	0	$44	$435	$120	7.1
114 Training	4	Compact Fluorescent: 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	4	LED Lamps: 4 Pin - 2L	Occupancy Sensor	36	1,973	0.1	133	0	$16	$108	$16	5.6
106 Court Rm	15	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Occupancy Sensor	S	92	1,973	3	Relamp	No	15	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,973	0.6	1,359	0	$166	$1,630	$450	7.1
106 Court Rm	6	Compact Fluorescent: Wall Sconces 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	6	LED Lamps: Wall Sconces 4 Pin - 2L	Occupancy Sensor	36	1,973	0.1	199	0	$24	$162	$24	5.6
106 Court Rm	20	Compact Fluorescent: Canes 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	20	LED Lamps: Canes 4 Pin - 2L	Occupancy Sensor	36	1,973	0.3	665	0	$81	$540	$80	5.6
106 Court Rm	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
107 Storage	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	37	1,040		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	37	1,040	0.0	0	0	$0	$0	$0	0.0
118 Medlation	1	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Occupancy Sensor	S	92	1,973	3	Relamp	No	1	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,973	0.0	91	0	$11	$109	$30	7.1
110 IT Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
119 Public Defender	1	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	S	92	2,860	3	Relamp	No	1	LED - Linear Tubes: (3) U-Lamp	Wall Switch	50	2,860	0.0	131	0	$16	$109	$30	4.9
120 Prosecutor	1	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Occupancy Sensor	S	92	1,973	3	Relamp	No	1	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,973	0.0	91	0	$11	$109	$30	7.1
Court & Police Lobby	32	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	S	92	8,736	3, 4	Relamp	Yes	32	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	6,028	1.6	17,464	-4	$2,140	$4,288	$960	1.6
Court & Police Lobby	5	Exit Signs: LED - 2 W Lamp	None		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
Restroom 1	1	Compact Fluorescent: Canes 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	1	LED Lamps: Canes 4 Pin - 2L	Occupancy Sensor	36	1,973	0.0	33	0	$4	$27	$4	5.6
Restroom 2	1	Compact Fluorescent: Canes 4 Pin - 2L	Occupancy Sensor	S	52	1,973	3	Relamp	No	1	LED Lamps: Canes 4 Pin - 2L	Occupancy Sensor	36	1,973	0.0	33	0	$4	$27	$4	5.6
Main Lobby	6	Compact Fluorescent: Canes 4 Pin - 2L	Occupancy Sensor	S	52	6,028	3	Relamp	No	6	LED Lamps: Canes 4 Pin - 2L	Occupancy Sensor	36	6,028	0.1	609	0	$75	$162	$24	1.8
Main Lobby	2	Exit Signs: LED - 2 W Lamp	None		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
Men Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,860	0.0	153	0	$19	$55	$30	1.3
Women Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.1	389	0	$48	$380	$130	5.2
Joint Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,860	0.0	102	0	$12	$37	$20	1.3
Stairs by Main Lobby	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,028	0.2	1,981	0	$243	$408	$325	0.3
Mech Rm 2nd Fl	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	111	0	$14	$110	$60	3.6

	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
AHU Rm 2nd Fl	2	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	2	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.1	124	0	$15	$34	$4	2.0
Chiller Unit	2	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	2	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.1	124	0	$15	$34	$4	2.0
2nd Fl Lobby & Hall	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 5	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	6,028	0.6	6,282	-1	$770	$1,107	$810	0.4
2nd Fl Lobby & Hall	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,028	0.8	8,716	-2	$1,068	$1,703	$1,340	0.3
2nd Fl Lobby & Hall	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 5	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	6,028	0.3	2,971	-1	$364	$499	$375	0.3
2nd Fl Lobby & Hall	4	Exit Signs: LED - 2 W Lamp	None		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
DB Secretary	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.3	1,745	0	$214	$562	$230	1.6
DB - CIB	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.3	1,745	0	$214	$562	$230	1.6
Det. Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.5	3,490	-1	$428	$854	$390	1.1
Det. Squad Rm	8	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	3,767	0.2	1,003	0	$123	$530	$166	3.0
Det. Squad Rm Kitchen	2	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3, 4	Relamp	Yes	2	LED Lamps: Bulb - 1L	Occupancy Sensor	10	3,767	0.1	687	0	$84	$34	$4	0.4
Det. Squad Rm Kitchen	3	LED - Fixtures: Linear Strip	Wall Switch	S	37	2,860	4	None	Yes	3	LED - Fixtures: Linear Strip	Occupancy Sensor	37	1,973	0.0	106	0	$13	$270	$70	15.4
Det. Squad Rm Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	5,460	0.0	94	0	$12	$33	$12	1.8
Det. Office 2	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Det. Office 3	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.5	1,828	0	$224	$854	$390	2.1
Det. Office Closet	1	Compact Fluorescent: (1) 26W Plug-In Lamp	Wall Switch	S	26	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	18	1,040	0.0	9	0	$1	$17	$2	14.2
Sp. Victims Unit	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.4	2,617	-1	$321	$708	$310	1.2
Interview Rm 2	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.2	778	0	$95	$489	$190	3.1
CIB Captain	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.2	778	0	$95	$489	$190	3.1
Phone Closet 2nd Fl	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
Stairs to Basement	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,028	0.2	1,981	0	$243	$408	$325	0.3
Stairs to Basement	1	Exit Signs: LED - 2 W Lamp	None		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
Det. Office 4	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.2	778	0	$95	$489	$190	3.1
Det. Office 4	1	Incandescent: Bulb - 1L	Wall Switch	S	65	2,860	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	2,860	0.0	171	0	$21	$17	$2	0.7

