

BLOOMFIELD SCHOOL DISTRICT

BLOOMFIELD MIDDLE SCHOOL
60 Huck Road Bloomfield NJ, 07003

**LOCAL GOVERNMENT ENERGY AUDIT PROGRAM
FOR
NEW JERSEY
BOARD OF PUBLIC UTILITIES**

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CHA PROJECT NO. 30040

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REPORT DISCLAIMER

This audit was conducted in accordance with the standards developed by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) for a Level II audit. Cost and savings calculations for a given measure were estimated to within $\pm 20\%$, and are based on data obtained from the owner, data obtained during site observations, professional experience, historical data, and standard engineering practice. Cost data does not include soft costs such as engineering fees, legal fees, project management fees, financing, etc.

A thorough walkthrough of the building was performed, which included gathering nameplate information and operating parameters for all accessible equipment and lighting systems. Unless otherwise stated, model, efficiency, and capacity information included in this report were collected directly from equipment nameplates and /or from documentation provided by the owner during the site visit. Typical operation and scheduling information was obtained from interviewing staff and spot measurements taken in the field.

List of Common Energy Audit Abbreviations

- A/C – Air Conditioning
- AHS – Air Handling Unit
- BMS – Building Management System
- Btu – British thermal unit
- CDW – Condenser Water
- CFM – Cubic feet per minute
- CHW – Chilled Water
- DCV – Demand Control Ventilation
- DDC – Direct Digital Control
- DHW – Domestic Hot Water
- DX – Direct Expansion
- EER – Energy Efficiency Ratio
- EF – Exhaust Fan
- EUI – Energy Use Intensity
- Gal – Gallon
- GPD – Gallons per day
- GPF – Gallons Per Flush
- GPH – Gallons per hour
- GPM – Gallons per minute
- GPS – Gallons per second
- HHW – Heating Hot Water
- HID – High Intensity Discharge
- HP – Horsepower
- HRU – Heat Recovery Unit
- HVAC – Heating, Ventilation, Air Conditioning
- HX – Heat Exchanger
- kbtu/mbtu – One thousand (1,000) Btu
- kW – Kilowatt (1,000 watts)
- kWh – Kilowatt-hours
- LED – Light Emitting Diode
- mbh – Thousand Btu per hour
- mmbtu – One million (1,000,000) Btu
- OCC – Occupancy Sensor
- PSI – Pounds per square inch
- RTU – Rooftop Unit
- SBC – System Benefits Charge
- SF – Square foot
- UH – Unit Heater
- V – Volts
- VAV – Variable Air Volume
- VSD – Variable Speed Drive
- W – Watt

1.0 EXECUTIVE SUMMARY

This report summarizes the energy audit performed by CHA for Bloomfield School District in connection with the New Jersey Board of Public Utilities (NJBPU) Local Government Energy Audit (LGEA) Program. The purpose of this report is to identify energy savings opportunities associated with major energy consumers and inefficient practices. Low-cost and no-cost are also identified during the study. This report details the results of the energy audit conducted for the building listed below:

Building Name	Address	Square Feet	Construction Date
Bloomfield Middle School	60 Huck Road Bloomfield NJ, 07003	153,380	1960

The potential total annual energy and cost savings for the recommended energy conservation measures (ECM) identified in the survey are shown below:

Building Name	Electric Savings (kWh)	NG Savings (therms)	Total Savings (\$)	Payback (years)
Bloomfield Middle School	157,827	288	28,209	7.3

Each individual measure's annual savings are dependent on that measure alone, there are no interactive effects calculated. There are three options shown for Lighting ECM savings; only one option can be chosen. Incentives shown (if any) are based only on the SmartStart Incentive Program. Other NJBPU or local utility incentives may also be available/ applicable and are discussed in Section 6.0.

Each measure recommended by CHA typically has a stand-alone simple payback period of 15 years or less. However, if the owner chooses to pursue an Energy Savings Improvement Plan (ESIP), high payback measures could be bundled with lower payback measures which ultimately can result in a payback which is favorable for an ESIP project to proceed. Occasionally, we will recommend an ECM that has a longer payback period, based on the need to replace that piece(s) of equipment due to its age, such as a boiler for example.

The following table provides a detailed summary of each ECM for the building surveyed, including costs, savings, SmartStart incentives and payback.

Summary of Energy Conservation Measures

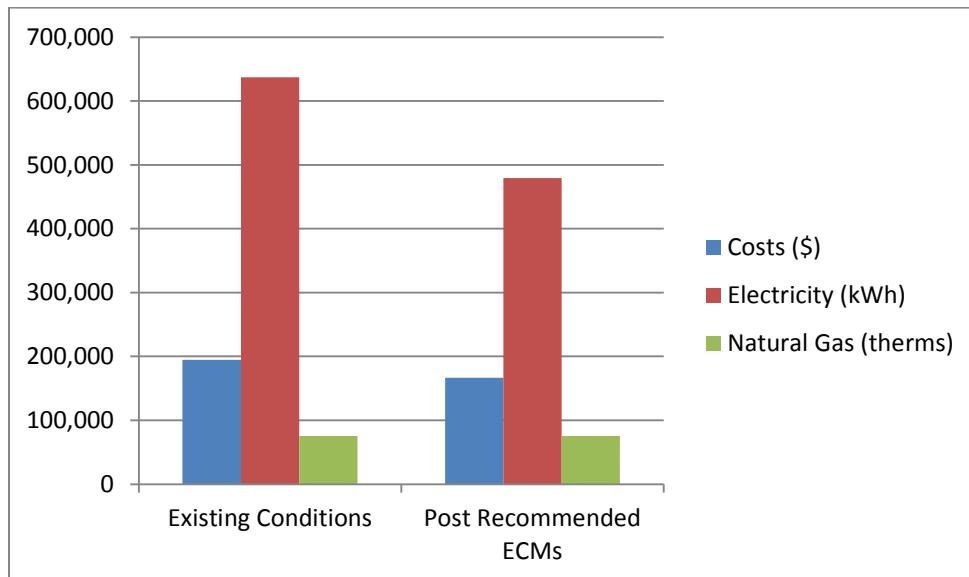
ECM #	Energy Conservation Measure	Est. Costs (\$)	Est. Savings (\$/year)	Payback w/o Incentive	Potential Incentive (\$)*	Payback w/ Incentive	Recommended
ECM-1	Window Replacement	1,572,900	11,960	131.5	0	131.5	N
ECM-2	Install window AC controller	2,900	1,512	1.9	0	1.9	Y
ECM-3	Replace rooftop units with high efficiency units	146,500	3,780	38.8	5,047	37.4	N
ECM-4	Replace DX split units with high efficiency units	73,508	4,115	17.9	2,388	17.3	N
ECM-5	Replace manual thermostats with programmable thermostats	4,901	2,628	1.9	825	1.6	Y
ECM-6	Kitchen Hood Control	45,439	2,500	18.2	0	18.2	N
ECM-L1**	Lighting Replacements / Upgrades	139,024	16,507	8.4	20,060	7.2	N
ECM-L2**	Install Lighting Controls (Add Occupancy Sensors)	22,829	11,019	2.1	3,560	1.7	N
ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	197,006	24,069	8.2	23,620	7.2	Y
Total**		2,043,154	50,564	40.4	31,880	39.8	
Total(Recommended)		204,807	28,209	7.3	24,445	6.4	

* Incentive shown, if available, is per the New Jersey SmartStart Program.

** These ECMs are not included in the Total, as they are alternate measures not recommended.

If Bloomfield School District implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	194,782	166,573	14%
Electricity (kWh)	636,960	479,133	25%
Natural Gas (therms)	75,621	75,333	0%
Site EUI (kbtu/SF/Yr)	63.5	59.8	



2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

The following is a summary of building information related to HVAC, plumbing, building envelope, lighting, and domestic hot water systems as observed during CHAs site visit. See appendix B for detailed information on mechanical equipment, including capacities, model numbers and age. See appendix F for representative photos of some of the existing conditions observed while onsite.

Building Name: Bloomfield Middle School
Address: 60 Huck Road Bloomfield NJ 07003
Gross Floor Area: 153,380 sq. ft.
Number of Floors: Two story building.
Year Built: 1960



General

Description of Spaces: The building is used as a middle school and has classrooms, library, auditorium, gymnasium, kitchen, cafeteria, computer classrooms, fitness center, offices, storage rooms, restrooms and a boiler room.

Description of Occupancy: The facility has 135 permanent employees working during regular school hours.

Number of Computers: The building has approximately 190 desktop and laptop computers.

Building Usage: Normal operating hours for the school are from 8.30 AM to 3.30 PM. However, some of the employees like office staff, teaching staff and custodial staff work before and after the normal school operating hours.

Construction: Structural steel framing with concrete masonry unit walls having a brick exterior façade.

Roof: The building has a flat roof with a black rubber membrane waterproofing. It is believed that the roof is well insulated and appears to be in good condition. Therefore no ECM associated with the roof is evaluated

Windows: The original building has single pane windows and the windows are in fair condition. The 2000 section of the school has double pane windows and the windows are in good condition. An ECM related to window replacement of windows in the original building has been evaluated.

Exterior Doors: Exterior main doors are steel having glass panels and are in good condition. The door seals and sweeps show signs of wear. We have included the replacement of door seals and sweeps as an O&M measure.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating: The building is heated by two Superior hot water boilers located in the boiler room. The boilers have an input rating of 10,500 MBH input each and installed in 1960. Both boilers are past their useful life. Four hot water pumps, three working and one standby, installed in the boiler room circulate heating hot water to all the unit ventilators, heating and ventilation units and finned tube radiators of the original building. Another set of two pumps, one working and one standby, also installed in the boiler room circulates heating hot water to unit ventilators of the 2000 wing. All classrooms and the cafeteria are provided with unit ventilators. Hallways, stairways, storage spaces and offices are provided with recessed convectors or finned tube radiators. There are four high level wall mounted heating and ventilating units with hot water heating coils heating the gymnasium. Additionally, there are four ceiling mounted hot water unit heaters heating the gymnasium. The auditorium is heated by two heating and ventilation units with hot water heating coils installed in a mechanical room on the roof adjacent to the auditorium. During our walkthrough we were informed that the heating plant is being replaced and the design for the same is in progress. ECMs related to replacing the hot water boilers and hot water pumps have not been evaluated.

Cooling: The school has several spaces that are air conditioned. The library and the assembly hall are provided with Trane rooftop units with gas heating. The library unit is of 25 ton capacity and the assembly hall unit is of 10 ton capacity. Similarly, classrooms 112 and 113 are each provided with rooftop unit of 5 ton capacity with gas heating. Science classrooms 151, 153 and 155 are air conditioned by an 18 ton capacity McQuay rooftop unit with gas heating. 14 classrooms on the first and second floors of the 2000 wing are air conditioned by self-contained unit ventilators with hot water heating coils. Principal's office, guidance and general office is cooled by a 7 ½ ton capacity DX split ac unit. Hallways in the science wing are cooled by 5 DX split ac units. Window air conditioners are provided in 14 classrooms. All equipment, except window air conditioners, was installed in 2000 and is in fair condition. ECMs related to replacing the equipment with high efficiency units have been evaluated. Window air conditioners are in good condition; however, an ECM related to installing window air conditioner controllers has been evaluated to improve energy savings.

Details of the equipment are shown in the Table below:

Description	Manufacturer Name	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served
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Boilers	Superior	Gas fired hot water boilers	10,500 MBH input each	Boiler Room in basement	Heating system for whole School
Heating Hot Water Pumps	Bell and Gossett	Centrifugal Pump with 5HP electric motor	N/A	Boiler Room in basement	Heating for whole school except 2000 section
Heating Hot Water Pumps	Armstrong	Centrifugal Pump with 2 HP electric motor	36 GPM @ 50 Ft. Head	Boiler Room in basement	Heating for 2000 section
Unit Ventilators	AAF	Unit Ventilator with self-contained cooling and hot water heating coil	N/A	Classrooms in 2000 section	Classrooms
Unit Ventilators	N/A	Unit Ventilator with hot water heating coil	N/A	Classrooms	Classrooms
Heating and Ventilation Unit	N/A	Heating and Ventilation Unit with hot water heating coil	N/A	Gymnasium	Gymnasium
Heating and Ventilation Unit	N/A	Heating and Ventilation Unit with hot water heating coil	N/A	Auditorium	Auditorium
Rooftop Unit	Allied Commercial	Rooftop Unit with electric cooling	5 Ton nominal cooling capacity	Roof	Classroom 112
Rooftop Unit	Lennox	Rooftop Unit with electric cooling	53,500 BTU nominal cooling capacity	Roof	Classroom 113
Rooftop Unit	Trane	Rooftop Unit with electric cooling and gas heating	10 ton nominal cooling and 135 MBH Input/109.35 MBH Output gas furnace	Roof	Library Wing

Rooftop Unit	Trane	Rooftop Unit with electric cooling and gas heating	25 ton nominal cooling and 250 MBH Input/203 MBH Output gas furnace	Roof	Library Wing
Rooftop Unit	McQuay	Rooftop Unit with electric cooling and gas heating	18 ton nominal cooling and 400 MBH Input/320 MBH Output gas furnace	Roof	Science Classrooms 151,153 and 155
DX Split AC Units	Arcoaire	DX Split AC unit with air cooled condensing unit	4 ton nominal cooling capacity	Roof	Hallways
DX Split AC Units	N/A	DX Split AC unit with air cooled condensing unit	7/12 ton nominal cooling capacity	Roof	Principal's Office and Main Office
Unit Heater	N/A	Unit heaters with hot water heating coils	N/A	Ceiling of Gymnasium	Gymnasium

Ventilation: Unit ventilators provided in classrooms take in outside air for ventilation through a ducted connection to an outside air intake louver. Outside air is controlled by unit ventilator dampers that are pneumatically operated. The heating and ventilation units have ducted air intake connections from outside air intake louvers. All the rooftop units are equipped with integral outside air intakes with control dampers. As ventilation rates are assumed to be minimum, there are no ECMs associated with the ventilation system.

Exhaust: This building has multiple fractional HP exhaust fans serving restrooms and general exhaust located on the roof. The fans are enclosed and therefore the capacities of fan motors are unknown. No ECMs were evaluated for the exhaust fans.

Controls Systems

The overall building controls are pneumatically operated. The boilers' operation is controlled by both an outside air temperature control and a time clock. Unit ventilators are equipped with hot water control valves controlled by room thermostats. All heating and ventilation units are controlled by three way control valves. All controls are operated by pneumatic controls. A Quincy air compressor with a Hankison dryer unit is installed in the boiler room. Classroom unit ventilator thermostats were reported to be set at 72 deg F, however, the users manually adjust

the temperature settings to suit their needs. The heating plant is turned on at 6.30 AM and turned off at 6.30 PM. A centrally located temperature sensor activates the heating system if the temperature is sensed below 50 deg F. The control system is well maintained and is in good condition.

Although the existing pneumatic control system is in good working condition and provides basic day/night functions, the School District should consider replacing the existing pneumatic control system with a Direct Digital Control (DDC) system. The advantages of this type of system include individual unit controllability and scheduling, trending of set points and alarm notifications for malfunctioning devices. Front end graphics available in a DDC system enable the maintenance staff to see the functioning of all systems at one location and provide service to trouble spots quickly and efficiently. Web based control systems allow access and adjustment from remote locations. The cost as well as the payback period for upgrading the pneumatic control system to a DDC control system is high, therefore further study is recommended prior to pursuing this as an energy conservation measure.

All rooftop units, DX split ac units and self-contained unit ventilators are controlled by individual thermostats that are electrically operated. Window air conditioners are equipped with built in thermostats. Temperature set points for rooftop units, unit ventilators and DX split ac units were reported to be set at 72°F. An ECM related to replacing the manually operated thermostats with programmable thermostats has been evaluated. Also, an ECM related to installing window AC unit controllers has been evaluated.

Domestic Hot Water Systems

Domestic hot water is generated in a domestic hot water tank installed in the boiler room and is equipped with a hot water heat exchanger. Heating hot water from the hot water boiler is circulated through the heat exchanger. The hot water boiler runs through the year to provide domestic hot water to the school. Domestic hot water is circulated by a Bell and Gossett pump also installed in the boiler room. All equipment is original installed in 1960. During our walkthrough we were informed that the heating plant is being replaced and the design for the same is in progress. Hence no ECM related to domestic hot water system has been evaluated.

Kitchen Equipment

The school has a kitchen and food is prepared daily. Kitchen equipment consists of gas ranges, three compartment sinks and a dish washer. There are three freezer units, three commercial refrigerators, two electric ovens and one gas oven. Kitchen exhaust hood is provided for the gas range. All the equipment is in good working condition. However, to improve energy savings an ECM related to kitchen hood control has been evaluated. Also, a recommendation is made to replace kitchen equipment with energy star rated equipment when needed.

Plug Load

This building has computers, printers/copiers fitness and exercise equipment which contribute to the plug load in the building. Plug load is minimal and an O&M recommendation has been included to purchase Energy Star rated equipment when old ones need replacement.

Plumbing Systems

The urinals and toilets appear to be high flow plumbing fixtures. The sink faucets do not appear to have low-flow type aerators. An analysis for reducing the water consumption was not performed since the school informed us that water is provided to them at no cost. Although the cost of water usage in most facilities is relatively small compared with costs of electric and gas usage, reducing water usage helps conserve and protect vital water supply sources. Hence, a recommendation has been included in the O&M section to install low-flow plumbing fixtures and aerators when fixture replacement is planned.

Lighting Systems

The school has a mixture of T-12 and T-8 fluorescent lighting fixtures. The auditorium has forty three (43) 150 watt metal halide lights and the gymnasium has fifty (50) 250 watt metal halide lights. Some spaces like the boiler room, restrooms, janitor's closets and storage rooms are provided with incandescent lights. Exterior lights are a mixture of incandescent and metal halide lights. All the lights in this building are controlled by manual switches except exterior lights which are controlled by timer. LED lights are recommended in this study. We have provided three alternatives for the observed lighting that include adding occupancy sensors to the existing lights, replacing the lights with LED lights and a third ECM that evaluates adding occupancy sensors to the proposed LED lights.

3.0 UTILITIES

Natural gas and electricity are separately metered into this building. Utilities used by the building are delivered and supplied by the following utility companies:

	Electric	Natural Gas
Deliverer	PSE&G	PSE&G
Supplier	Direct Energy	PSE&G

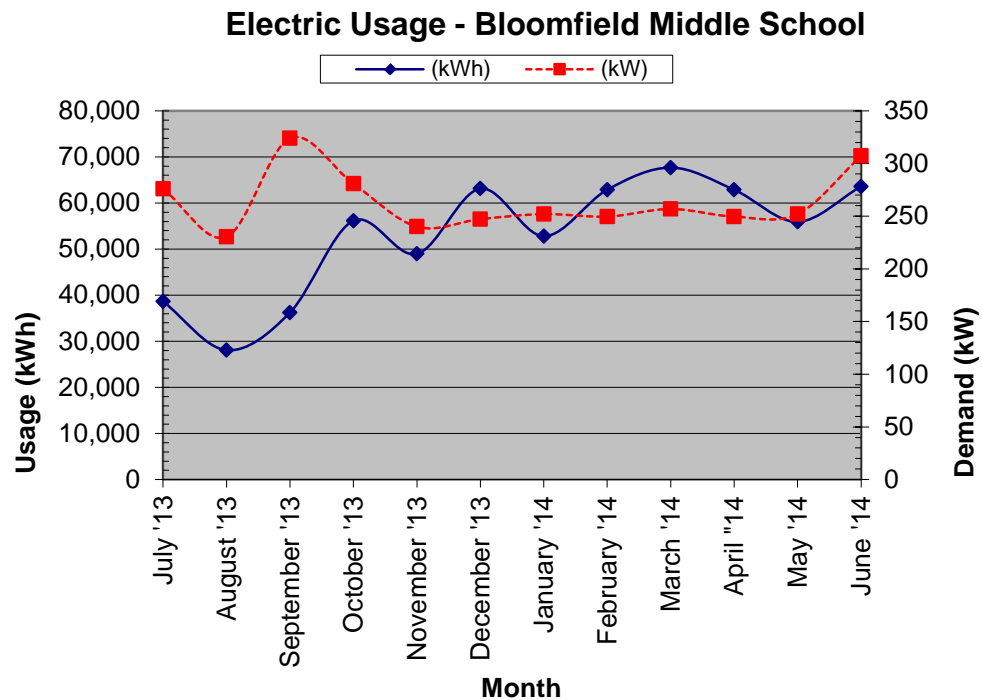
For the 12-month period ending in June 2014, the utilities usages and costs for the building were as follows:

Electric		
Annual Consumption	636,960	kWh
Annual Cost	117,795	\$
Blended Unit Rate	0.185	\$/kWh
Supply Rate	0.152	\$/kWh
Demand Rate	6.57	\$/kW
Peak Demand	324.0	kW
Natural Gas		
Annual Consumption	75,621	Therms
Annual Cost	76,987	\$
Unit Rate	1.018	\$/therm

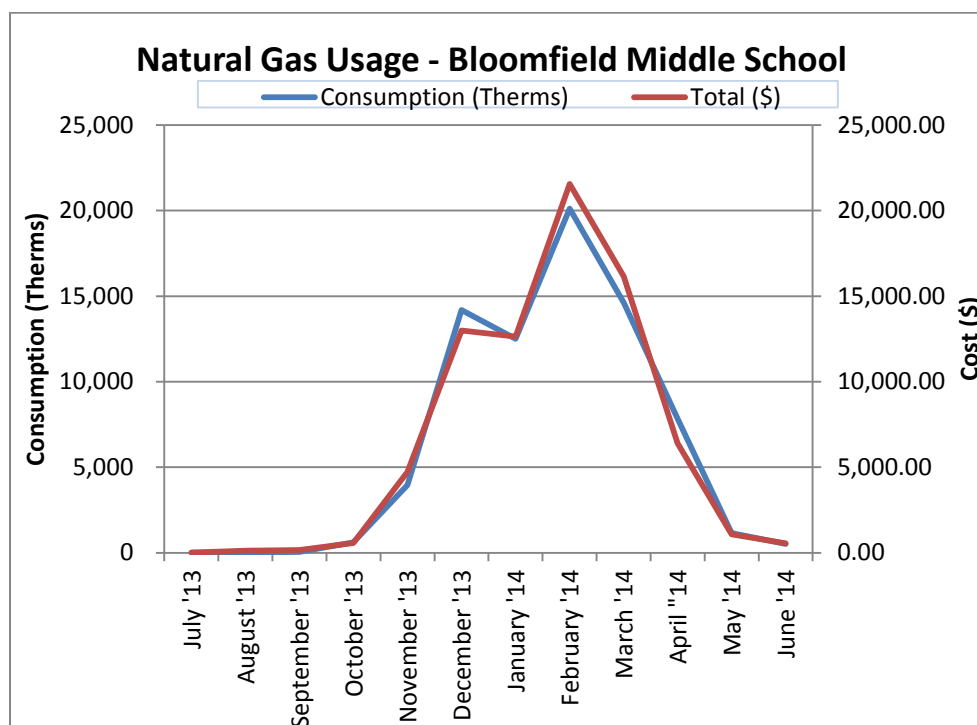
Blended Rate: Average rate charged determined by the annual cost / annual usage

Supply Rate: Estimated

Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)



The electric usage fluctuates with the building usage. The consumption during July and August months is lower due to holidays when air conditioning units are not in operation and lighting load is minimum.



Natural gas in the building is used by the hot water boilers and kitchen. The gas usage in the non-heating season is small and only for DHW heating and kitchen. The gas usage during the heating season is correlated to winter weather conditions.

See Appendix A for utility analysis.

Under New Jersey's energy deregulation law, the supply portion of the electric (or natural gas) bill is separated from the delivery portion. The supply portion is open to competition, and customers can shop around for the best price for their energy suppliers. The electric and natural gas distribution utilities will still deliver the gas/ electric supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing the energy supplies from a company other than your electric or gas utility is purely an economic decision; it has no impact on the reliability or safety of the service.

Comparison of Utility Rates to NJ State Average Rates*				Recommended to Shop for Third Party Supplier?
Utility	Units	Average Rate	NJ Average Rate	
Electricity	\$/kWh	\$0.185	\$0.13	Y
Natural Gas	\$/Therm	\$1.018	\$0.96	Y

* Per U.S. Energy Information Administration (2013 data – Electricity and Natural Gas, 2012 data – Fuel Oil)

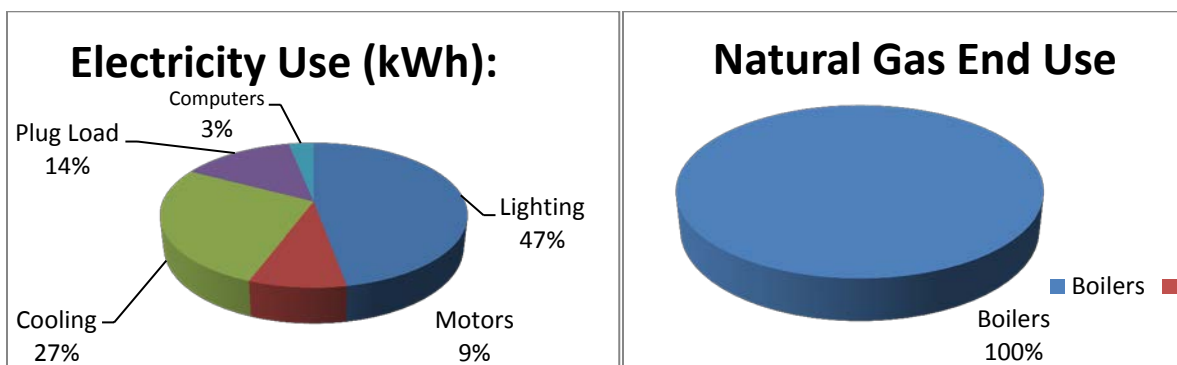
Additional information on selecting a third party energy supplier is available here:

<http://www.state.nj.us/bpu/commercial/shopping.html>.

See Appendix A for a list of third-party energy suppliers licensed by the Board of Public Utilities to sell within the building's service area.

The charts below represent estimated utility end-use utility profiles for the building. The values used within the charts were estimated from a review of the utility analysis and the energy savings calculations.

Site End-Use Utility Profile



4.0 BENCHMARKING

The EPA Portfolio Manager benchmarking tool provides a site and source Energy Use Intensity (EUI), as well as an Energy Star performance rating for qualifying building types. The EUIs are provided in kBtu/ft²/year, and the performance rating represents how energy efficient a building is on a scale of 1 to 100, with 100 being the most efficient. In order for a building to receive an Energy Star label, the energy benchmark rating must be at least 75. As energy use decreases from implementation of the proposed measures, the Energy Star rating will increase. However, the EPA does not have a score for all types of buildings. The buildings that do not have an energy rating now are compared with the national median EUI.

The site EUI is the amount of heat and electricity consumed by a building as reflected in utility bills. Site energy may be delivered to a facility in the form of primary energy, which is raw fuel burned to create heat or electricity, such as natural gas or oil; or as secondary energy, which is the product created from a raw fuel such as electricity or district steam. To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, Portfolio Manager uses the convention of source EUIs. The source energy also accounts for losses incurred in production, storage, transmission, and delivery of energy to the site, which provide an equivalent measure for various types of buildings with differing energy sources. The results of the benchmarking are contained in the table below.

Site EUI kBtu/ft ² /yr	Source EUI (kBtu/ft ² /yr)	Energy Star Rating (1-100)
63.5	96.3	57

The school building's Energy Star score is 57. The score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide. A score of 50 represents median energy performance and a score of 75 or higher indicates that the building is a top performer. The site EUI of the school building is 63.5 and source EUI is 96.3. The building has lower EUIs than the national median EUIs (national median site EUI is 67.8 kBtu/ft² and national median source EUI is 102.8 kBtu/ft²). The EUI of this building is (-)6% lower than the national median. The EUI could be further reduced after implementing some of the proposed energy conservation measures.

The EPA Portfolio Manager can be accessed with the following.

