CARTERET BOARD OF EDUCATION

CARTERET HIGH SCHOOL

199 Washington Avenue, Carteret, NJ 07008

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

June 2015

Prepared by:

6 Campus Drive
Parsippany, NJ 07054
(973) 538-2120

CHA PROJECT NO. 30201

TABLE OF CONTENTS

APPENDICES

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 ±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 the Carteret High School 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
Carteret High School	199 Washington Avenue, Carteret, NJ 07008	166,918	1926

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)
Carteret High School	265,876	13,515	42,314	23.3

The annual savings for each individual measure 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 choses 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

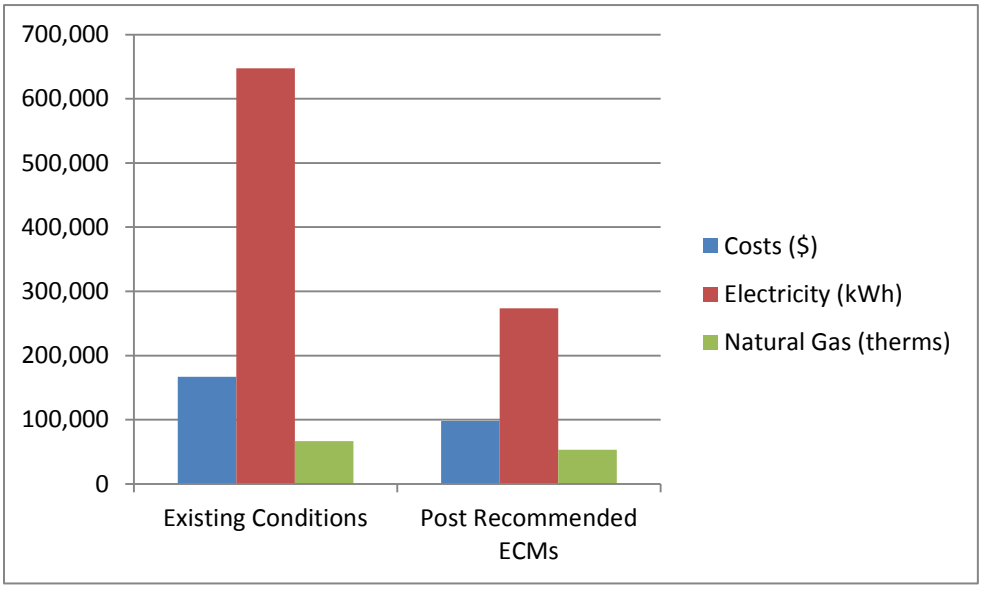
ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
1	Increase Attic Insulation to R-38	117,464	5,628	20.9	0	20.9	Y
2	Replace Door Sweeps & Seals	1,244	26	47.0	0	47.0	Y
3	Steam to Hot Water Conversion	4,302,457	16,168	266.1	2,000	266.0	N
4	Eliminate HW Generator & Install Condensing Boiler	317,043	10,031	31.6	1,500	31.5	Y
5	Install VFDs on Hot Water Pumps	11,618	237	49.0	0	49.0	Y
6	Replace Stadium DHW Heaters with Condensing	17,696	2,279	7.8	600	7.5	Y
7	Walk in Freezer Controls	22,275	1,335	16.7	200	16.5	Y
L1**	Lighting Replacements	447,609	19,562	22.9	27,460	21.5	N
L2**	Lighting Controls	51,300	5,708	9.0	3,800	8.3	N
L3	Lighting Replacements with Controls	498,909	22,778	21.9	31,260	20.5	Y
	Total**	**5,288,706**	**58,482**	**90.4**	**35,560**	**89.8**	
	Total (Recommended)	**986,249**	**42,314**	**23.3**	**33,560**	**22.5**	

* Incentive shown is per the New Jersey SmartStart Program.
** These ECMs are not included in the Total, as they are alternate measures not recommended.

The alternative energy measure *Solar PV Electricity Generation* is not recommended due to the fact that there is insufficient available roof space for the PV panels.

If the Carteret Board of Education implements the recommended ECMs, energy savings would be as follows:

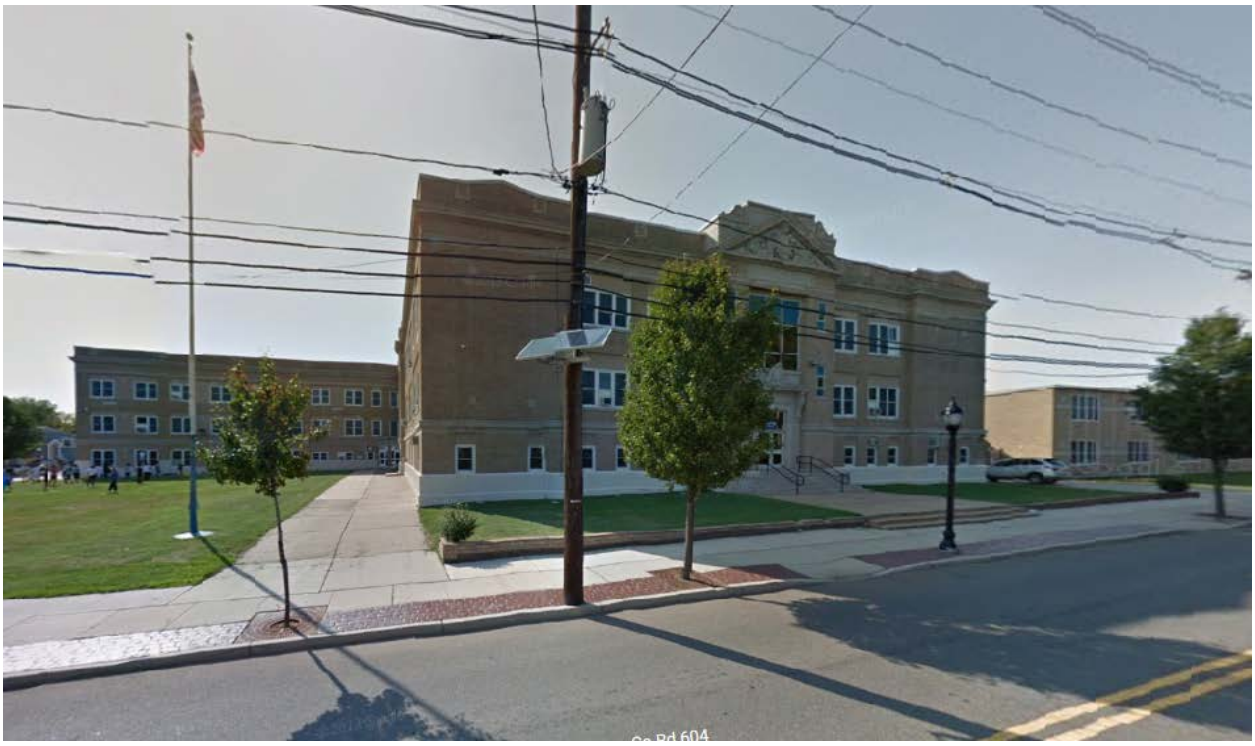
	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	166,990	124,676	25%
Electricity (kWh)	647,566	381,690	41%
Natural Gas (therms)	66,851	53,336	20%
Site EUI (kbtu/SF/Yr)	53.3	39.8	



2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

The following is a summary of building information related to HVAC, plumbing, building envelope, lighting, kitchen equipment 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 some representative photos of some of the existing conditions observed while onsite.

Building Name: Carteret High School
Address: 199 Washington Avenue, Carteret, NJ 07008
Gross Floor Area: 166,918 Square Feet
Number of Floors: 3 and a basement
Year Built: 1926, with additions in 1961, 1973, and 1996



Description of Spaces: The property includes the school building, athletic fields, a stadium, and a utility storage building [this last building was inaccessible at the time of the site visit]. The original school building consists of 3 floors and takes up about 60% of the total school area. The newer 1961 "Annex" addition consists of 2 floors and occupies about 40% of the total building area. Spaces consist of classrooms, small group instruction rooms, offices, cafeteria, auditorium, stage, laboratories, gymnasiums, computer lab, media center, weight room, training room, wrestling room, storage rooms, toilet rooms and mechanical rooms.
Description of Occupancy: The school serves 990 students from 9th to 12th grade. There are approximately 100 school faculty and staff members.
Number of Computers: The school has approximately 240 desktop and laptop computers.

Building Usage: Hours of operation are 7:35 AM to 3:00 PM Monday through Friday, with various after-school activities. Custodial staff are on site in two shifts, from 6:00 AM to 3:00 PM, and 2:30 PM to 10:00 PM, 10 months per year.

Building Envelope

Construction Materials: Structural steel framing with concrete masonry unit exterior walls, insulation unknown but assumed to vary with age: greater insulation thicknesses assumed for more recent construction. Newer wings are constructed of steel framed panelized window walls. Interior walls are mostly sheetrock and painted concrete. Interior and exterior walls are in fair to good condition.
Façade: Primarily brick
Roof: The building consists of several wings all of which have flat roofs, and are covered with adhered membrane or stone ballast on top of rolled roofing. The attic space above the original high school footprint does not contain any visible insulation, and an ECM is included which considers it. In the newer Annex roof insulation consists of rigid foam underneath the adhered membrane, directly above the roof deck. The attic space in this section was not accessible at the time of the site visit. Roof color varies from is light gray to dark gray, and in general is in good condition. Additionally the roof supports an extensive PV solar array, estimated at 150 kW.
Windows Double hung double pane windows with aluminum frames. Windows are in good condition and no ECMs associated with window replacement were evaluated.
Exterior Doors: Exterior doors throughout the building are aluminum framed with full length safety glass, and solid metal doors for employee use only. There is a vestibule at each public entrance. Some of the sweeps and seals are in poor condition, and an ECM evaluating this is included.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating: Heating systems for the school are delineated into two general types: the original portion of the school (60%) is heated by steam. The newer 1961 Annex (40%) is heated by hot water. Both steam and hot water (indirectly) is generated by the same two Cleaver Brooks boilers, with capacities of 10 million BTU, installed in 2007. Only one boiler at a time is required to keep the building heated and for this reason they are operated on an alternating basis. Hot water for the Annex is created in a steam to hot water heat exchanger, also located in the Boiler Room. Two base mounted pumps (without VFDs), each 7.5 HP, circulate this water around the Annex, operating in a lead-lag manner. An ECM is included which considers the addition of VFDs to these pumps.

The typical classroom in the original section is equipped with one unit ventilator and one steam radiator. The unit ventilator is outfitted with a steam heating coil. Classrooms in the newer Annex are equipped with one hydronic unit ventilator and hydronic perimeter finned radiation. An AAON gas fired rooftop unit provides heating, ventilation, and air conditioning (DX) to the cafeteria. A gas fired Reznor RTU provides heating, ventilation, and air conditioning (DX) to the auditorium. Corridors and entrance-ways have steam or hydronic cabinet heaters. The kitchen is served by a 2001 gas fired ICP make-up air unit located outside on a concrete pad adjacent to the building. It was noted at the time of the site visit that the supply and return air ductwork for this unit, which penetrate the exterior wall, needs to be re-insulated (an ECM is included which addresses this). The main gymnasium is served by two air handling units outfitted with steam

heating coils. Additional units within the building include the occasional electric unit heater and electric finned radiation.

The two stadium locker rooms are heated by heating only Gibson residential style gas furnaces, which are approximately five years old with capacities of 100,000 BTU each. These are installed in mechanical spaces adjacent to the locker rooms, with heated & conditioned air ducted in.

Cooling: Approximately 30% of the building is air conditioned. With the exception of the AAON cafeteria unit and the Reznor auditorium unit, cooling is accomplished with small 1 ton window A/C units in offices, and larger capacity split DX Fujitsu units that serve the computer lab and media center. Altogether the school utilizes approximately 100 tons of cooling.

Ventilation: Ventilation air is provided to the interior of the building by classroom unit ventilators, cafeteria and auditorium rooftop units, the kitchen make-up air unit, and operable windows. In general, building ventilation is adequate and no associated ECMs are included.

Exhaust: The facility utilizes exhaust fans of various sizes located on the roof to exhaust air from restrooms and storage areas, and provide general pressure relief. The gymnasium has exhaust fans installed into a “doghouse” above the gymnasium on the roof.

Solar PV: The building supports a 150 kW (estimated) solar array located on the roof. This system is a grid intertie system in which excess electricity is sold back to the utility, and energy bills reflect the net electricity consumption by the high school.

Controls Systems

The building has a pneumatic temperature controls system. The heating system is activated in October and de-activated in May. During the heating season, the boiler(s) is manually turned on at about 6:00 AM each morning by maintenance staff in preparation for students’ arrival at 8:00 AM. On cold nights the boiler is cycled every two hours using a timer, if the outdoor air temperature drops to 30°F or below. Each office and classroom is outfitted with a wall mounted thermostat tied to a control valve on the unit ventilator and/or perimeter radiation in the room. Hot water that serves the Annex is set to 180°F without modulation in response to the outdoor air temperature. No scheduling of the system occurs-- there is no night or unoccupied setback. Temperatures are generally set to 72°F in classrooms, but can be readily changed per individual preferences. Spaces that are air conditioned are maintained at about 74-75°F.

Domestic Hot Water Systems

Most of the domestic hot water for the school is provided by two (2) Aerco KC Series gas fired condensing water boilers with a capacity of 930,000 BTU at 93% nominal efficiency. Water is circulated at a maximum continuous rate of 30 gpm by (2) inline circ pumps. This system is approximately 7 years old. Domestic hot water is primarily used for hand-washing. The kitchen has its own dedicated electric 20 gallon Rheem domestic hot water heater.

The two external stadium locker rooms each have their own gas fired DHW heaters. Each of these consists of one A.O.Smith 100 gallon water heater with 75,000 BTU of capacity, installed in 1996. An ECM which considers replacing these with more efficient condensing DHW heaters is included.

Kitchen Equipment

The building has a full kitchen, cooking facilities, and a full cafeteria. The kitchen contains primarily natural gas and some electric cooking appliances. Cooking equipment consists of multiple Blodgett & Garland bread ovens; Groen steam convection ovens and steam kettles; and a gas fired range. The surface of the range is exhausted by (approximate size) a 6' x 6' hood connected to one (1) rooftop exhaust fan. The Blodgett and Garland bread ovens are exhausted by one 8' x 6' hood connected to one (1) rooftop exhaust fan. Dishes are washed by hand in a conventional stainless steel triple sink. One (1) large Bally walk-in refrigerator keeps food at 32°F; a walk-in freezer to the back provides frozen food storage at 3°F. Several Continental reach-in coolers are also utilized. An ECM for a walk-in cooler controller is included in this report.

Plug Load

The Carteret High School building has computers, copiers, residential appliances (microwave, refrigerator), printers, and portable heaters which contribute to the plug load in the building. By implementing other ECMs, plug load from the portable heaters may be reduced.

Plumbing Systems

About 50% of the building's plumbing fixtures have been upgraded to lower flow fixtures, with 1.0 GPF for urinals, 1.8 GPF for water closets, and 2.2 GPM for metering type spring-loaded lavatory faucets. Discussion with maintenance personnel indicated that currently the program is 'as fixtures fail, they are upgraded.' The remainder are 1960's vintage high flow fixtures with wall recessed urinals, 3.5 GPF water closets, and high flow lavatories. ECMs are included which address these.

Lighting Systems

Interior lighting is primarily T-8 32 watt four foot fluorescent lamps mounted in a variety of different fixtures. Recessed CFL lamps are used in vestibules and entranceways. All light fixtures are switched. Exterior building lighting consists of 100 watt metal halide wall-packs, 85 watt induction lamps, and 400 watt metal halide decorative sconces. The stadium playing field is illuminated with four large banks of lights installed onto 60 ft. steel poles. Two of the banks consist of ten 1,000 watt metal halide lamps; the two other banks consist of twelve 1,000 watt metal halide lamps.

Three lighting ECMs have been included which consist of adding occupancy sensors to the existing lighting, replacement of the T-8 lighting with LED lighting and a third ECM that evaluates the effect of occupancy sensors used with the LED lighting upgrades.