	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
Det. Office 5	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.4	1,362	0	$167	$653	$280	2.2
Det. Office Storage	1	Compact Fluorescent: Circular Bulb	Wall Switch	S	42	1,040	3	Relamp	No	1	LED Lamps: Circular Bulb	Wall Switch	29	1,040	0.0	14	0	$2	$13	$2	6.1
Interview Rm 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.1	389	0	$48	$380	$130	5.2
File Closet	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Staff Men	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.1	495	0	$61	$343	$40	5.0
Staff Women	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.1	495	0	$61	$343	$40	5.0
Staff Women	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
Sp. Enforcement Team	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.4	2,617	-1	$321	$708	$310	1.2
Sp. Enforcement Team	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.3	1,745	0	$214	$562	$230	1.6
Sp. Enforcement File Closet	3	Incandescent: Bulb - 1L	Wall Switch	S	65	2,860	3, 4	Relamp	Yes	3	LED Lamps: Bulb - 1L	Occupancy Sensor	10	1,973	0.2	540	0	$66	$322	$6	4.8
Admin Lobby 2nd Fl	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	6,028	0.2	1,783	0	$218	$434	$90	1.6
Admin Lobby 2nd Fl	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	8,736	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	8,736	0.0	274	0	$34	$72	$20	1.6
Secretary Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.1	389	0	$48	$380	$130	5.2
Special Ops Lt.	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Sergeant Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Break Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Women Restroom 2nd Fl	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Men Restroom 2nd Fl	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Storage Closet	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Prof. Stage Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Payroll Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Comm. Affairs	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Admin Captain	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Deputy Chief	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Office Supply Rm	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	718	0.1	166	0	$20	$416	$150	13.1