[REDACTED]

[REDACTED]

5.0 ENERGY CONSERVATION MEASURES

The following types of energy savings opportunities are identified in this section of the report:

- Energy conservation measures (ECMs) are energy savings recommendations that typically require a financial investment. For these areas of opportunity, CHA prepared detailed calculations, as summarized in this section and in Appendix C. In general, additional savings may exist from reductions in maintenance activities associated with new equipment or better controls; however for conservatism, maintenance savings are not accounted for in this report; instead the only savings which are reported are those derived directly from reductions in energy which can be tracked by the utility bills.
- Operational and Maintenance measures (O&M) consist of low- or no-cost operational opportunities, which if implemented would have positive impacts on overall building operation, comfort levels, and/or energy usage. There are no estimated savings, costs or paybacks associated with the O&M measures included as part of this study.

Energy savings were quantified in the form of:

- electrical usage (kWh=Kilowatt-hour),
- electrical demand (kW=kilowatts),
- natural gas (therms=100,000 Btu),
- propane gas (gallons=91,650 Btu),
- fuel oil (gallons =138,700 Btu), and
- water (kgal=1,000 gallons).

These recommendations are influenced by the time period that it takes for a proposed project to “break even” referred to as “Simple Payback”. Simple payback is calculated by dividing the estimated cost of implementing the ECM by the energy cost savings (in dollars) of that ECM.

Another financial indicator of the performance of a particular ECM is the Return on Investment or ROI, which represents the benefit (annual savings over the life of a project) of an investment divided by the cost of the investment. The result is expressed as a percentage or ratio.

Two other financial analyses included in this report are Internal Rate of Return (IRR) and Net Present Value (NPV). Internal Rate of Return is the discount rate at which the present value of a project costs equals the present value of the project savings. Net Present Value is the difference between present value of an investment’s future net cash flows and the initial investment. If the NPV equals “0”, the project would equate to investing the same amount of dollars at the desired rate. NPV is sometimes referred to as Net Present Worth. These values are provided in the Summary Tab in Appendix C.

5.1 ECM-1 Window replacement

The original building has all single pane windows. The 2000 wing has double pane windows. Single pane windows lead to large amount of the heating/cooling loss. Replacing these old windows with high heat resistance double pane windows will help reduce the energy loss and save energy.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-1 Window replacement

Budgetary Cost	Annual Utility Savings			ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas				
\$	kW	kWh	Therms	\$	\$	Years	Years
1,572,900	0	0	11,748	11,960	(0.8)	0	131.5

*Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

5.2 ECM-2 Install window AC controller

Window A/C units are currently controlled manually by the occupants and are not turned off when the room is unoccupied. This ECM evaluates implementation of a digital timer device that will automatically turn the window A/C unit off at a preset time.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-2 Install window AC controller

Budgetary Cost	Annual Utility Savings			ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas				
\$	kW	kWh	Therms	\$	\$	Years	Years
2,900	0	8,174	0	1,512	6.8	0	1.9

* Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is recommended.

5.3 ECM-3 Replace rooftop units with high efficiency units

This ECM evaluates the energy savings associated with replacing older less efficient heating and cooling equipment with modern high efficiency unitary equipment which has the same capacities. Calculations for savings in heating have not been made since the heat exchanger efficiencies are the same.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-3 Replace rooftop units with high efficiency units

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
146,500	10	19,773	0	3,780	(0.5)	5,047	38.8	37.4

* Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

5.4 ECM-4 Replace DX split units with high efficiency units

There are five split DX ac units - one serving the Principal's office and four serving the hallways. These units are 15 years old and have lived their useful life. This ECM evaluates energy savings by replacing the units with modern high efficiency units of the same capacity. Savings on heating have not been made because the heat exchanger efficiencies are the same.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-4 Replace DX split units with high efficiency units

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
73,508	0	22,241	0	4,115	(0.2)	2,388	17.9	17.3

* Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

5.5 ECM-5 Replace manual thermostats with programmable thermostats

This measure assesses the energy savings associated with replacing the standard non programmable thermostat with a programmable thermostat allowing for unoccupied temperature set- back

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-5 Replace manual thermostats with programmable thermostats

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				

\$	kW	kWh	Therms	\$		\$	Years	Years
4,901	0	12,621	288	2,628	7.0	825	1.9	1.6

* Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.6 ECM-6 Kitchen Hood Control

This ECM evaluates the thermal and electrical energy savings associated with the implementation of a variable flow controlled exhaust hood (Fan) and make-up air unit. The Hood controller uses infrared heat sensors to detect the level of smoke produced by the cooking operations and automatically adjusts the exhaust fan and make-up air fan to provide the proper amount of air flow needed to remove the particulate from the hood. The system uses a default minimum air flow value to ensure that smoke particulate is removed at all times during cooking operations.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-6 Kitchen Hood Control

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
45,439	0	1,456	2,191	2,500	(0.2)	0	18.2	18.2

* Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is not recommended due to the long payback period.

5.7.1 ECM-L1 Lighting Replacement / Upgrades

The school has a mixture of T-12 and T-8 fluorescent lighting fixtures. The All Purpose room has twenty eight (28) 400 watt metal halide lights and the stage has six (6) 400 watt metal halide lights. Some spaces like the boiler room, restrooms, janitor's closets and storage rooms are provided with incandescent lights. Exterior lights are a mixture of incandescent and compact fluorescent lights. All the lights in this building are controlled by manual switches except exterior lights which are controlled by timer.

Overall energy consumption can be reduced by replacing inefficient bulbs and linear fluorescent bulbs with more efficient LED technology. To compute the annual savings for this ECM, the energy consumption of the current lighting fixtures was established and compared to the proposed fixture power requirement with the same annual hours of operation. The difference between the existing and proposed annual energy consumption was the energy savings. These calculations are based on 1 to 1 replacements of the fixtures, and do not take into account lumen output requirements for a given space. A more comprehensive engineering study should be performed to determine correct lighting levels.

Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C and summarized below:

ECM-L1 Lighting Replacement / Upgrades

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
139,024	41	87,283	0	16,507	1.1	20,060	8.4	7.2

* LED retrofits must go through the “custom” measures incentive option under New Jersey SmartStart Program. There are no “prescriptive” incentives for LED retrofits. Projects must achieve a minimum of 75,000 kWh annual savings to qualify for “custom” incentives. See section 6.0 for other incentive opportunities

This measure is not recommended in lieu of ECM L3.

5.7.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

The majority of the interior lights are controlled by wall mounted switches. Review of the comprehensive lighting survey determined that lighting in some areas could benefit from installation of occupancy sensors to turn off lights when they are unoccupied.

This measure recommends installing occupancy sensors for the current lighting system. Using a process similar to that utilized in Section ECM-L1, the energy savings for this measure was calculated by applying the known fixture wattages in the space to the estimated existing and proposed times of operation for each fixture.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-L2 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings			ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)	
	Electricity		Natural Gas					Total
\$	kW	kWh	Therms	\$	\$	Years	Years	
22,829	0	72,493	0	11,019	7.8	3,560	2.1	1.7

* Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended in lieu of ECM L3.

5.7.3 ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)

This measure is a combination of ECM-L1 and ECM-L2; recommending replace/upgrade the current lighting fixtures to more efficient ones and installing occupancy sensors on the new lights. Interactive effects of the higher efficiency lights and occupancy sensors lead the energy and cost savings for this measure to not be cumulative or equivalent to the sum of replacing the lighting fixtures alone and installing occupancy sensors without

the lighting upgrade. The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
197,006	41	137,032	0	24,069	1.2	23,620	8.2	7.2

* LED retrofits must go through the “custom” measures incentive option under New Jersey SmartStart Program. There are no “prescriptive” incentives for LED retrofits. Projects must achieve a minimum of 75,000 kWh annual savings to qualify for “custom” incentives. See section 6.0 for other incentive opportunities

This measure is recommended.

5.8 Additional O&M Opportunities

This list of operations and maintenance (O&M) - type measures represent low-cost or no-cost opportunities, which if implemented will have a positive impact on the overall building operations, comfort and/or energy consumption. The recommended O&M measures for this building are as follows:

- Replace door seals and sweeps.
- Purchase Energy Star equipment when old ones need replacement.
- Upgrade the plumbing fixtures to low flow plumbing fixtures and aerators when needed

6.0 PROJECT INCENTIVES

6.1 Incentives Overview

The following sections give detailed information on available incentive programs including New Jersey Smart Start, Direct Install, New Jersey Pay for Performance (P4P) and Energy Savings Improvement Plan (ESIP). If the city wishes to and is eligible to participate in the Energy Savings Improvement Plan (ESIP) program and/or the Pay for Performance Incentive Program (P4P), it cannot participate in either the Smart Start or Direct Install Programs. Refer to Appendix D for more information on the Smart Start program.

6.1.1 New Jersey Smart Start Program

For this energy audit, The New Jersey Smart Start Incentives are used in the energy savings calculations, where applicable. This program is intended for medium and large energy users and provides incentives for:

- Electric Chillers
- Gas Chillers
- Gas Heating
- Unitary HVAC
- Ground Source Heat Pumps
- Variable frequency Drives/ motors
- Refrigeration
- Prescriptive and performance lighting and lighting controls

The equipment is procured using a typical bid- build method, installed and paid for and then the incentives are reimbursed to the owner.

Refer to Appendix D for more information on the Smart Start program.

6.1.2 Direct Install Program

The Direct Install Program applies to smaller facilities that have a peak electrical demand of 200 kW or less in any of the previous 12 months. Buildings must be located in New Jersey and served by one of the state's public, regulated electric utility companies.

Direct Install is funded through New Jersey's Clean Energy Program and is designed to provide capital for building energy upgrade projects to fast track implementation. The program will pay up to 70% of the costs for lighting, HVAC, motors, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can reduce the implementation cost of energy conservation projects.

The Direct Install program has specific HVAC equipment and lighting requirements and is generally applicable only to smaller package HVAC units, small boilers and lighting retrofits.

The program pays a maximum amount of \$75,000 per building, and up to \$250,000 per customer per year. Installations must be completed by an approved Direct Install participating contractor, a list of which can be found on the New Jersey Clean Energy Website. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this energy audit. The incentive is reimbursed to the Owner upon successful replacement and payment of the equipment.

Bloomfield Middle School does not qualify for the direct install program since the peak electric demand is higher than 200 KW.

Refer to Appendix D for more information on this program.

6.1.3 New Jersey Pay For Performance Program (P4P)

This building may be eligible for incentives from the New Jersey Office of Clean Energy. The most significant incentives are available from the New Jersey Pay for Performance (P4P) Program. The P4P program is designed to offset the cost of energy conservation projects for facilities that pay the Societal Benefits Charge (SBC) and whose demand (kW) in any of the preceding 12 months exceeds 100 kW. This demand minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations and *is not applicable to public schools*. Facilities that meet this criterion must also achieve a minimum performance target of 15% energy reduction by using the EPA Portfolio Manager benchmarking tool before and after implementation of the measure(s). Additionally, the overall return on investment (ROI) must exceed 10%. If the participant is a municipal electric company customer, and a customer of a regulated gas New Jersey Utility, only gas measures will be eligible under the Program. Available incentives are as follows:

Incentive #1: Energy Reduction Plan – This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP). The ERP must include a detailed energy audit of the desired ECMs, energy savings calculations (using building modeling software) and inputting of all utility bills into the EPA Portfolio Manager website.

- Incentive Amount: \$0.10/SF
- Minimum incentive: \$5,000
- Maximum Incentive: \$50,000 or 50% of Facility annual energy cost

The standard incentive pays \$0.10 per square foot, up to a maximum of \$50,000, not to exceed 50% of facility annual energy cost, paid after approval of application. For building audits funded by the New Jersey Board of Public Utilities, which receive an initial 75% incentive toward performance of the energy audit, facilities are only eligible for an additional \$0.05 per square foot, up to a maximum of \$25,000, rather than the standard incentive noted above. The ERP must be completed by a Certified Energy Manager (CEM) and submitted along with the project application.

Incentive #2: Installation of Recommended Measures – This incentive is based on projected energy savings as determined in Incentive #1 (Minimum 15% savings must be achieved), and is paid upon successful installation of recommended measures.

Electric

- Base incentive based on 15% savings: \$0.09/ per projected kWh saved.
- For each % over 15% add: \$0.005 per projected kWh saved.
- Maximum incentive: \$0.11/ kWh per projected kWh saved.

Gas

- Base incentive based on 15% savings: \$0.90/ per projected Therm saved.
- For each % over 15% add: \$0.05 per projected Therm saved.
- Maximum incentive: \$1.25 per projected Therm saved.

Incentive cap: 25% of total project cost

Incentive #3: Post-Construction Benchmarking Report – This incentive is paid after acceptance of a report proving energy savings over one year utilizing the Environmental Protection Agency (EPA) Portfolio Manager benchmarking tool.

Electric

- Base incentive based on 15% savings: \$0.09/ per projected kWh saved.
- For each % over 15% add: \$0.005 per projected kWh saved.
- Maximum incentive: \$0.11/ kWh per projected kWh saved.

Gas

- Base incentive based on 15% savings: \$0.90/ per projected Therm saved.
- For each % over 15% add: \$0.05 per projected Therm saved.
- Maximum incentive: \$1.25 per projected Therm saved.

Combining Incentives #2 and #3 will provide a total of \$0.18/ kWh and \$1.8/therm not to exceed 50% of total project cost. Additional Incentives for #2 and #3 are increased by \$0.005/kWh and \$0.05/therm for each percentage increase above the 15% minimum target to 20%, calculated with the EPA Portfolio Manager benchmarking tool, not to exceed 50% of total project cost.

For the purpose of demonstrating the eligibility of the ECM's to meet the minimum savings requirement of 15% annual savings and 10% ROI for the Pay for Performance Program, all ECM's identified in this report have been included in the incentive calculations. The results for the building are shown in Appendix C, with more detailed program information in Appendix D.

6.1.4 Energy Savings Improvement Plan

The Energy Savings Improvement Program (ESIP) allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under the recently enacted Chapter 4 of the Laws of 2009 (the law), the ESIP provides all government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources.

ESIP allows local units to use “energy savings obligations” (ESO) to pay for the capital costs of energy improvements to their facilities. ESIP loans have a maximum loan term of 15 year. ESOs are not considered “new general obligation debt” of a local unit and do not count against debt limits or require voter approval. They may be issued as refunding

bonds or leases. Savings generated from the installation of energy conservation measures pay the principal of and interest on the bonds; for that reason, the debt service created by the ESOs is not paid from the debt service fund, but is paid from the general fund.

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach. The "Local Finance Notice" outlines how local governments can develop and implement an ESIP for their facilities. The ESIP can be prepared internally if the entity has qualified staff. If not, the ESIP must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Refer to Appendix D for more information on this program.

6.1.5 Renewable Energy Incentive Program

The Renewable Energy Incentive Program (REIP) is part of New Jersey's efforts to reach its Energy Master Plan goals of striving to use 30 percent of electricity from renewable sources by 2020.

Incentives for sustainable bio-power projects and for energy storage projects are currently under development, with competitive solicitations for each of those technologies expected to begin in the first quarter of 2014. The wind program is currently on hold.

New solar projects are no longer eligible for REIP incentives, but can register for Solar Renewable Energy Certificates (SRECs) through the SREC Registration Program (SRP).

7.0 ALTERNATIVE ENERGY SCREENING EVALUATION

7.1 Solar

7.1.1 Photovoltaic Rooftop Solar Power Generation

The building was evaluated for the potential to install rooftop photovoltaic (PV) solar panels for power generation. Present technology incorporates the use of solar cell arrays that produce direct current (DC) electricity. This DC current is converted to alternating current (AC) with the use of an electrical device known as an inverter. The amount of available roof area determines how large of a solar array can be installed on any given roof. The table below summarizes the approximate roof area available on the building and the associated solar array size that can be installed.

Available Roof Area (Ft ²)	Potential PV Array Size (kW)
30,309	240

The PVWATTS solar power generation model was utilized to calculate PV power generation; this model is provided in Appendix E.

Installation of (PV) arrays in the state New Jersey will allow the owner to participate in the New Jersey Solar Renewable Energy Certificates Program (SREC). This is a program that has been set up to allow entities with large amounts of environmentally unfriendly emissions to purchase credits from zero emission (PV) solar-producers. An alternative compliance penalty (ACP) is paid for by the high emission producers and is set each year on a declining scale of 3% per year. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. Payments that will be received by the PV producer will change from year to year dependent upon supply and demand. There is no definitive way to calculate an exact price that will be received by the PV producer for SREC credits over the next 15 years. Renewable Energy Consultants estimates an average of \$200/SREC for 2015 and this number was utilized in the cash flow for this report.

The system costs for PV installations were derived from recent solar contractor budgetary pricing in the state of New Jersey and include the total cost of the system installation (PV panels, inverters, wiring, ballast, controls). The cost of installation is currently about \$4.00 per watt or \$4,000 per kW of installed system, for a typical system. There are other considerations that have not been included in this pricing, such as the condition of the roof and need for structural reinforcement. Photovoltaic systems can be ground mounted if the roof is not suitable, however, this installation requires a substantial amount of open property (not wooded) and underground wiring, which adds more cost. PV panels have an approximate 20 year life span; however, the inverter device that converts DC electricity to AC has a life span of 10 to 12 years and will most likely need to be replaced during the useful life of the PV system.

The implementation cost and savings related to this ECM are presented in Appendix E and summarized as follows:

Photovoltaic (PV) Rooftop Solar Power Generation – 240 kW System

Budgetary Cost	Annual Utility Savings			Total Savings	New Jersey Renewable SREC	Payback (without SREC)	Payback (with SREC)	Recommended
	Electricity		Natural Gas					
\$	kW	kWh	Therms	\$	\$	Years	Years	Y/N
\$960,000	240	305,972	0	\$56,605	\$61,194	17.0	8.1	FS

Note: CHA typically recommends a more detailed evaluation be conducted for the installation of PV Solar arrays when the screening evaluation shows a payback of less than 20 years. Therefore, this ECM is recommended for further study. Before implementation is pursued, the school should consult with a certified solar PV contractor.

7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat a fluid. An absorber in the collector (usually black colored piping) converts the sun's energy into heat. The heat is transferred to circulating water, antifreeze, or air for immediate use or is storage for later utilization. Applications for active solar thermal energy include supplementing domestic hot water, heating swimming pools, space heating or preheating air in residential and commercial buildings.

A standard solar hot water system is typically composed of solar collectors, heat storage vessel, piping, circulators, and controls. Systems are typically integrated to work alongside a conventional heating system that provides heat when solar resources are not sufficient. The solar collectors are usually placed on the roof of the building, oriented south, and tilted at the same angle as the site's latitude, to maximize the amount of solar radiation collected on a yearly basis.

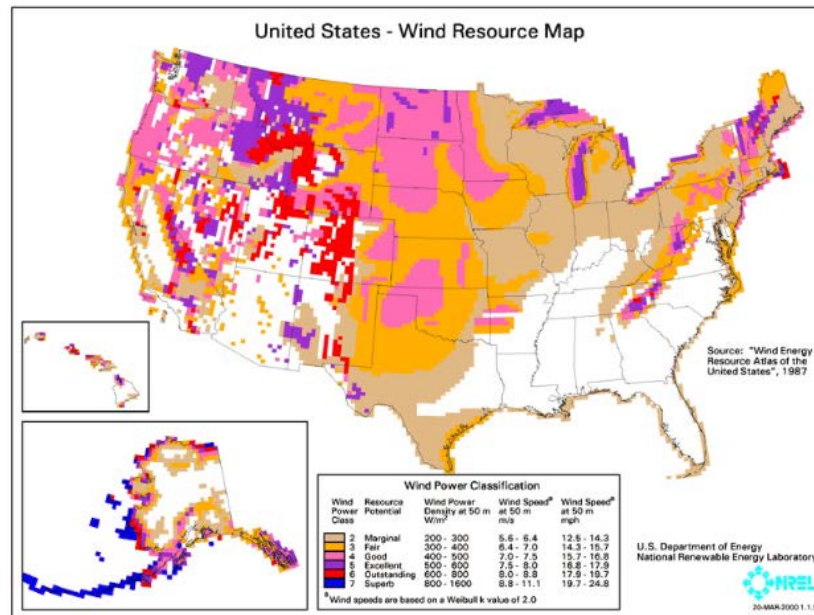
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). The most practical system would transfer the heat from the panels to thermal storage tanks and then use the pre-heated water for domestic hot water production. DHW is presently produced by natural gas fired water heaters and, therefore, this measure would offer natural gas utility savings. Unfortunately, the amount of domestic hot water that is currently used by this building is very small. Installing a solar domestic hot water system is not recommended due to the limited amount of domestic hot water presently consumed by the building.

This measure is not recommended due to the relatively low domestic hot water usage.

7.2 Wind Powered Turbines

Wind power is the conversion of kinetic energy from wind into mechanical power that is used to drive a generator which creates electricity by means of a wind turbine. A wind turbine consists of rotor and blades connected to a gearbox and generator that are

mounted onto a tower. Newer wind turbines also use advanced technology to generate electricity at a variety of frequencies depending on the wind speed, convert it to DC and then back to AC before sending it to the grid. Wind turbines range from 50 – 750 kW for utility scale turbines down to below 50 kW for residential use. On a scale of 1 (the lowest) to 7 (the highest), Class 3 and above (wind speeds of 13 mph or greater) are generally considered “good wind resource” according to the Wind Energy Development Programmatic EIS Information Center hosted by the Bureau of Land Management. According to the map below, published by NREL, Newark, NJ is classified as Class 1 at 50m, meaning the city would not be a good candidate for wind power.



This measure is not recommended due to the location of the building.

7.3 Combined Heat and Power Plant

Combined heat and power (CHP), cogeneration, is self-production of electricity on-site with beneficial recovery of the heat byproduct from the electrical generator. Common CHP equipment includes reciprocating engine-driven, micro turbines, steam turbines, and fuel cells. Typical CHP customers include industrial, commercial, institutional, educational institutions, and multifamily residential facilities. CHP systems that are commercially viable at the present time are sized approximately 50 kW and above, with numerous options in blocks grouped around 300 kW, 800 kW, 1,200 kW and larger. Typically, CHP systems are used to produce a portion of the electricity needed by a facility some or all of the time, with the balance of electric needs satisfied by purchase from the grid.

Any proposed CHP project will need to consider many factors, such as existing system load, use of thermal energy produced, system size, natural gas fuel availability, and proposed plant location. The building has sufficient need for electrical generation and the ability to use most of the thermal byproduct during the winter; however thermal usage during the summer months does not exist. Thermal energy produced by the CHP

plant in the warmer months will be wasted. An absorption chiller could be installed to utilize the heat to produce chilled water; however, there is no chilled water distribution system in the building. CHP is not recommended due to the building's limited summer thermal demand.

This measure is not recommended due to the absence of year-round thermal loads which are needed for efficiency CHP operation. However, a mini-size CHP could be an option for Bloomfield School District to consider. The sizing and energy savings of the mini-size CHP require further study.

7.4 Demand Response Curtailment

Presently, electricity is delivered by PSE&G, which receives the electricity from regional power grid RFC. PSE&G is the regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia including the State of New Jersey.

Utility Curtailment is an agreement with the utility provider's regional transmission organization and an approved Curtailment Service Provider (CSP) to shed electrical load by either turning major equipment off or energizing all or part of a facility utilizing an emergency generator; therefore, reducing the electrical demand on the utility grid. This program is to benefit the utility company during high demand periods and utility provider offers incentives to the CSP to participate in this program. Enrolling in the program will require program participants to drop electrical load or turn on emergency generators during high electrical demand conditions or during emergencies. Part of the program also will require that program participants reduce their required load or run emergency generators with notice to test the system.

A pre-approved CSP will require a minimum of 100 kW of load reduction to participate in any curtailment program. From January 2014 through December 2014 the following table summarizes the electricity load profile for the building.

Building Electric Load Profile

Peak Demand kW	Min Demand kW	Avg Demand kW	Onsite Generation Y/N	Eligible? Y/N
324.0	230.4	263.8	Y	Y

*the demand is estimated from one month bill

This measure is recommended.

8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for the Bloomfield School District at Bloomfield Middle School.

The following projects should be considered for implementation:

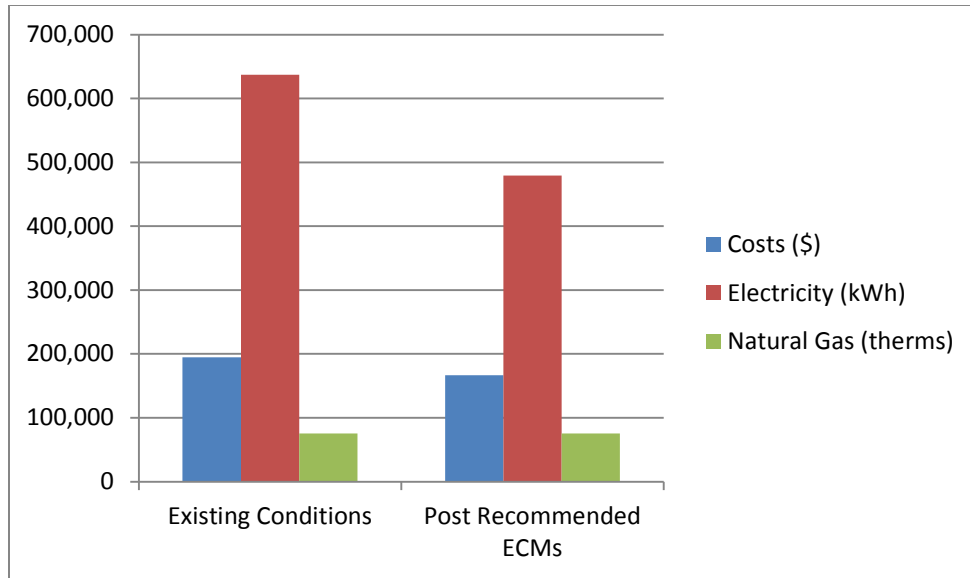
- Install window AC controllers
- Replace manual thermostats with programmable thermostats
- Lighting Replacements with Controls (Occupancy Sensors)

The potential annual energy and cost savings for the recommended ECMs are shown in the following table.

Electric Savings (kWh)	Natural Gas Savings (therms)	Total Savings (\$)	Payback (years)
157,827	288	\$28,209	7.3

If the Bloomfield School District implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	194,782	166,573	14%
Electricity (kWh)	636,960	479,133	25%
Natural Gas (therms)	75,621	75,333	0%
Site EUI (kbtu/SF/Yr)	63.5	59.8	



Next Steps: This energy audit has identified several areas of potential energy savings. Bloomfield School District can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program. A close-out meeting will be scheduled with school staff members to review the ECMs and possible incentive options.