3.0 UTILITIES

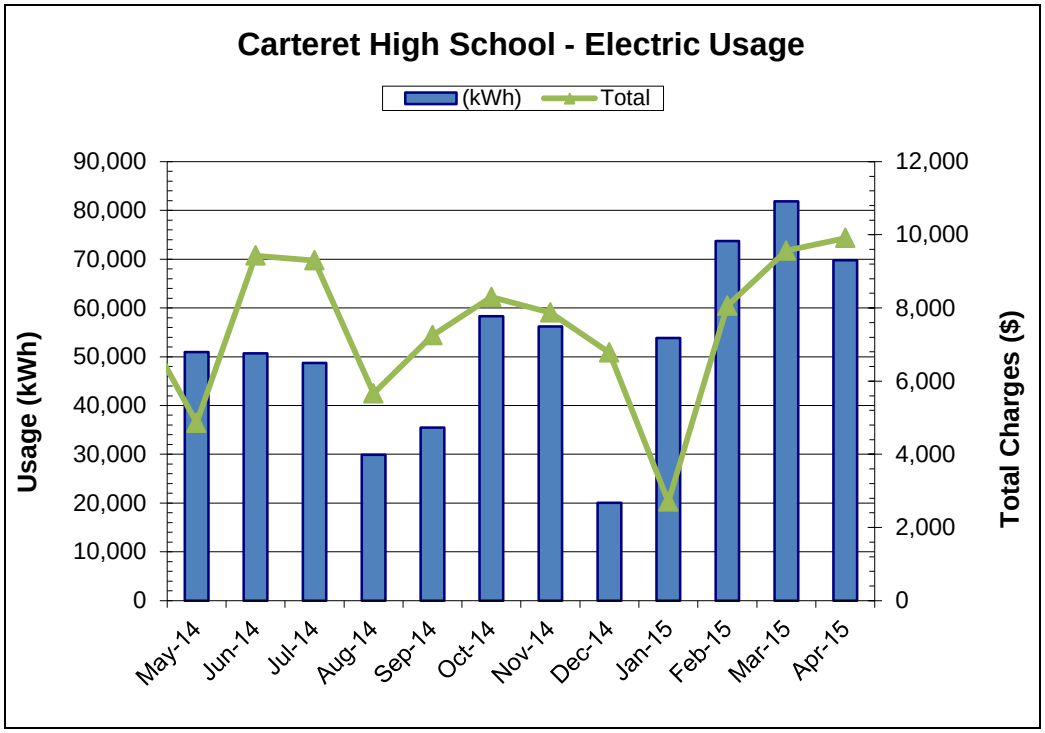
Utilities used by the building are delivered and supplied by the following utility companies:

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

For the 12-month period ending in May 2015, the utilities usages and costs for the building were as follows:

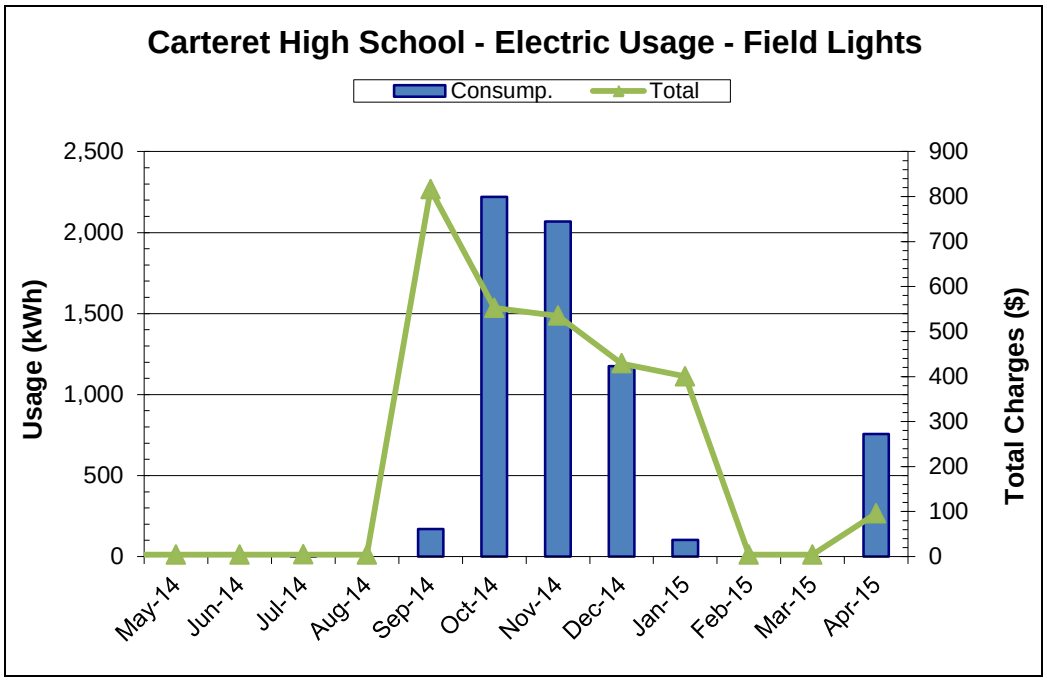
Electric		
Total Annual Consumption	647,566	kWh/yr.
Total Annual Cost	94,304	$
Blended Unit Rate	0.146	$/kWh
Supply Rate	0.089	$/kWh
Demand Rate	3.01	$/kW
Peak Demand	476.0	kW
Natural Gas		
Annual Usage	66,851	Therms/yr.
Annual Cost	72,686	$
Rate	1.087	$/therm

Blended Rate: Average rate charged determined by the annual cost / annual usage
Supply Rate: Actual rate charged for electricity usage in kWh (based on most recent electric bill)
Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)

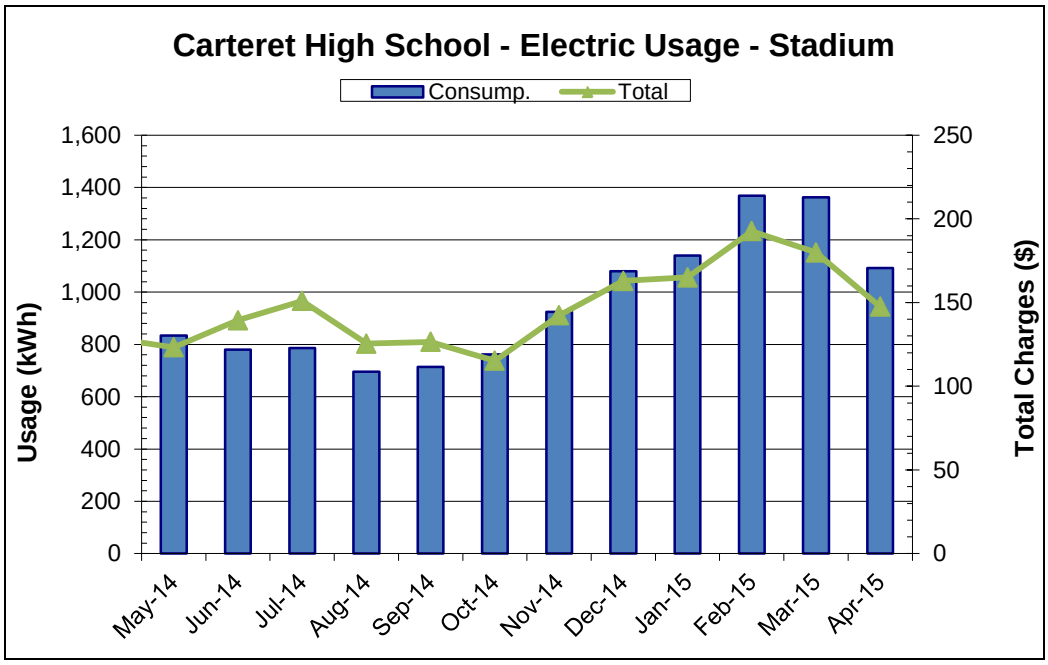


The electrical usage above reflects the net electricity consumed by the high school year-round, less the kWh generated by the PV solar panels. A higher amount of

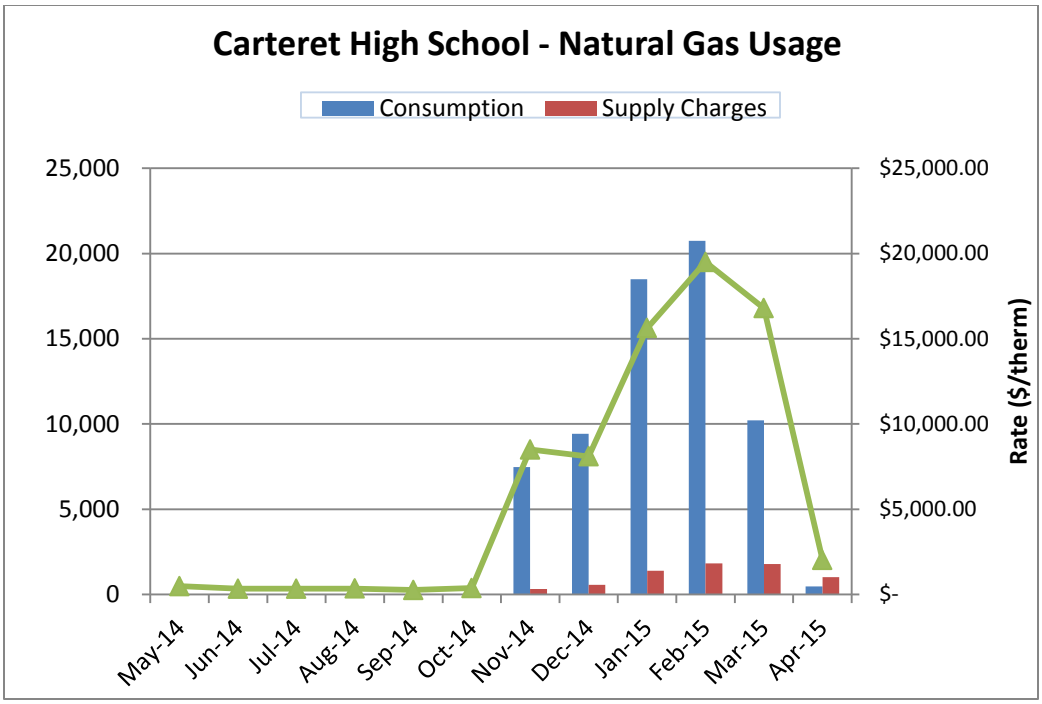
electricity is generated by the PV panels in the summertime during a time of year in which the building has reduced occupant usage.



The electrical usage for field light usage varies with sporting activities that utilize the stadium fields at night.



The stadium is adjacent to the track field and includes seating for spectators as well as two locker rooms which are not air conditioned, and see year-round usage.



The natural gas usage is mostly driven by space heating in the winter months with a distinct tail-off of usage during the summer months.

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	Building Average Rate	NJ Average Rate	
Electricity	$/kWh	$0.15	$0.13	Y
Natural Gas	$/Therm	$1.09	$0.96	Y

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

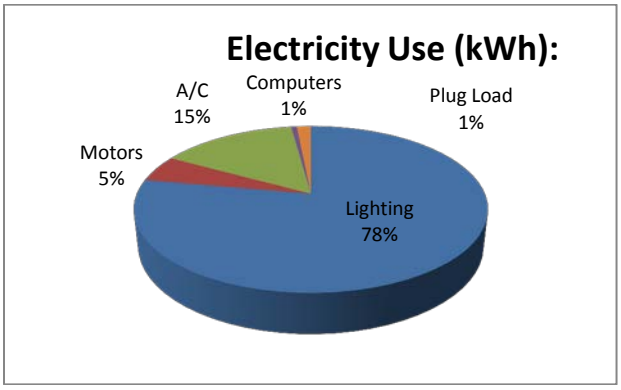
Additional information on selecting a third party energy supplier is available here:

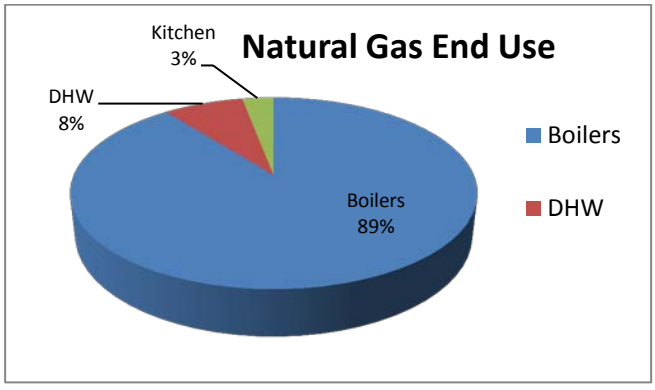
http://www.state.nj.us/bpu/commercial/shopping.html.

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.

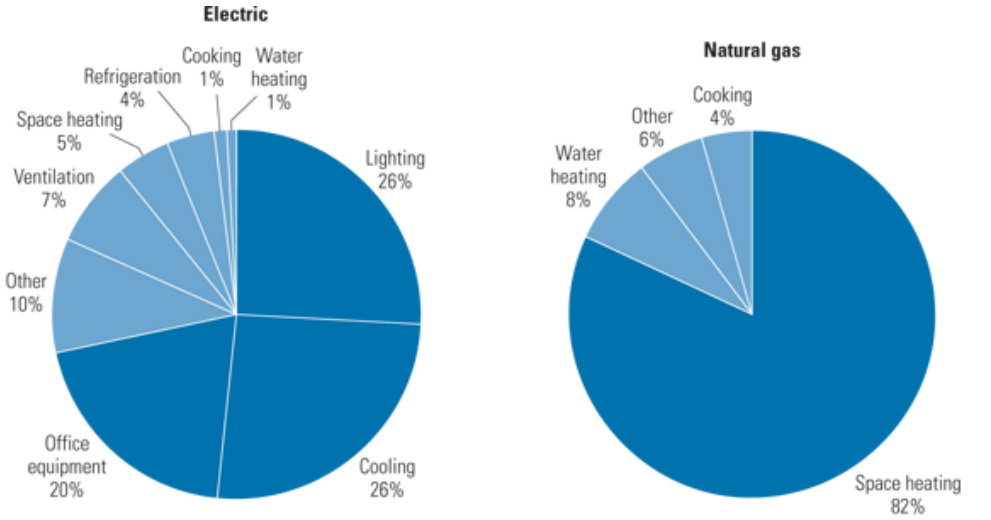
Site End-Use Utility Profile





Most of the electricity consumed by the high school is used for lighting, cooling, motors, and plug loads such as computers and copiers; most of the natural gas is used for space heating. Each building's energy profile is different, and the following charts represent typical utility profiles for commercial buildings per U.S. Department of Energy.

Typical End-Use Utility Profile for Commercial Buildings



Courtesy: E SOURCE; from Commercial Building Energy Consumption Survey, 1999 data

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/ft^2/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 and 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.

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.

Building	Site EUI kBtu/ft^2/yr	Source EUI Btu/ft^2/yr	Energy Star Rating (1-100)
Carteret High School	50.4	69.6	94

The building has a higher than average Energy Star Rating Score (50 being the median score). It is likely that one of the largest contributing factors to the high Energy Star Rating is the existence of the 150 kW (estimated) solar array on the roof. By implementing the measures discussed in this report, it is expected that the EUI can be further reduced and the Energy Star Rating increased.

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 Add Attic Insulation to R-38

Portions of the attic were investigated during the site visit, and no insulation was observed installed either above the original ceiling or into the rafter spaces underneath the roof deck. It is estimated that the insulating value of the existing roof assembly has a thermal resistance value of R-9. Providing insulation into the attic will further reduce heat loss from the building.

To calculate the savings, the heat losses through the roof assembly of the facility were found using the existing roof's R-value of 9 and bin weather data. The values were totaled to determine the existing annual energy losses. Heating and cooling energy loss values were then determined with a thermal resistance which included the additional R-29 fiberglass batting insulation. The total proposed roof R-value with insulation is approximately R-38.