	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
Admin Sec. Stairs	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 5	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	6,028	0.2	2,094	0	$257	$444	$330	0.4
Admin Sec. Stairs	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	6,028	0.1	740	0	$91	$370	$180	2.1
Admin Sec. Stairs	2	Exit Signs: LED - 2 W Lamp	None		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
Chief's Secretary	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.4	1,371	0	$168	$708	$310	2.4
PSA Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Traffice Safety Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Staff Meeting Rm	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.7	4,362	-1	$534	$1,000	$470	1.0
Media Relations	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.2	686	0	$84	$489	$190	3.6
2nd Fl Admin Hall	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 5	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	6,028	1.1	11,885	-3	$1,456	$1,995	$1,500	0.3
2nd Fl Admin Hall	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	6,028	0.1	1,481	0	$181	$515	$305	1.2
2nd Fl Admin Hall	2	Exit Signs: LED - 2 W Lamp	None		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
Stair Main B South	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	6,028	0.2	2,377	-1	$291	$444	$345	0.3
Stair Main B South	1	Exit Signs: LED - 2 W Lamp	None		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
Admin Lobby	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 4	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	6,028	0.3	2,971	-1	$364	$544	$150	1.1
Admin Hall 1st Fl	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	37	8,736	5	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	37	6,028	0.0	216	0	$27	$225	$140	3.2
Admin Hall 1st Fl	4	Halogen Incandescent: MR16	Wall Switch	S	75	8,736	3, 5	Relamp	Yes	4	LED Lamps: MR16	High/Low Control	11	6,028	0.2	2,538	-1	$311	$334	$233	0.3
Admin Hall 1st Fl	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	8,736	3, 5	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	6,028	0.6	5,943	-1	$728	$998	$750	0.3
Admin Hall 1st Fl	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	6,028	0.1	1,481	0	$181	$515	$305	1.2
Admin Hall 1st Fl	4	Exit Signs: LED - 2 W Lamp	None		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
Admin Hall 1st Fl	5	LED Lamps: Bulb - 1L	Wall Switch	S	7	8,736	5	None	Yes	5	LED Lamps: Bulb - 1L	High/Low Control	7	6,028	0.0	102	0	$13	$225	$225	0.0
Janitor Closet	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Men's Locker	19	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	19	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	1.2	8,289	-2	$1,015	$1,928	$900	1.0
Men's Locker Closet	1	Incandescent: Bulb - 1L	Wall Switch	S	65	2,860	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	2,860	0.0	171	0	$21	$17	$2	0.7
ML Showers	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,767	0.1	925	0	$113	$560	$150	3.6
ML Showers	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.1	743	0	$91	$380	$130	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
ML Showers	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.3	1,745	0	$214	$562	$230	1.6
Shower Area	5	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460	4	None	Yes	5	LED Lamps: (1) 10.5W Plug-In Lamp	Occupancy Sensor	11	3,767	0.0	96	0	$12	$116	$40	6.5
Shower Area	2	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3	Relamp	No	2	LED Lamps: Bulb - 1L	Wall Switch	10	5,460	0.1	652	0	$80	$34	$4	0.4
Dehumidifier Rm	2	Incandescent: PAR38	Wall Switch	S	75	1,040	3, 4	Relamp	Yes	2	LED Lamps: PAR38	Occupancy Sensor	11	718	0.1	151	0	$19	$176	$52	6.7
Gym	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.8	5,235	-1	$641	$1,146	$550	0.9
Gym Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,040	0.0	63	0	$8	$73	$40	4.3
Women's Locker	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Women's Locker	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Women's Locker	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,460	0.0	171	0	$21	$72	$20	2.5
Traffice Safety Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Line Up Rm	35	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	37	5,460	4	None	Yes	35	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	37	3,767	0.4	2,367	-1	$290	$810	$210	2.1
Line Up Rm	1	Exit Signs: LED - 2 W Lamp	None		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
Admin IT Rm	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	718	0.4	499	0	$61	$708	$310	6.5
Server Rm	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	718	0.3	332	0	$41	$562	$230	8.2
Server Rm	1	Exit Signs: LED - 2 W Lamp	None		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
Office by Lobby	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,860	0.0	173	0	$21	$73	$40	1.6
Sergeant Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Restroom	4	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460	4	None	Yes	4	LED Lamps: (1) 10.5W Plug-In Lamp	Occupancy Sensor	11	3,767	0.0	77	0	$9	$270	$70	21.3
Main Building Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.1	495	0	$61	$343	$110	3.8
Main Building Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	5,460	0.0	94	0	$12	$33	$12	1.8
Stair Main Building	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,028	0.1	1,585	0	$194	$416	$150	1.4
Stair Main Building	1	Exit Signs: LED - 2 W Lamp	None		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
Records Bureau	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.6	3,926	-1	$481	$927	$430	1.0
Records Kitchen	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,860	0.0	173	0	$21	$73	$40	1.6
Records Kitchen	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,860	0.0	49	0	$6	$33	$12	3.4

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Records Kitchen	24	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	S	44	2,860	4	None	Yes	24	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.3	1,000	0	$122	$270	$70	1.6
Records Kitchen	2	Exit Signs: LED - 2 W Lamp	None		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
Records Kitchen	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	S	26	2,860		None	No	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	2,860	0.0	0	0	$0	$0	$0	0.0
Records Kitchen	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,860	0.0	102	0	$12	$37	$20	1.3
Vault Rm	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
Records Maintenance Rm	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	S	29	2,860	4	None	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.0	56	0	$7	$116	$40	11.2
Annex	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	1.2	4,113	-1	$504	$1,855	$860	2.0
Annex Restroom	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	S	53	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	3,767	0.1	418	0	$51	$368	$36	6.5
Annex Entrance	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Annex Entrance	1	Exit Signs: LED - 2 W Lamp	None		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
Watch Comm. Office	8	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	37	5,460	4	None	Yes	8	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	37	3,767	0.1	541	0	$66	$270	$70	3.0
Watch Comm. Rm	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	37	5,460	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	37	3,767	0.0	271	0	$33	$270	$70	6.0
Watch Comm. Rm	10	LED Lamps: Canes 4 Pin - 2L	Wall Switch	S	36	5,460	4	None	Yes	10	LED Lamps: Canes 4 Pin - 2L	Occupancy Sensor	36	3,767	0.1	665	0	$82	$270	$70	2.5
Locker Evidence Rm	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5
Juvenile Cell	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.1	389	0	$48	$73	$40	0.7
Juvenile J3 Cell	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Juvenile J2 Cell	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Juvenile J1 Cell	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Juvenile Restroom	1	Incandescent: Bulb - 1L	Wall Switch	S	65	8,736	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	8,736	0.0	521	0	$64	$17	$2	0.2
Staff Men	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Staff Women	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.0	195	0	$24	$37	$20	0.7
Staff Women	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	5,460	0.0	94	0	$12	$33	$12	1.8
Janitor Closet	1	Incandescent: Bulb - 2L	Wall Switch	S	130	1,040	3	Relamp	No	1	LED Lamps: Bulb - 2L	Wall Switch	20	1,040	0.1	124	0	$15	$34	$4	2.0
Jail Area Hall	7	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	8,736	5	None	Yes	7	LED Lamps: (1) 10.5W Plug-In Lamp	High/Low Control	11	6,028	0.0	215	0	$26	$450	$450	0.0
Jail Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.1	872	0	$107	$416	$150	2.5