APPENDIX A

Utility Usage Analysis and Alternate Utility Suppliers

Bloomfield Middle School
60 Huck Road Bloomfield, NJ 07003

Bloomfield Middle School

Annual Utilities
12-month Summary

Electric		
Annual Usage	636,960	kWh/yr
Annual Cost	117,795	\$
Blended Rate	0.185	\$/kWh
Consumption Rate	0.152	\$/kWh
Demand Rate	6.57	\$/kW
Peak Demand	324.0	kW
Min. Demand	230.4	kW
Avg. Demand	263.8	kW
Natural Gas		
Annual Usage	75,621	Therms/yr
Annual Cost	76,987	\$
Rate	1.018	\$/Therm

Bloomfield Middle School
60 Huck Road Bloomfield, NJ 07003

Utility Bills: Account Numbers

<u>Account Number</u>	<u>School Building</u>	<u>Location</u>	<u>Type</u>	<u>Notes</u>
4200596601	Bloomfield Middle School	60 Huck Road Bloomfield, NJ 07003	Electricity	
4200596601	Bloomfield Middle School	60 Huck Road Bloomfield, NJ 07003	Gas	
6759414306	Bloomfield Middle School	60 Huck Road Bloomfield, NJ 07003	Gas	

Bloomfield Middle School
60 Huck Road Bloomfield, NJ 07003

For Service at: Bloomfield Middle School

Account # 4200596601

Meter # 778011489

Electric Service

Delivery - PSE&G
Supplier - DIRECT ENERGY

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	Consumption (kWh)	Demand (kW)	Delivery (\$)	Supplier (\$)	Total (\$)	Consumption (\$)	Demand (\$)	Blended Rate (\$/kWh)	Consumption Rate (\$/kWh)	Demand (\$/kW)
July '13	38,640	276.0	\$ 4,845.89	\$ 4,583.81	\$9,429.70	\$ 6,124.19	\$ 3,305.51	\$ 0.24	\$ 0.16	\$ 11.98
August '13	28,080	230.4	\$ 3,981.14	\$ 3,370.46	\$7,351.60	\$ 4,592.21	\$ 2,759.39	\$ 0.26	\$ 0.16	\$ 11.98
September '13	36,240	324.0	\$ 5,348.34	\$ 4,385.09	\$9,733.43	\$ 5,853.05	\$ 3,880.38	\$ 0.27	\$ 0.16	\$ 11.98
October '13	56,160	280.8	\$ 3,066.93	\$ 6,503.33	\$9,570.26	\$ 8,574.99	\$ 995.27	\$ 0.17	\$ 0.15	\$ 3.54
November '13	48,960	240.0	\$ 2,707.47	\$ 5,740.03	\$8,447.50	\$ 7,596.84	\$ 850.66	\$ 0.17	\$ 0.16	\$ 3.54
December '13	63,120	247.2	\$ 3,161.70	\$ 7,298.11	\$10,459.81	\$ 9,583.63	\$ 876.18	\$ 0.17	\$ 0.15	\$ 3.54
January '14	52,800	252.0	\$ 2,832.87	\$ 6,284.88	\$9,117.75	\$ 8,224.56	\$ 893.19	\$ 0.17	\$ 0.16	\$ 3.54
February '14	62,880	249.6	\$ 3,072.75	\$ 7,473.02	\$10,545.77	\$ 9,661.09	\$ 884.68	\$ 0.17	\$ 0.15	\$ 3.54
March '14	67,680	256.8	\$ 3,236.02	\$ 7,647.84	\$10,883.86	\$ 9,973.66	\$ 910.20	\$ 0.16	\$ 0.15	\$ 3.54
April '14	62,880	249.6	\$ 3,071.56	\$ 7,061.42	\$10,132.98	\$ 9,248.30	\$ 884.68	\$ 0.16	\$ 0.15	\$ 3.54
May '14	55,920	252.0	\$ 2,879.47	\$ 6,279.82	\$9,159.29	\$ 8,266.10	\$ 893.19	\$ 0.16	\$ 0.15	\$ 3.54
June '14	63,600	307.2	\$ 5,820.99	\$ 7,142.28	\$12,963.27	\$ 9,295.77	\$ 3,667.50	\$ 0.20	\$ 0.15	\$ 11.94
Total (last 12-months)	636,960	324.00	\$44,025.13	\$73,770.10	\$117,795.23	\$96,994.40	\$20,800.83	\$ 0.185	\$ 0.152	\$ 6.571
Notes	1	2	3	4	5	6	7	8	9	10

1.) Based on Direct Energy bills, amounts for Supplier \$ are calculated as follows:

July '13 thru Oct '13 - \$0.1092/KWH + KW Demand x \$1.32

Nov '13 and Dec '13 - \$0.1092/KWH + KW Demand x \$1.64

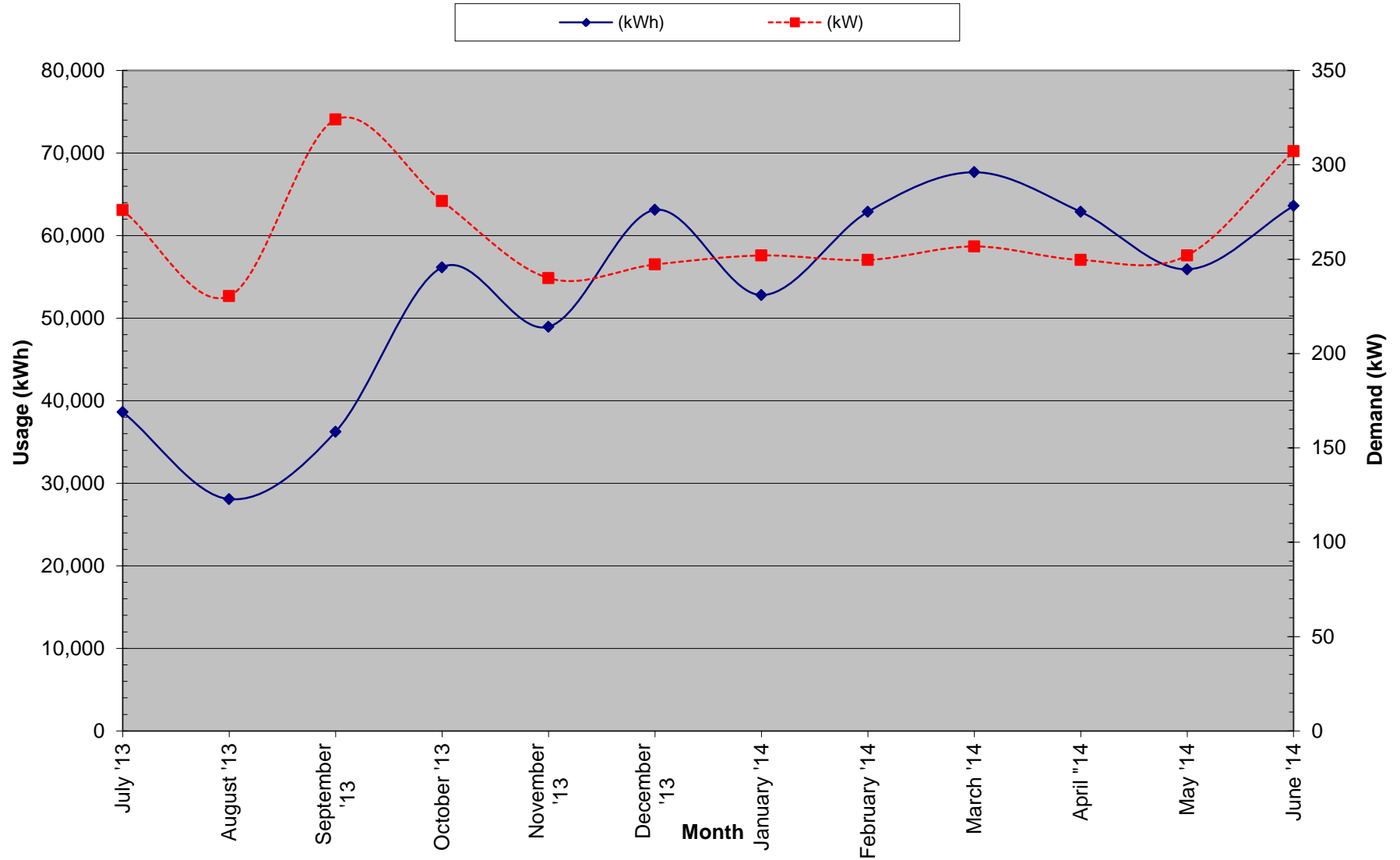
Jan '14 - \$0.1092/KWH + KW Demand x \$2.06

Feb '14 - \$0.1092/KWH + KW Demand x \$2.43

March '14 - \$0.1092/KWH + Trans. Adj. \$0.0038/KWH

Apr '14 thru June '14 - \$0.1092/KWH + Trans. Adj. \$0.0031/KWH

Electric Usage - Bloomfield Middle School



Bloomfield Middle School
60 Huck Road Bloomfield, NJ 07003

For Service at: **Bloomfield Middle School**
 Account No.: **4200596601 6759414306**
 Meter No.: **3216985 1866271**
Natural Gas Service
 Delivery - **PSE&G**
 Supplier - **PSE&G**

Month	Consumption (I herms)	Charges			Unit Costs		
		Delivery (\$)	Supply (\$)	Total (\$)	Delivery (\$/I herm)	Supply (\$/I herm)	Total (\$/I herm)
July '13	10	\$ 15	\$ 7	\$ 22	\$ 1.50	\$ 0.70	\$ 2.20
August '13	18	\$ 121	\$ 11	\$ 132	\$ 6.72	\$ 0.61	\$ 7.33
September '13	54	\$ 133	\$ 31	\$ 164	\$ 2.46	\$ 0.57	\$ 3.04
October '13	615	\$ 219	\$ 348	\$ 567	\$ 0.36	\$ 0.57	\$ 0.92
November '13	3,961	\$ 2,505	\$ 2,220	\$ 4,725	\$ 0.63	\$ 0.56	\$ 1.19
December '13	14,196	\$ 4,798	\$ 8,193	\$ 12,991	\$ 0.34	\$ 0.58	\$ 0.92
January '14	12,513	\$ 4,505	\$ 8,136	\$ 12,641	\$ 0.36	\$ 0.65	\$ 1.01
February '14	20,115	\$ 6,188	\$ 15,364	\$ 21,552	\$ 0.31	\$ 0.76	\$ 1.07
March '14	14,616	\$ 5,029	\$ 11,120	\$ 16,149	\$ 0.34	\$ 0.76	\$ 1.10
April '14	7,846	\$ 895	\$ 5,513	\$ 6,408	\$ 0.11	\$ 0.70	\$ 0.82
May '14	1,152	\$ 273	\$ 805	\$ 1,078	\$ 0.24	\$ 0.70	\$ 0.94
June '14	525	\$ 194	\$ 364	\$ 558	\$ 0.37	\$ 0.69	\$ 1.06
Total (12 - Month)	75,621			\$ 76,987.00			\$ 1.018

4-Mo Average 1,162 Therms
DHW 13,944 Therms

HHW 61,677 Therms

Meter No.: 3216985
Natural Gas Service
Delivery - PSE&G
Supplier - PSE&G

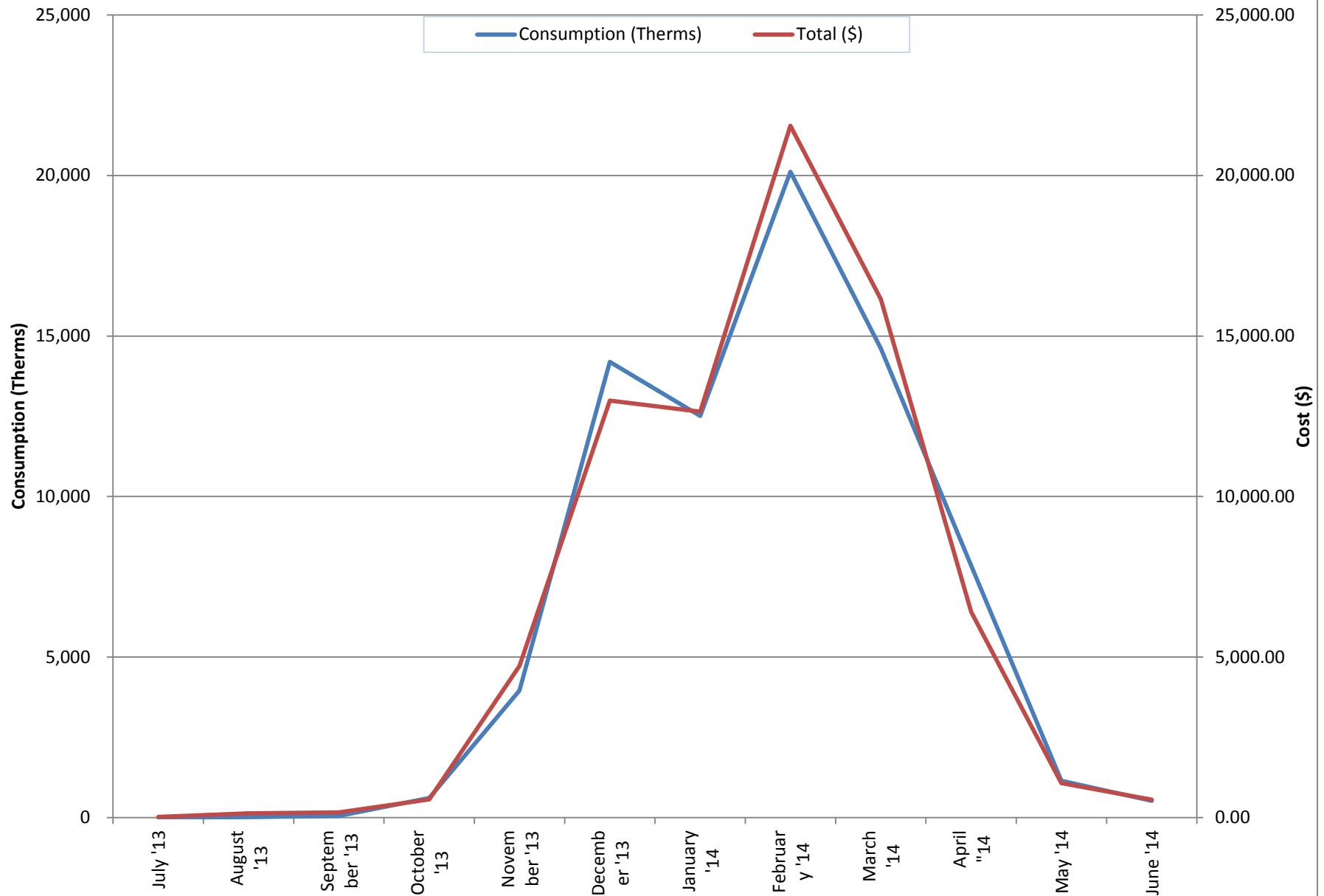
Month	Consumption (Itherms)	Charges			Unit Costs		
		Delivery (\$)	Supply (\$)	Total (\$)	Delivery (\$/Itherm)	Supply (\$/Itherm)	Total (\$/Itherm)
July '13	1	\$ 104	\$ 1	\$ 105	\$ 104.00	\$ 1.00	\$ 105.00
August '13	17	\$ 17	\$ 10	\$ 27	\$ 1.00	\$ 0.59	\$ 1.59
September '14	53	\$ 29	\$ 30	\$ 59	\$ 0.55	\$ 0.57	\$ 1.11
October '13	84	\$ 40	\$ 47	\$ 87	\$ 0.48	\$ 0.56	\$ 1.04
November '13	74	\$ 40	\$ 41	\$ 81	\$ 0.54	\$ 0.55	\$ 1.09
December '13	76	\$ 40	\$ 44	\$ 84	\$ 0.53	\$ 0.58	\$ 1.11
January '14	60	\$ 34	\$ 39	\$ 73	\$ 0.57	\$ 0.65	\$ 1.22
February '14	102	\$ 50	\$ 78	\$ 128	\$ 0.49	\$ 0.76	\$ 1.25
March '14	104	\$ 51	\$ 79	\$ 130	\$ 0.49	\$ 0.76	\$ 1.25
April '14	112	\$ 46	\$ 79	\$ 125	\$ 0.41	\$ 0.71	\$ 1.12
May '14	95	\$ 41	\$ 66	\$ 107	\$ 0.43	\$ 0.69	\$ 1.13
June '14	95	\$ 40	\$ 66	\$ 106	\$ 0.42	\$ 0.69	\$ 1.12
Total (12 - Month)	873			\$ 1,112.00			\$ 1.274

Meter No.: 1866271
Natural Gas Service
Delivery - PSE&G
Supplier - PSE&G

Month	Consumption (Therms)	Charges			Unit Costs		
		Delivery (\$)	Supply (\$)	Total (\$)	Delivery (\$/Therm)	Supply (\$/Therm)	Total (\$/Therm)
July '13	1	\$ 104	\$ 1	\$ 105	\$ 104.00	\$ 1.00	\$ 105.00
August '13	1	\$ 104	\$ 1	\$ 105	\$ 104.00	\$ 1.00	\$ 105.00
September '13	1	\$ 104	\$ 1	\$ 105	\$ 104.00	\$ 1.00	\$ 105.00

October '13	531	\$ 179	\$ 301	\$ 480	\$ 0.34	\$ 0.57	\$ 0.90
November '13	3,887	\$ 2,465	\$ 2,179	\$ 4,644	\$ 0.63	\$ 0.56	\$ 1.19
December '13	14,120	\$ 4,758	\$ 8,149	\$ 12,907	\$ 0.34	\$ 0.58	\$ 0.91
January '14	12,453	\$ 4,471	\$ 8,097	\$ 12,568	\$ 0.36	\$ 0.65	\$ 1.01
February '14	20,013	\$ 6,138	\$ 15,286	\$ 21,424	\$ 0.31	\$ 0.76	\$ 1.07
March '14	14,512	\$ 4,978	\$ 11,041	\$ 16,019	\$ 0.34	\$ 0.76	\$ 1.10
April '14	7,734	\$ 849	\$ 5,434	\$ 6,283	\$ 0.11	\$ 0.70	\$ 0.81
May '14	1,057	\$ 232	\$ 739	\$ 971	\$ 0.22	\$ 0.70	\$ 0.92
June '14	430	\$ 154	\$ 298	\$ 452	\$ 0.36	\$ 0.69	\$ 1.05
Total (12 - Month)	74,740			\$ 76,063.00			\$ 1.018

Natural Gas Usage - Bloomfield Middle School



PSE&G GAS SERVICE TERRITORY
Last Updated: 12/11/14

***CUSTOMER CLASS - R – RESIDENTIAL C – COMMERCIAL I - INDUSTRIAL**

Supplier	Telephone & Web Site	*Customer Class
Ambit Northeast, LLC d/b/a Ambit Energy 103 Carnegie Center Suite 300 Princeton, NJ 08540	877-282-6284 www.ambitenergy.com	R/C ACTIVE
Amerigreen Energy, Inc. 333 Sylvan Avenue Suite 206 Englewood Cliffs, NJ 07632	(888)559-4567 www.amerigreen.com	R/C/I ACTIVE
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	888-850-1872 www.AstralEnergyLLC.com	R/C/I ACTIVE
BBPC, LLC Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	C ACTIVE
Choice Energy, LLC 4257 US Highway 9, Suite 6C Freehold, NJ 07728	(888) 565-4490 www.4choiceenergy.com	R/C/I
Clearview Electric Inc. d/b/a Clearview Gas 1744 Lexington Ave. Pennsauken, NJ 08110	800-746-4720 www.clearviewenergy.com	R/C ACTIVE
Colonial Energy, Inc. 83 Harding Road Wyckoff, NJ 07481	845-429-3229 www.colonialgroupinc.com	C/I ACTIVE
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07746	888 817-8572 www.commerceenergy.com	R ACTIVE
Compass Energy Services, Inc. 33 Wood Avenue South, 610 Iselin, NJ 08830	866-867-8328 www.compassenergy.net	C/I ACTIVE

Compass Energy Gas Services, LLC 33 Wood Avenue South Suite 610 Iselin, NJ 08830	866-867-8328 www.compassenergy.net	C/I ACTIVE
ConocoPhillips Company 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-646-4427 www.conocophillips.com	C/I ACTIVE
Consolidated Edison Energy, Inc. d/b/a Con Edison Solutions 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-686-1383 x2130 www.conedenergy.com	
Consolidated Edison Solutions, Inc. Cherry Tree Corporate Center 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-665-0955 www.conedsolutions.com	C/I ACTIVE
Constellation NewEnergy-Gas Division, LLC 116 Village Boulevard, Suite 200 Princeton, NJ 08540	800-785-4373 www.constellation.com	C/I ACTIVE
Constellation Energy Gas Choice, Inc. 116 Village Blvd., Suite 200 Princeton, NJ 08540	800-785-4373 www.constellation.com	R/C/I ACTIVE
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	888-925-9115 http://www.business.directenergy.com/	R ACTIVE
Direct Energy Business Marketing, LLC (fka Hess Energy Marketing) One Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 http://www.business.directenergy.com/	C/I ACTIVE
Direct Energy Services, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergy.com	R ACTIVE

Direct Energy Small Business, LLC (fka Hess Small Business Services, LLC) One Hess Plaza Woodbridge, NJ 07095	(888) 464-4377 http://www.business.directenergy.com/	C/I ACTIVE
Gateway Energy Services Corp. 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866) 348-4193 www.gesc.com	R/C ACTIVE
Glacial Energy of New Jersey, Inc. 21 Pine Street, Suite 237 Rockaway, NJ 07866	888-452-2425 www.glacialenergy.com	C/I ACTIVE
Global Energy Marketing, LLC 129 Wentz Avenue Springfield, NJ 07081	800-542-0778 www.globalp.com	C/I ACTIVE
Great Eastern Energy 116 Village Blvd., Suite 200 Princeton, NJ 08540	888-651-4121 www.greateastern.com	C/I ACTIVE
Greenlight Energy 330 Hudson Street, Suite 4 Hoboken, NJ 07030	718-204-7467 www.greenlightenergy.us	C ACTIVE
Harborside Energy LLC 101 Hudson Street, Suite 2100 Jersey City, NJ 07302	877-940-3835 www.harborsideenergynj.com	R/C ACTIVE
Hess Energy, Inc. One Hess Plaza Woodbridge, NJ 07095	800-437-7872 www.hess.com	C/I ACTIVE
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	888 264-4908 www.hikoenergy.com	R/C/I ACTIVE
Hudson Energy Services, LLC 7 Cedar Street Ramsey, NJ 07446	877- Hudson 9 www.hudsonenergyservices.com	C ACTIVE
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	877-887-6866 www.idtenergy.com	R/C ACTIVE

Infinite Energy dba Intelligent Energy 1200 Route 22 East Suite 2000 Bridgewater, NJ 08807-2943	(800) 927-9794 www.InfiniteEnergy.com	R/C/I ACTIVE
Integrys Energy Services-Natural Gas, LLC 101 Eisenhower Parkway Suite 300 Roseland, NJ 07068	(800) 536-0151 www.integrysenergy.com	C/I ACTIVE
Jsynergy LLC 445 Cental Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 www.Jsnergylc.com	R/C/I ACTIVE
Major Energy Services, LLC 1001 East Lawn Drive Teaneck NJ 07666	888-625-6760 www.majorenergy.com	R/C/I ACTIVE
Marathon Power LLC 302 Main Street Paterson, NJ 07505	888-779-7255 www.mecny.com	R/C/I ACTIVE
Metromedia Energy, Inc. 6 Industrial Way Eatontown, NJ 07724	1-877-750-7046 www.metromediaenergy.com	C/I ACTIVE
Metro Energy Group, LLC 14 Washington Place Hackensack, NJ 07601	888-53-Metro www.metroenergy.com	R/C ACTIVE
MPower Energy NJ LLC One University Plaza, Suite 507 Hackensack, NJ 07601	877-286-7693 www.mpowerenergy.com	R/C/I ACTIVE
NATGASCO (Supreme Energy, Inc.) 532 Freeman Street Orange, NJ 07050	800-840-4427 www.supremeenergyinc.com	R/C/I ACTIVE
New Energy Services LLC 101 Neptune Avenue Deal, New Jersey 07723	800-660-3643 www.newenergyservicesllc.com	R/C/I ACTIVE
New Jersey Gas & Electric 10 North Park Place Suite 420 Morristown, NJ 07960	866-568-0290 www.njgande.com	R/C ACTIVE

Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th fl. Woodbridge, NJ 07095	877-273-6772 www.noblesolutions.com	C/I ACTIVE
North American Power & Gas, LLC d/b/a North American Power 197 Route 18 South Ste. 300 New Brunswick, NJ 08816	888- 313-8086 www.napower.com	R/C/I ACTIVE
North Eastern States, Inc. d/b/a Entrust Energy 90 Washington Valley Road Bedminster, NJ 07921	(888) 535-6340 www.entrustenergy.com	R/C/I ACTIVE
Oasis Power, LLC d/b/a Oasis Energy 11152 Westheimer, Suite 901 Houston, TX 77042	(800)324-3046 www.oasisenergy.com	R/C ACTIVE
Palmco Energy NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	877-726-5862 www.PalmcoEnergy.com	R/C/I ACTIVE
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	855-32-POWER (76937) www.plymouthenergy.com	R/C/I ACTIVE
PPL EnergyPlus, LLC Shrewsbury Executive Offices 788 Shrewsbury Avenue Suite 2200 Tinton Falls, NJ 07724	(732) 741-0505 www.pplenergyplus.com	C/I ACTIVE
PPL EnergyPlus Retail, LLC Shrewsbury Executive Offices 788 Shrewsbury Avenue, Suite 220 Tinton Falls, NJ 07724	(732) 741-0505 – 2000 www.pplenergyplus.com	C/I ACTIVE
Public Power & Utility of New Jersey, LLC One International Blvd, Suite 400 Mahwah, NJ 07495	(888) 354-4415 www.ppandpu.com	R/C/I ACTIVE

Residents Energy, LLC 550 Broad Street Newark, NJ 07102	(888) 828-7374 www.residentsenergy.com	R/C
Respond Power LLC 1001 East Lawn Drive Teaneck, NJ 07666	(877) 973-7763 www.respondpower.com	R/C/I ACTIVE
Save on Energy, LLC 1101 Red Ventures Drive Fort Mill, SC 29707	1 (877) 658-3183 www.saveonenergy.com	R/C ACTIVE
SFE Energy One Gateway Center Suite 2600 Newark, NJ 07012	1 (877) 316-6344 www.sfeenergy.com	R/C/I ACTIVE
S.J. Energy Partners, Inc. 208 White Horse Pike, Suite 4 Barrington, NJ 08007	(800) 695-0666 www.sjnaturalgas.com	C ACTIVE
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	800-266-6020 www.southjerseyenergy.com	R/C/I ACTIVE
SouthStar Energy d/b/a New Jersey Energy 1085 Morris Avenue, Suite 155 Union, NJ 07083	(866) 477-8823 www.newjerseyenergy.com	R/C ACTIVE
Spark Energy Gas, LP/ Spark Energy 2105 City West Blvd. Suite 100 Houston, TX 77042	(713)600-2600 www.sparkenergy.com	R/C/I ACTIVE
Sperian Energy Corp. Bridgewater Center 1200 Route 22 East Bridgewater, NJ 08807	888-682-8082 www.sperianenergy.com	R/C/I ACTIVE
Sprague Energy Corp. 12 Ridge Road Chatham Township, NJ 07928	855-466-2842 www.spragueenergy.com	C/I ACTIVE
Stuyvesant Energy LLC 10 West Ivy Lane, Suite 4 Englewood, NJ 07631	800-640-6457 www.stuyfuel.com	C ACTIVE

Stream Energy New Jersey, LLC 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	R/C ACTIVE
Summit Energy Services, Inc. 10350 Ormsby Park Place Suite 400 Louisville, KY 40223	1 (800) 90-SUMMIT www.summitenergy.com	C/I ACTIVE
Systrum Energy 1 Bergen Blvd. Fairview, NJ 07022	877-797-8786 www.systrumenergy.com	R/C/I ACTIVE
Tiger Natural Gas, Inc. dba Tiger, Inc. 234 20th Avenue Brick, NJ 008724	888-875-6122 www.tignaturalgas.com	R/C/I ACTIVE
UGI Energy Services, Inc. dba UGI Energy Link 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-427-8545 www.ugienergylink.com	C/I ACTIVE
UGI Energy Services, Inc. d/b/a GASMARK 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	856-273-9995 www.ugienergylink.com	C/I ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054	800-388-3862 www.lowcostpower.com	R/C ACTIVE
Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054	866-663-2508 www.viridian.com	R/C ACTIVE
Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing East Brunswick, NJ 08816	888-508-4782 www.vistaenergymarketing.com	R/C/I ACTIVE
Woodruff Energy 73 Water Street Bridgeton, NJ 08302	800-557-1121 www.woodruffenergy.com	R/C/I ACTIVE

Woodruff Energy US LLC 73 Water Street, P.O. Box 777 Bridgeton, NJ 08302	856-455-1111 800-557-1121 www.woodruffenergy.com	C/I ACTIVE
XOOM Energy New Jersey, LLC 744 Broad Street. 16th Floor Newark, NJ 07102	888-997-8979 www.xoomenergy.com	R/C/I ACTIVE
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	855-732-2493 www.thisisyourenergy.com	R/C/I ACTIVE

[Back to main supplier information page](#)