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

ECM-1 Install Attic Insulation to R-38

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$	%	$	Years	Years
117,464	0	22,403	2,168	5,628	0.2	0	20.9	20.9

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.2 ECM-2 Replace Door Sweeps and Seals

It was noted during the site visit that the seals and sweeps were showing wear on nearly all of the exterior doors, and daylight was visible between the door and frame.

The seals around exterior doors fail over time. This leads to infiltration of unconditioned outside air or exfiltration of indoor air resulting in increased heating energy usage. This measure calls for the replacement of all exterior door seals. Replacement of these seals will result in a reduction of the buildings heating and cooling loads, therefore providing natural gas and electricity savings. The linear footage of gap and wind speed is used to estimate the infiltration rate, which is then multiplied by the BIN weather data and the equipment efficiencies to determine the annual energy savings.

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

ECM-2 Replace Door Sweeps and Seals

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
1,244	0	18	22	26	(0.7)	0	47.0	47.0

This measure is recommended despite the long payback period.

5.3 ECM-3 Steam to Hot Water Conversion

The heating system consists of two (2) steam boilers providing steam via a two-pipe system to various radiators, unit ventilators, and unit heaters around the building. The heating system also contains a steam-to-hot water heat exchanger for approximately 40% of the building which has hydronic heat.

Steam heating systems are inherently inefficient and require high maintenance as compared to re-circulated hot water heating systems or other modern heating systems. As steam systems age, the steam traps fail which then requires more untreated cold make-up water. This in turn requires more chemical treatment and increases the risk of boiler thermal shock. Steam piping becomes fouled with scale and corrosion over time resulting in poor heat transfer and ultimately pipe failure. Steam heating systems use boilers that only operate up to 84% combustion efficiency and have even lower thermal efficiency. Multiple condensate pumps and boiler feed water pumps consume electricity that would not be needed in other modern heating systems.

In lieu of replacing the boilers in kind, this ECM evaluates replacing the steam system in its entirety with a more efficient hot water system. New modulating condensing gas boilers are available that minimally operate at 88%, and can operate as high as 96%. To implement this ECM, the old steam boilers, distribution piping, venting and terminal units would be removed and the new hot water boilers, distribution piping and primary pumps put in their place. Significant piping and wiring modifications would be needed. New dedicated boiler venting would also need to be installed either through the roof or sidewall. Asbestos abatement may need to be performed prior to any work and the cost for this is not included in the payback analysis.

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

ECM-3 Steam to Hot Water Conversion

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
4,302,457	0	0	14,874	16,168	(0.9)	2,000	>100	>100

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

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

5.4 ECM-4 Eliminate Hot Water Generator and Install Condensing Boiler

The heating system for the 'Annex' consists of two (2) boilers providing steam to a steam-to-hot water heat exchanger, providing hot water to the 40% of the building which has hydronic heat. This method of generating hot water has two levels of inefficiency: the original steam boilers (80%) combined with the heat exchanger (95% +/-). The resulting efficiency for the hot water portion of the school is at best 76%.

It is recommended that the heat exchanger be replaced with a high efficiency natural gas fired condensing hot water boiler. New modulating condensing gas boilers are available that operate at a minimal efficiency of 88%, and can operate as high as 96%, depending upon the outdoor air temperature.

To implement this ECM, the old heat exchanger would be removed and the new hot water boiler installed in its place. Some localized piping and wiring would be needed. New dedicated boiler venting would also need to be installed either through the roof or sidewall.

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

ECM-4 Eliminate Hot Water Generator and Install Condensing Boiler

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
317,043	0	0	9,228	10,031	(0.7)	1,500	31.6	31.5

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

This measure is recommended despite the long payback period.

5.5 ECM-5 Install VFDs on Hot Water Pumps

The existing 7.5 HP base mounted B&G hot water pumps serving the 'Annex' portion of the building are not controlled by variable frequency drives (VFDs). Ideally pumps are perfectly selected to match the needs of a system operating a maximum capacity. Most times 1) pumps are over-sized somewhat for safety, and 2) the system is operating at less than full heating capacity. VFDs allow pumps to run at slower RPMs to better meet the needs of the system and in the process, energy is saved.

To implement this ECM, the existing motors would be removed and new motors and VFDs installed in their place. Piping and wiring modifications would be needed.

The order of magnitude implementation costs and savings related to these ECMs are detailed in Appendix H and summarized below:

ECM-5 Install VFDs on Hot Water Pumps

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$	%	$	Years	Years
11,618	3.6	1,198	0	237	(0.6)	0	49.0	49.0

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is recommended.

5.6 ECM-6 Replace Stadium Gas DHW Heaters w/ Condensing DHW Heaters

Domestic hot water for each of the locker rooms is generated by a gas-fired 100 gallon Rheemglas Fury hot water heater with a rated thermal efficiency of 81%. The domestic hot water heater serves showers, toilet rooms and sinks located in the locker room. Energy savings could be realized by replacing the existing unit with a high efficiency condensing gas fired heater, which can operate at efficiencies up to 94% and will not suffer from standby energy loss from the storage tank.

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

ECM-6 Replace Stadium Gas DHW Heaters w/ Condensing DHW Heaters

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
17,696	0	0	2,097	2,279	0.9	600	7.8	7.5

This measure is recommended.

5.7 ECM-7 Install Walk-In freezer Controls

One (1) large walk-in refrigerator keeps food at 32°F; a walk-in freezer to the back provides frozen food storage at 3°F. Installing a walk-in cooler/ freezer control system was assessed. The system will monitor both dry and wet bulb temperature within the walk-in unit and allow evaporators and compressors to modulate up and down based on enthalpy set points rather than by dry bulb temperature alone. Savings is a result of reduced run time of evaporator fans, compressors and door heaters.

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

ECM-7 Install Walk-In Freezer Controllers

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Water	Total				
$	kW	kWh	Therms	kGal	$	%	$	Years	Years
22,275	0	9,142	0	0	1,335	(0.4)	200	16.7	16.5

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.8.1 ECM-L1 Lighting Replacement / Upgrades

The lighting within the Carteret High School offices consists of 2x4 and 2x2 recessed and ceiling mounted troffers having 32W T8 fluorescent lamps with prismatic lenses. Several areas also contain recessed cans outfitted with compact fluorescent lamps. A few compact fluorescents and incandescent bulbs are found in storage areas and mechanical spaces. A combination of occupancy sensors and wall switches control the interior lighting.

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
447,609	56.2	196,979	0	19,562	(0.3)	27,460	22.9	21.5

* 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.

5.8.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

Presently, interior lighting fixtures are controlled by a combination of wall mounted switches and occupancy sensors. 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 5.7.1, 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
51,300	0.0	64,134	0	5,708	0.8	3,800	9.0	8.3

* 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.

5.8.3 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
498,909	56.2	233,116	0	22,778	(0.3)	31,260	21.9	20.5

* 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.

5.9 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:

- Re-insulate the Kitchen unit exterior ductwork
- Perform a steam trap survey
- Set computers monitors to turn off and computers to sleep mode when not in use
- Purchase ENERGY STAR® label Appliances
- Disconnect unnecessary or unused small appliances and electronics when not in use to reduce phantom loads
- Train staff to turn off lights when rooms are unoccupied
- Develop an Energy Master Plan to measure and track energy performance

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 Carteret Board of Education 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.

The building does not qualify for this program because its electrical demand is greater than the maximum peak electrical demand of 200 kW for the last 12 month period.

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 additional rooftop photovoltaic (PV) solar panels for power generation. However due to the extensive existing rooftop photovoltaic system and the minimal remaining available space, a solar PV system was determined to be inadvisable at this time.

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.

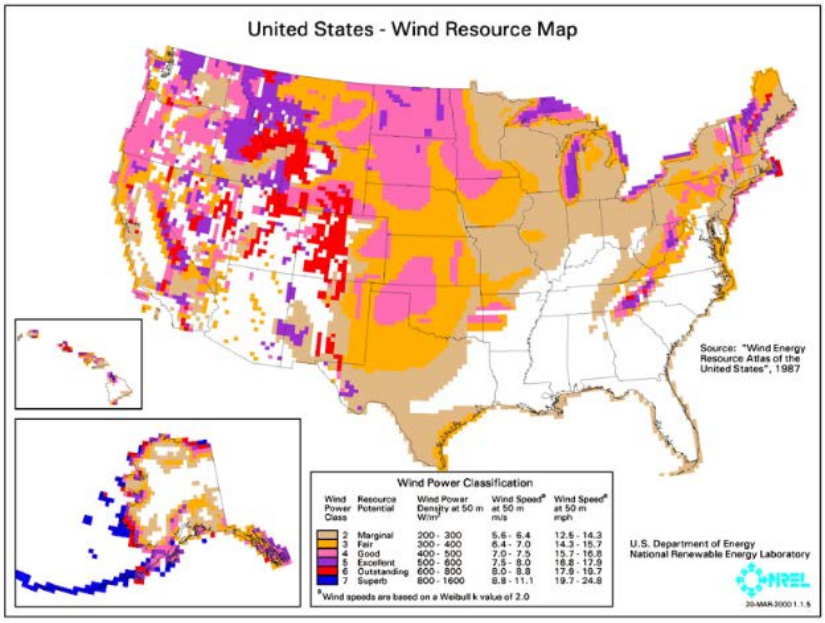
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). 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, Carteret, 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.

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 2013 through December 2013 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
476	145	264.9	N	Y

This measure is not recommended for further review because the building usage does not lend itself to load sharing.

8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for Carteret High School.

The following projects should be considered for implementation:

- Install Attic Insulation
- Door Sweeps & Seals
- Eliminate Hot Water Generator and Install Condensing HW Boiler
- Install VFDs on Pumps
- Replace Stadium Gas DHW Heaters w/ Condensing DHW Heaters
- Walk-In Cooler Controls
- 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)
265,876	13,515	42,314	23.3

If the recommended ECMs are implemented, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	166,990	124,676	25%
Electricity (kWh)	647,566	381,690	41%
Natural Gas (therms)	66,851	53,336	20%
Site EUI (kbtu/SF/Yr)	53.3	39.8	

Next Steps: This energy audit has identified several areas of potential energy savings. The Carteret Board of Education can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program.

APPENDIX A

Utility Usage Analysis and Alternate Utility Suppliers

Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

Utility Bills: Account Numbers

Account Number	Building	Meter Location	Type	Notes
42 002 698 05	Carteret High School	199 Washinton ave, Carteret, NJ 07008	Electric	Solar
69 910 598 03	Carteret High School	Herman Ave. Carteret, NJ 07008	Electric	Field lights
69 911 010 01	Carteret High School	199 Washington Ave. Carteret, NJ 0700	Electric	
5439331320	Carteret High School	199 Washington Ave. Carteret, NJ 0700	Gas	

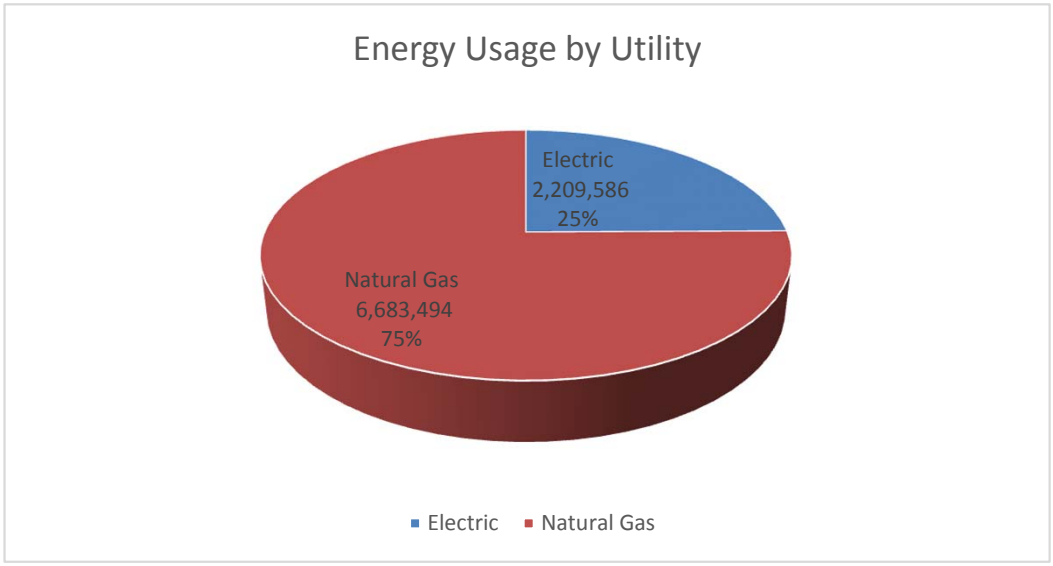
Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

Annual Utilities

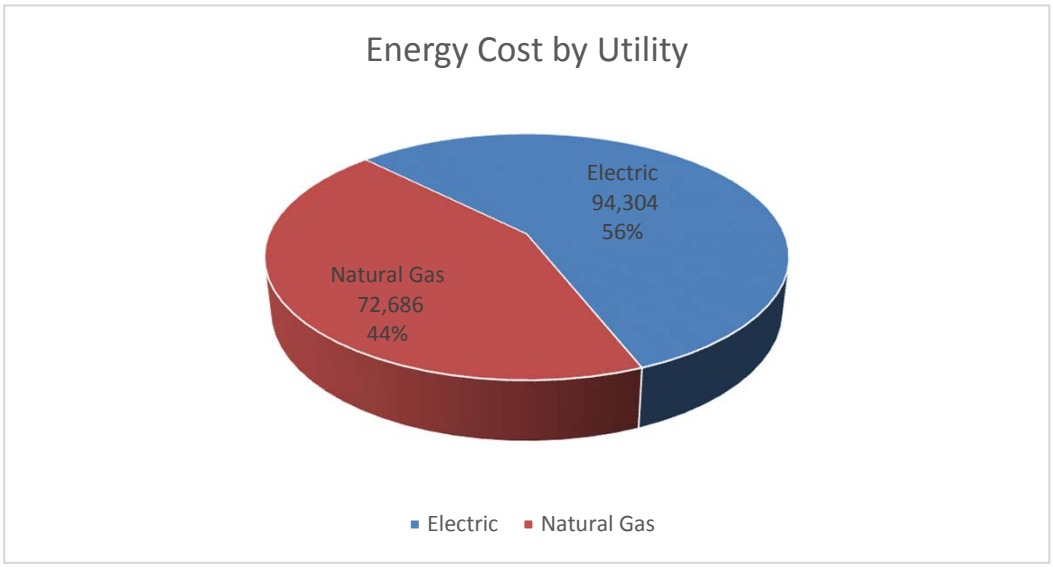
12-month Summary

Electric		
Annual Usage	647,566	kWh/yr
Annual Cost	94,304	$
Blended Rate	0.146	$/kWh
Consumption Rate	0.089	$/kWh
Demand Rate	3.01	$/kW
Peak Demand	476.0	kW
Min. Demand	145.4	kW
Avg. Demand	264.9	kW
Natural Gas		
Annual Usage	66,851	Therms/yr
Annual Cost	72,686	$
Rate	1.087	$/therm
Energy Summary		
Building Area	157,745	SF
Energy Usage Intensity (EUI)	56	KBtu/SF/yr
Energy Cost Index (ECI)	1.06	$/SF/yr
Total Annual Utility Costs	166,990	$