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Cleaning Closet	1	Compact Fluorescent: (1) 26W Plug-In Lamp	Wall Switch	S	26	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	18	1,040	0.0	9	0	$1	$17	$2	14.2
Storage	2	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3, 4	Relamp	Yes	2	LED Lamps: Bulb - 1L	Occupancy Sensor	10	718	0.1	131	0	$16	$304	$4	18.7
D1 Cell	3	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	3	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
C Cell	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
E Cell	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
G Cell	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
G Cell Shower	1	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	5,460	0.0	326	0	$40	$17	$2	0.4
H Cell	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	6	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
Sally Port	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,736	0.2	1,868	0	$229	$219	$120	0.4
HC1 Cell	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
Jail Area	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	8,736	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,736	0.1	557	0	$68	$69	$20	0.7
Jail Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	8,736	0.1	1,057	0	$129	$146	$80	0.5
Jail Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,736	0.0	311	0	$38	$37	$20	0.4
Jail Area	1	Linear Fluorescent - T8: 8' T8 (59W) - 2L	Wall Switch	S	110	8,736	3	Relamp	No	1	LED - Linear Tubes: (2) 8' Lamps	Wall Switch	72	8,736	0.0	359	0	$44	$89	$40	1.1
Jail Area Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
Jail Area Storage	4	Exit Signs: LED - 2 W Lamp	None		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
HC2 Cell	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460		None	No	1	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
Main Building Hall 1st Fl	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 5	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,028	0.7	7,923	-2	$971	$1,630	$1,300	0.3
Main Building Hall 1st Fl	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 5	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	6,028	0.1	1,396	0	$171	$371	$220	0.9
Main Building Hall 1st Fl	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Basement Stair	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	6,028	0.2	2,094	0	$257	$444	$330	0.4
Basement Stair	1	Exit Signs: LED - 2 W Lamp	None		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
Basement Stair	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	6,028	0.1	740	0	$91	$370	$180	2.1
Elec. Rm	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	74	0	$9	$73	$40	3.6
EMR 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6

	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
Mech. Basement	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.2	222	0	$27	$219	$120	3.6
Elec. Rm	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	111	0	$14	$110	$60	3.6
Boiler Rm	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,860	0.1	408	0	$50	$146	$80	1.3
Boiler Rm	2	Exit Signs: LED - 2 W Lamp	None		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
Printer Rm	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.3	1,038	0	$127	$562	$230	2.6
Comm. Ladies Locker	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	5,460	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,767	0.4	2,617	-1	$321	$708	$310	1.2
Comm. Ladies Locker Restroom	1	LED - Linear Tubes: (1) 3' Lamp	Wall Switch	S	11	5,460		None	No	1	LED - Linear Tubes: (1) 3' Lamp	Wall Switch	11	5,460	0.0	0	0	$0	$0	$0	0.0
IT Storage	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Dive Locker	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	2,860	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.1	420	0	$51	$408	$110	5.8
Dive Locker	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,860	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,860	0.0	49	0	$6	$33	$12	3.4
Shooting Range Rm	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,460	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,767	0.2	1,114	0	$137	$434	$160	2.0
Shooting Range Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	5,460	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,767	0.2	1,114	0	$137	$434	$160	2.0
Shooting Range Area	4	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3, 4	Relamp	Yes	4	LED Lamps: Bulb - 1L	Occupancy Sensor	10	3,767	0.2	1,374	0	$168	$339	$78	1.5
Gun Range	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,460	0.7	4,670	-1	$572	$876	$480	0.7
Gun Range	25	Incandescent: PAR30 - 2L	Wall Switch	S	150	5,460	3	Relamp	No	25	LED Lamps: PAR30 - 2L	Wall Switch	23	5,460	2.8	18,796	-4	$2,303	$1,511	$300	0.5
Stair by Shooting Range	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,736	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,028	0.1	1,189	0	$146	$335	$270	0.4
Stair by Shooting Range	1	Exit Signs: LED - 2 W Lamp	None		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
OEM Office	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.1	242	0	$30	$415	$110	10.3
OEM Office	18	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	18	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.6	2,181	0	$267	$1,844	$500	5.0
Aux. Police Office	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.2	727	0	$89	$705	$190	5.8
Office 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,860	0.0	173	0	$21	$73	$40	1.6
Aux. Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	914	0	$112	$562	$230	3.0
Aux. Office Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	5,460	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	5,460	0.0	94	0	$12	$33	$12	1.8
Janitor Closet	1	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	1,040	0.0	62	0	$8	$17	$2	2.0
Aux. Storage	3	Incandescent: Bulb - 1L	Wall Switch	S	65	1,040	3, 4	Relamp	Yes	3	LED Lamps: Bulb - 1L	Occupancy Sensor	10	718	0.2	196	0	$24	$322	$6	13.1