PSE&G ELECTRIC SERVICE TERRITORY

Last Updated: 12/11/14

***CUSTOMER CLASS - R – RESIDENTIAL C – COMMERCIAL I –INDUSTRIAL**

Supplier	Telephone & Web Site	*Customer Class
Abest Power & Gas of NJ, LLC 202 Smith Street Perth Amboy, NJ 08861	(888)987-6937 www.AbestPower.com	R/C/I ACTIVE
AEP Energy, Inc. f/k/a BlueStar Energy Services 309 Fellowship Road, Fl. 2 Mount Laurel, NJ 08054	(866) 258-3782 www.aepenergy.com	R/C/I ACTIVE
Alpha Gas and Electric, LLC 641 5 th Street Lakewood, NJ 08701	(855) 553-6374 www.alphagasandelectric.com	R/C ACTIVE
Ambit Northeast, LLC d/b/a Ambit Energy 103 Carnegie Center Suite 300 Princeton, NJ 08540	877-282-6284 www.ambitenergy.com	R/C ACTIVE
American Powernet Management, LP 437 North Grove St. Berlin, NJ 08009	(877) 977-2636 www.americanpowernet.com	C/I ACTIVE
Amerigreen Energy, Inc. 333Sylvan Avenue Englewood Cliffs, NJ 07632	888-559-4567 www.amerigreen.com	R/C ACTIVE
AP Gas & Electric, (NJ) LLC 10 North Park Place, Suite 420 Morristown, NJ 07960	(855) 544-4895 www.apgellc.com	R/C/I ACTIVE
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	(888)850-1872 www.AstralEnergyLLC.com	R/C/I ACTIVE
Barclays Capital Services, Inc. 70 Hudson Street Jersey City, NJ 07302-4585	(800) 526-7000 www.barclays.com	C ACTIVE
BBPC, LLC d/b/a Great Eastern Energy	(888) 651-4121	C

116 Village Blvd. Suite 200 Princeton, NJ 08540	www.greateasternenergy.com	ACTIVE
Berkshire Energy Partners, LLC 9 Berkshire Road Landenberg, PA 19350 Attn: Dana A. LeSage, P.E.	(610) 255-5070 www.berkshireenergypartners.com	C/I ACTIVE
Blue Pilot Energy, LLC 197 State Rte. 18 South Ste. 3000 East Brunswick, NJ 08816	(800) 451-6356 www.bluepilotenergy.com	R/C ACTIVE
Brick Standard, LLC 235 Hudson Street Suite 1 Hoboken, NJ 07030	(201)706-8101 www.standardalternative.com	C/I ACTIVE
CCES LLC dba Clean Currents Energy Services 566 Terhune Street Teaneck, NJ 07666	(877) 933-2453 www.cleancurrents.com	R/C ACTIVE
Champion Energy Services, LLC 1200 Route 22 Bridgewater, NJ 08807	(888) 653-0093 www.championenergyservices.com	R/C/I ACTIVE
Choice Energy, LLC 4257 US Highway 9, Suite 6C Freehold, NJ 07728	(888) 565-4490 www.4choiceenergy.com	R/C ACTIVE
Clearview Electric, Inc. 1744 Lexington Avenue Pennsauken, NJ 08110	(888) CLR-VIEW (800) 746- 4702 www.clearviewenergy.com	R/C/I ACTIVE
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07446	1-866-587-8674 www.commerceenergy.com	R/C ACTIVE
Community Energy Inc. 51 Sandbrook Headquarters Road Stockton, NJ 08559	(866)946-3123 www.communityenergyinc.com	R/C/I ACTIVE
ConEdison Solutions Cherry Tree Corporate Center 535 State Highway Suite 180 Cherry Hill, NJ 08002	(888) 665-0955 www.conedsolutions.com	C/I ACTIVE

ConocoPhillips Company 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(800) 646-4427 www.conocophillips.com	C/I ACTIVE
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(888) 635-0827 www.constellation.com	R/C/I ACTIVE
Constellation Energy 900A Lake Street, Suite 2 Ramsey, NJ 07446	(877) 997-9995 www.constellation.com	R ACTIVE
Credit Suisse, (USA) Inc. 700 College Road East Princeton, NJ 08450	(212) 538-3124 www.creditsuisse.com	C ACTIVE
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 http://www.business.directenergy.com/	R ACTIVE
Direct Energy Business Marketing, LLC (fka Hess Energy Marketing) 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 http://www.business.directenergy.com/	C/I ACTIVE
Direct Energy Services, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergy.com	R ACTIVE
Direct Energy Small Business, LLC (fka Hess Small Business Services, LLC) One Hess Plaza Woodbridge, NJ 07095	(888) 464-4377 http://www.business.directenergy.com/	C/I ACTIVE
Discount Energy Group, LLC 811 Church Road, Suite 149 Cherry Hill, New Jersey 08002	(800) 282-3331 www.discountenergygroup.com	R/C ACTIVE
DTE Energy Supply, Inc. One Gateway Center, Suite 2600 Newark, NJ 07102	(877) 332-2450 www.dtesupply.com	C/I ACTIVE

Energy.me Midwest LLC 90 Washington Blvd Bedminster, NJ 07921	(855) 243-7270 www.energy.me	R/C/I ACTIVE
Energy Plus Holdings LLC 309 Fellowship Road East Gate Center, Suite 200 Mt. Laurel, NJ 08054	(877) 866-9193 www.energypluscompany.com	R/C ACTIVE
Ethical Electric Benefit Co. d/b/a Ethical Electric 100 Overlook Center, 2 nd Fl. Princeton, NJ 08540	(888) 444-9452 www.ethicalelectric.com	R/C ACTIVE
Energy Service Providers, Inc., d/b/a New Jersey Gas & Electric 1 Bridge Plaza fl. 2 Fort Lee, NJ 07024	(866) 568-0290 www.njgande.com	R/C ACTIVE
FirstEnergy Solutions 150 West State Street Trenton, NJ 08608	(866) 625-7318 www.fes.com	C/I ACTIVE
Gateway Energy Services Corp. 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866)348-4193 www.directenergybusiness.com	R/C ACTIVE
GDF SUEZ Energy Resources NA, Inc. 333 Thornall Street Sixth Floor Edison, NJ 08837	(866) 999-8374 www.gdfsuezenergyresources.com	C/I ACTIVE
GDF Suez Retail Energy Solutions LLC d/b/a THINK ENERGY 333 Thornall St. Sixth Floor Edison, NJ 08819	1-866-252-0078 www.mythinkenergy.com	R/C/I ACTIVE
Glacial Energy of New Jersey, Inc. 21 Pine Street, Suite 237 Rockaway, NJ 07866	(888) 452-2425 www.glacialenergy.com	C/I ACTIVE
Global Energy Marketing LLC 129 Wentz Avenue Springfield, NJ 07081	(800) 542-0778 www.globalp.com	R/C/I ACTIVE

Green Mountain Energy Company 211 Carnegie Center Drive Princeton, NJ 08540	(866) 767-5818 www.greenmountain.com/commercial-home	C/I ACTIVE
Harborside Energy LLC 101 Hudson Street Suite 2100 Jersey City, NJ 07302	(877) 940-3835 www.harborsideenergynj.com	R/C ACTIVE
Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 www.hess.com	C/I ACTIVE
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	R/C/I ACTIVE
Hudson Energy Services, LLC 7 Cedar Street Ramsey, New Jersey 07446	(877) Hudson 9 www.hudsonenergyservices.com	C ACTIVE
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	(877) 887-6866 www.idtenergy.com	R/C ACTIVE
Independence Energy Group, LLC 211 Carnegie Center Princeton, NJ 08540	(877) 235-6708 www.chooseindependence.com	R/C ACTIVE
Inspire Energy Holdings LLC 923 Haddonfield Road 3rd Fl. Building B2 Cherry Hill, NJ 08002	(866) 403-2620 www.inspireenergy.com	R/C/I
Integrus Energy Services, Inc. 33 Wood Ave, South, Suite 610 Iselin, NJ 08830	(800) 536-0151 www.integrusenergy.com	C/I ACTIVE
Jsynergy, LLC 445 Central Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 Jsynergylc.com	R/C/I ACTIVE
Kuehne Chemical Company, Inc. 86 North Hackensack Avenue South Kearney, NJ 07032	(973) 589-0700 kuehnechemical@comcast.net	I

Liberty Power Delaware, LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	(866) 769-3799 www.libertypowercorp.com	C/I ACTIVE
Liberty Power Holdings, LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	(866) 769-3799 www.libertypowercorp.com	R/C/I ACTIVE
Linde Energy Services 575 Mountain Avenue Murray Hill, NJ 07974	(800) 247-2644 www.linde.com	C/I ACTIVE
Marathon Power LLC 302 Main Street Paterson, NJ 07505	(888) 779-7255 www.mecny.com	R/C/I ACTIVE
MP2 Energy NJ, LLC 111 River Street, Suite 1204 Hoboken, NJ 07030	(877) 238-5343 www.mp2energy.com	R/C/I ACTIVE
Natures Current, LLC 95 Fairmount Avenue Philadelphia, Pennsylvania 19123	(215) 464-6000 www.naturescurrent.com	R/C/I ACTIVE
MPower Energy NJ LLC One University Plaza, Suite 507 Hackensack, NJ 07601	(877) 286-7693 www.mpowerenergy.com	R/C/I ACTIVE
NATGASCO, Inc. (Supreme Energy, Inc.) 532 Freeman St. Orange, NJ 07050	(800) 840-4427 www.supremeenergyinc.com	R/C/I ACTIVE
New Jersey Gas & Electric 10 North Park Place Suite 420 Morristown, NJ 07960	(866) 568-0290 www.njgande.com	R/C/ ACTIVE
NextEra Energy Services New Jersey, LLC 651 Jernee Mill Road Sayreville, NJ 08872	(877) 528-2890 Commercial (800) 882-1276 Residential www.nexteraenergyservices.com	R/C/I ACTIVE
Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th Floor Woodbridge, NJ 07095	(877) 273-6772 www.noblesolutions.com	C/I ACTIVE

Nordic Energy Services, LLC 50 Tice Boulevard, Suite 340 Woodcliff Lake, NJ 07677	(877) 808-1027 www.nordiceenergy.us.com	R/C/I ACTIVE
North American Power and Gas, LLC 222 Ridgedale Avenue Cedar Knolls, NJ 07927	(888) 313-9086 www.napower.com	R/C/I ACTIVE
North Eastern States, Inc. d/b/a Entrust Energy 90 Washington Valley Road Bedminster, NJ 07921	(888) 535-6340 www.entrustenergy.com	R/C/I ACTIVE
Oasis Power, LLC d/b/a Oasis Energy 11152 Westheimer, Suite 901 Houston, TX 77042	(800)324-3046 www.oasisenergy.com	R/C ACTIVE
Palmco Power NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	(877) 726-5862 www.PalmcoEnergy.com	R/C/I ACTIVE
Park Power, LLC 1200 South Church St. Suite 23 Mount Laurel, NJ 08054	(856) 778-0079 www.parkpower.com	R/C/I ACTIVE
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	(855) 32-POWER (76937) www.plymouthenergy.com	R/C/I ACTIVE
Power Management Co., LLC b/b/a PMC Lightsavers Limited Liability Company 1600 Moseley Road Victor, NY 14564	(585) 249-1360 www.powermanagementco.com	C/I ACTIVE
PPL Energy Plus, LLC 811 Church Road Cherry Hill, NJ 08002	(800) 281-2000 www.pplenergyplus.com	C/I ACTIVE
PPL EnergyPlus Retail, LLC 788 Shrewsbury Avenue, Suite 220 Tinton Falls, NJ 07724	(732) 741-0505 – 2000 www.pplenergyplus.com	C/I ACTIVE
Progressive Energy Consulting, LLC	(917) 837-7400	R/C/I

PO Box 4582 Wayne, New Jersey 07474	Progressivenrg@optionline.net	ACTIVE
Prospect Resources, Inc. 208 W. State Street Trenton, NJ 08608-1002	(847) 673-1959 www.prospectresources.com	C ACTIVE
Public Power & Utility of New Jersey, LLC One International Blvd, Suite 400 Mahwah, NJ 07495	(888) 354-4415 www.ppandu.com	R/C/I ACTIVE
Reliant Energy 211 Carnegie Center Princeton, NJ 08540	(877) 297-3795 (877) 297-3780 www.reliant.com	R/C/I ACTIVE
ResCom Energy LLC 18C Wave Crest Ave. Winfield Park, NJ 07036	(888) 238-4041 http://rescomenergy.com	R/C/I ACTIVE
Residents Energy, LLC 550 Broad Street Newark, NJ 07102	(888) 828-7374 www.residentsenergy.com	R/C
Respond Power LLC 1001 East Lawn Drive Teaneck, NJ 07666	(877) 973-7763 www.majorenergy.com	R/C/I ACTIVE
Save on Energy, LLC 1101 Red Ventures Drive Fort Mill, SC 29707	1 (877)-658-3183 www.saveonenergy.com	R/C
SFE Energy One Gateway Center Suite 2600 Newark, NJ 07012	1 (877) 316-6344 www.sfeenergy.com	R/C/I ACTIVE
S.J. Energy Partners, Inc. 208 White Horse Pike, Suite 4 Barrington, NJ 08007	(800) 695-0666 www.sjnaturalgas.com	C ACTIVE
SmartEnergy Holdings, LLC 100 Overlook Center 2nd Floor Princeton, NJ NJ 08540 United States of America	(800) 443-4440 www.smartenergy.com	R/C/I ACTIVE
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	(800) 266-6020 www.southjerseyenergy.com	R/C/I ACTIVE

Spark Energy Gas, LP/ Spark Energy 2105 City West Blvd. Suite 100 Houston, TX 77042	(713)600-2600 www.sparkenergy.com	R/C/I ACTIVE
Sperian Energy Corp. 1200 Route 22 East, Suite 2000 Bridgewater, NJ 08807	(888) 682-8082 www.sperianenergy.com	R/C/I ACTIVE
Starion Energy PA Inc. 101 Warburton Avenue Hawthorne, NJ 07506	(800) 600-3040 www.starionenergy.com	R/C/I ACTIVE
Stream Energy New Jersey, LLC 309 Fellowship Rd., Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	R/C ACTIVE
Summit Energy Services, Inc. 10350 Ormsby Park Place Suite 400 Louisville, KY 40223	1 (800) 90-SUMMIT www.summitenergy.com	C/I ACTIVE
Texas Retail Energy LLC Park 80 West Plaza II, Suite 200 Saddle Brook, NJ 07663 Attn: Chris Hendrix	(866) 532-0761 Texasretailenergy.com	C/I ACTIVE
TransCanada Power Marketing Ltd. 190 Middlesex Essex Turnpike, Suite 200 Iselin, NJ 08830	(877) MEGAWAT www.transcanada.com/powermarketing	C/I ACTIVE
TriEagle Energy, LP 90 Washington Valley Rd Bedminster, NJ 07921	(877) 933-2453 www.trieagleenergy.com	R/C/I ACTIVE
UGI Energy Services, Inc. dba UGI Energy Link 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(800) 427-8545 www.ugienergylink.com	C/I ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza Suite 301 Parsippany, NJ 07054	(800) 388-3862 www.lowcostpower.com	R/C ACTIVE

Viridian Energy 2001 Route 46, Waterview Plaza Suite 310 Parsippany, NJ 07054	(866) 663-2508 www.viridian.com	R/C/I ACTIVE
XOOM Energy New Jersey, LLC 744 Broad Street. 16 th Floor Newark, NJ 07102	(888) 997-8979 www.xoomenergy.com	R/C/I ACTIVE
YEP Energy 89 Headquarters Plaza North #1463 Morristown, NJ 07960	(855) 363-7736 www.yepenergyNJ.com	R/C/I ACTIVE
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	(855) 732-2493 www.thisisyourenergy.com	R/C/I ACTIVE

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APPENDIX B

Equipment Inventory

CHA Project # 30040
Bloomfield Middle School
60 Huck Road Bloomfield, NJ 07003

[illegible]

APPENDIX C

ECM Calculations

Bloomfield School District
CHA Project Number: 30040

Rate of Discount (used for NPV) 5.0%

		Utility Costs										Yearly Usage		Building Area		Annual Utility Cost				
		0.185 \$/kWh blended										636,960		153,380		\$ 117,795		\$ 76,987		
		0.152 \$/kWh supply										324.0								
		1.62 \$/therm										75,621								
		0.0053471																		
		</																		

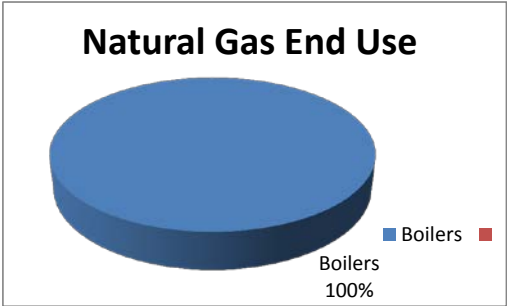
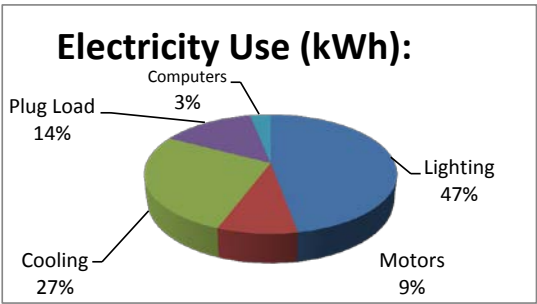
Bloomfield School District
 CHA Project Number: 30040
 Bloomfield Middle School

Utility End Use Analysis		
Electricity Use (kWh):		Notes/Comments:
636,960	Total	Based on utility analysis
300,118	Lighting	From Lighting Calculations
55,000	Motors	Estimated
171,842	Cooling	Estimated from AC equipment
90,000	Plug Load	Estimated
20,000	Computers	Estimated
Natural Gas Use (Therms):		Notes/Comments:
75,621	Total	Based on utility analysis
75,621	Boilers	Estimated

47%
 9%
 27%
 14%
 3%

100%

100%
 0%



Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

Note: pricing is for energy calculations only -do not use for procurement

ECM-1 Window Replacement

Existing: The original building has all single pane windows. The 2000 wing has double pane windows. Single pane windows lead to large amount of the heating/cooling loss. Replacing these old windows with high heat resistance double pane windows will help reduce the energy loss and save energy.
Proposed: Replace single pane windows with double windows.

Linear Feet of panel Edge	5,180.0 LF	Cooling System Efficiency	0 kW/ton	Heating System Efficiency	75%
Area of Panel	11,096.0 SF	Ex Occupied Cing Temp.	72 °F	Heating On Temp.	55 °F
Existing Infiltration Factor	0.20 cfm/LF	Ex Unoccupied Cing Temp.	72 °F	Ex Occupied Htg Temp.	72 °F
Proposed Infiltration Factor	0.10 cfm/LF	Cooling Occ Enthalpy Setpoint	27.5 Btu/lb	Ex Unoccupied Htg Temp.	72 °F
Existing U Value	1.00 Btuh/SF°F	Cooling Unocc Enthalpy Setpoint	27.5 Btu/lb	Electricity	\$ 0.185 \$/kWh
Proposed U Value	0.60 Btuh/SF°F			Natural Gas	\$ 1.02 \$/therm

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY		
			Occupied	Unoccupied			Occupied	Unoccupied					
Avg Outdoor Air Temp. Bins °F	Avg Outdoor Air Enthalpy	Air	Existing Equipment Bin Hours	Occupied Equipment Bin Hours	Unoccupied Equipment Bin Hours	Panel Infiltration & Heat Load BTUH	Panel Infiltration & Heat Load BTUH	Panel Infiltration & Heat Load BTUH	Panel Infiltration & Heat Load BTUH	Existing Cooling Energy kWh	Proposed Cooling Energy kWh	Existing Heating Energy Therms	Proposed Heating Energy Therms
A			B	C	D	E	F	G	H	I	J	K	L
102.5	50.1		0	0	0	-443,789	-443,789	-255,737	-255,737	0	0	0	0
97.5	42.5		6	2	4	-352,878	-352,878	-204,734	-204,734	0	0	0	0
92.5	39.5		45	16	29	-283,412	-283,412	-164,453	-164,453	0	0	0	0
87.5	36.6		146	52	94	-214,412	-214,412	-124,405	-124,405	0	0	0	0
82.5	34.0		298	106	192	-146,811	-146,811	-85,056	-85,056	0	0	0	0
77.5	31.6		476	170	306	-80,142	-80,142	-46,174	-46,174	0	0	0	0
72.5	29.2		662	237	426	-13,473	-13,473	-7,292	-7,292	0	0	0	0
67.5	27.0		740	264	476	0	0	0	0	0	0	0	0
62.5	24.5		765	273	492	0	0	0	0	0	0	0	0
57.5	21.4		733	262	471	0	0	0	0	0	0	0	0
52.5	18.7		668	239	430	238,190	238,190	140,732	140,732	0	0	2,122	1,254
47.5	16.2		659	235	424	299,265	299,265	176,817	176,817	0	0	2,631	1,554
42.5	14.4		685	245	441	360,339	360,339	212,903	212,903	0	0	3,293	1,945
37.5	12.6		739	264	475	421,413	421,413	248,988	248,988	0	0	4,154	2,454
32.5	10.7		717	256	461	482,488	482,488	285,073	285,073	0	0	4,615	2,727
27.5	8.6		543	194	349	543,562	543,562	321,158	321,158	0	0	3,937	2,326
22.5	6.8		318	114	205	604,637	604,637	357,243	357,243	0	0	2,565	1,515
17.5	5.5		245	88	158	665,711	665,711	393,329	393,329	0	0	2,176	1,285
12.5	4.1		156	56	100	726,785	726,785	429,414	429,414	0	0	1,512	894
7.5	2.6		92	33	59	787,860	787,860	465,499	465,499	0	0	967	571
2.5	1.0		36	13	23	848,934	848,934	501,584	501,584	0	0	408	241
-2.5	0.0		19	7	12	910,009	910,009	537,669	537,669	0	0	231	136
-7.5	-1.5		8	3	5	971,083	971,083	573,755	573,755	0	0	104	61
TOTALS			8,760	3,129	5,631					0	0	28,714	16,965

Existing Panel Infiltration	1,036 cfm	Savings	11,748 Therms	\$ 11,960
Existing Panel Heat Transfer	11,096 Btuh/°F		0 kWh	\$ -
Proposed Panel Infiltration	518 cfm			\$ 11,960
Proposed Panel Heat Transfer	6,658 Btuh/°F			

Panel ID	Location	Quantity	Width (ft)	Height (ft)	Linear Feet (LF)	Area (SF)	Infiltration Rate (CFM/LF)	U Value (Btuh/SF°F)	Infiltration (CFM)	Heat Transfer (Btuh/°F)
1	Entire Buidling	25	12	6	900.0	1800.0	0.2	1	180.0	1800.0
1	Entire Buidling	38	4	4	1088.0	1088.0	0.2	1	217.6	1088.0
1	Entire Buidling	38	36	6	3192.0	8208.0	0.2	1	638.4	8208.0
Total		131			5180	11096	0.20	1.00	1036	11096

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-1 Window Replacement - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Window Replacement	11,096	sqft	\$ 65	\$ 40	\$ -	\$721,240	\$443,840	\$ -	\$ 1,165,080	Vendor Est per SF

Cost estimated are for energy savings calculations only- do not use for procurement

\$ 1,165,080	Subtotal
\$ 407,778	35% Contingency
\$ 1,572,900	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (btu/h)
Window AC Units (14)	Classrooms and Offices	168,000
14 units each of 12,000 BTUH		Total btu/h of all window A/C Units: 168,000 btu/h

6

ECM-2 **Install window AC controller**

ECM Description : Window A/C units are currently controlled manually by the occupants and are not turned off when the room is unoccupied. This ECM evaluates implementation of a digital timer device that will automatically turn the window A/C unit off at a preset time .

ASSUMPTIONS		Comments
Electric Cost	\$0.185 / kWh	
Average run hours per Week	92 Hours	
Space Balance Point	55 F	
Space Temperature Setpoint	72 deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	168,000 Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	10.0	
Existing Annual Electric Usage	17,861 kWh	

Item	Value	Units	Comments
Proposed Annual Electric Usage	9,687	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS	
Annual Electrical Usage Savings	8,174 kWh
Annual Cost Savings	\$1,512
Total Project Cost	\$2,900
Simple Payback	2 years

OAT - DB Bin Temp F	Annual Hours	Existing Hours of Operation	Proposed % of time of operation	Proposed hrs of Operation
102.5	0	0	100%	0
97.5	6	3	100%	3
92.5	31	17	88%	15
87.5	131	71	76%	55
82.5	500	272	65%	176
77.5	620	338	53%	179
72.5	664	362	41%	149
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	1,063	54%	577

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-2 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						0	\$ -	\$ -	\$ -	
Window AC Controller	14	EA	\$ 150	\$ -	\$ -	2156.7	\$ -	\$ -	\$ 2,157	Estimated
						\$ -	\$ -	\$ -	\$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 2,157	Subtotal
\$ 755	35% Contingency
\$ 2,900	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

ECM-3

Replace rooftop units with high efficiency units

Description: This ECM evaluates the energy savings associated with replacing older less efficient heating and cooling equipment with modern high efficiency unitary equipment which has the same capacities. Calculations for savings in heating have not been made since the heat exchanger efficiencies are the same.

Equipment Tag	Equipment Description	General Type	Cooling Capacity (Btu/h)	Heating Capacity (Btu/h)
Room 112	Rooftop Unit	HVAC	60,000	
Room 113	Rooftop Unit	HVAC	53,500	-
Library	Rooftop Unit	HVAC	120,000	
Library	Rooftop Unit	HVAC	300,000	
Science Wing	Rooftop Unit	HVAC	216,000	

Item	Value	Units	Formula/Comments
Demand Rate	\$ 6.57	/ kW	
Electricity Rate	\$ 0.15	/kWh	
FORMULA CONSTANTS			
Coincidence Factor	0.67		NJ Protocols
Conversion	3.412	btu/kW	
COOLING			
Cooling Capacity	749,500	btu/hr	
Baseline EER	-		NJ Protocols
Proposed EER	-		NJ Protocols
Equivalent Full Load Hours	1,131	hrs	NJ Protocols
Demand Savings	9.83	kW	Calculations are made per table below since units are of different sizes.
Energy Savings	19,773	kWh	
SAVINGS			
Demand Savings	9.83	kW	
Energy Savings	19,773	kWh	
Cost Savings	\$ 3,780		

Savings calculation formulas are taken from NJ Protocols document for Electric HVAC Equipment

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-3 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						\$ -	\$ -	\$ -	\$ -	
Existing RTU demolition	5	EA	\$ 350	\$ 350		\$ 1,797	\$ 2,181	\$ -	\$ 3,978	RS Means 2012
(2) 5 Ton Rooftop Unit	2	EA	\$ 5,600	\$ 2,500		\$ 11,502	\$ 6,230	\$ -	\$ 17,732	RS Means 2012
(1) 10 Ton Rooftop Unit	1	EA	\$ 12,300	\$ 2,500		\$ 12,632	\$ 3,115	\$ -	\$ 15,747	RS Means 2012
(1) 18 Ton Rooftop Unit	1	EA	\$ 20,700	\$ 3,500		\$ 21,259	\$ 4,361	\$ -	\$ 25,620	RS Means 2012
(1) 25 Ton Rooftop Unit	1	EA	\$ 29,000	\$ 3,500		\$ 29,783	\$ 4,361	\$ -	\$ 34,144	RS Means 2012
Controls	5	EA	\$ 75	\$ 300		\$ 385	\$ 1,869	\$ -	\$ 2,254	RS Means 2012
Electrical - misc.	5	LS	\$ 500	\$ 500		\$ 2,568	\$ 3,115	\$ -	\$ 5,683	Estimated
Crane	1	EA			\$ 3,000			\$ 3,372	\$ 3,372	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 108,530	Subtotal
\$ 37,985	35% Contingency
\$ 146,500	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

ECM-4 **Replace DX split units with high efficiency units**

There are five split DX ac units - one serving the Principal's office and four serving the hallways. These units are 15 years old and have lived their useful life. This ECM evaluates energy savings by replacing the units with modern high efficiency units of the same capacity. Savings on heating have not been made because the heat exchanger efficiencies are the same.