Utility	KBtu	%
Electric	2,209,586	25%
Natural Gas	6,683,494	75%
	8,893,080	100%



Utility	$	%
Electric	94,304	56%
Natural Gas	72,686	44%
	166,990	100%



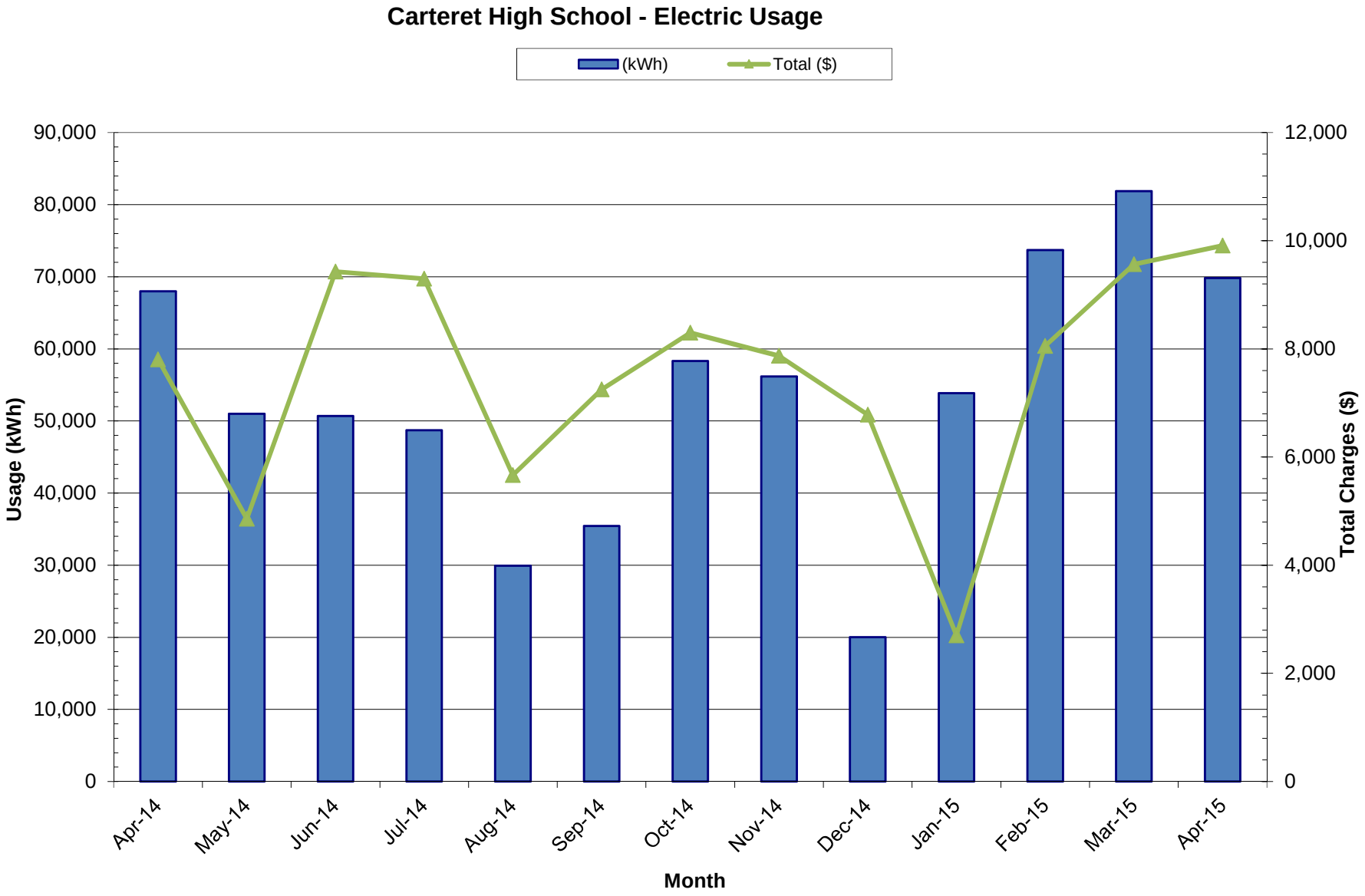
Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

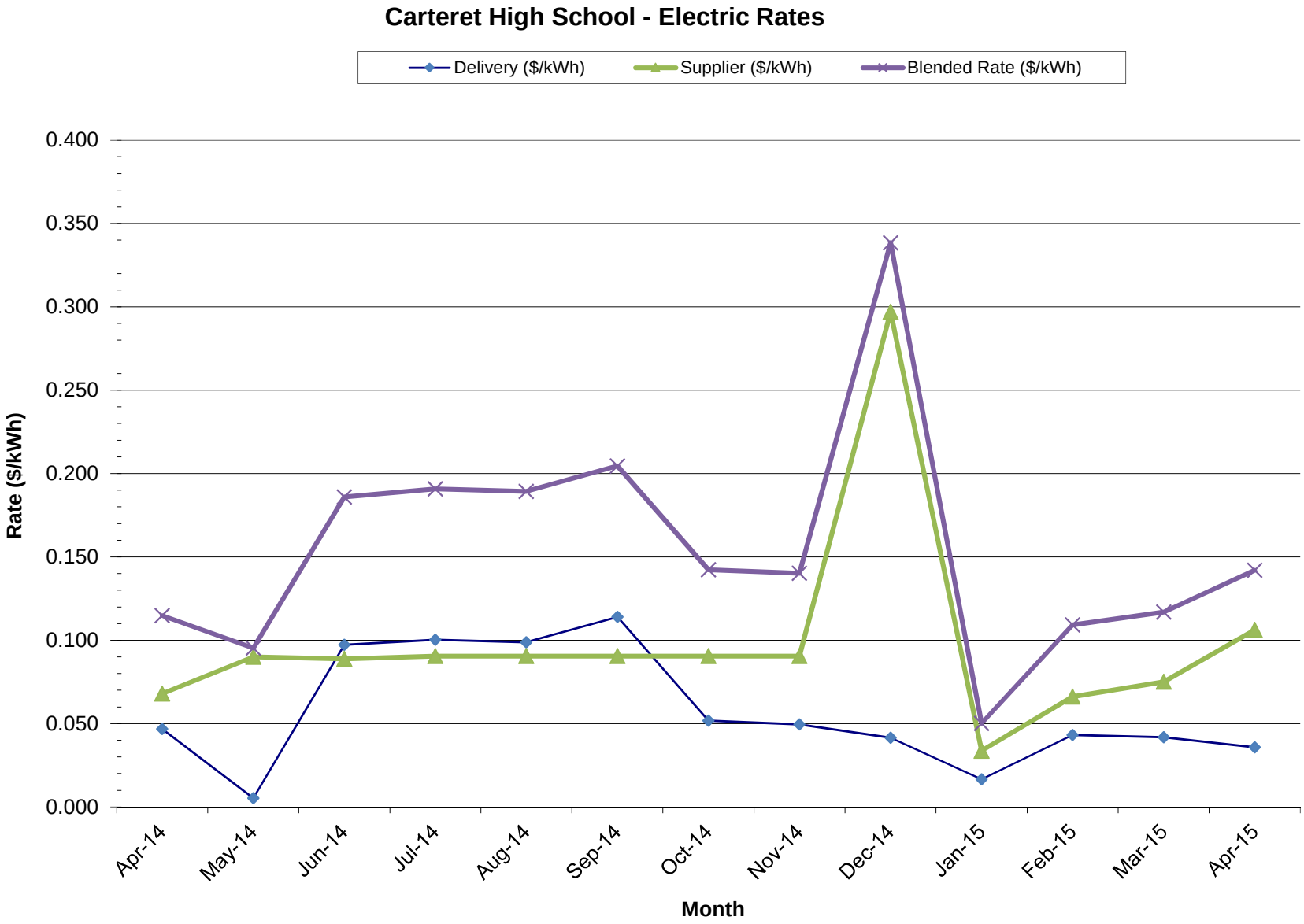
Electric Service

For Service at: 199 Washinton ave, Carteret, NJ 07008
Account No.: 42 002 698 05 **Delivery: PSE&G**
Meter No.: 9211795 / 9197557 **Supply: Direct Energy**

					Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs				
Month	Total kWh In (kWh)	Total kWh Out (kWh)	Net Consump. (kWh)	Demand (kW)	Delivery ($)	Supplier ($)	Total ($)	Consumption ($)	Demand ($)	Delivery ($/kWh)	Supplier ($/kWh)	Consumption Rate ($/kWh)	Demand ($/kW)	Blended Rate ($/kWh)
April-14	68,332	355	67,977	240.1	3,184.81	4,615.75	7,800.56	6949.55	851.01	0.047	0.068	0.102	3.544	0.115
May-14	53,700	2,714	50,986	238.7	269.11	4,589.70	4,858.81	4012.76	846.05	0.005	0.090	0.079	3.544	0.095
June-14	53,125	2,430	50,695	259.9	4,929.75	4,499.78	9,429.53	8509.31	920.22	0.097	0.089	0.168	3.541	0.186
July-14	51,540	2,829	48,711	266.8	4,886.22	4,409.86	9,296.08	8351.91	944	0.100	0.091	0.171	3.539	0.191
August-14	31,470	1,545	29,925	145.4	2,953.76	2,709.00	5,662.76	5139.41	523.35	0.099	0.091	0.172	3.599	0.189
September-14	36,836	1,387	35,449	222.5	4,041.60	3,209.15	7,250.75	6449.89	800.86	0.114	0.091	0.182	3.599	0.205
October-14	59,203	885	58,318	295.9	3,018.81	5,279.55	8,298.36	7233.30	1065.06	0.052	0.091	0.124	3.599	0.142
November-14	57,176	988	56,188	253.1	2,785.58	5,086.68	7,872.26	6961.25	911.01	0.050	0.091	0.124	3.599	0.140
December-14	20,033	0	20,033	248.8	831.48	5,948.88	6,780.36	6571.40	208.96	0.042	0.297	0.328	0.840	0.338
January-15	53,850	9	53,841	247.0	889.06	1,813.56	2,702.62	1813.56	889.06	0.017	0.034	0.034	3.599	0.050
February-15	73,719	2	73,717	231.0	3,179.69	4,874.20	8,053.89	7222.07	831.82	0.043	0.066	0.098	3.601	0.109
March-15	81,909	47	81,862	476.0	3,423.06	6,142.56	9,565.62	8708.74	856.88	0.042	0.075	0.106	1.800	0.117
April-15	69,826	19	69,807	318.0	2,497.27	7,410.91	9,908.18	9048.93	859.25	0.036	0.106	0.130	2.702	0.142
Total (All)	**710,719**	**13,210**	**697,509**	**476.00**	**$36,890.20**	**$60,589.58**	**$97,479.78**	**$86,972.07**	**$10,507.70**	**$0.05**	**$0.09**	**0.125**	**$3.05**	**$0.14**
Total (last 12-months)	**642,387**	**12,855**	**629,532**	**476.00**	**$33,705.39**	**$55,973.83**	**$89,679.22**	**$80,022.52**	**$9,656.69**	**$0.05**	**$0.09**	**0.127**	**$3.01**	**$0.14**
Notes			1	2	3	4	5			6	7			8

1.) Number of kWh of electric energy 697,509
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider - note, includes 8.875% tax
5.) Total charges (Delivery + Supplier)
6.) Delivery Charges ($) / Consumption (kWh)
7.) Supplier Charges ($) / Consumption (kWh)
8.) Total Charges ($) / Consumption (kWh)
9.) After December-14 meter 9211795 replaced meter 9197557
10.) Values highlighted in red are estimates based on averages


Carteret High School - Electric Usage
(kWh)
Total ($)
Usage (kWh)
Total Charges ($)
Month
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
12,000
10,000
8,000
6,000
4,000
2,000
0
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15


Carteret High School - Electric Rates
Delivery ($/kWh)
Supplier ($/kWh)
Blended Rate ($/kWh)
Rate ($/kWh)
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
Month

Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

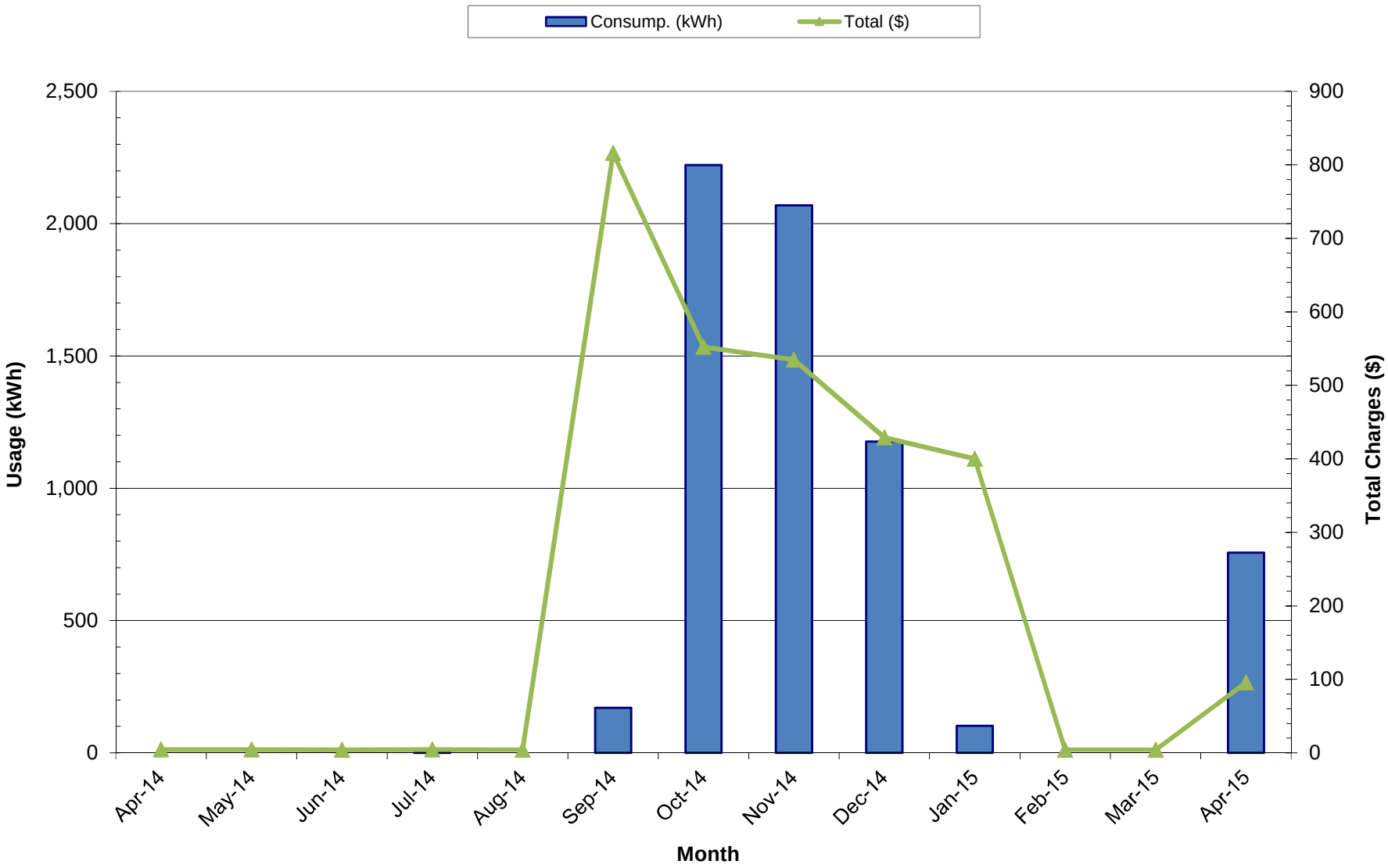
Electric Service

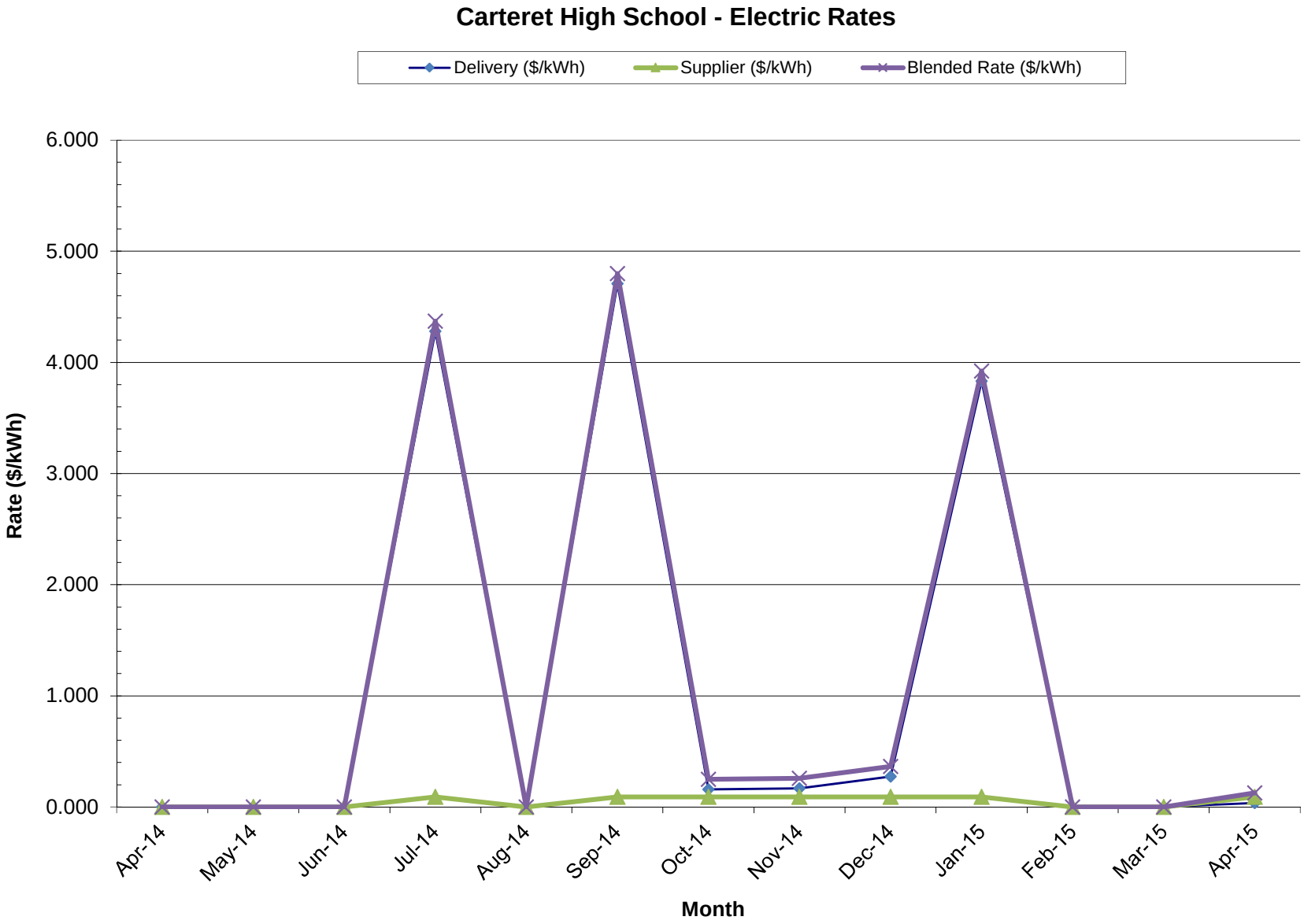
For Service at: 199 Washington Ave. Carteret, NJ 07008
Account No.: 69 910 598 03 **Delivery: PSE&G**
Meter No.: 726025218 **Supply: Direct Energy**

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs				
Month	**Consump. (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Delivery ($/kWh)**	**Supplier ($/kWh)**	**Consumption Rate ($/kWh)**	**Demand ($/kW)**	**Blended Rate ($/kWh)**
April-14	0	0.0	4.27	0.00	4.27	4.27	0.00	N/A	N/A	N/A	N/A	N/A
May-14	0	0.0	4.27	0.00	4.27	4.27	0.00	N/A	N/A	N/A	N/A	N/A
June-14	0	0.0	4.26	0.00	4.26	4.26	0.00	N/A	N/A	N/A	N/A	N/A
July-14	1	0.0	4.28	0.09	4.37	4.35	0.02	4.280	0.090	4.350	N/A	4.370
August-14	0	0.0	4.24	0.00	4.24	4.24	0.00	N/A	N/A	N/A	N/A	N/A
September-14	170	63.8	800.59	15.39	815.98	25.98	790.00	4.709	0.091	0.153	12.382	4.800
October-14	2,221	64.3	351.24	201.07	552.31	273.52	278.79	0.158	0.091	0.123	4.336	0.249
November-14	2,069	64.7	347.49	187.31	534.80	254.28	280.52	0.168	0.091	0.123	4.336	0.258
December-14	1,176	65.2	322.59	106.46	429.05	146.36	282.69	0.274	0.091	0.124	4.336	0.365
January-15	102	65.4	390.89	9.23	400.12	116.56	283.56	3.832	0.090	1.143	4.336	3.923
February-15	0	0.0	4.24	0.00	4.24	4.24	0.00	N/A	N/A	N/A	N/A	N/A
March-15	0	0.0	4.24	0.00	4.24	4.24	0.00	N/A	N/A	N/A	N/A	N/A
April-15	757	0.0	27.24	68.53	95.77	95.77	0.00	0.036	0.091	0.127	N/A	0.127
Total (All)	**6,496**	**65.40**	**$2,269.84**	**$588.08**	**$2,857.92**	**$942.34**	**$1,915.58**	**$0.35**	**$0.09**	**0.145**	**$0.01**	**$0.44**
Total (last 12-months)	**6,496**	**65.40**	**$2,265.57**	**$588.08**	**$2,853.65**	**$938.07**	**$1,915.58**	**$0.35**	**$0.09**	**0.144**	**$0.01**	**$0.44**
Notes	1	2	3	4	5			6	7			8

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider - note, includes 8.875% tax
5.) Total charges (Delivery + Supplier)
6.) Delivery Charges ($) / Consumption (kWh)
7.) Supplier Charges ($) / Consumption (kWh)
8.) Total Charges ($) / Consumption (kWh)

Carteret High School - Electric Usage - Field Lights




Carteret High School - Electric Rates
Delivery ($/kWh)
Supplier ($/kWh)
Blended Rate ($/kWh)
Rate ($/kWh)
6.000
5.000
4.000
3.000
2.000
1.000
0.000
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
Month

Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

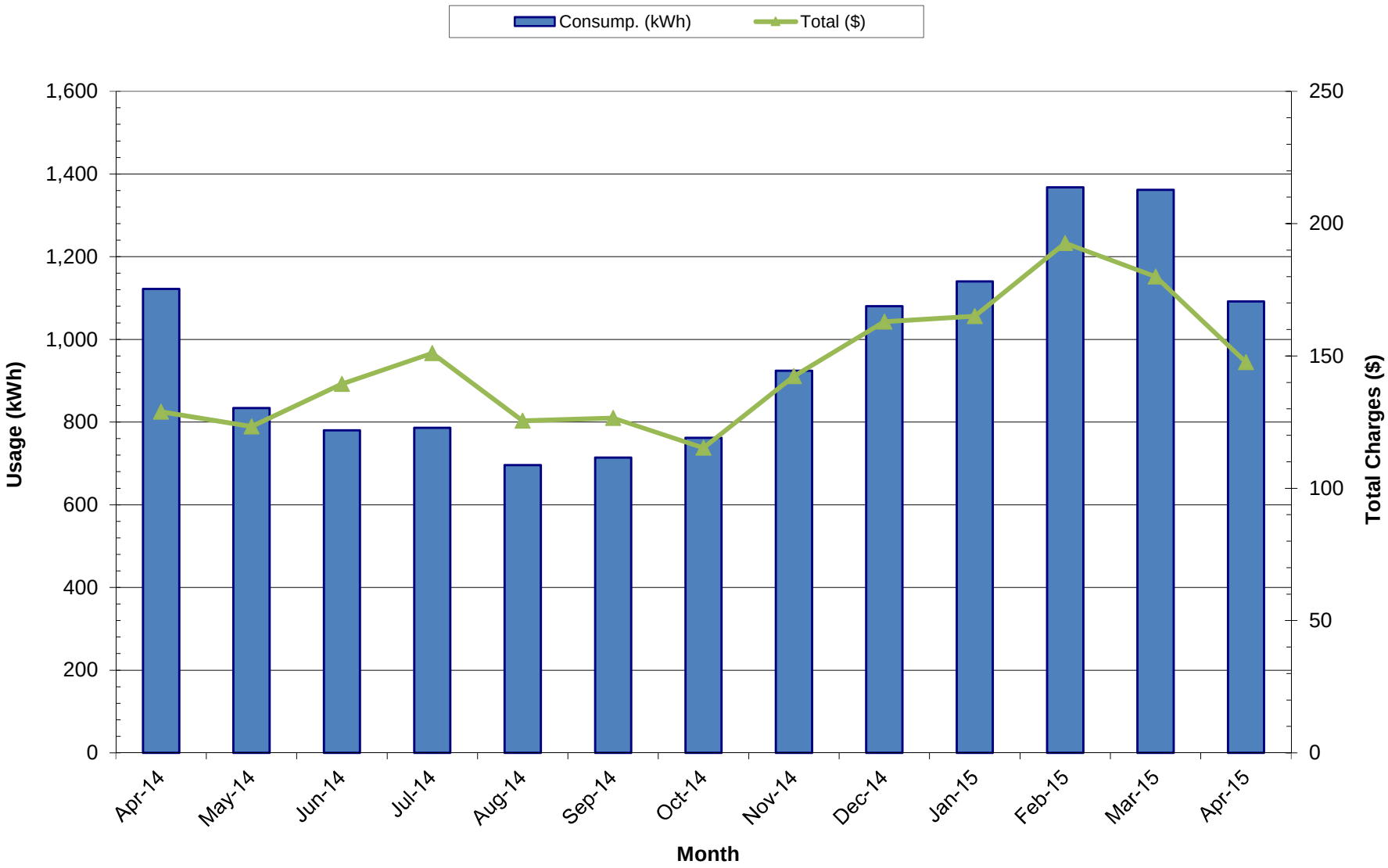
Electric Service

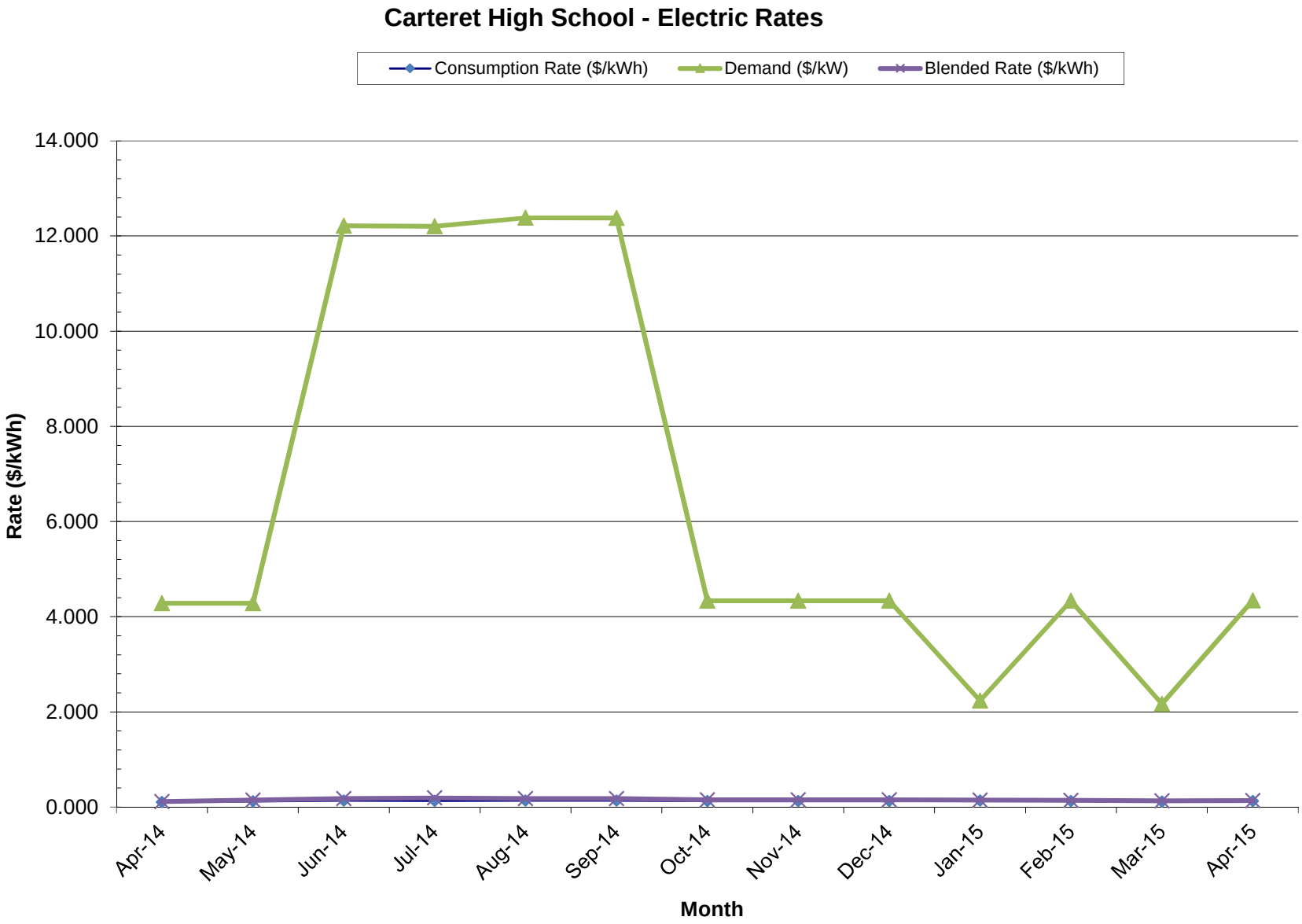
For Service at: 199 Washington Ave. Carteret, NJ 07008
Account No.: 69 911 010 01 **Delivery: PSE&G**
Meter No.: 626025373 **Supply: Direct Energy**

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs				
Month	**Consump. (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Delivery ($/kWh)**	**Supplier ($/kWh)**	**Consumption Rate ($/kWh)**	**Demand ($/kW)**	**Blended Rate ($/kWh)**
April-14	1,122	3.0	53.42	75.50	128.92	116.08	12.84	0.048	0.067	0.103	4.280	0.115
May-14	834	5.0	52.66	70.61	123.27	101.87	21.40	0.063	0.085	0.122	4.280	0.148
June-14	780	2.8	68.52	70.89	139.41	105.21	34.20	0.088	0.091	0.135	12.214	0.179
July-14	786	3.8	79.86	71.16	151.02	104.64	46	0.102	0.091	0.133	12.205	0.192
August-14	696	2.6	62.44	63.01	125.45	93.26	32.19	0.090	0.091	0.134	12.381	0.180
September-14	714	2.5	61.87	64.64	126.51	95.56	30.95	0.087	0.091	0.134	12.380	0.177
October-14	762	4.3	46.28	68.98	115.26	96.62	18.64	0.061	0.091	0.127	4.335	0.151
November-14	924	6.1	58.71	83.65	142.36	115.91	26.45	0.064	0.091	0.125	4.336	0.154
December-14	1,080	6.5	65.16	97.77	162.93	134.75	28.18	0.060	0.091	0.125	4.335	0.151
January-15	1,140	5.3	61.80	103.20	165.00	153.16	11.84	0.054	0.091	0.134	2.234	0.145
February-15	1,368	5.3	68.78	123.85	192.63	169.65	22.98	0.050	0.091	0.124	4.336	0.141
March-15	1,362	10.6	68.60	111.36	179.96	156.98	22.98	0.050	0.082	0.115	2.168	0.132
April-15	1,092	2.6	48.71	98.86	147.57	136.28	11.29	0.045	0.091	0.125	4.342	0.135
Total (All)	**12,660**	**10.60**	**$796.81**	**$1,103.47**	**$1,900.28**	**$1,579.96**	**$320.32**	**$0.06**	**$0.09**	**0.125**	**$0.00**	**$0.15**
Total (last 12-months)	**11,538**	**10.60**	**$743.39**	**$1,027.97**	**$1,771.36**	**$1,463.88**	**$307.48**	**$0.06**	**$0.09**	**0.127**	**$0.00**	**$0.15**
Notes	1	2	3	4	5			6	7			8