	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
EMR 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.0	37	0	$5	$37	$20	3.6
Local Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,973	0.1	389	0	$48	$380	$130	5.2
Comm. Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.1	259	0	$32	$189	$80	3.4
Custodian Break Rm	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.1	457	0	$56	$416	$150	4.8
K-9 Unit	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.3	1,143	0	$140	$635	$270	2.6
Public Safety Cadets	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.1	457	0	$56	$416	$150	4.8
Men Locker	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	5,460	3, 4	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,767	0.5	3,466	-1	$425	$1,051	$420	1.5
Men Locker	2	Incandescent: Bulb - 1L	Wall Switch	S	65	5,460	3, 4	Relamp	Yes	2	LED Lamps: Bulb - 1L	Occupancy Sensor	10	3,767	0.1	687	0	$84	$34	$4	0.4
Comm. Service Office	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,973	0.6	2,075	0	$254	$1,124	$460	2.6
Basement Hall	22	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	8,736	3, 5	Relamp	Yes	22	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	6,028	1.4	15,356	-3	$1,881	$2,507	$1,780	0.4
Basement Hall	1	Incandescent: Bulb - 1L	Wall Switch	S	65	8,736	3	Relamp	No	1	LED Lamps: Bulb - 1L	Wall Switch	10	8,736	0.0	521	0	$64	$17	$2	0.2
Basement Hall	6	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Exterior	13	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell		45	4,380	4	None	Yes	13	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Occupancy Sensor	45	3,022	0.0	794	0	$99	$270	$70	2.0
Exterior	8	LED - Fixtures: Cove Mount	Photocell		12	4,380	4	None	Yes	8	LED - Fixtures: Cove Mount	Occupancy Sensor	12	3,022	0.0	130	0	$16	$270	$70	12.3
Parking Lot	16	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	Photocell		150	4,380	4	None	Yes	16	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	Occupancy Sensor	150	3,022	0.0	3,259	0	$407	$270	$70	0.5
Parking Lot	8	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Photocell		175	4,380	4	None	Yes	8	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Occupancy Sensor	175	3,022	0.0	1,901	0	$237	$270	$70	0.8
Switching Gear Rm	2	High-Pressure Sodium: (1) 250W Lamp	Photocell		295	4,380	1, 4	Fixture Replacement	Yes	2	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	75	3,022	0.0	2,131	0	$266	$864	$110	2.8
Switching Gear Rm	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	185	0	$23	$183	$100	3.6
Exterior	4	Compact Fluorescent: (2) 26W Plug-In Lamps	Timeclock		52	4,380	3, 4	Relamp	Yes	4	LED Lamps: Bulb - 2L	Occupancy Sensor	36	3,022	0.0	471	0	$59	$464	$86	6.4
Exterior	4	LED - Fixtures: Ceiling Mount	Timeclock		22	4,380	4	None	Yes	4	LED - Fixtures: Ceiling Mount	Occupancy Sensor	22	3,022	0.0	119	0	$15	$270	$70	13.4
Chief's Office	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,860	3, 4	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,973	0.5	1,600	0	$196	$781	$350	2.2
Chief's Office	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	3, 4	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,973	0.2	606	0	$74	$632	$170	6.2
Quartermaster Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,040	0.0	63	0	$8	$73	$40	4.3
Locker Rm	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	5,460	3, 4	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,767	0.0	259	0	$32	$153	$60	2.9
Gun Ranger Closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,040	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	718	0.2	249	0	$31	$489	$120	12.1

	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
Chief's Office Restroom	3	LED Lamps: (1) 10.5W Plug-In Lamp	Wall Switch	S	11	5,460	4	None	Yes	3	LED Lamps: (1) 10.5W Plug-In Lamp	Occupancy Sensor	11	3,767	0.0	58	0	$7	$270	$0	38.3