ASSUMPTIONS		Comments
Electric Cost	\$0.185 / kWh	
Average run hours per Week	92 Hours	Unit is manually turned on (even if after hours)
Space Balance Point	55 F	
Space Temperature Setpoint	72 deg F	setpoint
BTU / Hr Rating of existing AC units	330,000 Btu / Hr	Total BTU/H of DX units
Average EER	11.0	Estimated

Item	Value	Units	Comments
Total Number of Units	6		
Existing Annual Electric Usage	103,791	kWh	
Proposed EER	14.0		New DX units
Proposed Annual Electric Usage	81,550	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS	
Annual Savings	22,241 kWh
Annual Cost Savings	\$4,115

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	3	100%	3
92.5	31	17	88%	15
87.5	131	71	76%	55
82.5	500	272	65%	176
77.5	620	338	53%	179
72.5	664	362	41%	149
67.5	854	465	0%	0
62.5	927	505	0%	0
57.5	600	327	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	2,360	24%	577

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

ECM-4 - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
4 Ton DX	5	EA	\$ 5,300	\$ 1,000	\$ -	\$ 27,216	\$ 6,230	\$ -	\$ 33,446	RS Means 2012
7/1/2 ton DX	1	EA	\$ 12,600	\$ 1,000	\$ -	\$ 12,940	\$ 1,246	\$ -	\$ 14,186	RS Means 2012
Piping & Misc.	6	EA	\$ 500	\$ 500		\$ 3,081	\$ 3,738	\$ -	\$ 6,819	Estimated
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 54,451	Subtotal
\$ 19,058	35% Contingency
\$ 73,508	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

ECM-5 Replace manual thermostats with programmable thermostats

Discription: This measure assesses the energy savings associated with replacing the a standard non programmable thermostat with a programmable thermostat allowing for unoccupied temperature set- back

Natural Gas Savings	288	Therms
Cooling Electricity Savings	12,621	kWh
Total Cost Savings	\$ 2,628	
Estimated Total Project Cost	\$ 4,901	
Simple Payback	1.9	Yrs

Building Information:

153,380	Sq Footage	\$0.19	\$/kWh Blended
Y	Cooling	\$1.02	\$/Therm
Y	Heating		

Nighttime Setback

EXISTING CONDITIONS		
Heating		
Heating Season Facility Temp	70	F
Weekly Occupied Hours	92	hrs
Heating Season Setback Temp	62	F
Heating Season % Savings per Degree Setback	1%	
Annual Boiler Capacity	1,410	Mbtu/yr
Connected Heating Load Capacity	1,410,000	Btu/hr
Equivalent Full Load Heating Hours	900	hrs
Heating Equipment Efficiency	75%	
Cooling		
Cooling Season Facility Temp	72	F
Weekly Occupied Hours	92	hrs
Cooling Season Setback Temp	80	F
Cooling Season % Savings per Degree Setback	1%	
Connected Cooling Load Capacity	91	Tons
Equivalent Full Load Cooling Hours	381	hrs
Cooling Equipment EER	13.0	
SAVINGS		
Natural Gas Savings	288	Therms ³
Cooling Electricity Savings	12,621	kWh

Savings calculation formulas for setback are taken from NJ Protocols document for Occupancy Controlled Thermostats
Savings calculations for additional controls are estimated based on the level of control to be added and prior experience

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

ECM-5 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						\$ -	\$ -	\$ -	\$ -	
Controller & Programming	11	EA	\$ 200	\$ 100		\$ 2,259	\$ 1,371	\$ -	\$ 3,630	Estimated
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 3,630	Subtotal
\$ 1,271	35% Contingency
\$ 4,901	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

ECM-6 Kitchen Hood Control

Description: This ECM evaluates the thermal and electrical energy savings associated with the implementation of a variable flow controlled exhaust hood (Fan) and make-up air unit. The Hood controller uses infrared heat sensors to detect the level of smoke produced by the cooking operations and automatically adjusts the exhaust fan and make-up air fan to provide the proper amount of air flow needed to remove the particulate from the hood. The system uses a default minimum air flow value to ensure that smoke particulate is removed at all times during cooking operations.

Item	Value	Units	Formula/Comments	
Fuel Cost	\$ 1.02	/ Therm		
Electricity Cost	\$ 0.19	/kWh		
FORMULA CONSTANTS				
Conversion	0.746	HP/kW		
Constant	24	hrs/day		
Constant	1.08	(btu/hr)/CFM-F		
Conversion	3.412	btu/kWh		
ELECTRIC FAN SAVINGS				
Facility Type	School			
Quantity of Kitchen Hood Fan Motors	1			Q
Kitchen Hood Fan Motor HP	1.5	HP	Estimated	HP
Motor Load Factor	0.90		NJ Protocols	LF
Efficiency of Fan Motor(s)	84.0%			FEFF
Kitchen Hood Fan Run Hours	2,080			RH
Fan Motor Power Reduction (From VFD)	0.584			PR
Fan Electricity Savings	1,456	kWh		
HEATING SAVINGS				
Kitchen is Heated?	Y			
Square Footage of Kitchen	800	ft ²	Estimated	SF
Code Required Ventilation Rate	0.70	CFM/ft ²	NJ Protocols	CFM/SF
Ventilation Oversize Factor	1.40		NJ Protocols	OF
Flow Reduction (from VFD/Control)	0.310			FR
Heating Degree Day	2,783		NJ Protocols Table	HDD
Heating System Efficiency	80%		AFUE (%)	HEFF
Heating Savings	219	MMbtu		
Heating Savings	2,191	Therms		
COOLING SAVINGS				
Kitchen is Cooled?	N			
Cooling Degree Day	-		NJ Protocols Table	CDD
Cooling System Efficiency	-		COP	CEFF
Cooling Savings	-	kWh		
TOTAL SAVINGS				
Electricity Savings	1,456	kWh		
Fuel Savings	2,191	Therms		
Cost Savings	\$ 2,500			

Savings calculation formulas are taken from NJ Protocols document for Kitchen Hood

Bloomfield School District
 CHA Project Number: 30040
 Bloomfield Middle School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-6 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
MeLink Kitchen Hood Control System	1	ea	\$ 9,500	\$ 9,000		\$ 9,757	\$ 11,214	\$ -	\$ 20,971	Vendor Est
1.5HP VFD	1	ea	\$ 1,575	\$ 431		\$ 1,618	\$ 536	\$ -	\$ 2,154	RS Means 2012
1.5 HP Motor	1	ea	\$ 326	\$ 79		\$ 335	\$ 98	\$ -	\$ 433	RS Means 2012
Reprogram DDC system	1	ea	\$ 100	\$ 1,200		\$ 103	\$ 1,495	\$ -	\$ 1,598	Estimated
Electrical - misc.	1	ls	\$ 1,000	\$ 6,000		\$ 1,027	\$ 7,476	\$ -	\$ 8,503	RS Means 2012
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 33,658	Subtotal
\$ 11,780	35% Contingency
\$ 45,439	Total

Bloomfield School District
CHA Project Number: 30040
Bloomfield Middle School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
 Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governments or non-profit organizations.

At a minimum, all recommended measures were used for this calculation. To qualify for P4P incentives, the following P4P requirements must be met:

- At least 15% source energy savings
- No more than 50% savings from lighting measures
- Scope includes more than one measure
- Project has at least a 10% internal rate of return
- At least 50% of the source energy savings must come from investor-owned electricity and/or natural gas (note: exemption for fuel conversions)

Total Building Area (Square Feet)	153,380
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilities (BPU)

Incentive #1		
Audit is funded by NJ BPU	\$0.05	\$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	\$117,795	\$76,987
Existing Usage (from utility)	636,960	75,621
Proposed Savings	157,827	288
Existing Total MMBtus	9,736	
Proposed Savings MMBtus	567	
% Energy Reduction	5.8%	
Proposed Annual Savings	\$28,209	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	\$/kWh	\$/therm	\$/kWh	\$/therm	\$/kWh	\$/therm	\$/kWh	\$/therm
Incentive #2	\$0.09	\$0.90	\$0.005	\$0.05	\$0.11	\$1.25	\$0.00	\$0.00
Incentive #3	\$0.09	\$0.90	\$0.005	\$0.05	\$0.11	\$1.25	\$0.00	\$0.00

	Incentives \$		
	Elec	Gas	Total
Incentive #1	\$0	\$0	\$0
Incentive #2	\$0	\$0	\$0
Incentive #3	\$0	\$0	\$0
Total All Incentives	\$0	\$0	\$0

Total Project Cost	\$204,807
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	Allowable Incentive	
% Incentives #1 of Utility Cost*	0.0%	\$0
% Incentives #2 of Project Cost**	0.0%	\$0
% Incentives #3 of Project Cost**	0.0%	\$0
Total Eligible Incentives***	\$0	
Project Cost w/ Incentives	\$204,807	

Project Payback (years)	
w/o Incentives	w/ Incentives
7.3	7.3

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.

Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is \$50,000 if not funded by NJ BPU, and \$25,000 if it is.

Maximum allowable amount of Incentive #2 & #3 is \$1 million per gas account and \$1 million per electric account; maximum 2 million per project

Cost of Electricity:

\$0.152	\$/kWh
\$6.57	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
202	Hallway 1st Fl	Hallway	4	2T 17 R F 4 (ELE)	F24ILL	61	0.24	SW	2600	634	NONE	
20LED	Hallway 1st Fl	Hallway	112	S 28 P F 1 (ELE)	F41ILL	31	3.47	SW	2600	9,027	NONE	
3	Hallway 1st Fl	Hallway	61	W 34 W F 1 (MAG)	F41EE	43	2.62	SW	2600	6,820	NONE	
34	Hallway 1st Fl	Hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	2600	153	NONE	
65	Hallway 1st Fl	Hallway	1	I 100	I100/1	100	0.10	SW	2600	260	NONE	
35	Hallway 1st Fl	Hallway	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	2600	234	NONE	
262LED	Hallway 1st Fl	Hallway	21	CF42/1	CF42/1-1	48	1.01	SW	2600	2,621	NONE	
39	Hallway 1st Fl	Hallway	20	2' 17 W F 2 (ELE)	F22ILL	33	0.66	SW	2600	1,716	NONE	
34	Hallway 1st Fl	Hallway	115	1T 32 C F 2 (ELE)	F42ILL	59	6.79	SW	2600	17,641	NONE	
5LED	Hallway 1st Fl	Hallway	7	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.42	SW	2600	1,092	NONE	
20LED	Hallway 2nd Fl.	Hallway	134	S 28 P F 1 (ELE)	F41ILL	31	4.15	SW	2600	10,800	NONE	
3	Hallway 2nd Fl.	Hallway	10	W 34 W F 1 (MAG)	F41EE	43	0.43	SW	2600	1,118	NONE	
34	Hallway 2nd Fl.	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
39	Hallway 2nd Fl.	Hallway	11	2' 17 W F 2 (ELE)	F22ILL	33	0.36	SW	2600	944	NONE	
28	Closet Janitors	Closet	1	CR 40 C F 1 (MAG)	FC16/1	35	0.04	SW	1092	38	NONE	
34	Restroom Boys	Restroom	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	3120	552	NONE	
34	Restroom Girls	Restroom	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	3120	552	NONE	
35	CLRM 255	CLRM	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	1400	1,890	OCC	
39	CLRM 255	CLRM	1	2' 17 W F 2 (ELE)	F22ILL	33	0.03	SW	1400	46	OCC	
35	CLRM 262	CLRM	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1400	756	OCC	
35	CLRM 253	CLRM	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	1400	1,890	OCC	
5LED	CLRM 253	CLRM	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	1400	84	OCC	
35	CLRM 251	CLRM	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1400	2,016	OCC	
35	CLRM 260	CLRM	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1400	756	OCC	
35	CLRM 258	CLRM	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1400	756	OCC	
35	CLRM 256	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	CLRM 254	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	CLRM 252	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	CLRM 250	CLRM	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1400	882	OCC	
34	Storage C3	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Storage C4	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	CLRM 235 B	CLRM	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	SW	1400	991	OCC	
34	Hallway	Hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	2600	153	NONE	
34	CLRM 235 A	CLRM	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	SW	1400	991	OCC	
34	238	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	233	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	266	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	231	Storage	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	SW	1040	552	OCC	
34	234	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	229	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	232	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	227	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	230	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
20LED	Restroom Boys	Restroom	4	S 28 P F 1 (ELE)	F41ILL	31	0.12	SW	3120	387	OCC	
71	Closet Janitors	Closet	1	I 60	I60/1	60	0.06	SW	1092	66	OCC	
20LED	Restroom Girls	Restroom	4	S 28 P F 1 (ELE)	F41ILL	31	0.12	SW	3120	387	OCC	
34	228	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
11	226 Staff Lounge	CLRM	4	S 34 P F 2 (MAG)	F42EE	72	0.29	SW	1400	403	OCC	
3	Mens	Restroom	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	3120	134	OCC	
93	Mens	Restroom	1	I 75	I75/1	75	0.08	SW	3120	234	OCC	
3	Womens	Restroom	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	3120	134	OCC	
93	Womens	Restroom	1	I 75	I75/1	75	0.08	SW	3120	234	OCC	
34	B4	CLRM	7	1T 32 C F 2 (ELE)	F42ILL	59	0.41	SW	1400	578	OCC	
3	B4	CLRM	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	1400	60	OCC	
34	225	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	224	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	223	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	222	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
3	Storage	Storage	5	W 34 W F 1 (MAG)	F41EE	43	0.22	SW	1040	224	OCC	
77	Storage	Storage	2	I 150	I150/1	150	0.30	SW	1040	312	OCC	
34	CLRM 221	CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1400	1,982	OCC	
34	CLRM 220	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
5LED	Annex hallway	hallway	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2600	312	NONE	
18	Annex	CLRM	7	T 32 R F 4 (ELE)	F44ILL	112	0.78	SW	1400	1,098	OCC	
18	Office	Office	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	OCC	
6	Restroom	Restroom Private	1	T 34 R F 4 (MAG)	F44EE	144	0.14	SW	360	52	OCC	
169LED	Annex	CLRM	4	WP 250 MH	MH250/1	295	1.18	SW	1400	1,652	OCC	
68LED	Annex	CLRM	8	175 MH WALL	MH175/1	215	1.72	SW	1400	2,408	OCC	

Cost of Electricity:

\$0.152	\$/kWh
\$6.57	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
34	B120 CLRM	CLRM	15	1T 32 C F 2 (ELE)	F42ILL	59	0.89	SW	1400	1,239	OCC	
34	B121 CLRM	CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1400	1,982	OCC	
34	B122A CLRM	CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	SW	1400	661	OCC	
34	B122B CLRM	CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	SW	1400	661	OCC	
34	B122 hallway	hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	2600	153	NONE	
34	B123 CLRM	CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1400	1,982	OCC	
34	B124 Computer Lab	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B125 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B126 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
11	Restroom Boys	Restroom	4	S 34 P F 2 (MAG)	F42EE	72	0.29	SW	3120	899	OCC	
11	Restroom Girls	Restroom	4	S 34 P F 2 (MAG)	F42EE	72	0.29	SW	3120	899	OCC	
65	Closet Janitors	Closet	1	I 100	I100/1	100	0.10	SW	1092	109	OCC	
34	B128 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B127 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B130 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B129 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
3	Storage B-2	Storage	10	W 34 W F 1 (MAG)	F41EE	43	0.43	SW	1040	447	OCC	
34	B132 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B131 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B134 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B133 CLRM	CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.24	SW	1400	1,735	OCC	
34	B132 A	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	B132 B	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
3	Mens Staff	Restroom Private	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	360	15	OCC	
3	Womens Staff	Restroom Private	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	360	15	OCC	
34	Assistant Principal	Office	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	OCC	
34	Offices	Office	7	1T 32 C F 2 (ELE)	F42ILL	59	0.41	SW	2600	1,074	OCC	
34	114A Assistant Principal	Office	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	OCC	
34	114B	CLRM	7	1T 32 C F 2 (ELE)	F42ILL	59	0.41	SW	1400	578	OCC	
261	Library	CLRM	8	PAR 38 SP	H100/1	100	0.80	SW	1400	1,120	OCC	
189	Library	CLRM	16	X 7.0 W 1	ECF7/1	10	0.16	SW	1400	224	OCC	
68LED	Library	CLRM	9	175 MH WALL	MH175/1	215	1.94	SW	1400	2,709	OCC	
20LED	Library	CLRM	50	S 28 P F 1 (ELE)	F41ILL	31	1.55	SW	1400	2,170	OCC	
34	Library	CLRM	42	1T 32 C F 2 (ELE)	F42ILL	59	2.48	SW	1400	3,469	OCC	
34	118 Comp Lab	CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	SW	1400	661	OCC	
35	117 empty rm	Storage	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	1040	281	OCC	
35	116 Storage	Storage	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	1040	187	OCC	
34	Principal Office A-102	Office	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	2600	460	OCC	
34	cont rm.	Office	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	OCC	
34	Guidance	Office	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	OCC	
3	Guidance	Storage	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	1040	45	OCC	
34	Guidance	Office	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	2600	307	OCC	
34	Guidance	Office	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	2600	307	OCC	
34	Conference	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
3	Conference Hallway	Hallway	2	W 34 W F 1 (MAG)	F41EE	43	0.09	SW	2600	224	NONE	
3	Conference kitchenet	Closet	2	W 34 W F 1 (MAG)	F41EE	43	0.09	SW	1092	94	OCC	
34	Conference Copy Rm	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	General Office	CLRM	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	SW	1400	991	OCC	
34	Council Office	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
65	Mens Rm	Restroom	1	I 100	I100/1	100	0.10	SW	3120	312	OCC	
65	Womens Rm	Restroom	1	I 100	I100/1	100	0.10	SW	3120	312	OCC	
34	Entrance Way	Hallway	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	2600	307	NONE	
20LED	Entrance Way	Hallway	3	S 28 P F 1 (ELE)	F41ILL	31	0.09	SW	2600	242	NONE	
20LED	Waiting Area	Hallway	6	S 28 P F 1 (ELE)	F41ILL	31	0.19	SW	2600	484	NONE	
35	Waiting Area	Hallway	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	2600	1,872	NONE	
34	Elec Rm	Closet	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1092	129	NONE	
35	Rm 150	CLRM	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1400	882	OCC	
35	Rm 152	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	Rm 151	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	Rm 154	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	Rm 156	CLRM	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1400	1,512	OCC	
35	Prep Rm	Storage	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1040	1,123	OCC	
35	Rm 153	CLRM	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1400	2,016	OCC	
35	Rm 155	CLRM	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	1400	2,142	OCC	
35	Prep Rm	Storage	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1040	562	OCC	
34	Storage C2	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Storage C1	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
65	Custodian Office	Office	2	I 100	I100/1	100	0.20	SW	2600	520	OCC	

Cost of Electricity:

\$0.152	\$/kWh
\$6.57	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
9LED	Gym	Gym	50	High Bay MH 250	MH250/1	295	14.75	SW	2964	43,719	OCC	
105LED	Boys Locker	Hallway	11	W 32 W F 1	F41LL	32	0.35	SW	2600	915	NONE	
65	Boys Locker - Shower	Closet	5	I 100	I100/1	100	0.50	SW	1092	546	OCC	
105LED	Boys Locker - Restroom	Restroom	2	W 32 W F 1	F41LL	32	0.06	SW	3120	200	OCC	
77	Boys Locker - Storage	Storage	4	I 150	I150/1	150	0.60	SW	1040	624	OCC	
65	Boys Locker - Storage	Storage	3	I 100	I100/1	100	0.30	SW	1040	312	OCC	
105LED	Girls Locker	Hallway	11	W 32 W F 1	F41LL	32	0.35	SW	2600	915	NONE	
65	Girls Locker - Shower	Closet	5	I 100	I100/1	100	0.50	SW	1092	546	OCC	
105LED	Girls Locker - Restroom	Restroom	2	W 32 W F 1	F41LL	32	0.06	SW	3120	200	OCC	
77	Girls Locker - Storage	Storage	4	I 150	I150/1	150	0.60	SW	1040	624	OCC	
65	Girls Locker - Storage	Storage	3	I 100	I100/1	100	0.30	SW	1040	312	OCC	
34	Faculty Rm	CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	SW	1400	661	OCC	
93	Mens Rm	Restroom	2	I 75	I75/1	75	0.15	SW	3120	468	OCC	
93	Womens Rm	Restroom	2	I 75	I75/1	75	0.15	SW	3120	468	OCC	
34	A-106	CLRM	36	1T 32 C F 2 (ELE)	F42ILL	59	2.12	SW	1400	2,974	OCC	
34	A-107	CLRM	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	SW	1400	991	OCC	
34	A-108	CLRM	23	1T 32 C F 2 (ELE)	F42ILL	59	1.36	SW	1400	1,900	OCC	
34	A-109 Art	CLRM	26	1T 32 C F 2 (ELE)	F42ILL	59	1.53	SW	1400	2,148	OCC	
105LED	A-109 Art Storage	Storage	2	W 32 W F 1	F41LL	32	0.06	SW	1040	67	OCC	
34	A-110	CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1400	1,982	OCC	
40LED	A-110 Storage	Storage	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	1040	62	OCC	
34	A-111	CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1400	1,982	OCC	
40LED	A-111 Storage	Storage	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	1040	62	OCC	
34	113	CLRM	27	1T 32 C F 2 (ELE)	F42ILL	59	1.59	SW	1400	2,230	OCC	
34	112	CLRM	27	1T 32 C F 2 (ELE)	F42ILL	59	1.59	SW	1400	2,230	OCC	
34	Office	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
34	Music Rms	Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	2600	614	OCC	
40LED	Boys Restroom	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3120	374	OCC	
40LED	Girls Restroom	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3120	374	OCC	
40LED	Aud Stage	Stage	26	T 32 R F 2 (ELE)	F42LL	60	1.56	SW	360	562	OCC	
68LED	Auditorium	CLRM	43	175 MH WALL	MH175/1	215	9.25	SW	1400	12,943	OCC	
77	Storage	Storage	2	I 150	I150/1	150	0.30	SW	1040	312	OCC	
93	Nursing	CLRM	1	I 75	I75/1	75	0.08	SW	1400	105	OCC	
18	Nursing	CLRM	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	1400	314	OCC	
34	Nursing	CLRM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	1400	248	OCC	
40LED	Nursing - Restroom	Restroom Private	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	360	22	OCC	
18	Nursing - Restroom	Restroom Private	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	360	40	OCC	
34	Cafeteria	CLRM	72	1T 32 C F 2 (ELE)	F42ILL	59	4.25	SW	1400	5,947	OCC	
262LED	Cafeteria	CLRM	24	CF42/1	CF42/1-I	48	1.15	SW	1400	1,613	OCC	
183	Cafeteria	CLRM	6	BED 17 C F 4	F24ILL	61	0.37	SW	1400	512	OCC	
93	Kitchen	CLRM	11	I 75	I75/1	75	0.83	SW	1400	1,155	OCC	
34	Kitchen	CLRM	23	1T 32 C F 2 (ELE)	F42ILL	59	1.36	SW	1400	1,900	OCC	
40LED	Kitchen	CLRM	3	T 32 R F 2 (ELE)	F42LL	60	0.18	SW	1400	252	OCC	
40LED	Faculty Dinning	CLRM	10	T 32 R F 2 (ELE)	F42LL	60	0.60	SW	1400	840	OCC	
40LED	Storage - assumed	Storage	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	1040	250	OCC	
65	Receiving	Hallway	4	I 100	I100/1	100	0.40	SW	2600	1,040	NONE	
262LED	Receiving	Hallway	1	CF42/1	CF42/1-I	48	0.05	SW	2600	125	NONE	
20LED	Receiving	Hallway	2	S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	2600	161	NONE	
34	140	CLRM	25	1T 32 C F 2 (ELE)	F42ILL	59	1.48	SW	1400	2,065	OCC	
34	141 Wood	CLRM	14	1T 32 C F 2 (ELE)	F42ILL	59	0.83	SW	1400	1,156	OCC	
34	141 Wood	CLRM	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	1400	496	OCC	
34	141 Wood	CLRM	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	SW	1400	991	OCC	
18	Time Out	CLRM	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	1400	314	OCC	
34	142 Fitness Center	CLRM	30	1T 32 C F 2 (ELE)	F42ILL	59	1.77	SW	1400	2,478	OCC	
93	142 Fitness Center - Storage	Storage	1	I 75	I75/1	75	0.08	SW	1040	78	OCC	
93	142 Fitness Center - Storage	Storage	3	I 75	I75/1	75	0.23	SW	1040	234	OCC	
34	142 Fitness Center - Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Closet Janitor	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1092	64	OCC	
34	Boys	Restroom	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	3120	368	OCC	
34	Girls	Restroom	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	3120	368	OCC	
34	Rm C-5	Office	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	2600	460	OCC	
93	Storage	Storage	1	I 75	I75/1	75	0.08	SW	1040	78	OCC	
93	Display	Hallway	6	I 75	I75/1	75	0.45	SW	2600	1,170	OCC	

Cost of Electricity:

\$0.152	\$/kWh
\$6.57	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures No. of fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
105LED	Boys Rm	Restroom	4	W 32 W F 1	F41LL	32	0.13	SW	3120	399	OCC	
105LED	Girls Rm	Restroom	4	W 32 W F 1	F41LL	32	0.13	SW	3120	399	OCC	
105LED	Storage	Storage	1	W 32 W F 1	F41LL	32	0.03	SW	1040	33	OCC	
93	Storage	Storage	1	I 75	I75/1	75	0.08	SW	1040	78	OCC	
34	Stairway 1	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
78	Boiler Rm	Mech	7	EP I 100	I100/1	100	0.70	SW	3000	2,100	OCC	
34	Stairway 2	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
34	Stairway 3	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
34	Stairway 4	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
34	Stairway 5	Hallway	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	2600	920	NONE	
262LED	Exterior	Exterior	8	CF42/1	CF42/1-I	48	0.38	Breaker	2912	1,118	PHC	
68LED	Exterior	Exterior	4	175 MH WALL	MH175/1	215	0.86	Breaker	2912	2,504	PHC	
93	Exterior	Exterior	19	I 75	I75/1	75	1.43	Breaker	2912	4,150	PHC	
	Total		2,490				167.65			300,118		

EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS						
Area Description		No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Standard Fixture Code		Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh	Annual kWh Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start Incentive	Simple Payback	Simple Payback		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	before the retrofit	"Lighting Fixture Code" Example R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-Inst. control device	Estimated daily hours for the usage group	(kW/Space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps u shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/Space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * (\$/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measure	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered		
202	Hallway 1st Fl	4	2T 17 R F 4 (ELE)	F24ILL	61	0.2	SW	2600	634	4	2T 17 R F 4 (ELE)	F24ILL	61	0.2	SW	2,600	634	-	0.0	\$ -	\$ -	\$0				
20LED	Hallway 1st Fl	112	S 28 P F 1 (ELE)	F41ILL	31	3.5	SW	2600	9,027	112	4 R LED Tube	200732x1	15	1.7	SW	2,600	4,368	4,659	1.8	\$ 850.79	\$ 16,262.40	\$560	19.1	18.5		
3	Hallway 1st Fl	61	W 34 W F 1 (MAG)	F41EEE	43	2.6	SW	2600	6,820	61	W 28 W F 1	F41SSILL	26	1.6	SW	2,600	4,124	2,696	1.0	\$ 492.34	\$ 11,529.00	\$0	23.4	23.4		
34	Hallway 1st Fl	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	2600	153	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	2,600	153	-	0.0	\$ -	\$ -	\$0				
65	Hallway 1st Fl	1	1100	I1001	100	0.1	SW	2600	260	1	CF 26	CFQ26x1-L	27	0.0	SW	2,600	70	190	0.1	\$ 34.66	\$ 40.50	\$0	1.2	#DIV/0!		
35	Hallway 1st Fl	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2600	234	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2,600	234	-	0.0	\$ -	\$ -	\$0				
262LED	Hallway 1st Fl	21	CF421	CF421/1	48	1.0	SW	2600	2,621	21	6BLMWLED	6BLMWLED	13	0.3	SW	2,600	710	1,911	0.7	\$ 348.96	\$ 3,402.00	\$0	9.7	9.7		
39	Hallway 1st Fl	20	2T 17 W F 2 (ELE)	F22ILL	33	0.7	SW	2600	1,716	20	2T 17 W F 2 (ELE)	F22ILL	33	0.7	SW	2,600	1,716	-	0.0	\$ -	\$ -	\$0				
34	Hallway 1st Fl	115	1T 32 C F 2 (ELE)	F42ILL	59	6.8	SW	2600	17,641	115	1T 32 C F 2 (ELE)	F42ILL	59	6.8	SW	2,600	17,641	-	0.0	\$ -	\$ -	\$0				
5LED	Hallway 1st Fl	7	2T 32 R F 2 (u) (ELE)	FU2ILL	60	0.4	SW	2600	1,092	7	2T XX R LED	2RTLED	25	0.2	SW	2,600	455	637	0.2	\$ 116.32	\$ 1,417.50	\$70	12.2	11.6		
20LED	Hallway 2nd Fl	134	S 28 P F 1 (ELE)	F41ILL	31	4.2	SW	2600	10,800	134	4 R LED Tube	200732x1	15	2.0	SW	2,600	5,226	5,574	2.1	\$ 1,017.91	\$ 19,456.80	\$670	19.1	18.5		
3	Hallway 2nd Fl	10	W 34 W F 1 (MAG)	F41EEE	43	0.4	SW	2600	1,118	10	W 28 W F 1	F41SSILL	26	0.3	SW	2,600	676	442	0.2	\$ 80.71	\$ 1,890.00	\$0	23.4	23.4		
34	Hallway 2nd Fl	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	SW	2600	920	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	SW	2,600	920	-	0.0	\$ -	\$ -	\$0				
39	Hallway 2nd Fl	11	2T 17 W F 2 (ELE)	F22ILL	33	0.4	SW	2600	944	11	2T 17 W F 2 (ELE)	F22ILL	33	0.4	SW	2,600	944	-	0.0	\$ -	\$ -	\$0				
28	Clset Janitors	1	CR 40 C F 1 (MAG)	FC161	35	0.0	SW	1092	38	1	CR 40 C F 1 (MAG)	FC161	35	0.0	SW	1,092	38	-	0.0	\$ -	\$ -	\$0				
34	Restroom Boys	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	SW	3120	552	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	SW	3,120	552	-	0.0	\$ -	\$ -	\$0				
34	Restroom Girls	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	SW	3120	552	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	SW	3,120	552	-	0.0	\$ -	\$ -	\$0				
35	CLRM 255	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1400	1,890	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1,400	1,890	-	0.0	\$ -	\$ -	\$0				
39	CLRM 255	1	2T 17 W F 2 (ELE)	F22ILL	33	0.0	SW	1400	46	1	2T 17 W F 2 (ELE)	F22ILL	33	0.0	SW	1,400	46	-	0.0	\$ -	\$ -	\$0				
35	CLRM 262	6	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1400	1,890	6	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1,400	1,890	-	0.0	\$ -	\$ -	\$0				
35	CLRM 253	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1400	1,890	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1,400	1,890	-	0.0	\$ -	\$ -	\$0				
5LED	CLRM 253	1	2T 32 R F 2 (u) (ELE)	FU2ILL	60	0.1	SW	1400	84	1	2T XX R LED	2RTLED	25	0.0	SW	1,400	35	49	0.0	\$ 10.22	\$ 202.50	\$10	19.8	18.8		
35	CLRM 251	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1400	2,016	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1,400	2,016	-	0.0	\$ -	\$ -	\$0				
35	CLRM 260	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1400	756	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1,400	756	-	0.0	\$ -	\$ -	\$0				
35	CLRM 258	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1,400	1,512	-	0.0	\$ -	\$ -	\$0				
35	CLRM 256	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1,400	1,512	-	0.0	\$ -	\$ -	\$0				
35	CLRM 254	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1,400	1,512	-	0.0	\$ -	\$ -	\$0				
35	CLRM 252	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1,400	1,512	-	0.0	\$ -	\$ -	\$0				
35	CLRM 250	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1400	882	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1,400	882	-	0.0	\$ -	\$ -	\$0				
34	Storage C3	61	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	61	-	0.0	\$ -	\$ -	\$0				
34	Storage C4	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	59	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	61	-	0.0	\$ -	\$ -	\$0				
34	CLRM 235 B	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	SW	1400	991	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	SW	1,400	991	-	0.0	\$ -	\$ -	\$0				
34	Hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	2600	153	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	2,600	153	-	0.0	\$ -	\$ -	\$0				
34	CLRM 235 A	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	SW	1400	991	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	SW	1,400	991	-	0.0	\$ -	\$ -	\$0				
34	238	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	SW	1400	1,735	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	SW	1,400	1,735	-	0.0	\$ -	\$ -	\$0				
34	233	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	SW	1400	1,735	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	SW	1,400	1,735	-	0.0	\$ -	\$ -	\$0				
34	266	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	SW	1400	1																	

		EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Watts/Fixt * (Fixt No.)	Pre-Inst. control device	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback	Simple Payback			
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)			Estimated daily hours for the usage group	(kWSpace) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)		Estimated annual hours for the usage group	(kWSpace) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) (\$/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered			
35	Waiting Area	8	T 32 R F 3 (ELE)	F43LL/2	90	0.7		SW	2600	1,872	8	T 32 R F 3 (ELE)	F43LL/2	90	0.7	SW	2,600	1,872	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	Elec Rm	2	1T 32 C F 2 (ELE)	F42LL	59	0.1		SW	1092	129	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1,092	129	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 150	7	T 32 R F 3 (ELE)	F43LL/2	90	0.6		SW	1400	882	7	T 32 R F 3 (ELE)	F43LL/2	90	0.6	SW	1,400	882	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 152	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1		SW	1400	1,512	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1	SW	1,400	1,512	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 151	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1		SW	1400	1,512	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1	SW	1,400	1,512	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 154	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1		SW	1400	1,512	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1	SW	1,400	1,512	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 156	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1		SW	1400	1,512	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1	SW	1,400	1,512	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Prep Rm	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1		SW	1040	1,123	12	T 32 R F 3 (ELE)	F43LL/2	90	1.1	SW	1,040	1,123	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 153	16	T 32 R F 3 (ELE)	F43LL/2	90	1.4		SW	1400	2,016	16	T 32 R F 3 (ELE)	F43LL/2	90	1.4	SW	1,400	2,016	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Rm 155	17	T 32 R F 3 (ELE)	F43LL/2	90	1.5		SW	1400	2,142	17	T 32 R F 3 (ELE)	F43LL/2	90	1.5	SW	1,400	2,142	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
35	Prep Rm	6	T 32 R F 3 (ELE)	F43LL/2	90	0.5		SW	1040	562	6	T 32 R F 3 (ELE)	F43LL/2	90	0.5	SW	1,040	562	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	Storage C2	2	1T 32 C F 2 (ELE)	F42LL	59	0.1		SW	1040	123	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1,040	123	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	Storage C1	2	1T 32 C F 2 (ELE)	F42LL	59	0.1		SW	1040	123	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1,040	123	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
65	Custodian Office	2	I100/1	I100/1	100	0.2		SW	2600	520	2	CF 26	CFQ26v1-L	27	0.1	SW	2,600	140	380	0.1	\$	69.32	\$	81.00	\$0	1.2		
9LED	Gym	50	High Bay MH 250	MH250/1	295	14.8		SW	2964	43,719	50	FXLED78	FXLED78/1	78	3.9	SW	2,964	11,560	32,159	10.9	\$	5,752.67	\$	42,209.78	\$7,500	6.0		
105LED	Boys Locker	11	W 32 W F 1	F41LL	32	0.4		SW	2600	915	11	4 R LED Tube	200732x1	15	0.2	SW	2,600	429	486	0.2	\$	88.78	\$	898.43	\$55	10.1		
65	Boys Locker - Shower	5	I100/1	I100/1	100	0.5		SW	1092	546	5	CF 26	CFQ26v1-L	27	0.1	SW	1,092	147	399	0.4	\$	89.48	\$	202.50	\$0	2.3		
105LED	Boys Locker - Restroom	2	W 32 W F 1	F41LL	32	0.1		SW	3120	200	2	4 R LED Tube	200732x1	15	0.0	SW	3,120	94	106	0.0	\$	18.83	\$	163.35	\$10	8.7		
77	Boys Locker - Storage	4	I150/1	I150/1	150	0.6		SW	1040	624	4	CF 26	CFQ26v1-L	27	0.1	SW	1,040	112	512	0.5	\$	116.71	\$	27.00	\$0	0.2		
65	Boys Locker - Storage	3	I100/1	I100/1	100	0.3		SW	1040	312	3	CF 26	CFQ26v1-L	27	0.1	SW	1,040	84	228	0.2	\$	51.95	\$	121.50	\$0	2.3		
105LED	Girls Locker	11	W 32 W F 1	F41LL	32	0.4		SW	2600	915	11	4 R LED Tube	200732x1	15	0.2	SW	2,600	429	486	0.2	\$	88.78	\$	898.43	\$55	10.1		
65	Girls Locker - Shower	5	I100/1	I100/1	100	0.5		SW	1092	546	5	CF 26	CFQ26v1-L	27	0.1	SW	1,092	147	399	0.4	\$	89.48	\$	202.50	\$0	2.3		
105LED	Girls Locker - Restroom	2	W 32 W F 1	F41LL	32	0.1		SW	3120	200	2	4 R LED Tube	200732x1	15	0.0	SW	3,120	94	106	0.0	\$	18.83	\$	163.35	\$10	8.7		
77	Girls Locker - Storage	4	I150/1	I150/1	150	0.6		SW	1040	624	4	CF 26	CFQ26v1-L	27	0.1	SW	1,040	112	512	0.5	\$	116.71	\$	27.00	\$0	0.2		
65	Girls Locker - Storage	3	I100/1	I100/1	100	0.3		SW	1040	312	3	CF 26	CFQ26v1-L	27	0.1	SW	1,040	84	228	0.2	\$	51.95	\$	121.50	\$0	2.3		
34	Faculty Rm	8	1T 32 C F 2 (ELE)	F42LL	59	0.8		SW	1040	561	8	1T 32 C F 2 (ELE)	F42LL	59	0.8	SW	1,400	561	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
93	Mens Rm	2	I75/1	I75/1	75	0.2		SW	3120	468	2	CF 26	CFQ26v1-L	27	0.1	SW	3,120	168	300	0.1	\$	53.18	\$	10.80	\$0	0.2		
93	Womens Rm	2	I75/1	I75/1	75	0.2		SW	3120	468	2	CF 26	CFQ26v1-L	27	0.1	SW	3,120	168	300	0.1	\$	53.18	\$	10.80	\$0	0.2		
34	A-106	36	1T 32 C F 2 (ELE)	F42LL	59	2.1		SW	1400	2,974	36	1T 32 C F 2 (ELE)	F42LL	59	2.1	SW	1,400	2,974	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	A-107	12	1T 32 C F 2 (ELE)	F42LL	59	0.7		SW	1400	991	12	1T 32 C F 2 (ELE)	F42LL	59	0.7	SW	1,400	991	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	A-108	23	1T 32 C F 2 (ELE)	F42LL	59	1.4		SW	1400	323	23	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,400	323	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	A-109 Art	26	1T 32 C F 2 (ELE)	F42LL	59	1.5		SW	1400	2,148	26	1T 32 C F 2 (ELE)	F42LL	59	1.5	Breaker	1,400	2,148	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
105LED	A-109 Art Storage	2	W 32 W F 1	F41LL	32	0.1		SW	1040	67	2	4 R LED Tube	200732x1	15	0.0	Breaker	1,040	31	35	0.0	\$	8.07	\$	163.35	\$10	20.3		
34	A-110	24	1T 32 C F 2 (ELE)	F42LL	59	1.4		SW	1400	1,982	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,400	1,982	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
40LED	A-110 Storage	1	T 32 R F 2 (ELE)	F42LL	60	0.1		SW	1040	62	1	T 38 R LED	RTLED38	38	0.0	SW	1,040	40	23	0.0	\$	5.22	\$	236.25	\$10	45.3		
34	A-111	24	1T 32 C F 2 (ELE)	F42LL	59	1.4		SW	1400	1,982	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,400	1,982	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
40LED	A-111 Storage	1	T 32 R F 2 (ELE)	F42LL	60	0.1		SW	1040	62	1	T 38 R LED	RTLED38	38	0.0	SW	1,040	40	23	0.0	\$	5.22	\$	236.25	\$10	45.3		
34	113	27	1T 32 C F 2 (ELE)	F42LL	59	1.6		SW	1400	2,230	27	1T 32 C F 2 (ELE)	F42LL	59	1.6	SW	1,400	2,230	- 0.0	- 0.0	\$ -	\$ -	\$0		#DIV/0!			
34	112	27	1T 32 C F 2 (ELE)	F42LL	59	1.6		SW	1400	2,230	27	1T 32 C F 2 (ELE)	F42LL	59	1.6	SW	1,400	2,230	- 0.0	- 0.0								

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS							
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * (\$/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered	
202	Hallway 1st Fl	4	2T 17 R F 4 (ELE)	F24ILL	61	0.2	0.2	NONE	2600	634.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
20LED	Hallway 1st Fl	112	S 28 P F 1 (ELE)	F41ILL	31	3.5	3.5	NONE	2600	9,027.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
3	Hallway 1st Fl	61	W 34 W F 1 (MAG)	F41EE	43	2.6	2.6	NONE	2600	6,819.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	Hallway 1st Fl	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2600	153.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
65	Hallway 1st Fl	1	I100	I100/1	100	0.1	0.1	NONE	2600	260.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
35	Hallway 1st Fl	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	NONE	2600	234.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
262LED	Hallway 1st Fl	21	CF42/1	CF42/1-I	48	1.0	1.0	NONE	2600	2,620.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
39	Hallway 1st Fl	20	2' 17 W F 2 (ELE)	F22ILL	33	0.7	0.7	NONE	2600	1,716.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	Hallway 1st Fl	115	1T 32 C F 2 (ELE)	F42ILL	59	6.8	6.8	NONE	2600	17,641.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
5LED	Hallway 1st Fl	7	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	0.4	NONE	2600	1,092.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
20LED	Hallway 2nd Fl.	134	S 28 P F 1 (ELE)	F41ILL	31	4.2	4.2	NONE	2600	10,800.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
3	Hallway 2nd Fl.	10	W 34 W F 1 (MAG)	F41EE	43	0.4	0.4	NONE	2600	1,118.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	Hallway 2nd Fl.	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
39	Hallway 2nd Fl.	11	2' 17 W F 2 (ELE)	F22ILL	33	0.4	0.4	NONE	2600	943.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
28	Closet Janitors	1	CR 40 C F 1 (MAG)	FC16/1	35	0.0	0.0	NONE	1092	38.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	Restroom Boys	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	NONE	3120	552.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	Restroom Girls	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	NONE	3120	552.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
35	CLRM 255	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	980	1,323.0	567.0	0.0	\$86.34	\$128.25	\$20.00		1.3	
39	CLRM 255	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	0.0	OCC	980	32.3	13.9	0.0	\$2.11	\$128.25	\$20.00	60.8	51.3	
35	CLRM 262	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	980	529.2	226.8	0.0	\$34.54	\$128.25	\$20.00		3.1	
35	CLRM 253	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	980	1,323.0	567.0	0.0	\$86.34	\$128.25	\$20.00	1.5	1.3	
5LED	CLRM 253	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	980	58.8	25.2	0.0	\$3.84	\$128.25	\$20.00	33.4	28.2	
35	CLRM 251	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	980	1,411.2	604.8	0.0	\$92.10	\$128.25	\$20.00	1.4	1.2	
35	CLRM 260	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	980	529.2	226.8	0.0	\$34.54	\$128.25	\$20.00	3.7	3.1	
35	CLRM 258	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	980	529.2	226.8	0.0	\$34.54	\$128.25	\$20.00	3.7	3.1	
35	CLRM 256	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6	
35	CLRM 254	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6	
35	CLRM 252	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6	
35	CLRM 250	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	0.6	OCC	980	617.4	264.6	0.0	\$40.29	\$128.25	\$20.00	3.2	2.7	
34	Storage C3	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1040	61.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	Storage C4	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1040	61.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	CLRM 235 B	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	980	693.8	297.4	0.0	\$45.28	\$128.25	\$20.00	2.8	2.4	
34	Hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2600	153.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	CLRM 235 A	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	980	693.8	297.4	0.0	\$45.28	\$128.25	\$20.00	2.8	2.4	
34	238	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	233	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	266	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	231	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	1040	552.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	234	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	229	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	232	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	227	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	230	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
20LED	Restroom Boys	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	OCC	3120	386.9	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
71	Closet Janitors	1	I60	I60/1	60	0.1	0.1	OCC	1456	87.4	-21.8	0.0	-\$3.33	\$128.25	\$20.00		-32.5	
20LED	Restroom Girls	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	OCC	3120	386.9	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	228	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
11	226 Staff Lounge	4	S 34 P F 2 (MAG)	F42EE	72	0.3	0.3	OCC	980	282.2	121.0	0.0	\$18.42	\$128.25	\$20.00	7.0	5.9	
3	Mens	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	3120	134.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
93	Mens	1	I75	I75/1	75	0.1	0.1	OCC	3120	234.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
3	Womens	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	3120	134.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
93	Womens	1	I75	I75/1	75	0.1	0.1	OCC	3120	234.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	B4	7	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	980	404.7	173.5	0.0	\$26.41	\$128.25	\$20.00	4.9	4.1	
3	B4	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	980	42.1	18.1	0.0	\$2.75	\$128.25	\$20.00	46.6	39.4	
34	225	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	224	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	223	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
34	222	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
3	Storage	5	W 34 W F 1 (MAG)	F41EE	43	0.2	0.2	OCC	1040	223.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
77	Storage	2	I150	I150/1	150	0.3	0.3	OCC	1040	312.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
34	CLRM 221	24	1T 32 C F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	980	1,387.7	594.7	0.0	\$90.56	\$128.25	\$20.00	1.4	1.2	
34	CLRM 220	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4	
5LED	Annex hallway	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	NONE	2600	312.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
18	Annex	7	T 32 R F 4 (ELE)	F44ILL	112	0.8	0.8	OCC	980	768.3	329.3	0.0	\$50.14	\$128.25	\$20.00	2.6	2.2	
18	Office	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	1500	168.0	123.2	0.0	\$18.76	\$128.25	\$20.00	6.8	5.8	
6	Restroom	1	T 34 R F 4 (MAG)	F44EE	144	0.1	0.1	OCC	360	51.8	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!	
169LED	Annex	4	WP 250 MH	MH250/1	295	1.2	1.2	OCC	980	1,156.4	495.6	0.0	\$75.47	\$128.25	\$20.00	1.7	1.4	
68LED	Annex	8	175 MH WALL	MH175/1	215	1.7	1.7	OCC	980	1,685.6	722.4	0.0	\$110.00	\$128.25	\$20.00	1.2	1.0	
34	B120 CLRM	15	1T 32 C F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	980	867.3	371.7	0.0	\$56.60	\$128.25	\$20.00	2.3	1.9	
34	B121 CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	980	1,387.7	594.7	0.0	\$90.56	\$128.25	\$20.00	1.4	1.2	
34	B122A CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	980	462.6	198.2	0.0	\$30.19	\$128.25	\$20.00	4.2	3.6	
34	B122B CLRM	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	980	462.6	198.2	0.0	\$30.19	\$128.25	\$20.00	4.2	3.6	
34	B122 hallway	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2600	153.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!	
34	B123 CLRM	24	1T 32 C F 2 (ELE)	F42ILL	59	1.4	1.4	OCC										

		EXISTING CONDITIONS						RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS					
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * (\$/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
3	Storage B-2	10	W 34 W F 1 (MAG)	F41EE	43	0.4	0.4	OCC	1040	447.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	B132 CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4
34	B131 CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4
34	B134 CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4
34	B133 CLRM	21	1T 32 C F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	980	1,214.2	520.4	0.0	\$79.24	\$128.25	\$20.00	1.6	1.4
34	B132 A	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	354.0	259.6	0.0	\$39.53	\$128.25	\$20.00	3.2	2.7
34	B132 B	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	354.0	259.6	0.0	\$39.53	\$128.25	\$20.00	3.2	2.7
3	Mens Staff	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	360	15.5	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
3	Womens Staff	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	360	15.5	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Assistant Principal	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	1500	531.0	389.4	0.0	\$59.30	\$128.25	\$20.00	2.2	1.8
34	Offices	7	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	1500	619.5	454.3	0.0	\$69.18	\$128.25	\$20.00	1.9	1.6
34	114A Assistant Principal	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	1500	531.0	389.4	0.0	\$59.30	\$128.25	\$20.00	2.2	1.8
34	114B	7	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	980	404.7	173.5	0.0	\$26.41	\$128.25	\$20.00	4.9	4.1
261	Library	8	PAR 38 SP	H100/1	100	0.8	0.8	OCC	980	784.0	336.0	0.0	\$51.17	\$128.25	\$20.00	2.5	2.1
189	Library	16	X 7.0 W 1	ECF7/1	10	0.2	0.2	OCC	980	156.8	67.2	0.0	\$10.23	\$128.25	\$20.00	12.5	10.6
68LED	Library	9	175 MH WALL	MH175/1	215	1.9	1.9	OCC	980	1,896.3	812.7	0.0	\$123.76	\$128.25	\$20.00	1.0	0.9
20LED	Library	50	S 28 P F 1 (ELE)	F41ILL	31	1.6	1.6	OCC	980	1,519.0	651.0	0.0	\$99.13	\$128.25	\$20.00	1.3	1.1
34	Library	42	1T 32 C F 2 (ELE)	F42ILL	59	2.5	2.5	OCC	980	2,428.4	1,040.8	0.0	\$158.48	\$128.25	\$20.00	0.8	0.7
34	118 Comp Lab	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	980	462.6	198.2	0.0	\$30.19	\$128.25	\$20.00	4.2	3.6
35	117 empty rm	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	1040	280.8	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35	116 Storage	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	1040	187.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Principal Office A-102	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	265.5	194.7	0.0	\$29.65	\$128.25	\$20.00	4.3	3.7
34	cont rm.	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	1500	531.0	389.4	0.0	\$59.30	\$128.25	\$20.00	2.2	1.8
34	Guidance	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	1500	531.0	389.4	0.0	\$59.30	\$128.25	\$20.00	2.2	1.8
3	Guidance	1	W 34 W F 1 (MAG)	F41EE	43	0.0	0.0	OCC	1040	44.7	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Guidance	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1500	177.0	129.8	0.0	\$19.77	\$128.25	\$20.00	6.5	5.5
34	Guidance	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1500	177.0	129.8	0.0	\$19.77	\$128.25	\$20.00	6.5	5.5
34	Conference	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	354.0	259.6	0.0	\$39.53	\$128.25	\$20.00	3.2	2.7
3	Conference Hallway	2	W 34 W F 1 (MAG)	F41EE	43	0.1	0.1	NONE	2600	223.6	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
3	Conference kitchenet	2	W 34 W F 1 (MAG)	F41EE	43	0.1	0.1	OCC	1456	125.2	-31.3	0.0	-\$4.77	\$128.25	\$20.00		-22.7
34	Conference Copy Rm	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	354.0	259.6	0.0	\$39.53	\$128.25	\$20.00	3.2	2.7
34	General Office	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	980	693.8	297.4	0.0	\$45.28	\$128.25	\$20.00	2.8	2.4
34	Council Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	354.0	259.6	0.0	\$39.53	\$128.25	\$20.00	3.2	2.7
65	Mens Rm	1	I 100	I100/1	100	0.1	0.1	OCC	3120	312.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
65	Womens Rm	1	I 100	I100/1	100	0.1	0.1	OCC	3120	312.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Entrance Way	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2600	306.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
20LED	Entrance Way	3	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	NONE	2600	241.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
35	Waiting Area	6	S 28 P F 1 (ELE)	F41ILL	31	0.2	0.2	NONE	2600	483.6	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
35	Waiting Area	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	0.7	NONE	2600	1,872.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
34	Elec Rm	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	1092	128.9	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
35	Rm 150	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	0.6	OCC	980	617.4	264.6	0.0	\$40.29	\$128.25	\$20.00	3.2	2.7
35	Rm 152	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6
35	Rm 151	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6
35	Rm 154	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6
35	Rm 156	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	980	1,058.4	453.6	0.0	\$69.07	\$128.25	\$20.00	1.9	1.6
35	Prep Rm	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	1040	1,123.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35	Rm 153	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	980	1,411.2							

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * (\$/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
40LED	Boys Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	3120	374.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
40LED	Girls Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	3120	374.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
40LED	Aud Stage	26	T 32 R F 2 (ELE)	F42LL	60	1.6	1.6	OCC	360	561.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
68LED	Auditorium	43	175 MH WALL	MH175/1	215	9.2	9.2	OCC	980	9,060.1	3,882.9	0.0	\$591.28	\$128.25	\$20.00	0.2	0.2
77	Storage	2	I 150	I150/1	150	0.3	0.3	OCC	1040	312.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
93	Nursing	1	I 75	I75/1	75	0.1	0.1	OCC	980	73.5	31.5	0.0	\$4.80	\$128.25	\$20.00	26.7	22.6
18	Nursing	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	0.2	OCC	980	219.5	94.1	0.0	\$14.33	\$128.25	\$20.00	9.0	7.6
34	Nursing	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	980	173.5	74.3	0.0	\$11.32	\$128.25	\$20.00	11.3	9.6
40LED	Nursing - Restroom	1	T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	360	21.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
18	Nursing - Restroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	360	40.3	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Cafeteria	72	1T 32 C F 2 (ELE)	F42ILL	59	4.2	4.2	OCC	980	4,163.0	1,784.2	0.0	\$271.69	\$128.25	\$20.00	0.5	0.4
262LED	Cafeteria	24	CF42/1	CF42/1-I	48	1.2	1.2	OCC	980	1,129.0	483.8	0.0	\$73.68	\$128.25	\$20.00	1.7	1.5
183	Cafeteria	6	BED 17 C F 4	F24ILL	61	0.4	0.4	OCC	980	358.7	153.7	0.0	\$23.41	\$128.25	\$20.00	5.5	4.6
93	Kitchen	11	I 75	I75/1	75	0.8	0.8	OCC	980	808.5	346.5	0.0	\$52.76	\$128.25	\$20.00	2.4	2.1
34	Kitchen	23	1T 32 C F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	980	1,329.9	569.9	0.0	\$86.79	\$128.25	\$20.00	1.5	1.2
40LED	Kitchen	3	T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	980	176.4	75.6	0.0	\$11.51	\$128.25	\$20.00	11.1	9.4
40LED	Faculty Dinning	10	T 32 R F 2 (ELE)	F42LL	60	0.6	0.6	OCC	980	588.0	252.0	0.0	\$38.37	\$128.25	\$20.00	3.3	2.8
40LED	Storage - assumed	4	T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1040	249.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
65	Receiving	4	I 100	I100/1	100	0.4	0.4	NONE	2600	1,040.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
262LED	Receiving	1	CF42/1	CF42/1-I	48	0.0	0.0	NONE	2600	124.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
20LED	Receiving	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	NONE	2600	161.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
34	140	25	1T 32 C F 2 (ELE)	F42ILL	59	1.5	1.5	OCC	980	1,445.5	619.5	0.0	\$94.34	\$128.25	\$20.00	1.4	1.1
34	141 Wood	14	1T 32 C F 2 (ELE)	F42ILL	59	0.8	0.8	OCC	980	809.5	346.9	0.0	\$52.83	\$128.25	\$20.00	2.4	2.0
34	141 Wood	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	980	346.9	148.7	0.0	\$22.64	\$128.25	\$20.00	5.7	4.8
34	141 Wood	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	980	693.8	297.4	0.0	\$45.28	\$128.25	\$20.00	2.8	2.4
18	Time Out	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	0.2	OCC	980	219.5	94.1	0.0	\$14.33	\$128.25	\$20.00	9.0	7.6
34	142 Fitness Center	30	1T 32 C F 2 (ELE)	F42ILL	59	1.8	1.8	OCC	980	1,734.6	743.4	0.0	\$113.20	\$128.25	\$20.00	1.1	1.0
93	142 Fitness Center - Storage	1	I 75	I75/1	75	0.1	0.1	OCC	1040	78.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
93	142 Fitness Center - Storage	3	I 75	I75/1	75	0.2	0.2	OCC	1040	234.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	142 Fitness Center - Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1040	122.7	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Closet Janitor	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1456	85.9	-21.5	0.0	-\$3.27	\$128.25	\$20.00		-33.1
34	Boys	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	3120	368.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Girls	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	3120	368.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Rm C-5	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	265.5	194.7	0.0	\$29.65	\$128.25	\$20.00	4.3	3.7
93	Storage	1	I 75	I75/1	75	0.1	0.1	OCC	1040	78.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
93	Display	6	I 75	I75/1	75	0.5	0.5	OCC	1092	491.4	678.6	0.0	\$103.34	\$128.25	\$20.00	1.2	1.0
105LED	Boys Rm	4	W 32 W F 1	F41LL	32	0.1	0.1	OCC	3120	399.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
105LED	Girls Rm	4	W 32 W F 1	F41LL	32	0.1	0.1	OCC	3120	399.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
105LED	Storage	1	W 32 W F 1	F41LL	32	0.0	0.0	OCC	1040	33.3	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
93	Storage	1	I 75	I75/1	75	0.1	0.1	OCC	1040	78.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Stairway 1	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
78	Boiler Rm	7	EP I 100	I100/1	100	0.7	0.7	OCC	3000	2,100.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
34	Stairway 2	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
34	Stairway 3	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
34	Stairway 4	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
34	Stairway 5	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2600	920.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
262LED	Exterior	8	CF42/1	CF42/1-I	48	0.4	0.4	PHC	5000	1,920.0	-801.8	0.0	-\$122.09	\$0.00	\$0.00		0.0
68LED	Exterior	4	175 MH WALL	MH175/1	215	0.9	0.9	PHC	5000	4,300.0	-1,795.7	0.0	-\$273.44	\$0.00	\$0.00		0.0
93	Exterior	19	I 75	I75/1	75	1.4	1.4	PHC	5000	7,125.0	-2,975.4	0.0	-\$453.09	\$0.00	\$0.00		0.0
Total		2,490				167.7	167.7	0	#N/A	#VALUE!	227,624.66	72,493.09	#N/A	#VALUE!		#VALUE!	#VALUE!
										Demand Savings		0.0	11039.0	22828.5	3560.0		
												0.0	\$0				

EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS									
Field Code	Area Description	No. of Fixtures before the retrofit	Standard Fixture Code	Fixture Code	Watts per Fixture	(kW/Fix) * (Fixt No.)	Exisit Control	Annual Hours	(kW/Space) * (Annual Hours)	Number of Fixtures after the retrofit	Standard Fixture Code	Fixture Code	Watts per Fixture	(kW/Fix) * (Number of Fixtures)	Retrofit Control device	Annual Hours	(kW/Space) * (Annual Hours)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual \$ Saved * (\$/kWh)	Retrofit Cost	Cost for renovations to lighting system	NJ Smart Start Lighting Incentive	Simple Payback Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered				
202	Hallway 1st Fl	4	2T 17 R F 4 (ELE)	F241LL	61	0.2	SW	2600	634	4	2T 17 R F 4 (ELE)	F241LL	61	0.2	NONE	2,600	634	-	0.0	\$ -	\$ -	\$ -	-	-	-				
20LED	Hallway 1st Fl	112	S 28 P F 1 (ELE)	F411LL	31	3.5	SW	2600	9,027	112	4 f LED Tube	200732x1	15	1.7	NONE	2,600	4,368	4,659	1.8	\$ 850.79	\$ 16,262.40	\$ 560	19.1	18.5					
3	Hallway 1st Fl	61	W 34 W F 1 (MAG)	F41EE	43	2.6	SW	2600	6,820	61	W 28 W F 1	F41SSILL	26	1.6	NONE	2,600	4,124	2,696	1.0	\$ 492.34	\$ 11,529.00	\$ -	23.4	23.4					
34	Hallway 1st Fl	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	SW	2600	153	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	NONE	2,600	153	-	0.0	\$ -	\$ -	\$ -	-	-	-				
65	Hallway 1st Fl	1	I 100/1	I100/1	100	0.1	SW	2600	260	1	CF 26	CFQ26/1-L	27	0.0	NONE	2,600	70	190	0.1	\$ 34.66	\$ 40.50	\$ -	1.2	1.2					
35	Hallway 1st Fl	1	T 32 R F 3 (ELE)	F431LL/2	90	0.1	SW	2600	234	1	T 32 R F 3 (ELE)	F431LL/2	90	0.1	NONE	2,600	234	-	0.0	\$ -	\$ -	\$ -	-	-	-				
262LED	Hallway 1st Fl	21	CF42/1	CF42/1-L	48	1.0	SW	2600	2,621	21	6BLMMWLED	6BLMMWLED	13	0.3	NONE	2,600	710	1,911	0.7	\$ 348.96	\$ 3,402.00	\$ -	9.7	9.7					
39	Hallway 1st Fl	20	2 T 17 W F 2 (ELE)	F221LL	33	0.7	SW	2600	1,716	20	2 T 17 W F 2 (ELE)	F221LL	33	0.7	NONE	2,600	1,716	-	0.0	\$ -	\$ -	\$ -	-	-	-				
34	Hallway 1st Fl	115	1T 32 C F 2 (ELE)	F421LL	59	0.2	SW	2600	552	3	1T 32 C F 2 (ELE)	F421LL	59	0.2	NONE	2,600	552	-	0.0	\$ -	\$ -	\$ -	-	-	-				
5LED	Hallway 1st Fl	7	2T 32 R F 2 (u) (ELE)	FU21LL	60	0.4	SW	2600	1,092	7	2T XX R LED	2RTLED	25	0.2	NONE	2,600	455	637	0.2	\$ 116.32	\$ 1,417.50	\$ 70	12.2	11.6					
20LED	Hallway 2nd Fl	134	S 28 P F 1 (ELE)	F411LL	31	4.2	SW	2600	10,800	134	4 f LED Tube	200732x1	15	2.0	NONE	2,600	5,226	5,574	2.1	\$ 1,017.91	\$ 19,456.80	\$ 670	19.1	18.5					
3	Hallway 2nd Fl	10	W 34 W F 1 (MAG)	F41EE	43	0.4	SW	2600	1,118	10	W 28 W F 1	F41SSILL	26	0.3	NONE	2,600	676	442	0.2	\$ 80.71	\$ 1,890.00	\$ -	23.4	23.4					
34	Hallway 2nd Fl	6	1T 32 C F 2 (ELE)	F421LL	59	0.4	SW	2600	920	6	1T 32 C F 2 (ELE)	F421LL	59	0.4	NONE	2,600	920	-	0.0	\$ -	\$ -	\$ -	-	-	-				
39	Hallway 2nd Fl	11	2 T 17 W F 2 (ELE)	F221LL	33	0.4	SW	2600	944	11	2 T 17 W F 2 (ELE)	F221LL	33	0.4	NONE	2,600	944	-	0.0	\$ -	\$ -	\$ -	-	-	-				
28	Closet Janitors	1	CR 40 C F 1 (MAG)	FC16/1	35	0.0	SW	1092	38	1	CR 40 C F 1 (MAG)	FC16/1	35	0.0	NONE	1,092	38	-	0.0	\$ -	\$ -	\$ -	-	-	-				
34	Restroom Boys	3	1T 32 C F 2 (ELE)	F421LL	59	0.2	SW	3120	552	3	1T 32 C F 2 (ELE)	F421LL	59	0.2	NONE	3,120	552	-	0.0	\$ -	\$ -	\$ -	-	-	-				
34	Restroom Girls	3	1T 32 C F 2 (ELE)	F421LL	59	0.2	SW	3120	552	3	1T 32 C F 2 (ELE)	F421LL	59	0.2	NONE	3,120	552	-	0.0	\$ -	\$ -	\$ -	-	-	-				
35	CLRM 255	15	T 32 R F 3 (ELE)	F431LL/2	90	1.4	SW	1400	1,890	15	T 32 R F 3 (ELE)	F431LL/2	90	1.4	OCC	980	1,323	567	0.0	\$ 86.34	\$ 128.25	\$ 20	1.5	1.3					
39	CLRM 255	1	2 T 17 W F 2 (ELE)	F221LL	33	0.0	SW	1400	32	1	2 T 17 W F 2 (ELE)	F221LL	33	0.0	OCC	980	32	14	0.0	\$ 2.11	\$ 128.25	\$ 20	60.8	51.3					
35	CLRM 262	16	T 32 R F 3 (ELE)	F431LL/2	90	0.5	SW	1400	756	6	T 32 R F 3 (ELE)	F431LL/2	90	0.5	OCC	980	529	227	0.0	\$ 34.54	\$ 128.25	\$ 20	3.7	3.1					
35	CLRM 253	15	T 32 R F 3 (ELE)	F431LL/2	90	1.4	SW	1400	1,890	15	T 32 R F 3 (ELE)	F431LL/2	90	1.4	OCC	980	1,323	567	0.0	\$ 86.34	\$ 128.25	\$ 20	1.5	1.3					
5LED	CLRM 253	1	2T 32 R F 2 (u) (ELE)	FU21LL	60	0.1	SW	1400	544	1	2T XX R LED	2RTLED	25	0.0	OCC	980	25	330	0.0	\$ 11.82	\$ 330.75	\$ 30	28.0	26.4					
35	CLRM 251	16	T 32 R F 3 (ELE)	F431LL/2	90	1.4	SW	1400	2,016	16	T 32 R F 3 (ELE)	F431LL/2	90	1.4	OCC	980	1,411	605	0.0	\$ 92.10	\$ 128.25	\$ 20	1.4	1.2					
35	CLRM 260	6	T 32 R F 3 (ELE)	F431LL/2	90	0.5	SW	1400	756	6	T 32 R F 3 (ELE)	F431LL/2	90	0.5	OCC	980	529	227	0.0	\$ 34.54	\$ 128.25	\$ 20	3.7	3.1					
35	CLRM 258	6	T 32 R F 3 (ELE)	F431LL/2	90	0.5	SW	1400	756	6	T 32 R F 3 (ELE)	F431LL/2	90	0.5	OCC	980	529	227	0.0	\$ 34.54	\$ 128.25	\$ 20	3.7	3.1					
35	CLRM 256	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	OCC	980	1,058	454	0.0	\$ 69.07	\$ 128.25	\$ 20	1.9	1.6					
35	CLRM 254	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	OCC	980	1,058	454	0.0	\$ 69.07	\$ 128.25	\$ 20	1.9	1.6					
35	CLRM 252	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F431LL/2	90	1.1	OCC	980	1,058	454	0.0	\$ 69.07	\$ 128.25	\$ 20	1.9	1.6					
35	CLRM 250	7	T 32 R F 3 (ELE)	F431LL/2	90	0.6	SW	1400	882	7	T 32 R F 3 (ELE)	F431LL/2	90	0.6	OCC	980	617	265	0.0	\$ 40.29	\$ 128.25	\$ 20	3.2	2.7					
34	Storage C3	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	SW	1040	59	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	OCC	1,040	61	-	0.0	\$ -	\$ 128.25	\$ 20	-	-					
34	Storage C4	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	SW	1040	59	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	OCC	1,040	61	-	0.0	\$ -	\$ 128.25	\$ 20	-	-					
34	CLRM 235 B	12	1T 32 C F 2 (ELE)	F421LL	59	0.7	SW	1400	991	12	1T 32 C F 2 (ELE)	F421LL	59	0.7	OCC	980	694	297	0.0	\$ 45.28	\$ 128.25	\$ 20	2.8	2.4					
34	Hallway	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	SW	2600	153	1	1T 32 C F 2 (ELE)	F421LL	59	0.1	NONE	2,600	153	-	0.0	\$ -	\$ -	\$ -	-	-	-				
34	CLRM 235 A	12	1T 32 C F 2 (ELE)	F421LL	59	0.7	SW	1400	991	12	1T 32 C F 2 (ELE)	F421LL	59	0.7	OCC	980	694	297	0.0	\$ 45.28	\$ 128.25	\$ 20	2.8	2.4					
34	238	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	SW	1400	1,735	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	OCC	980	1,214	520	0.0	\$ 79.24	\$ 128.25	\$ 20	1.6	1.4					
34	233	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	SW	1400	1,735	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	OCC	980	1,214	520	0.0	\$ 79.24	\$ 128.25	\$ 20	1.6	1.4					
34	266	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	SW	1400	1,735	21	1T 32 C F 2 (ELE)	F421LL	59	1.2	OCC	980	1,214	520	0.0	\$ 7									

EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS																										
Area Description		No. of Fixtures	Standard Fixture Code		Fixture Code		Watts per Fixture		kW/Space		Exist. Control		Annual Hours		Annual kWh		Number of Fixtures		Standard Fixture Code		Fixture Code		Watts per Fixture		kW/Space		Retrofit Control		Annual Hours		Annual kWh		Annual kWh Saved		Annual kW Saved		Annual \$ Saved		Retrofit Cost		NJ Smart Start Lighting Incentive		Simple Payback		Simple Payback	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/Space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/Space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) - (\$/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered																					
35	Rm 152	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	OCC	980	1,058	454.00	\$	69.07	\$	128.25	\$	20	1.9	1.6																				
35	Rm 151	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	OCC	980	1,058	454.00	\$	69.07	\$	128.25	\$	20	1.9	1.6																				
35	Rm 154	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	OCC	980	1,058	454.00	\$	69.07	\$	128.25	\$	20	1.9	1.6																				
35	Rm 156	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1400	1,512	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	OCC	980	1,058	454.00	\$	69.07	\$	128.25	\$	20	1.9	1.6																				
35	Prep Rm	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1040	1,123	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	OCC	1,040	1,123	128.25	\$	-	\$	128.25	\$	20	1.4	1.2																				
35	Rm 153	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1400	2,016	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	OCC	980	1,411	605.00	\$	92.10	\$	128.25	\$	20	1.4	1.2																				
35	Rm 155	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	1400	2,142	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	OCC	980	1,499	643.00	\$	97.85	\$	128.25	\$	20	1.3	1.1																				
35	Prep Rm	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1040	562	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	OCC	1,040	562	-	\$	-	\$	128.25	\$	20	-	-																				
34	Storage C2	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,040	123	-	\$	-	\$	128.25	\$	20	-	-																				
34	Storage C1	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,040	123	-	\$	-	\$	128.25	\$	20	-	-																				
65	Custodian Office	2	I100/1	I100/1	100	0.2	SW	2600	520	2	CF 26	CFQ26/1-L	27	0.1	OCC	1,500	81	439.01	\$	78.36	\$	209.25	\$	20	2.7	2.4																				
9LED	Gym	50	High Bay MH 250	MH250/1	295	14.8	SW	2964	43,719	50	FXLED78	FXLED78/1	78	3.9	OCC	1,092	4,259	39,460	\$	6,864.41	\$	42,338.03	\$	7,520	6.2	5.1																				
105LED	Boys Locker	11	W 32 W F 1	F41LL	32	0.4	SW	2600	1,072	11	4 R LED Tube	200732x1	15	0.0	NONE	2,600	429	2,600	\$	88.78	\$	209.25	\$	55	10.7	9.5																				
65	Boys Locker - Shower	5	W 32 W F 1	F41LL	32	0.4	SW	1092	546	5	CF 26	CFQ26/1-L	27	0.1	OCC	1,458	137	439.01	\$	81.39	\$	330.75	\$	20	4.0	3.8																				
105LED	Boys Locker - Restroom	2	W 32 W F 1	F41LL	32	0.1	SW	3120	200	2	4 R LED Tube	200732x1	15	0.0	OCC	3,120	94	106.00	\$	18.83	\$	291.60	\$	30	15.5	13.9																				
77	Boys Locker - Storage	4	I150/1	I150/1	150	0.6	SW																																							

APPENDIX D

New Jersey Board of Public Utilities Incentives

- i. Smart Start**
 - ii. Direct Install**
 - iii. Pay for Performance (P4P)**
 - iv. Energy Savings Improvement Plan (ESIP)**
-

I. SMART START



Your Power to Save

At Home, for Business, and for the Future

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HOME

RESIDENTIAL

COMMERCIAL, INDUSTRIAL
AND LOCAL GOVERNMENT



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NJ SmartStart Buildings

Program Overview

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

EQUIPMENT INCENTIVES

FOOD SERVICE EQUIPMENT

APPLICATION FORMS

TOOLS AND RESOURCES

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND
FUEL CELLS

LOCAL GOVERNMENT ENERGY
AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT
PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL
ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM



With New Jersey SmartStart Buildings ...

... A smart start now means better performance later! Whether you're starting a commercial or industrial project from the ground up, renovating existing space, or upgrading equipment, there are unique opportunities to upgrade the energy efficiency of the project.

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings impacted by Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have been added for high efficiency food service equipment.

Visit the Sandy web page for details and important links.

New Jersey SmartStart Buildings can provide a range of support — at no cost to you — for substantial energy savings, both now and for the future. Learn more about:

[Project Categories](#)

[Custom Measures](#)

[Incentives for Qualifying Equipment and Projects](#)

[Program Terms and Conditions](#)

[Find a Trade Ally](#)

Please note: pre-approval is required for almost all energy efficiency incentives. To receive an incentive, you must submit an application form (and applicable worksheets) and receive an approval letter from the program before any equipment is installed (click here for complete Terms and Conditions). Upon receipt of an approval letter, you may proceed to install the equipment listed on your approved application. Equipment installed prior to the date of the approval letter is not eligible for an incentive. **Any customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Getting Started

Submit your project application form as soon as you know you will be doing a construction project or replacing/adding equipment.

PAST PROGRAMS**TOOLS AND RESOURCES****PROGRAM UPDATES****CONTACT US**

Apply for pre-approval by submitting an application for the type of equipment you have or plan to install. The application should be accompanied by a related worksheet, where applicable, manufacturer's specification sheet (refer to the specific program requirements on the background application for specs needed for your project) for the equipment you are planning to install. (Program representatives will review your application package and approve it, reject it, or advise you of upgrades in equipment that will save energy costs and/or increase your incentive.)

Support for Custom Energy-Efficiency Measures

Custom measures allows program participants the opportunity to receive an incentive for energy-efficiency measures that are not on the prescriptive equipment Incentive list, but are project/facility specific.

Incentives for Qualifying Equipment and Projects

Financial incentives are available for large and small projects. These incentives offset some or maybe even all! — of the added cost to purchase qualifying energy-efficient equipment, and provides significant long-term energy savings. Ranges of incentives are available for qualifying equipment (depending on type, size, and efficiency) in several categories.

Find out more about equipment incentives

For specific details on equipment requirements and financial incentives, including incentives for equipment not listed here, contact a program representative. Fiscal year financial incentives will be limited to a maximum of \$500,000 per customer utility account and are available as long as permits are obtained.

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Equipment Incentives

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings impacted by Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have been added for high efficiency food service equipment.

Visit the Sandy web page for details and important links.

More reasons for a smart start on your next project!

New Jersey SmartStart Buildings provides **financial incentives for qualifying equipment**. These incentives were developed to help our customers offset some of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. A wide range of incentives are available for qualifying equipment (depending on type, size and efficiency).

Listed below are the types of qualifying equipment and ranges of incentives. For details on equipment requirements and full listings of incentives, refer to the **online application forms**.

Please note that almost all equipment incentives require pre-approval before equipment is installed. (click for exceptions) To start the pre-approval process, submit an Equipment Application, and appropriate Equipment Worksheets, for the type of equipment you are planning to install along with equipment specification sheets (refer to the specific program requirements on the back of the application for specific information needed for your project) and a current utility bill(s).

In order to be eligible to receive financial incentives under this Program, Applicants must receive electric and/or gas service from one of the regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.



Electric Chillers

Water-cooled chillers (\$12 - \$170 per ton)

Air-cooled chillers (\$8 - \$52 per ton)

Gas Cooling

Gas absorption chillers (\$185-\$450 per ton)

Gas Engine-Driven Chillers (Calculated through Custom Measure F)

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Desiccant Systems (\$1.00 per cfm - gas or electric)**Electric Unitary HVAC**

Unitary AC and split systems (\$73 - \$92 per ton)
 Air-to-air heat pumps (\$73 - \$92 per ton)
 Water-source heat pumps (\$81 per ton)
 Packaged terminal AC & HP (\$65 per ton)
 Central DX AC Systems (\$40 - \$72 per ton)
 Dual Enthalpy Economizer Controls (\$250)
 Occupancy Controlled Thermostats (\$75 each)
 A/C Economizing Controls (\$85 - \$170 each)

Ground Source Heat Pumps

Closed Loop (\$450-750 per ton)

Gas Heating

Gas-fired boilers < 300 MBH (\$300 per unit)
 Gas-fired boilers ≥ 300 MBH - 1500 MBH (\$1.75 per MBH)
 Gas-fired boilers ≥ 1500 MBH - ≤ 4000 MBH (\$1.00 per MBH)
 Gas-fired boilers > 4000 MBH (Calculated through Custom Measure)
 Gas furnaces (\$300-\$400 per unit)
 Gas infrared heaters - indoor only (\$300 - \$500 per unit)
 Boiler economizing controls (\$1,200 - \$2,700 per unit)

Variable Frequency Drives

Variable air volume (\$65 - \$155 per hp)
 Chilled-water pumps (\$60 per hp)
 Compressors (\$5,250 to \$12,500 per drive)

Natural Gas Water Heating

Gas water heaters ≤ 50 gallons (\$50 per unit)
 Gas-fired water heaters > 50 gallons (\$1.00 - \$2.00 per MBH)
 Tankless water heaters replacing a free standing water heater > 82 energy factor (\$300 per heater)
 Gas-fired booster water heaters (\$17 - \$35 per MBH)

Premium Motors

Three-phase motors (\$45 - \$700 per motor) (**Incentive was discontinued effective March 1, 2013 except for buildings impacted by Hurricane Sandy. Approved applications will have the standard timeframe from the program commitment date to complete the installation.**)

Refrigerator/Freezer Case Premium Efficiency Motors (ECM)

Fractional (< 1 HP) Electronic Commutated Motors (ECM) (\$40 per for replacement of existing shaded-pole motor in refrigerated/freezer case)

Prescriptive Lighting

New Linear Fluorescent

T-12, HID and Incandescent to T-5 and T-8 (\$25 - \$200 per fixture) (**Note: T12 replacements are only available for buildings impacted by Hurricane Sandy**)

New Induction (\$70 per replaced HID fixture)

New LED

Screw-in/Plug-in (\$10 - \$20 per lamp)

Refrigerator/Freezer Case (\$30 - \$65 per fixture)

Outdoor pole/arm/wall-mounted luminaires (\$100 - \$175 per fixture)

Display case (\$30 per case)

Shelf-mounted display and task (\$15 per linear foot)

Wall-wash, desk, recessed (\$20 - \$35 per fixture)

Parking garage luminaires (\$100 per fixture)

Track or Mono-Point directional (\$50 per fixture)

Stairwell and Passageway luminaires (\$40 per fixture)

High-Bay, Low-Bay (\$150 per fixture)

Bollard (\$50 per fixture)

Luminaires for Ambient Lighting of Interior Commercial Space
Linear panels (\$50 per fixture)

Fuel pump canopy (\$100 per fixture)

LED retrofit kits (custom measures)

New Pulse-Start Metal Halide (\$25 per fixture)

Linear Fluorescent Retrofit (\$10 - \$20 per fixture)

Induction Retrofit (\$50 per retrofitted HID fixture)

New Construction/Complete Renovation (performance-based)

Note: Incentives for T-12 to T-5 and T-8 lamps with electronic ballast in facilities (\$10 per fixture, 1-4 lamps) and T-5/T-8 high bay fixtures (\$16 - per fixture) were discontinued effective March 1, 2013 for T-12 retrofits replacements except for buildings impacted by Hurricane Sandy. Approved applications will have the standard timeframe of one year from the project commitment date to complete the installation

Lighting Controls

Occupancy Sensors

Wall mounted (\$20 per control)

Remote mounted (\$35 per control)

Daylight dimmers (\$25 per fixture controlled, \$50 per fixture for office applications only)

Occupancy controlled hi-low fluorescent controls (\$25 per fixture controlled)

HID or Fluorescent Hi-Bay Controls

Occupancy hi-low (\$35 per fixture controlled)

Daylight dimming (\$45 per fixture controlled)

Refrigeration

Covers and Doors

Energy-Efficient doors for open refrigerated doors/covers (\$100 per door)

Aluminum Night Curtains for open refrigerated cases (\$3.50 per linear foot)

Controls

Door Heater Control (\$50 per control)

Electric Defrost Control (\$50 per control)

Evaporator Fan Control (\$75 per control)

Novelty Cooler Shutoff (\$50 per control)

Food Service Equipment

Cooking

Combination Electric Oven/Steamer (\$1,000 per oven)
 Combination Gas Oven/Steamer (\$750 per oven)
 Electric Convection Oven (\$350 per oven)
 Gas Convection Oven (\$500 per oven)
 Gas Rack Oven (\$1,000 single, \$2,000 double)
 Gas Conveyor Oven (\$500 small deck, \$750 large deck)
 Electric Fryer (\$200 per vat)
 Gas Fryer (\$749 per vat)
 Electric Large Vat Fryer (\$200 per vat)
 Gas Large Vat Fryer (\$500 per vat)
 Electric Griddle (\$300 per griddle)
 Gas Griddle (\$125 per griddle)
 Electric Steam Cooker (\$1,250 per steamer)
 Gas Steam Cooker (\$2,000 per steamer)

Holding

Full Size Insulated Cabinets (\$300 per cabinet)
 Three Quarter Size Insulated Cabinets (\$250 per cabinet)
 Half Size Insulated Cabinets (\$200 per cabinet)

Cooling

Glass Door Refrigerators (\$75 - \$150 per unit)
 Solid Door Refrigerators (\$50 - \$200 per unit)
 Glass Door Freezers (\$200 - \$1,000 per unit)
 Solid Door Freezers (\$100 - \$600 per unit)
 Ice Machines (\$50 - \$500 per unit)

Cleaning

Dishwashers (\$400 - \$1,500 per unit)

Other Equipment Incentives*

Performance Lighting (\$1.00 per watt per square foot below program incentive threshold, currently 5% more energy efficient than ASHRAE 2007 for New Construction only.)

Custom electric and gas equipment incentives (not prescriptive)

*Equipment incentives are calculated based on type, efficiency, size, and application and are evaluated on a case-by-case basis. Contact us for details.

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II. DIRECT INSTALL



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NEW JERSEY'S CLEAN ENERGY PROGRAM

DIRECT Install

Let us pay up to 70% of your energy efficiency upgrade.

Sometimes, the biggest challenge to improving energy efficiency is knowing where to and how to get through the process. Created specifically for existing small to medium facilities, Direct Install is a turnkey solution that makes it easy and affordable to upgrade high efficiency equipment. Direct Install is designed to cut your facility's energy costs replacing lighting, HVAC and other outdated operational equipment with energy efficient alternatives. The program pays up to 70% of retrofit costs, dramatically improving your payback on the project. There is a \$125,000 incentive cap on each project.

ELIGIBILITY



Existing small to mid-sized commercial and industrial facilities with a peak electric demand that did not exceed 200 kW in any of the preceding 12 months are eligible to participate in Direct Install. Applicants will submit the last 12 months of electric utility bills indicating that they are below the demand threshold and have occupied the building during that time. Buildings must be located in New Jersey and served by the state's public, regulated electric or natural gas utility companies.

SYSTEMS & EQUIPMENT ADDRESSED BY THE PROGRAM

Lighting
Heating, Cooling & Ventilation (HVAC)
Refrigeration
Motors
Natural Gas
Variable Frequency Drives



Measures eligible for Direct Install are limited to specific equipment categories, types and capacities. Boilers may not exceed 500,000 Btuh and furnaces may not exceed 140,

III. PAY FOR PERFORMANCE (P4P)



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Pay for Performance - Existing Buildings

Download program applications and incentive forms.

The Greater the Savings, the Greater Your Incentives

Take a comprehensive, whole-building approach to saving energy in your existing facility. Earn incentives that are directly linked to your savings. Pay for Performance relies on a



program partners who provide technical services under direct contract to you. Acting as your energy expert, your partner will develop a whole-building energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for full implementation of energy efficient measures and a construction schedule for installation.

Eligibility

Existing commercial, industrial and institutional buildings with a peak demand over 100 kW for any of the preceding twelve months are eligible to participate including hotels and casinos, large office buildings, family buildings, supermarkets, manufacturing facilities, schools, shopping malls and restaurants. Buildings that fall into the following customer classes are not required to meet the 100 kW demand threshold to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-profit organizations, affordable multifamily housing, and local governmental entities. Your energy reduction plan will define a comprehensive package of measures capable of reducing the existing energy consumption of your building by 15% or more.

Exceptions to the 15% threshold requirement may be made for certain industrial, manufacturing, water treatment and datacenter building types whose annual energy consumption is heavily weighted on process loads. Details are available in the high energy intensity section of this page.