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider - note, includes 8.875% tax
5.) Total charges (Delivery + Supplier)
6.) Delivery Charges ($) / Consumption (kWh)
7.) Supplier Charges ($) / Consumption (kWh)
8.) Total Charges ($) / Consumption (kWh)
9.) Values highlighted in red are estimates based on averages

Carteret High School - Electric Usage - Stadium



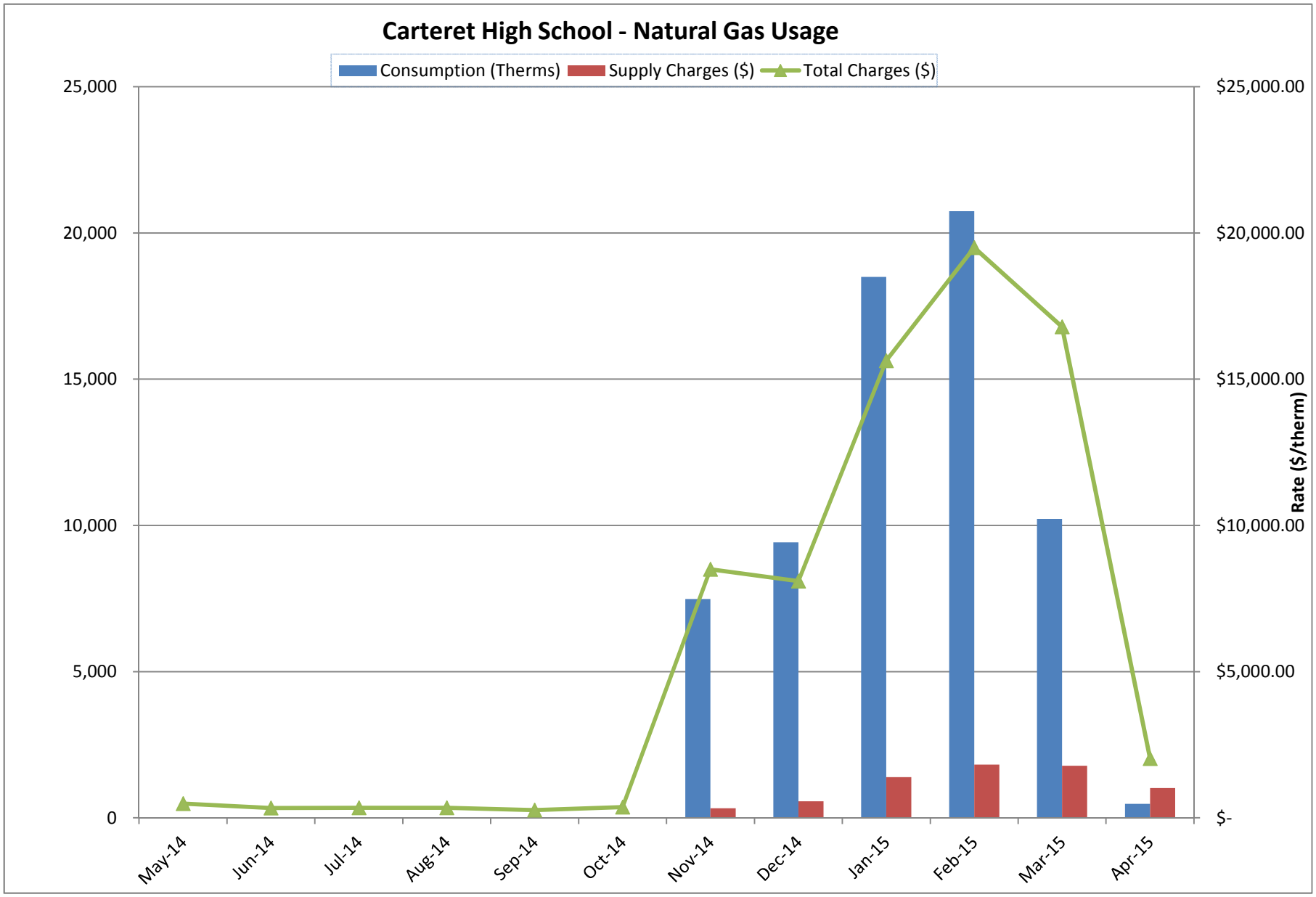

Carteret High School - Electric Rates
Consumption Rate ($/kWh)
Demand ($/kW)
Blended Rate ($/kWh)
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
Rate ($/kWh)
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
Month

Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

Natural Gas Service

For Service at: 199 Washington Ave. Carteret, NJ 07008
Account No.: 5439331320
Meter No: 09531963
Delivery: Elizabethtown Gas
Supply: Woodruff Energy

Month	Consumption (Therms)	Delivery Charges ($)	Supply Charges ($)	Total Charges ($)	Rate ($/Therm)
May-14	0.00	485.16	2.80	487.96	N/A
June-14	0.00	335.53	2.80	338.33	N/A
July-14	0.00	339.24	2.80	342.04	N/A
August-14	0.00	343.01	2.80	345.81	N/A
September-14	0.00	260.45	1.96	262.41	N/A
October-14	0.00	358.99	12.53	371.52	N/A
November-14	7,483.10	8,169.11	329.72	8,498.83	1.14
December-14	9,418.50	7,529.92	566.15	8,096.07	0.86
January-15	18,497.20	14,238.21	1,388.85	15,627.06	0.84
February-15	20,748.80	17,675.68	1,820.85	19,496.53	0.94
March-15	10,221.40	15,003.16	1,784.80	16,787.96	1.64
April-15	481.90	1,009.87	1,021.38	2,031.25	4.22
Total (12 Months)	**66,851**	**65,748**	**$ 6,937.44**	**$ 72,685.77**	**$ 1.09**


Carteret High School - Natural Gas Usage
Consumption (Therms)
Supply Charges ($)
Total Charges ($)
25,000
20,000
15,000
10,000
5,000
0
$25,000.00
$20,000.00
$15,000.00
$10,000.00
$5,000.00
$-
Rate ($/therm)
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15

Carteret School District
Carteret High School
199 Washington Ave. Carteret, NJ 07008

For Service at: **199 Washington Ave. Carteret, NJ 07008**
Account No.: **0**
Meter No.:
Water & Sewer Service **Delivery -** **Middlesex Water Company**
Supplier -

Month	Total ($)	Gallons	$/Gallon
Jun-14			#DIV/0!
Sep-14			#DIV/0!
Jan-15			#DIV/0!
Apr-15			#DIV/0!
Total	**$ -**	**0.00**	**#DIV/0!**

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 5th 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, 2nd 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**
Integrys Energy Services, Inc. 33 Wood Ave, South, Suite 610 Iselin, NJ 08830	(800) 536-0151 www.integrysenergy.com	**C/I** **ACTIVE**
Jsynergy, LLC 445 Central Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 Jsynergyllc.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. 16th 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**

Back to the main supplier page

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.Jsnergyllc.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.ppandu.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.tigernaturalgas.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

APPENDIX B

Equipment Inventory

Carteret School District
CHA Project# 30201
Carteret High School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size	Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)	Other Info.
P-1	1	Bell & Gossett	R340	422701-002	Hot water pump	7.50 HP	NEMA 91.7%	Boiler Room	Building (Annex)	N/A	N/A	
P-2	1	Bell & Gossett	R340	422701-003	Hot water pump	7.50 HP	NEMA 91.7%	Boiler Room	Building (Annex)	N/A	N/A	
DHW-1	1	Aerco	KC Series	G-08-2546	DHW Boiler	1,000,000 BTU/hr	93%	Boiler Room	Building	2008	18	
DHW-2	1	Aerco	KC Series	G-08-2545	DHW Boiler	1,000,000 BTU/hr	93%	Boiler Room	Building	2008	18	
Cond. Unit	1	Bell & Gossett	Hoffman Watchman	N/A	Condensate Pump	N/A	N/A	Boiler Room	Building	N/A	N/A	
C.F.T.-1	1	Not Available	Not Available	Not Available	Boiler Condensate Feedwater tank	Not Available	Not Available	Boiler Room	Building	N/A	N/A	
B-1	1	Cleaver Brooks	CB-700-250-015	0L106350	Boiler	10,206,000 BTU/hr	~80%	Boiler Room	Building	2007	17	
B-2	1	Cleaver Brooks	CB-700-250-015	0L106351	Boiler	10,206,000 BTU/hr	~80%	Boiler Room	Building	2007	17	
HE-1	1	Bell & Gossett	OSU-107-2	995664-01	Heat Exchanger	N/A	N/A	Boiler Room	Building	N/A	N/A	
Air Compressor	1	Saylor-Beall	X-720-80-ICD	3-3-4-M08	Air Compressor	2 HP	N/A	Boiler Room	Building	N/A	N/A	
UV-1	~25	Nesbitt	Not Available	Not Available	Unit Ventilator	1/2 HP	N/A	Classrooms	Building	N/A	N/A	
RTU-1	1	AAON	Not Available	Not Available	Packaged Rooftop Unit	N/A	N/A	Roof	Cafeteria	N/A	N/A	
RTU-2	1	Reznor	Not Available	Not Available	Packaged Rooftop Unit	N/A	N/A	Roof	Auditorium	N/A	N/A	
RTU-3	1	McQuay	050SHC	Not Available	Packaged Rooftop Unit	N/A	N/A	Roof	Building	N/A	N/A	
UH-1	1	Dayton	Not Available	Not Available	Electric Unit Heater	N/A	N/A	Kitchen	Kitchen	N/A	N/A	
DHW-3	1	Rheem	81VP20S	RH Q241315550	Electric DHW Heater	20 gallons / 2 kW	N/A	Kitchen	Kitchen	2013	13	
CU-	1	Fujitsu	AOU30CLX	DEN 004063	Split Condensing Unit	30,700 BTUH	N/A	Building	Building	2004	5	
MAU-1	1	ArcoAire	RGS150HFCA0AAAA	G120140230	Packaged MAU	140,000	10.8 EER	Outside	Kitchen	2012	12	
F-1, 2	2	Not Available	Not Available	Not Available	Gas-fired Residential Furnace	~100000	N/A	Locker Rooms	Locker Rooms	N/A	N/A	
DHW-4, 5	2	A.O. Smith	BT 100 230	MJ96-0582995-230	N/A	N/A	N/A	Locker Rooms	Locker Rooms	N/A	N/A	

APPENDIX C

ECM Calculations

Carteret Board of Education
CHA Project Number: 30201

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Metric Ton Carbon Dioxide Equivalent	Building Area	Annual Utility Cost		
$ 0.146	$/kWh blended		0.000420205	166,918	Electric	Natural Gas	Fuel Oil
$ 0.089	$/kWh supply	647,566	0.000420205		$ 94,304	$ 72,686	
$ 3.01	$/kW	476.0	0				
$ 1.09	$/Therm	66,851	0.00533471				
$ 5.56	$/kgals	1	0				
	$/Gal						

Carteret High School

Recommend? Y or N		Item	Savings kW	kWh	therms	No. 2 Oil gal	Water kgal	$	Cost	Simple Payback	Life Expectancy	Equivalent CO_2 (Metric tons)	NJ Smart Start Incentives	Direct Install Eligible (Y/N)	Payback w/ Incentives	Simple Projected Lifetime Savings kW	kWh	therms	kgal/yr	$	ROI	NPV	IRR
Y	ECM-1	Install Attic Insulation to R-38	0.0	22,403	2,168	0	0	5,628	$ 117,464	20.9	25.0	21.0		N	20.9	0.0	560,075	54,211	0	$ 140,699	0.2	($19,463)	1.4%
Y	ECM-2	Replace Door Sweeps & Seals	0.0	18	22	0	0	26	$ 1,244	47.0	15.0	0.1		N	47.0	0.0	269	329	0	$ 397	(0.7)	($929)	-11.8%
N	ECM-3	Complete Steam to Hot Water Conversion	0.0	0	14,874	0	0	16,168	$ 4,302,457	266.1	20.0	79.3	$ 2,000	N	266.0	0.0	0	297,478	0	$ 323,359	(0.9)	($4,059,919)	-17.6%
Y	ECM-4	Eliminate Hot Water Generator and Install Condensing HW Boiler	0.0	0	9,228	0	0	10,031	$ 317,043	31.6	10.0	49.2	$ 1,500	N	31.5	0.0	0	92,279	0	$ 100,307	(0.7)	($229,979)	-16.8%
Y	ECM-5	Install VFDs onto HW Pumps	3.6	1,198	0	0	0	237	$ 11,618	49.0	15.0	0.5		N	49.0	54.1	17,963	0	0	$ 4,577	(0.6)	($8,790)	-12.1%
Y	ECM-6	Replace Stadium Gas DHW Heaters w/ Condensing DHW Heaters	0.0	0	2,097	0	0	2,279	$ 17,696	7.8	15.0	11.2	$ 600	N	7.5	0.0	0	31,453	0	$ 34,189	0.9	$10,114	10.2%
Y	ECM-7	Install Walk-In Freezer Controllers	0.0	9,142	0	0	0	1,335	$ 22,275	16.7	10.0	3.8	$ 200	N	16.5	0.0	91,420	0	0	$ 13,347	(0.4)	($10,690)	-8.2%
N	ECM-L1	Lighting Replacements / Upgrades	56.2	196,979	0	0	0	19,562	$ 447,609	22.9	10.0	82.8	$ 27,460	N	21.5	562.0	1,969,790	0	0	$ 307,889	(0.3)	($253,281)	-11.9%
N	ECM-L2	Install Lighting Controls (Add Occupancy Sensors)	0.0	64,134	0	0	0	5,708	$ 51,300	9.0	10.0	26.9	$ 3,800	N	8.3	0.0	641,340	0	0	$ 93,636	0.8	$1,190	3.5%
Y	ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	56.2	233,116	0	0	0	22,778	$ 498,909	21.9	10.0	98.0	$ 31,260	N	20.5	562.0	2,331,160	0	0	$ 360,649	(0.3)	($273,348)	-11.3%
		Total (Not Including ECMs L1, L2)	**59.8**	**265,876**	**28,389**	**0**	**0**	**$ 58,482**	**$ 5,288,706**	**90.4**	**12.0**	**363**	**$ 35,560**		**89.8**	**616**	**3,000,887**	**475,750**	-	**$ 977,524**	**(0.8)**	**($4,671,017)**	**-22.5%**
		Recommended Measures (highlighted green above)	**59.8**	**265,876**	**13,515**	**0**	**0**	**$ 42,314**	**$ 986,249**	**23.3**	**11.1**	**184**	**$ 33,560**	**0**	**22.5**	**616**	**3,000,887**	**178,272**	-	**$ 654,165**	**(0.3)**	**($561,174)**	**-10.4%**
		% of Existing	**13%**	**41.06%**	**20.22%**	**0**	**0**																

City: Newark, NJ

Temp	Enthalpy h (Btu/lb)	Bin Hours	70 Building Operating Hours	70 Auditorium Occupied Hours	70 Gymnasium Occupied Hours	70 Library Occupied Hours	50 Classrooms Occupied Hours
	Occupied Hours/Week						
102.5							
97.5	35.4	6	3	3	3	3	2
92.5	37.4	31	13	13	13	13	9
87.5	35.0	131	55	55	55	55	39
82.5	33.0	500	208	208	208	208	149
77.5	31.5	620	258	258	258	258	185
72.5	29.9	664	277	277	277	277	198
67.5	27.2	854	356	356	356	356	254
62.5	24.0	927	386	386	386	386	276
57.5	20.3	600	250	250	250	250	179
52.5	18.2	730	304	304	304	304	217
47.5	16.0	491	205	205	205	205	146
42.5	14.5	656	273	273	273	273	195
37.5	12.5	1,023	426	426	426	426	304
32.5	10.5	734	306	306	306	306	218
27.5	8.7	334	139	139	139	139	99
22.5	7.0	252	105	105	105	105	75
17.5	5.4	125	52	52	52	52	37
12.5	3.7	47	20	20	20	20	14
7.5	2.1	34	14	14	14	14	10
2.5	1.3	1	0	0	0	0	0
-2.5							
-7.5							