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
Mech Rm 2nd Fl	AHU-2nd Floor	1	Supply Fan	5.0	89.5%	No	W	4,335	7	No	89.5%	Yes	1	1.4	6,775	0	$845	$4,076	$1,800	2.7
Basement Storage	AHU-Basement	1	Supply Fan	7.5	91.0%	No	W	4,335	7	No	91.0%	Yes	1	2.1	9,995	0	$1,247	$4,738	$2,000	2.2
Basement Storage	AHU-1st Floor	1	Supply Fan	5.0	89.5%	No	W	4,335	7	No	89.5%	Yes	1	1.4	6,775	0	$845	$4,076	$1,800	2.7
Roof	Exhaust Fans	4	Exhaust Fan	0.5	78.2%	No	W	6,935		No	78.2%	No		0.0	0	0	$0	$0	$0	0.0
Garage	HV-1	1	Supply Fan	2.0	86.5%	No	W	4,335	7	No	86.5%	Yes	1	0.6	2,804	0	$350	$3,261	$200	8.7
Garage	HV-1 Circulation	1	Heating Hot Water Pump	1.0	85.5%	No	W	4,380	9	No	85.5%	Yes	1	0.1	1,433	0	$179	$3,010	$150	16.0
Evidence Room	Evidence Room	2	Supply Fan	0.5	78.2%	No	W	8,760		No	78.2%	No		0.0	0	0	$0	$0	$0	0.0
Garage	Air Compressor	1	Air Compressor	5.0	82.5%	No	W	730		No	82.5%	No		0.0	0	0	$0	$0	$0	0.0
Garage	Rolling Doors	3	Other	0.5	78.2%	No	W	730		No	78.2%	No		0.0	0	0	$0	$0	$0	0.0
Garage	Vehicle Lift	2	Other	2.0	86.5%	No	W	730		No	86.5%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Exhaust Fans	2	Exhaust Fan	0.3	73.4%	No	W	6,935		No	73.4%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Exhaust Fans	6	Exhaust Fan	0.1	60.0%	No	W	6,935		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-6	1	Supply Fan	5.0	89.5%	No	W	6,935	6	No	89.5%	Yes	1	1.4	10,165	0	$1,269	$4,076	$1,800	1.8
Roof	RTU-1	1	Supply Fan	3.0	89.5%	No	W	6,935	6	No	89.5%	Yes	1	0.9	6,099	0	$761	$3,884	$400	4.6
Chiller Room	Chilled Water Pump	1	Chilled Water Pump	7.5	85.5%	No	W	4,380	8	No	90.2%	Yes	1	1.6	11,756	0	$1,467	$5,321	$2,000	2.3
Chiller Room	Circulation P5 & P6	2	Water Supply Pump	0.2	69.5%	No	W	8,760		No	69.5%	No		0.0	0	0	$0	$0	$0	0.0
Chiller Room	SF-1,2	2	Supply Fan	10.0	93.0%	No	W	4,335	6	No	93.0%	Yes	2	5.7	26,080	0	$3,255	$10,546	$4,400	1.9
Chiller Room	RF-1,2	2	Return Fan	5.0	82.0%	No	W	4,335	6	No	89.5%	Yes	2	3.4	17,020	0	$2,124	$8,152	$3,600	2.1
Chiller Room	Turbo Compressor	1	Other	10.0	93.0%	No	W	3,391		No	93.0%	No		0.0	0	0	$0	$0	$0	0.0
Chiller Room	SF-3	1	Supply Fan	20.0	91.0%	No	W	4,335	6	No	93.0%	Yes	1	5.9	27,685	0	$3,455	$8,850	$2,600	1.8

		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
Chiller Room	Glycol Pump	2	Process Pump	0.3	59.0%	No	W	2,190		No	59.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	Exhaust Fans	2	Exhaust Fan	0.3	59.0%	No	W	6,935		No	59.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	CU1 Ammo Room	1	Supply Fan	0.2	69.5%	No	W	8,760		No	69.5%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-13 Courtroom	1	Supply Fan	5.0	82.0%	No	W	4,335	6	No	89.5%	Yes	1	1.6	8,510	0	$1,062	$4,076	$1,800	2.1
Roof	RTU-13 Courtroom	1	Supply Fan	7.5	85.5%	No	W	4,335	6	No	91.0%	Yes	1	2.3	11,795	0	$1,472	$4,738	$2,000	1.9
Roof	RTU-14 Courtroom	1	Supply Fan	1.0	85.5%	No	W	4,335	6	No	85.5%	Yes	1	0.3	1,418	0	$177	$3,010	$150	16.2
Roof	EF1-5	5	Exhaust Fan	0.2	69.5%	No	W	6,935		No	69.5%	No		0.0	0	0	$0	$0	$0	0.0
Annex Storage	DHW Heater	1	Water Supply Pump	0.0	58.0%	No	W	8,760		No	58.0%	No		0.0	0	0	$0	$0	$0	0.0
Boiler Rm	P-1A & P-1B	2	Heating Hot Water Pump	2.0	86.5%	No	W	4,380	9	No	86.5%	Yes	2	0.4	5,666	0	$707	$6,522	$400	8.7
Boiler Rm	DHW Circulation	1	Water Supply Pump	0.1	60.0%	No	W	8,760		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Boiler Rm	DHW Circulation	1	Water Supply Pump	0.1	60.0%	No	W	8,760		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Basement Storage	P2, P4, P10	3	Heating Hot Water Pump	0.3	59.0%	No	W	1,460		No	59.0%	No		0.0	0	0	$0	$0	$0	0.0
Outdoor	Call Center	1	Supply Fan	0.3	59.0%	No	W	8,760		No	59.0%	No		0.0	0	0	$0	$0	$0	0.0
EMR 1 & 2	Hydraulic Pumps 1,2	2	Process Pump	20.0	93.0%	No	W	730		No	93.0%	No		0.0	0	0	$0	$0	$0	0.0
Outdoor	Court IT Room	1	Supply Fan	0.1	60.0%	No	W	8,760		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof	RTU-1 2nd Fl Police Admin	1	Supply Fan	1.0	86.5%	No	W	6,935	6	No	86.5%	Yes	1	0.3	2,033	0	$254	$3,010	$150	11.3
Roof	RTU-2 1st Fl Police, Admin Meeting Rm	1	Supply Fan	3.0	89.5%	No	W	6,935	6	No	89.5%	Yes	1	0.9	6,099	0	$761	$3,884	$400	4.6
Roof	RTU-3 1st Fl Police Admin Hall	1	Supply Fan	3.0	89.5%	No	W	6,935	6	No	89.5%	Yes	1	0.9	6,099	0	$761	$3,884	$400	4.6
Roof	RTU-4	1	Supply Fan	3.0	89.5%	No	W	6,935	6	No	89.5%	Yes	1	0.9	6,099	0	$761	$3,884	$400	4.6
Roof	RTU-5	1	Supply Fan	1.0	86.5%	No	W	6,935	6	No	86.5%	Yes	1	0.3	2,033	0	$254	$3,010	$150	11.3