ENERGY STAR Portfolio Manager

Pay for Performance takes advantage of the ENERGY STAR Program with Portfolio Manager, EPA's interactive tool that allows facility managers to track and evaluate energy and water consumption across all of their buildings. The tool provides the opportunity to load in the characteristics and energy usage of your buildings and determine an energy performance benchmark score. You can then assess energy management goals over time, identify strategic opportunities for savings, and receive EPA recognition for superior energy performance.



This rating system assesses building performance by tracking and scoring energy use in your facilities and comparing it to similar buildings. That can be a big help in locating opportunities for cost-justified energy efficiency upgrades. And, based on our findings, you may be invited to participate in the Building Performance with ENERGY STAR initiative and receive special recognition as an industry leader in energy efficiency.

Incentives

**OIL, PROPANE & MUNICIPAL
ELECTRIC CUSTOMERS**

Pay for Performance incentives are awarded upon the satisfactory completion of three p milestones:

EDA PROGRAMS

Incentive #1 - Submittal of complete energy reduction plan prepared by an app program partner - Contingent on moving forward, incentives will be between \$5 \$50,000 based on approximately \$.10 per square foot, not to exceed 50% of th annual energy expense.

SBC CREDIT PROGRAM

Incentive #2 - Installation of recommended measures - Incentives are based on the projected level of electricity and natural gas savings resulting from the installation of comprehensive energy-efficiency measures.

PAST PROGRAMS

TOOLS AND RESOURCES

Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-

PROGRAM UPDATES

implementation results. Incentives for electricity and natural gas savings will be based on actual savings, provided that the minimum performance threshold of savings has been achieved.

CONTACT US

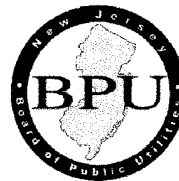


A detailed Incentive Structure document is available on the applications and form

Steps to Participation

[Click here](#) for a step-by-step description of the program.

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PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2014 – June 30, 2015

Utility Serving Applicant:

<input type="checkbox"/> New Jersey Natural Gas	<input type="checkbox"/> Atlantic City Electric	<input type="checkbox"/> Jersey Central Power & Light	<input type="checkbox"/> PSE&G
<input type="checkbox"/> Other Electric Service Provider (please specify): _____	<input type="checkbox"/> Elizabethtown Gas	<input type="checkbox"/> Rockland Electric Co.	<input type="checkbox"/> South Jersey Gas
<input type="checkbox"/> Other Fuel Provider: _____	<input type="checkbox"/> Oil: _____	<input type="checkbox"/> Other (Please specify): _____	

Instructions

1. Read the program material to determine project qualification.
2. Read the Participation Agreement and sign where indicated.
3. Fill out all applicable spaces on this form.
4. Provide a copy of the customer's company W-9 form.
5. Provide the most recent consecutive 12 month period of utility bills for the project for all accounts, organized in chronological order and separated by account. Utilize Utility Tool for applications with multiple accounts to organize data.

6. Provide brief description of facility, noting any special or unusual circumstances and/or site conditions.
7. Partner must submit the application package via e-mail, mail or fax DIRECTLY to the Market Manager – see back of this form.

Approval of this Application is not an approval of the project's scope of work. Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.

Customer/Owner Information (payment will be made to entity entered here)

Company Name		Project Contact/Title	
Company Address		City	State
		Zip	
Phone/Fax	E-mail	Federal ID/SSN	

Partner Information

Company Name		Project Contact/Title	
Company Address		City	State
		Zip	
Phone	Fax	E-mail	

Project Information

Project Name			
Building Address		City	State
		Zip	
Utility Account Number(s): Electric		Gas	
<small>* Note: Please use the back of this page for additional utility accounts if quantity exceeds space allotment.</small>			
Annual Peak kW Demand	Building Type		Number of Buildings
Size of Building(s) (gross sq/ft)		Direct, Master or Sub Metered	

Funding

☐ Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

Do you expect to receive funding under any other efficiency programs? ☐ No ☐ Yes If Yes, please specify below:

Utility Program #1 – Utility: _____	Program Name: _____
Utility Program #2 – Utility: _____	Program Name: _____
Federal Program #1 – Organization: _____	Program Name: _____
Federal Program #2 – Organization: _____	Program Name: _____
Other Program – Organization: _____	Program Name: _____

Additional Project information

Additional Utility Account(s)

Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number

Additional Comments:

Complete this application form and send it directly to the Commercial/Industrial Market Manager by e-mail, mail or fax.

New Jersey's Clean Energy Program
c/o TRC Energy Services-P4P
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095

Phone: 866-657-6278 • Fax: 732-855-0422

E-mail: P4P@NJCleanEnergy.com

Visit our website: NJCleanEnergy.com/P4P

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*Incentives/Requirements subject to change.

001-FY15-07/14

Pay For Performance-Existing Buildings

Participation Agreement

Definitions:

ADMINISTRATOR – New Jersey Board of Public Utilities (NJBPU)

APPLICATION PROCESS – The Program pays incentives in phases upon satisfactory completion of each of three Program milestones - approval of a complete Energy Reduction Plan, installation of all recommended measures per the Energy Reduction Plan, completion of Post-Construction Benchmarking Report (for incentive amounts, please refer to Incentive Amounts). In order to be eligible for Program Incentives, a Participating Customer or an agent authorized by a Customer, must submit to the Market Manager a properly completed application package – application form, Participating Customer's company W-9, twelve consecutive months of the project's utility bills and executed Participation Agreement. All components of the application package must be filled out completely, truthfully and accurately. This application package must be received on or before June 30, 2015 in order to be eligible for the Fiscal Year 2015 Incentives. The Market Manager will review the application package to determine if the project is eligible for a Program Incentive. When approved, the Participating Customer will receive an approval letter from their Case Manager with the estimated authorized first incentive amount and the date by which the Energy Reduction Plan must be submitted. Upon receipt of the approval letter, the Participating Customer and Partner may proceed with work on the Energy Reduction Plan. The Market Manager or agent thereof reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the Energy Reduction Plan approval letter. Approval of this Application is not an approval of the project's scope of work. Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.

CHANGES TO THE PROGRAM – The Program and Participation Agreements may be changed by the Market Manager at any time without notice. Approved applications, however, will be processed to completion under the agreements in effect at the time of the Market Manager's approval.

ELIGIBILITY - Program Incentives are available to existing commercial, industrial and certain multifamily buildings with peak kilowatt demand usage of more than 100 kW in any of the most recent preceding twelve months of utility bills and a customer of the New Jersey Utilities. Market Manager has the discretion to approve applications that fall below the 100 kW minimum by no more than 10%. If the Participant is a municipal electric company customer, and a customer of an investor-owned gas New Jersey Utility, only gas measures will be eligible for incentives under the Program. Similarly, if the Participant is an oil/propane customer and a customer of an investor-owned electric New Jersey Utility, only electricity measures will be eligible for incentives under the Program.

Equipment procured by participating Customer through another program offered by the New Jersey Utilities, as applicable, is not eligible for incentives through this Program. Customers who, from July 1, 2013 – June 30, 2014, have not contributed to the Societal benefits Change of the applicable New Jersey Utility may not be eligible for incentives offered through this program.

ENDORSEMENT – The Market Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

ENERGY-EFFICIENT MEASURES – Any device eligible to receive a Program Incentive payment through the New Jersey's Clean Energy Commercial and Industrial Program. The total package of measures as presented in the Energy Reduction Plan must have at least a 10% internal rate of return (IRR).

ENERGY REDUCTION PLAN – A document created by the Participating Customer's selected Partner that defines several key aspects of the project including (but not limited to) existing conditions as a result of a whole-building technical analysis, benchmarking summaries, recommended measures, financing plan and implementation schedule.

ENERGY REDUCTION PLAN APPROVAL – After application approval, the Participating Customer and Partner must work together to finalize and submit an Energy Reduction Plan which incorporates a work scope that will achieve the minimum 15% reduction in source energy performance target in accordance with the Program rules and policies along with the Benchmarking Tool, modeling software file, a copy of the executed Partner and Participating Customer contract, an original copy of the executed Installation Agreement and a Request for Incentive #1 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. The Market Manager, agents thereof and/or the selected Partner must be provided reasonable access to the Participating Customer's facility, staff, tenants and/or others necessary to develop an Energy Reduction Plan that will achieve the minimum 15% performance target as well as the necessary utility billing data as dictated by the Program. The Energy Reduction Plan submittal package will be reviewed and must be approved by the Market Manager prior to payment of Incentive #1. Upon approval of the submittal package, the Customer will receive an Incentive #1 approval letter indicating the date by which all measures in the Energy Reduction Plan must be installed (no later than twelve months following the Energy Reduction Plan submittal approval date).

INCENTIVE AMOUNTS – Incentive #1 - \$0.10 per square foot of the project with a maximum amount of \$50,000 and minimum of \$5,000, not to exceed 50% of the project's annual energy cost and contingent on installation of measures in the Energy Reduction Plan and receipt of a signed Installation Agreement. If installation does not commence within the required timeframe, Incentive #1 may be required to be returned to the program. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid. Incentive #2 – 50% of the total performance-based incentive (combination of Incentives #2 and #3) calculated per Program's incentive structure; Incentive #3 – remaining amount based on the realized energy savings of the project. For customers that have successfully participated in the Local Government Energy Audit Program, Incentive #1 will be reduced by 50% to \$0.05 per square foot up to \$25,000. Actual Incentive #1 paid shall not be higher than 5% over the committed amount. Actual Incentive #2 paid shall not be higher than the committed amount, unless the Energy Reduction Plan has been resubmitted due to changes in the work scope. Actual Incentive #3 paid shall be higher or lower than the committed amount based on actual energy savings but shall not be greater than program Incentive Caps.

The Market Manager will provide incentives according to those described in this section or as modified upon notice to Participating Customer. All incentive payments are paid directly to the Participating Customer or the Participating Customer's designee as indicated on the application form. The Program is not bound to pay any incentive unless the submittal package associated with the incentive payment is approved by the Market Manager who reserves the sole discretion of approving or disapproving the submittal packages.

INCENTIVE CAP – Program Incentives #2 and #3 will be capped not to exceed 50% of the total actual project cost. Incentive #1 will be capped not to exceed 50% of the project's annual energy cost. The Market Manager reserves the right to limit the amount of the Program Incentives (Incentive #1, #2 and #3) to \$1M per gas and electric account (limited to \$2M per project) in a program year. Campus style facilities, which are master-metered, are subject to the annual incentive cap of \$1 million per gas and electric account. The Participating Customer will also be subject to an annual Entry Cap of \$4M (Definition of an Entry can be found in the Board Order Docket No. EO07030203).

INSTALLATION AGREEMENT – The Participating Customer must submit an executed Installation Agreement as part of the Request for Incentive #1 Form. By executing the Installation Agreement, the Customer agrees to install all of the measures in the Energy Reduction Plan, which are estimated to result in meeting or exceeding the minimum 15% performance target. The Customer agrees to the performance-based incentives (Incentives #2 & #3) as indicated in the document which are based on the results of the Energy Reduction Plan. Implementation of the measures must commence in the time period twelve months following the approval date of the Energy Reduction Plan. Failure to complete the installation of the measures in the Energy Reduction Plan may result in the repayment of Incentive #1. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid.

LIMITATION OF LIABILITY – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against TRC Energy Services, the Market Manager, and the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Market Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Market Manager, its representatives, or subcontractors, or the Administrator be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Market Manager under this Program shall be individual, and not joint and/or several.

The Market Manager's review and approval of the Energy Reduction Plan cannot be construed to be a determination as to performance, applicability, dollar savings, energy savings, or any other aspect of the proposed project. The Market Manager and Administrator offer no guarantee or warranty of performance of the project's equipment or system. The participant assumes full responsibility and liability for the installation of all equipment, including but not limited to design, specification, all permits, installation, maintenance, performance and financing. By participating in the program and accepting incentive dollars, you agree to hold harmless the Market Manager and Administrator and their respective staffs with respect to the Project.

MARKET MANAGER – TRC Energy Services is responsible for managing the New Jersey Clean Energy Commercial & Industrial Programs.

MEASUREMENT & VERIFICATION APPROVAL – Twelve months subsequent to the Incentive #2 Payment Submittal package submission date, measurement and verification of the projected energy reduction will be conducted by the Participating Customer's Partner using the project's post-installation utility data (supplied by the Customer). The Participating Customer must work with their Partner to submit the Incentive #3 Payment Submittal, consisting of the Post-Construction Benchmarking Pay For Performance-Existing Buildings Report, Benchmarking Tool, and Request for Incentive #3 form. All components of the submittal package must be filled out

completely, truthfully and accurately. Upon review of the submittal package (by the Market Manager or agent thereof), the remaining 50% of the total performance-based incentive (Incentives #2 & #3) will be released to the Participating Customer. If the Post-Construction Benchmarking Report indicates that the project did not meet the minimum performance target, the post-installation completion period may be extended to up to twenty-four months subsequent to the Incentive Payment #2 package submission date. Upon approval of the submittal package, the Customer will receive an Incentive #3 Submittal approval letter indicating successful completion of the program.

NEW JERSEY UTILITIES – The investor-owned electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

PARTICIPATING CUSTOMERS – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

PARTICIPATING CUSTOMER'S CERTIFICATION – Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements per the Program Guidelines. Participating Customer certifies that he/she purchased and installed the equipment listed in the Energy Reduction Plan at their defined New Jersey project location.

PARTNER – An approved professional who provides technical building performance services to Participating Customers, acting as their "energy efficiency expert". Participating Customers are required to hire an approved Pay for Performance Partner to develop the Energy Reduction Plan and facilitate installation of the recommended package of Energy-Efficient Measures. Participants are required to enter into a contractual agreement with a selected Partner which outlines the set of minimum services the Partner will provide to the Participating Customer throughout the life of the project. It is strongly recommended that Participating Customers perform due diligence in selecting a Pay for Performance Partner. Fees charged by the Partner are not regulated by the Program and could vary between Partners.

PERFORMANCE-BASED INCENTIVES – The combination of Incentives #2 and #3, which are based on the projected and actual energy reduction performance of the project.

PERFORMANCE TARGET – A minimum of a 15% annual source energy savings performance target must be achieved in order to participate. The performance target is based on reducing the total energy consumption for the facility. No more than 50% of the total source energy savings may be derived from lighting measures. The total energy savings may not come from a single measure. A 4% performance target may be offered to customers whose annual energy consumption is heavily weighted to manufacturing and process loads. This approach will be reviewed on a case-by-case basis and must be pre-approved by the Market Manager. In order to be considered, the project must involve: A manufacturing facility, including such industries as plastics and packaging, chemicals, petrochemicals, metals, paper and pulp, transportation, biotechnology, pharmaceutical, food and beverage, mining and mineral processing, general manufacturing, equipment manufacturers and data centers; and manufacturing and/or process-related loads, including data center consumption, consume 50% or more of total facility energy consumption. No more than 50% of the total source energy savings may be derived from non-investor owned utilities or fuels.

POST-INSTALLATION APPROVAL – After the complete installation of all measures in the Energy Reduction Plan, the Customer and their Partner must finalize and submit the Incentive #2 Payment Submittal, consisting of the Installation Report, invoices, and Request for Incentive #2 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. Upon review of the submittal package and verification of the complete installation of all measures in the Energy Reduction Plan (via inspection by the Market Manager or agent thereof), 50% of the total performance-based incentive (Incentives #2 & #3) will be released to the Participating Customer. Upon approval of the submittal package, the Customer will receive an Incentive #2 approval letter indicating the date by which the post-installation Measurement & Verification phase began and will end (twelve months in length).

The Market Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing products or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time. Energy-Efficient Measures must be installed in buildings located within the service territory of one of the New Jersey Utilities (as defined by the Program) as designated on the Participating Customer's Pay for Performance application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program Guidelines. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease.

PRE-INSTALLED MEASURES – An Energy Reduction Plan must be approved by the program and an approval letter sent to the customer in order for incentives to be committed. Upon receipt of an Energy Reduction Plan, all project facilities must be pre-inspected. Measures installed prior to pre-inspection of the facility shall not be included as part of the ERP scope of work and will not be eligible for incentives. Measure installation undertaken prior to ERP approval, but after pre-inspection, is done at the customer's own risk. In the event that an Energy Reduction Plan is rejected by the program, the customer will not receive any incentives.

PRODUCT INSTALLATION OR EQUIPMENT INSTALLATION – Installation of the Energy-Efficient Measures.

Projects with a contract threshold of \$15,444 are required to pay no less than prevailing wage rate to workers employed in the performance of any construction undertaken in connection with Board of Public Utilities financial assistance, or undertaken to fulfill any condition of receiving Board of Public Utilities financial assistance, including the performance of any contract to construct, renovate or otherwise prepare a facility, the operations of which are necessary for the receipt of Board of Public Utilities financial assistance. By submitting an application, or accepting program incentives, applicant agrees to adhere to New Jersey Prevailing Wage requirements, as applicable.

PROGRAM – New Jersey's Clean Energy Pay for Performance Program offered herein by the New Jersey Board of Public Utilities pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

PROGRAM GUIDELINES – See Pay for Performance Program Guidelines available from your Partner.

PROGRAM INCENTIVES – Refers to the amount or level of incentive that the Program provides to participating customers pursuant to the Program offered herein (see the description under "Incentive Amount" heading).

PROGRAM OFFER – The Program covers products purchased and/or services rendered on or after July 1, 2014. Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities.

PROJECT – A commercial, industrial or multifamily existing building with peak demand in excess of 100 kW in any of the most recent preceding twelve months of electric usage. Multifamily building(s) must be four (4) stories or greater or three (3) stories and under having central heating, cooling, or metering serving more than one building. The 100 kW requirement is waived for the following customer classes: hospitals, non-profits (as defined by section 501(c)(3) of the Internal Revenue Code), public colleges and universities, local government entities, including K-12 schools, and affordable multifamily customers (defined as low income, subsidized, HUD, etc.)

TAX CLEARANCE CERTIFICATION – Businesses must apply for and receive a Tax Clearance Certificate from the New Jersey Division of Taxation before they can receive any incentive, grant or other financial assistance from the Program.

TAX LIABILITY – The Market Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number on the application form in addition to providing a copy of their W-9 form as part of the application package in order to receive a Program Incentive.

TERMINATION – New Jersey's Clean Energy Program reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

WARRANTIES – THE MARKET MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/ SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

ACKNOWLEDGEMENT – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Market Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the Pay For Performance Program, including the release of electric and natural gas utility billing information, as well as make available to the public non-sensitive information. I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program. This arrangement supersedes all other communications and representations.

CUSTOMER'S SIGNATURE

PARTNER SIGNATURE

By signing, I certify that I have read, understand and agree to the Participation Agreement listed above.

IV. ENERGY SAVINGS IMPROVEMENT PLAN (ESIP)



Your Power to Save

At Home, for Business, and for the Future

[About Us](#) | [Press Room](#) | [Library](#)

HOME

RESIDENTIAL

COMMERCIAL, INDUSTRIAL
AND LOCAL GOVERNMENT

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND
FUEL CELLSLOCAL GOVERNMENT ENERGY
AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT
PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL
ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Program

A new State law allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under Chapter 4 of the Laws of 2009 (the law), the "Energy Savings Improvement Program" (ESIP), provides all government agencies in New Jersey with a flexible tool to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. The program also allows agencies to reduce energy usage with minimal expenditure of new financial resources.

This Local Finance Notice outlines how local governments can develop and implement an ESIP at their facilities. Below are two sample RFPs:

Local Government
School Districts (K-12)

All RFPs must be submitted to the Board for approval at ESIP@bpu.state.nj.us.

The Board also adopted protocols to measure energy savings:

Measuring Energy Savings
Procedures for Implementation

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Local units considering an ESIP should carefully review the Local Finance Notice, the law, and consult with qualified professionals to determine how they should approach the task.

The NJ Board of Public Utilities sponsored Sustainable Jersey in the creation of an ESIP Guidebook that explains how to implement the program. The guidebook also includes a list of successful projects and a list of helpful resources.

FIRST STEP – ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit as prescribed in P.L.2012 c.55.

ENERGY REDUCTION PLANS

If you have an ESIP plan that needs to be submitted to the Board of Public Utilities, please email it to ESIP@bpu.state.nj.us. Please limit the file size to 3MB (or break it into smaller files).

Frankford Township School District
Northern Hunterdon-Voorhees Regional High School
Manalapan Township (**180 MB** - Right Click, Save As)

ESIP PROGRAM

Final version 42413

BPU RULES

1. Public Entity must decide if they will use an ESCO or DIY method or Hybrid thereof prior to issuing the RFP and the RFP must state the intended method. A change in the project procurement model after the RFP closing date will be cause for immediate rejection and disqualification of potential Clean Energy program incentives.
2. RFP procedures shall be adhered to as per the legislation, including the use of BPU approved forms. Any alteration of the forms, without prior approval from the BPU shall be grounds for rejection.
3. RFP must include copy of an audit (ASHRAE Level II w/Level III for lighting) and audit must be prepared by a firm classified by DPMC in the 036 discipline.
4. All firms, including professional services, whether using ESCO or DIY model, must be DPMC classified.
5. If an Architect is engaged by the public entity, the architectural fees are the responsibility of the public entity and must be paid directly to the firm. These fees may be included in the energy cost savings analysis and payback.

ESCO's may contract directly with an architectural firm, in which case the architectural firm serves as a subcontractor to the ESCO and the project related service costs may be included within the project's economic model.

6. Public entity shall conduct pre-bid meetings and site visits per existing statutes.

In the interest of open public bidding transparency, it is a requirement of the BPU that all proposers must attend the pre-proposal bid meeting.

7. There shall be no negative cash flow in any year of the program.
section 7 (1)(a)
"the energy savings resulting from the program will be sufficient to cover the cost of the program's energy conservation measures."
8. SREC values are not permitted to be used in the energy cost savings calculations.
9. Capital cost avoidance values are not to be used in the energy savings calculations.
10. Operational and Maintenance (O&M) cost savings may be permitted in the cost savings calculations, but only with supporting documentation.
11. Blended utility rates shall not be permitted. Use the actual utility tariff or local contracted rates if there is a third party supplier.

For the RFP proposals, the public entity shall define the utility rates in the RFP

12. Contracted third party utility rates may only be used for the term of the contract (5 yr. maximum)
Subsequent years are to be projected at the utility tariff rates plus the annual BPU escalation rates.
13. Public entity shall conduct M&V (measurement and verification) at the one (1) year operational date and shall provide a copy of the M&V report to the Board of Public Utilities.

For the RFP proposals, the ESCO shall provide the cost for the one (1) year M&V only. For comparative purposes, the one year M&V pricing shall be indicated on the proposal Form VI, under the "Annual Service Costs" column. Additional M&V costs are at the discretion of the local unit and are not to be included in the proposal.

14. The decisions made by BPU staff regarding compliance or other issues that arise in connection with the RFP procurement process shall be considered a final decision of the BPU. Any appeal will need to be through the New Jersey Superior Court, Appellate Division.
15. For the RFP proposals only, Demand Response (DR) revenues claimed by ESCO's can only be projected for a maximum period of three (3) years. DR revenue projections beyond three years will not be permitted. DR revenues must be included and presented under the "Energy Rebates/Incentives" column of FORM VI.
16. ESCO "fees" proposed during the RFP phase of the project cannot increase post-award. ESCO's are required to maintain the fee percentages through final contract negotiations and construction of the Board approved Energy Savings Plan
17. Public Bid openings shall be held on the due date of the proposal submissions. The public entity shall announce the name of the bidder and the total dollar amount. After award of a contract, all proposals received will be made available by the owner for public inspection
18. Rejection of bids by the public entity shall be conducted in accordance with the appropriate sections of the applicable legislation, as stated in Title 40A:11-13.2. Additionally all proposals must be returned to the respective ESCO's upon rejection.
19. Field changes that exceed 5% of the project cost require BPU approval.
20. Energy Savings Plans (ESP) that is dependent upon incentives from the Clean Energy Program must review the current program requirements, at the time of application, for each incentive to insure eligibility. If any program incentive is denied, resubmission of all ESIP related forms will be necessary to remain ESIP qualified.

APPENDIX E

Photovoltaic Analysis

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Bloomfield Middle School
CHA Project Numer: 30040

Cost of Electricity	\$0.19	/kWh
Electricity Usage	636,960	kWh/yr
System Unit Cost	\$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary	Annual Utility Savings				Estimated	Total	Federal Tax	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Credit	Renewable	(without	(with
					Savings			** SREC	incentive)	incentive)
\$	kW	kWh	therms	\$	\$	\$	\$	\$	Years	Years
\$960,000	240.0	305,972	0	\$56,605	0	\$56,605	\$0	\$61,194	17.0	8.1

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= \$200 /1000kwh

Area Output*

3,317 m2
35,700 ft2

Perimeter Output*

1 m
3 ft

Available Roof Space for PV:

(Area Output - 10 ft x Perimeter) x 85%
30,319 ft2

Approximate System Size:

Is the roof flat? (Yes/No) Yes

8 watt/ft2
242,553 DC watts
240 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle 20 Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth 180 Enter into PV Watts (default)
Zip Code *07003 Enter into PV Watts
DC/AC Derate Factor 1.1 Enter into PV Watts

PV Watts Output

305,972 annual kWh calculated in PV Watts program

% Offset Calc

Usage 636,960 (from utilities)
PV Generation 305,972 (generated using PV Watts)
% offset 48%

* <http://www.freemaptools.com/area-calculator.htm>
** <http://www.flettexchange.com>
*** <http://pvwatts.nrel.gov/>





Caution: Photovoltaic system performance predictions calculated by PVWatts include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts inputs. For example, PV modules with better performance are not differentiated within PVWatts from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <http://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

Disclaimer: The PVWatts Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

RESULTS

305,972 kWh per Year *

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Energy Value (\$)
January	2.78	18,070	1,334
February	3.52	20,445	1,509
March	4.34	27,184	2,006
April	4.95	28,957	2,137
May	5.69	33,418	2,466
June	5.86	32,457	2,395
July	5.73	32,399	2,391
August	5.47	30,663	2,263
September	4.91	27,390	2,021
October	3.99	23,792	1,756
November	2.68	16,164	1,193
December	2.35	15,032	1,109
Annual	4.36	305,971	\$ 22,580

Location and Station Identification

Requested Location	60 Huck Road Bloomfield NJ 07003
Weather Data Source	(TMY2) NEWARK, NJ 7.4 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications (Commercial)

DC System Size	240 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	180°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.07 \$/kWh
Initial Cost	2.60 \$/Wdc
Cost of Electricity Generated by System	0.13 \$/kWh

Selected Incentives

Capacity Based Incentives (CBI)	New Jersey Renewable Energy Incentive Program Rate: \$0.75 - Maximum Amount: \$5,625.00
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These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.

APPENDIX F

Photos



BLOOMFIELD MIDDLE SCHOOL



UNIT VENTILATORS IN CAFETERIA



INTERIOR OF UNIT VENTILATOR



FITNESS CENTER



ROOFTOP UNITS SERVING CLASSROOMS 112 AND 113



AIR COOLED CONDENSING UNIT SERVING OFFICE AREAS



ROOFTOP UNITS SERVING MEDIA CENTER WING



GYMNASIUM LIGHTING



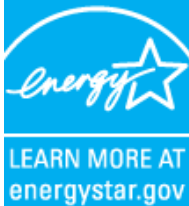
KITCHEN EXHAUST HOOD



AIR COOLED CONDENSING UNITS SERVING HALLWAYS OF NEW WING

APPENDIX G

EPA Benchmarking Report



ENERGY STAR® Statement of Energy Performance

57

ENERGY STAR®
Score¹

Bloomfield Middle School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 153,380
Built: 1960

For Year Ending: June 30, 2014
Date Generated: May 21, 2015

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

Bloomfield Middle School
60 Huck Road
Bloomfield, New Jersey 07003

Property Owner

,
(____)____-____

Primary Contact

,
(____)____-____

Property ID: 4431550

Energy Consumption and Energy Use Intensity (EUI)

Site EUI

63.5 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	2,173,308 (22%)
Natural Gas (kBtu)	7,561,300 (78%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	67.8
National Median Source EUI (kBtu/ft²)	102.8
% Diff from National Median Source EUI	-6%

Source EUI

96.3 kBtu/ft²

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	692
--	-----

Signature & Stamp of Verifying Professional

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

Signature: _____ Date: _____

Licensed Professional

,
(____)____-____



Professional Engineer Stamp
(if applicable)