Multipliers	
Material:	1.027
Labor:	1.246
Equipment:	1.124

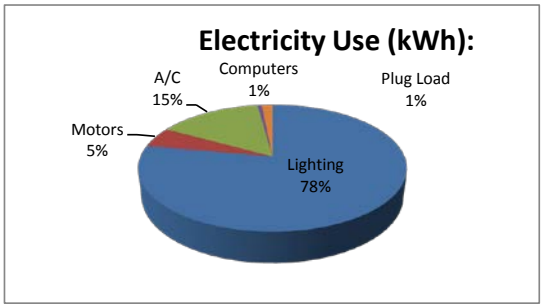
Heating System Efficiency	80%
Cooling Eff (kW/ton)	1.2

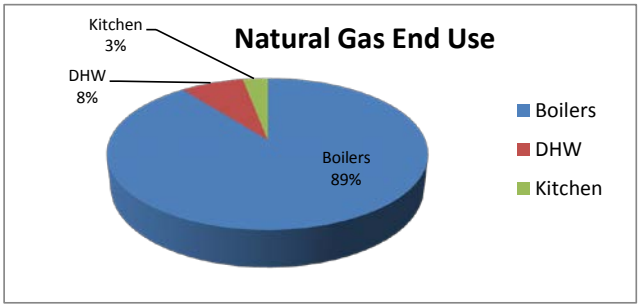
Heating		
Hours	4,427	Hrs
Weighted Avg	40	F
Avg	28	F

Cooling		
Hours	4,333	Hrs
Weighted Avg	69	F
Avg	78	F

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

Utility End Use Analysis			
Electricity Use (kWh):		**Notes/Comments:**	
647,566	Total	Based on utility analysis	
503,954	Lighting	From Lighting Calculations	77.82%
33,566	Motors	Calculated	5.18%
96,047	A/C	Estimated	14.83%
4,000	Plug Load	Estimated	0.62%
-	Heating	Estimated	0.00%
10,000	Computers	Estimated	1.54%
-	Other	Remaining	0.00%
			100.00%
Natural Gas Use (Therms):		**Notes/Comments:**	
66,851	Total	Based on utility analysis	
59,776	Boilers	Therms/SF x Square Feet Served	0.894167627
5,075	DHW	Based on utility analysis	0.075915095
2,000	Kitchen	Based on utility analysis	0.029917279





Carteret Board of Education
CHA Project Number: 30201
Carteret Board Office

ECM-1 Add Attic Insulation to R-38

Existing: roof insulation assumed to be approximately R-9.
Proposed: Install R-30 or 9" fiberglass insulation between joists of the old ceiling to bring total R-value up to R-38

Roof area to be insulated	35,000	SF	Cooling System Efficiency	1.2	kW/ton	Heating System Efficiency	80%	
Existing Infiltration Factor	**0.06**	**cfm/SF**	Ex Occupied Clng Temp.	74	*F	Heating On Point	55	*F
Proposed Infiltration Factor	**0.02**	**cfm/SF**	Ex Unoccupied Clng Temp.	74	*F	Ex Occupied Htg Temp.	70	*F
Existing U Value	**0.111**	**Btuh/SF/°F**	Cooling Occ Enthalpy Setpoint	27.5	Btu/lb	Ex Unoccupied Htg Temp.	70	*F
Proposed U Value	**0.026**	**Btuh/SF/°F**	Cooling Unocc Enthalpy Setpoint	27.5	Btu/lb	Cooling Electricity	$ 0.685	$/kWh
						Heating NG Cost	$ 1.25	$/Therm

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	Unoccupied	Occupied	Unoccupied				
Avg Ext Wall Temp. Bins °F	Avg Outdoor Air Enthalpy	Existing Equipment Bin Hours	Occupied Equipment Bin Hours	Unoccupied Equipment Bin Hours	Infiltration & Heat Load BTUH	Infiltration & Heat Load BTUH	Infiltration & Heat Load BTUH	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
117.5	35.4	6	3	4	-243,721	-243,721	-64,493	-64,493	146	39	0	0
112.5	37.4	31	13	18	-243,146	-243,146	-66,226	-66,226	754	205	0	0
107.5	35.0	131	55	76	-200,878	-200,878	-54,062	-54,062	2632	708	0	0
102.5	33.0	500	208	292	-163,142	-163,142	-43,408	-43,408	8157	2170	0	0
97.5	31.5	620	258	362	-129,549	-129,549	-34,136	-34,136	8032	2116	0	0
92.5	29.9	664	277	387	-94,609	-94,609	-24,414	-24,414	6282	1621	0	0
87.5	27.2	854	356	498	-49,471	-49,471	-11,293	-11,293	4225	964	0	0
82.5	24.0	927	386	541	112	112	3,310	3,310	0	0	1	38
77.5	20.3	600	250	350	54,913	54,913	19,652	19,652	0	0	412	147
72.5	18.2	730	304	426	0	0	0	0	0	0	0	0
67.5	16.0	491	205	286	0	0	0	0	0	0	0	0
62.5	14.5	656	273	383	0	0	0	0	0	0	0	0
57.5	12.5	1,023	426	597	0	0	0	0	0	0	0	0
52.5	10.5	734	306	428	107,678	107,678	29,155	29,155	0	0	988	267
47.5	8.7	334	139	195	138,443	138,443	37,485	37,485	0	0	578	156
42.5	7.0	252	105	147	169,208	169,208	45,815	45,815	0	0	533	144
37.5	5.4	125	52	73	199,973	199,973	54,145	54,145	0	0	312	85
32.5	3.7	47	20	27	230,738	230,738	62,475	62,475	0	0	136	37
27.5	2.1	34	14	20	261,503	261,503	70,805	70,805	0	0	111	30
22.5	1.3	1	0	1	292,268	292,268	79,135	79,135	0	0	4	1
TOTALS		**8,760**	**3,650**	**5,110**					30228	7825	**3,075**	**906**

Existing Roof Infiltration	**2,100**	**cfm**
Existing Roof Heat Transfer	**3,885**	**Btuh/°F**
Proposed Roof Infiltration	**700**	**cfm**
Proposed Roof Heat Transfer	**910**	**Btuh/°F**

Savings	**2,168**	**Therms**	**$ 2,702**
	22,403	**kWh**	**$ 15,346**
			$ 18,048

Carteret Board of Education
CHA Project Number: 30201
Carteret Board Office

ECM-1 Add Attic Insulation - 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.		
						$ -	$ -		$ -	
R-30 9" fiberglass insulation	35,000	SF	$ 1.200	$ 1.000	$ -	$ 43,260	$ 43,750	$ -	$ 87,010	Vendor quote
						$ -	$ -	$ -	$ -	

Note: Cost estimates are for energy savings calculations only, do not use for procurement

$ 87,010	Subtotal
$ 30,454	35% Contingency
$ 117,464	**Total**

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-2: Install Door Seals

Description: This ECM evaluates the thermal and electrical savings associate with adding door seals and sweeps to prevent infiltration of cold (or hot) outdoor air.

Heating System Efficiency	80%		Ex Occupied Clng Temp.	74	*F	Ex Occupied Htg Temp.	72	*F
Cooling System Efficiency	1.20	kW/ton	Ex Unoccupied Clng Temp.	85	*F	Ex Unoccupied Htg Temp.	65	*F
Linear Feet of Door Edge	10.75	LF	Cooling Occ Enthalpy Setpoint	27.5	Btu/lb	Electricity	$ 0.15	$/kWh
Existing Infiltration Factor*	1.5	cfm/LF	Cooling Unocc Enthalpy Setpoint	27.5	Btu/lb	Natural Gas	$ 1.09	$/therm
Proposed Infiltration Factor*	0.45	cfm/LF						

*Infiltration Factor per Carrier Handbook of Air Conditioning System Design based on average door seal gap calculated below.

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	Unoccupied	Occupied	Unoccupied				
Avg Outdoor Air Temp. Bins °F	Avg Outdoor Air Enthalpy	Existing Equipment Bin Hours	Occupied Equipment Bin Hours	Unoccupied Equipment Bin Hours	Door Infiltration Load BTUH	Door Infiltration Load BTUH	Door Infiltration Load BTUH	Door Infiltration 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	0.0	0	0	0	1,995	1,995	599	599	0	0	0	0
97.5	35.4	6	3	4	-574	-574	-172	-172	0	0	0	0
92.5	37.4	31	13	18	-719	-719	-216	-216	2	1	0	0
87.5	35.0	131	55	76	-543	-543	-163	-163	7	2	0	0
82.5	33.0	500	208	292	-403	0	-121	0	8	3	0	0
77.5	31.5	620	258	362	-294	0	-88	0	8	2	0	0
72.5	29.9	664	277	387	0	0	0	0	0	0	0	0
67.5	27.2	854	356	498	78	0	24	0	0	0	0	0
62.5	24.0	927	386	541	165	44	50	13	0	0	1	0
57.5	20.3	600	250	350	253	131	76	39	0	0	1	0
52.5	18.2	730	304	426	340	218	102	65	0	0	2	1
47.5	16.0	491	205	286	427	305	128	91	0	0	2	1
42.5	14.5	656	273	383	514	392	154	118	0	0	4	1
37.5	12.5	1,023	426	597	601	479	180	144	0	0	7	2
32.5	10.5	734	306	428	688	566	206	170	0	0	6	2
27.5	8.7	334	139	195	775	653	232	196	0	0	3	1
22.5	7.0	252	105	147	862	740	259	222	0	0	2	1
17.5	5.4	125	52	73	949	827	285	248	0	0	1	0
12.5	3.7	47	20	27	1,036	914	311	274	0	0	1	0
7.5	2.1	34	14	20	1,123	1,001	337	300	0	0	0	0
2.5	1.3	1	0	1	1,210	1,088	363	327	0	0	0	0
-2.5	0.0	0	0	0	1,297	1,176	389	353	0	0	0	0
-7.5	0.0	0	0	0	1,384	1,263	415	379	0	0	0	0
TOTALS		**8,760**	**3,650**	**5,110**					**26**	**8**	**31**	**9**

Existing Door Infiltration	**16**	**cfm**
Existing Unoccupied Door Infiltration	**16**	**cfm**
Proposed Door Infiltration	**5**	**cfm**
Proposed Unoccupied Door Infiltration	**5**	**cfm**

Savings	**22**	**therms**	**$ 24**
	18	**kWh**	**$ 3**
			$ 26

Door	Width (ft)	Height (ft)	Linear Feet (LF)	gap (in)	gap location	LF of gap	% door w/ gap	Average gap for door (in)
1a	3	7	20	0.25	bottom/seam	1.625	100%	0.25
1b	3	7	20	0.25	bottom/seam	1.625	100%	0.25
2a	3	7	20	0.25	all sides	0	100%	0
2b	3	7	20	0.25	all sides	0	100%	0
3a	3	7	20	0.125	all sides	2.5	100%	0.125
3b	3	7	20	0.125	all sides	2.5	100%	0.125
4a	3	7	20	0.125	all sides	2.5	100%	0.125
Total	**21**	**49**	**140**	**0.196**		**10.75**	**8%**	**0.125**

Note: Doors labeled 'a', 'b', etc. are a part of the same door assembly.

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-2: Install Door Seals - 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.		
									$ -	
Door Weatherization Seals & Sweeps	5	EA	$ 40	$ 115	$ -	$ 205	$ 716	$ -	$ 922	RS Means 2012
						$ -	$ -	$ -	$ -	

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

$ 922	Subtotal
$ 323	35% Contingency
$ 1,244	**Total**

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-3: Convert Steam Heating System to Hydronic Heat w/ High Efficiency Condensing Boilers

Description: This ECM evaluates the changeover of 60% of the building (which is steam-heated) from steam to hot water. The analysis includes replacement of two (2) existing steam boilers with high efficiency condensing gas boilers; replacement of steam-heated unit ventilators with hot water unit ventilators; and the replacement of steam piping with hot water piping. The existing boiler efficiency is 80% (per NJBPU protocols) and the proposed boiler efficiency is 90% (average seasonal efficiency). Electrical power consumption due to pumps is considered to be the same for both the proposed system and the baseline system.

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.09	/ Therm	Natural Gas
Baseline Fuel Cost		/ Gal	No. 2 Oil
FORMULA CONSTANTS			
Oversize Factor	0.8		
Hours per Day	24		
Design Outdoor Temp	14	F	
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater
EXISTING			
Capacity	10,200,000	btu/hr	approximate capacity of entire building
Heating Combustion Efficiency	76%		Weighted avg. of steam system and current hydronic system that employs a shell and tube heat exchanger
Heating Degree-Day	2,783	Degree-day	
Design Temperature Difference	75	F	
Fuel Conversion	100,000	btu/therm	
PROPOSED			
Capacity	10,200,000	btu/hr	
Efficiency	90%		
SAVINGS			
Fuel Savings	14,874	Therms	NJ Protocols Calculation
Fuel Cost Savings	$ 16,168		

Savings calculation formulas are taken from NJ Protocols document for Occupancy Controlled Thermostats

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-3: Convert Steam Heating System to Hydronic Heat w/ High Efficiency Condensing Boilers

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.		
Hydronic Heating System (boilers, piping, radiators & UVs)	100,151	SF	$ 14	$ 14		$ 1,439,971	$ 1,747,034	$ -	$ 3,187,005	2012 RS Means Square Foot Construction Costs

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

$ 3,187,005	Subtotal
$ 1,115,452	35% Contingency
$ 4,302,457	**Total**

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-4: Boiler Replacement

Description: Currently the Annex, which constitutes about 40% of the building, is heated by hot water. This is created in a steam-to-hot water heat exchanger located in the Boiler Room. This ECM evaluates the removal of the heat exchanger and the installation of a high efficiency condensing gas hot water boiler. The existing boiler + ht. exchanger efficiency is conservatively estimated at 70% and the proposed boiler efficiency at 90% (average seasonal efficiency). Existing base mounted pumps could be re-employed to circulate the hot water around the Annex.