		Existing Conditions							Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	RTU-9	1	Supply Fan	1.0	86.5%	No	W	6,935	6	No	86.5%	Yes	1	0.3	2,033	0	$254	$3,010	$150	11.3
Roof	RTU-15 Courtroom	1	Supply Fan	2.0	86.5%	No	W	4,335	6	No	86.5%	Yes	1	0.6	2,804	0	$350	$3,261	$200	8.7
Control Room	Control Room	1	Supply Fan	1.0	86.5%	No	W	8,760		No	86.5%	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	RTU-1 2nd Fl Police Admin	1	Packaged AC	3.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-2 1st Fl Police, Admin Meeting Rm	1	Packaged AC	6.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-3 1st Fl Police Admin Hall	1	Packaged AC	7.50		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-4	1	Packaged AC	6.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-5	1	Packaged AC	4.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-6	1	Packaged AC	12.50		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-9	1	Packaged AC	4.00		W		No							0.0	0	0	$0	$0	$0	0.0
Outdoor	CU2-Basement	1	Packaged AC	25.00		W		No							0.0	0	0	$0	$0	$0	0.0
Outdoor	Evidence Room	1	Split-System AC	2.00		W		No							0.0	0	0	$0	$0	$0	0.0
Outdoor	Evidence Room	1	Split-System AC	2.00		W		No							0.0	0	0	$0	$0	$0	0.0
Server Room	Server Room	1	Ductless Mini-Split HP	6.00	80.00	W		No							0.0	0	0	$0	$0	$0	0.0
Server Room	Server Room	1	Ductless Mini-Split HP	6.00	80.00	W		No							0.0	0	0	$0	$0	$0	0.0
Roof	CU1 Ammo Room	1	Split-System AC	4.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-13 Courtroom	1	Packaged AC	17.50		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-14 Courtroom	1	Packaged AC	4.00		W		No							0.0	0	0	$0	$0	$0	0.0
Roof	RTU-15 Courtroom	1	Packaged AC	5.00		W		No							0.0	0	0	$0	$0	$0	0.0
Control Room	Control Room	1	Packaged Air-Source HP	5.00	63.84	B	10	Yes	1	Packaged Air-Source HP	5.00	63.84	14.00	3.80	1.1	3,511	0	$438	$11,345	$920	23.8
Control Room	Control Room	1	Packaged Air-Source HP	5.00	24.57	W		No							0.0	0	0	$0	$0	$0	0.0
Annex Meeting Rm	Portable AC	1	Window AC	0.67		W		No							0.0	0	0	$0	$0	$0	0.0
Outdoor	Call Center	1	Split-System AC	5.00		W		No							0.0	0	0	$0	$0	$0	0.0

		Existing Conditions					Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Outdoor	Men's Locker	1	Packaged Terminal HP	1.00	12.00	W		No							0.0	0	0	$0	$0	$0	0.0
Outdoor	Court IT Room	1	Split-System AC	2.00		W		No							0.0	0	0	$0	$0	$0	0.0
Switchgear Rm	Ceiling Hung Heater	1	Electric Resistance Heat		17.06	W		No							0.0	0	0	$0	$0	$0	0.0

Electric Chiller Inventory & Recommendations

		Existing Conditions				Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Chiller Quantity	System Type	Cooling Capacity per Unit (Tons)	Remaining Useful Life	ECM #	Install High Efficiency Chillers?	Chiller Quantity	System Type	Constant/ Variable Speed	Cooling Capacity (Tons)	Full Load Efficiency (kW/Ton)	IPLV Efficiency (kW/Ton)	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	CH-1	1	Air-Cooled Scroll Chiller	60.00	B	11	Yes	1	Air-Cooled Scroll Chiller	Variable	60.00	1.24	0.74	6.1	11,786	0	$1,471	$82,504	$10,800	48.8

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
Boiler Room	Boilers -1,2	2	Non-Condensing Hot Water Boiler	1,275	W		No						0.0	0	0	$0	$0	$0	0.0
Garage	Ceiling Hung Heater	1	Warm Air Unit Heater	120	W		No						0.0	0	0	$0	$0	$0	0.0
Garage	Ceiling Hung Heater	1	Warm Air Unit Heater	120	W		No						0.0	0	0	$0	$0	$0	0.0
Outdoor - Basement	MUA-Shooting Range	1	Warm Air Unit Heater	998	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-6	1	Furnace	203	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-13 Courtroom	1	Furnace	203	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-14 Courtroom	1	Furnace	48	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-1 2nd Fl Police Admin	1	Furnace	48	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-2 1st Fl Police, Admin Meeting Rm	1	Furnace	56	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-3 1st Fl Police Admin Hall	1	Furnace	64	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-4	1	Furnace	56	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-5	1	Furnace	48	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-15 Courtroom	1	Furnace	54	W		No						0.0	0	0	$0	$0	$0	0.0
Roof	RTU-9	1	Furnace	48	W		No						0.0	0	0	$0	$0	$0	0.0

DHW Inventory & Recommendations

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

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Restrooms	12	12	Faucet Aerator (Lavatory)	1.50	0.50	0.0	0	7	$72	$86	$86	0.0
Restrooms	12	23	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	22	$234	$165	$165	0.0

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	ECM #	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Pantry	4	Electric Griddle (4 Feet Width)	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?
Offices	475	Computers	145	Yes
Offices	10	Laptop	75	Yes
IT Room	17	Servers	550	Yes
Offices	70	Small Printer	20	Yes
Offices	37	Medium Printer	120	Yes
Printer Room	25	Copy Machine	200	Yes
Offices	7	Paper Shredder	200	Yes
Conference Room	6	Projector	400	Yes
Pantry	14	Microwave	900	Yes
Offices	17	Small Refrigerator	40	No
Pantry	7	Large Refrigerator	200	Yes
Pantry	1	Double Door Refrigerator	220	Yes
Pantry	15	Coffee Machine	400	Yes
Pantry	5	Toaster	850	No
Pantry	9	Toaster Oven	1,200	Yes
Pantry	1	Ceiling Fan	60	No
Pantry	4	Portable Fan	276	Yes
Main Lobby	1	Plasma Tv - 42"	220	No
Control Room	1	LCD Tv - 42"	150	Yes
Comm. Room	17	LED Tv - 50"	100	Yes
Pantry	5	Water Cooler	500	Yes
Control Room	1	Air Purifier	90	Yes
Gun Range Closet	1	Bench Grinder	560	Yes
Garage	1	Wheel Balancing System	90	Yes
Garage	1	Tire Infation Machine	249	No
Garage	1	Transmission Service System	249	No
Garage	1	Precision Brake Service	249	No
Garage	1	Portable AC	1,633	Yes
Offices	2	Electric File Organizer	90	Yes
Annex	1	Dehumdifier	541	Yes

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Vending Machine Type	ECM #	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Hallway 1st Fl	1	Refrigerated	13	Yes	0.2	1,612	0	$201	$230	$100	0.6
Hallway 1st Fl	1	Non-Refrigerated	13	Yes	0.0	343	0	$43	$230	$0	5.4
Main Lobby	1	Glass Fronted Refrigerated	13	Yes	0.1	1,209	0	$151	$230	$100	0.9

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]

Richard C. Clement Law Enforcement Center

Primary Property Type: Police Station
Gross Floor Area (ft²): 89,100
Built: 1975

For Year Ending: June 30, 2019
Date Generated: July 14, 2020

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
Richard C. Clement Law Enforcement Center 255 Oak Avenue Toms River, New Jersey 08753	Township of Toms River 33 Washington Street Toms River, NJ 08753 (742) 341-1000	Donald Guardian 33 Washington Street Toms River, NJ 08753 (742) 341-1000 dguardian@tomsrivertownship.com

Property ID: 10865011

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
94.3 kBtu/ft²

Source EUI
194.2 kBtu/ft²

Annual Energy by Fuel		
Electric - Grid (kBtu)	4,844,755 (58%)	
Natural Gas (kBtu)	3,558,974 (42%)	

National Median Comparison	
National Median Site EUI (kBtu/ft²)	60.6
National Median Source EUI (kBtu/ft²)	124.9
% Diff from National Median Source EUI	56%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	680

Signature & Stamp of Verifying Professional

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

LP Signature: _____ Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

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 gas* 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.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate 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.