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.09	/ Therm	Natural Gas
Baseline Fuel Cost		/ Gal	No. 2 Oil
FORMULA CONSTANTS			
Oversize Factor	0.8		
Hours per Day	24		
Design Outdoor Temp	14	F	
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater
EXISTING			
Capacity	4,080,000	btu/hr	approximate capacity of the Annex
Heating Combustion Efficiency	70%		
Heating Degree-Day	2,783	Degree-day	
Design Temperature Difference	75	F	
Fuel Conversion	100,000	btu/therm	
PROPOSED			
Capacity	4,080,000	btu/hr	
Efficiency	90%		Operates in shoulder months only
SAVINGS			
Fuel Savings	9,228	Therms	
Fuel Cost Savings	$ 10,031		

Savings calculation formulas are taken from NJ Protocols document for Occupancy Controlled Thermostats

Algorithms

$$Gas\ Savings\ (Therms) = \frac{OF \times ((CAPY_{Bi} \times EFF_Q) - (CAPY_{Qi} \times EFF_B \times ICF)) \times HDD_{mod} \times 24}{\Delta T \times HC_{fuel} \times EFF_B \times ICF \times EFF_Q}$$

Definition of Variables

OF = Oversize factor of standard boiler or furnace (OF=0.8)

$CAPY_{Bi}$ = Total input capacity of the baseline furnace, boiler or heater in Btu/hour

$CAPY_{Qi}$ = Total input capacity of the qualifying furnace, boiler or heater in Btu/hour

HDD_{mod} = HDD by zone and building type

24 = Hours/Day

ΔT = design temperature difference

HC_{fuel} = Conversion from Btu to therms of gas or gallons of oil or propane (100,000 btu/therm; 138,700 btu/gal of #2 oil; 92,000 btu/gal of propane)

EFF_Q = Efficiency of qualifying heater(s) (AFUE %)

EFF_B = Efficiency of baseline heaters (AFUE %)

ICF = Infrared Compensation Factor (ICF = 0.8 for IR Heaters, 1.0 for furnaces/boilers)[2]

Furnaces and Boilers

Component	Type	Value	Source
$AFUE_q$	Variable		Application
$AFUE_b$	Fixed	Furnaces: 78% Boilers: 80% Infrared: 78%	EPACT Standard for furnaces and boilers
$CAPY_{in}$	Variable		Application
ΔT	Variable	See Table Below	1
HDD_{mod}	Fixed	See Table Below	1

Sources:

1. KEMA, *Smartstart Program Protocol Review*. 2009.
2. http://www.spaceray.com/1_space-ray_faqs.php

Adjusted Heating Degree Days by Building Type

Building Type	Heating Energy Density (kBtu/sf)	Degree Day Adjustment Factor	Atlantic City (HDD)	Newark (HDD)	Philadelphia (HDD)	Monticello (HDD)
Education	29.5	0.55	2792	2783	2655	3886
Food Sales	35.6	0.66	3369	3359	3204	4689
Food Service	39.0	0.73	3691	3680	3510	5137
Health Care	53.6	1.00	5073	5057	4824	7060
Lodging	15.0	0.28	1420	1415	1350	1976
Retail	29.3	0.55	2773	2764	2637	3859
Office	28.1	0.52	2660	2651	2529	3701
Public Assembly	33.8	0.63	3199	3189	3042	4452
Public Order/Safety	24.1	0.45	2281	2274	2169	3174
Religious Worship	29.1	0.54	2754	2745	2619	3833
Service	47.8	0.89	4524	4510	4302	6296
Warehouse/Storage	20.2	0.38	1912	1906	1818	2661

Heating Degree Days and Outdoor Design Temperature by Zone

Weather Station	HDD	Outdoor Design Temperature (F)
Atlantic City	5073	13
Newark	5057	14
Philadelphia, PA	4824	15
Monticello, NY	7060	8

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-4: Boiler Replacement - 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.		
Aerco BMK2000 w/ condensate	2	EA	$ 32,000	$ 12,000		$ 65,728	$ 29,904	$ 1,000	$ 96,632	Vendor Estimate
Flue Installation	2	LS	$ 25,000.0	$ 25,000.00		$ 51,350	$ 62,300	$ -	$ 113,650	Vendor Estimate
controls	2	EA	$ 1,000.0	$ 1,500.00		$ 2,054	$ 3,738	$ -	$ 5,792	RS Means 2012
Miscellaneous Electrical	2	LS	$ 1,500	$ 1,500		$ 3,081	$ 3,738	$ -	$ 6,819	RS Means 2012
Miscellaneous HW Piping	2	LS	$ 4,000	$ 1,500		$ 8,216	$ 3,738	$ -	$ 11,954	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

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

$ 234,847	Subtotal
$ 82,196	35% Contingency
$ 317,043	**Total**

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-5: Install High Efficiency Motors & Variable Speed Drives

Description: This ECM evaluates the energy (electrical) savings associated with replacing existing 7.5 HP heating pumps motors with high efficiency motors (based on ASHRAE 2010 NEMA ratings) and adding variable frequency drives to control motor speed based on actual load verses constant volume / constant flow. Pumps operate in a lead/ lag fashion, therefore run hours are 50% for each pump.

Variable Inputs

Electric Rate	$0.15	**$/kWh**
Demand Rate	$0.09	**$/kW**

MOTOR SCHEDULE										Savings Factor		Existing Motor Energy		Proposed Motor Energy		Energy Savings	
Motor ID	Motor Type	Qty	HP	Total HP	Upgrade Motor	Load Factor	Existing Motor Eff.	New Motor Eff.	Annual Hours	Demand Savings Factor	Energy Savings Factor	Demand Energy (kW)	Electrical Energy (kWh)	Demand Energy (kW)	Electrical Energy (kWh)	Peak Demand Savings (kW)	Annual Energy Savings (kWh)
HWP-1,2	**HW**	**1**	**7.5**	**7.5**	**N**	**0.75**	**91.7%**	**93.6%**	**2,213**	**0.216**	**0.240**	**4.6**	**10,125**	1.0	8,928	3.6	1,198
															Total:	3.6	1,197.5
																$ 4	$ 175
																	$ 179

Savings calculation formulas are taken from NJ Protocols document for VFDs

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-5: Install Variable Speed Drives - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
VFDs for Hot Water Pumps	2	ea	$ 2,025	$ 525		$ 4,159	$ 1,308	$ -	$ 5,468	RS Means 2012
Motors -7.5 HP	2	ea	$ 550	$ 100		$ 1,130	$ 249	$ -	$ 1,379	RS Means 2012
Electrical - misc.	2	ls	$ 250	$ 500		$ 514	$ 1,246	$ -	$ 1,760	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 8,606	Subtotal
$ 3,012	35% Contingency
$ 11,618	**Total**

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

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-6: Replace Gas-Fired DHW Heaters w/ Tankless Condensing Gas-Fired DHW Heaters

Description: This ECM evaluates the energy savings associated with replacing a gas fired tank type water heater with an equivalent capacity instantaneous water heater.

Item	Value	Units	Formula/Comments
Avg. Monthly Utility Demand by Water Heater	**420**	Therms/month	Calculated from utility bill
Total Annual Utility Demand by Water Heater	504,000	MBTU/yr	1therm = 100 MBTU
Existing DHW Heater Efficiency	78%		Per manufacturer nameplate
Total Annual Hot Water Demand (w/ standby losses)	393,120	MBTU/yr	
Existing Tank Size	80	Gallons	Per manufacturer nameplate
Hot Water Piping System Capacity	5	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	˚F	Per building personnel
Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	1.2	MBH	
Annual Standby Hot Water Load	10,549	MBTU/yr	
New Tank Size	0	Gallons	Based on Takagi Flash T-H1 instantaneous, condensing DHW Heater
Hot Water Piping System Capacity	5	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	˚F	
Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	0.1	MBH	
Annual Standby Hot Water Load	621	MBTU/yr	
Total Annual Hot Water Demand	383,192	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on Takagi Flash T-H1 instantaneous, condensing DHW Heater
Proposed Fuel Use	3,992	Therns	Standby Losses and inefficient DHW heater eliminated
Utility Cost	$1.09	$/Therm	
Existing Operating Cost of DHW	$5,478	$/yr	
Proposed Operating Cost of DHW	$4,339	$/yr	

Savings Summary:

Utility	Energy Savings	Cost Savings
Therms/yr	1,048	$1,140

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-6: Replace N.G. Water Heaters with Condensing DHW Heaters - 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.		
DHW Heater Removal	2	LS		$ 250		$ -	$ 623	$ -	$ 623	RS Means 2012
High Efficiency Gas-Fired DHW Heater	2	EA	$ 4,000	$ 280		$ 8,216	$ 698	$ -	$ 8,914	RS Means 2012
Miscellaneous Electrical	2	LS	$ 300			$ 616	$ -	$ -	$ 616	RS Means 2012
Venting Kit	2	EA	$ 450	$ 650		$ 924	$ 1,620	$ -	$ 2,544	RS Means 2012
Miscellaneous Piping and Valves	2	LS	$ 200			$ 411	$ -	$ -	$ 411	RS Means 2012

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

$ 13,108	Subtotal	
$ 4,588	35%	Contingency
$ 17,696	**Total**	

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

ECM-7: Walk-in Cooler & Freezer EC Motor Retrofits

ECM Description :
For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dewpoint temperature. Compressor cycling is reduced and the evaporator fans run 25% to 80% less. Door and frame heaters are also installed and controlled by store dew point temperature; this can reduce run time by up to 95% in coolers and 60% in freezers. The evaporator fan motors are also replaced with hi-efficiency fan motors saving 40% to 70% in energy. The proposed system comprises of an anti-sweat door controller, evaporator fan motor replacement and CoolTrol Cooler Control System.

Utility Cost

$0.15 $/kWh Blended

EXISTING CONDITIONS			
Walk-In Freezer(s)			
Existing Freezer Controls?	N		
Quantity of Walk-In Freezers	1		
Nameplate Amps of Freezer Evaporator Fan	4		AmpsEF
Nameplate Volts of Freezer Evaporator Fan	280		VoltsEF
Phase of Evaporator Fan	1		PhaseEF
Power Factor of Evaporator Fan	0.55		PFEF
Operating Hours	8,760	hrs	
Load Reduction	65%		LR
Electricity Savings (Evaporator Fan)	3,157	kWh	kWhEF
Electricity Savings (Evaporator Fan Reduced Heat)	1,414	kWh	kWhRH
Total Walk-In Freezer(s) Electricity Savings	4,571	kWh	
Walk-In Cooler(s)			
Existing Cooler Controls?	N		
Quantity of Walk-In Coolers	1		
Nameplate Amps of Cooler Evaporator Fan	4		
Nameplate Volts of Cooler Evaporator Fan	280		
Phase of Evaporator Fan	1		
Power Factor of Evaporator Fan	0.55		
Operating Hours	8,760	hrs	
Load Reduction	65%		
Electricity Savings (Evaporator Fan)	3,157	kWh	
Electricity Savings (Evaporator Fan Reduced Heat)	1,414	kWh	
Total Walk-In Cooler(s) Electricity Savings	4,571	kWh	
SAVINGS			
Total Electricity Savings	**9,142**	**kWh**	
Total Cost Savings	**$ 1,335**		
Estimated Cost	$ 22,275		
Simple Payback	16.7	**years**	

Savings calculation formulas are taken from NJ Protocols document for Walk-in Controller

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

Carteret Board of Education
CHA Project Number: 30201
Carteret High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-7: Walk-in Cooler & Freezer EC Motor Retrofits - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
									$ -	
Turnkey Walk-In Controller & Equipment	1	EA	$ 10,000	$ 5,000	$ -	$ 10,270	$ 6,230	$ -	$ 16,500	Vendor Estimate
						$ -	$ -	$ -	$ -	

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

$ 16,500	Subtotal
$ 5,775	35% Contingency
$ 22,275	**Total**

Carteret Board of Education
CHA Project Number: 30201
Carteret High 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 governements 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)	166,918
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

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

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$94,304	$72,686
Existing Usage (from utility)	647,566	66,851
Proposed Savings	265,876	13,515
Existing Total MMBtus	8,895	
Proposed Savings MMBtus	2,259	
% Energy Reduction	**25.4%**	
Proposed Annual Savings	$42,314	

	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	$0.11	$1.25
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.25

	Incentives $		
	Elec	Gas	Total
			$8,346
Incentive #1	$0	$0	$8,346
Incentive #2	$29,246	$16,894	$46,140
Incentive #3	$29,246	$16,894	$46,140
Total All Incentives	**$58,493**	**$33,788**	**$100,627**

Total Project Cost	$986,249

		Allowable Incentive
% Incentives #1 of Utility Cost*	5.0%	$8,346
% Incentives #2 of Project Cost**	4.7%	$46,140
% Incentives #3 of Project Cost**	4.7%	$46,140
Total Eligible Incentives***	**$100,627**	
Project Cost w/ Incentives	$885,623	

Project Payback (years)	
w/o Incentives	w/ Incentives
23.3	20.9

* 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

Energy Audit of Carteret High School
CHA Project No. 30201

ECM-L1 Lighting Replacements

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$447,609	**56.2**	**196,979**	**0**	**$19,562**	**0**	**$19,562**	**$27,460**	**22.9**	**21.5**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L2 Install Occupancy Sensors

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$51,300	**0.0**	**64,134**	**0**	**$5,708**	**0**	**$5,708**	**$3,800**	**9.0**	**8.3**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L3 Lighting Replacements with Occupancy Sensors

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$498,909	**56.2**	**233,116**	**0**	**$22,778**	**0**	**$22,778**	**$31,260**	**21.9**	**20.5**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

Energy Audit of Carteret High School
CHA Project No. 30201
Existing Lighting & Audit Input

Cost of Electricity: **$0.089** **$/kWh**
$3.01 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	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 annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
202	Ground Floor Main Entrance	Hallways	1	2T 17 R F 4 (ELE)	F24ILL	61	0.06	SW	4368	266	C-OCC	
202	Main Entrance Vestibule	Hallways	1	2T 17 R F 4 (ELE)	F24ILL	61	0.06	SW	4368	266	C-OCC	
55LED	Main Lobby	Hallways	9	2T 17 R F 3 (ELE)	F23ILL	47	0.42	SW	4368	1,848	C-OCC	
40LED	Nurse Office	Offices	10	T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3024	1,814	C-OCC	
5LED	Nurse Office Copier Room	Offices	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	3024	544	C-OCC	
5LED	Nurse Office Bath Room	Restroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2688	161	C-OCC	
39	Nurse Office Storage	Storage Areas	1	2' 17 W F 2 (ELE)	F22ILL	33	0.03	SW	2688	89	C-OCC	
40LED	Exam Room 1	Offices	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3024	181	C-OCC	
40LED	Exam Room 2	Offices	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3024	181	C-OCC	
40LED	Exam Room 3	Offices	1	T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3024	181	C-OCC	
5LED	Nurse Office Bath Room	Restroom	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2688	323	C-OCC	
15LED	Nurse Office Storage	Storage Areas	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
32LED	Stair to Nurse Room	Storage Areas	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
185LED	Storage next to the small stair to Nurse Room	Storage Areas	2	T 40 R F 4 (ELE)	F44SE	172	0.34	SW	2688	925	C-OCC	
32LED	Restroom	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
40LED	Office Space Next to Nurse Office	Offices	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3024	726	C-OCC	
40LED	Small Office 1	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
33	Small Office 1 Floor Lamp	Offices	3	13 W CF 1	CFQ13/1-L	15	0.05	SW	3024	136	C-OCC	
40LED	Small Office 2	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
33	Small Office 2	Offices	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	3024	45	C-OCC	
40LED	Small Office 3	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
33	Small Office 3	Offices	3	13 W CF 1	CFQ13/1-L	15	0.05	SW	3024	136	C-OCC	
40LED	Pathways Office	Offices	3	T 32 R F 2 (ELE)	F42LL	60	0.18	SW	3024	544	C-OCC	
35LED	Pathways Office	Offices	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	3024	272	C-OCC	
40LED	Pathways Small Office	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
35LED	Pathways Small Office	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3024	544	C-OCC	
40LED	Pathways Conference Room	Conference	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	2016	726	C-OCC	
185LED	Hallway	Hallways	8	T 40 R F 4 (ELE)	F44SE	172	1.38	SW	4368	6,010	C-OCC	
40LED	Instrumental Music	Classrooms	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3360	806	C-OCC	
40LED	Instrumental Music Office	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
40LED	Instrumental Music Storage	Storage Areas	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
40LED	R24	Classrooms	8	T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	R22 is inaccessible
40LED	Restroom	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
33	Closet	Storage Areas	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	2688	40	C-OCC	
15LED	Cafeteria	Cafeteria	80	S 32 C F 2 (ELE)	F42LL	60	4.80	SW	2688	12,902	C-OCC	Light facing up and invisible
35LED	Kitchen	Kitchen	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.17	SW	2688	3,145	C-OCC	
35LED	Kitchen Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3024	1,089	C-OCC	
5LED	Restroom	Restroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2688	161	C-OCC	
5LED	Closet	Storage Areas	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2688	161	C-OCC	
121	Back Closet	Storage Areas	1	W 34 P F 4	F44EE	144	0.14	SW	2688	387	C-OCC	
3	Back Closet	Storage Areas	1	W 34 W F 1 (MAG)	F41EE	43	0.04	SW	2688	116	C-OCC	
35LED	Dishwash Room	Kitchen	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2688	726	C-OCC	
32LED	Dishwash Room	Kitchen	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
5LED	Dishwash Room	Kitchen	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2688	161	C-OCC	
20LED	Stair	Hallways	2	S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	4368	271	C-OCC	
35LED	Stair	Hallways	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	4368	393	C-OCC	
35LED	Hallway	Hallways	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	4368	393	C-OCC	
61LED	Hallway	Hallways	3	T 34 R F 3 (MAG)	F43EE	115	0.35	SW	4368	1,507	C-OCC	
30	Auditorium	Auditorium	14	1 B 96 C F 2 (MAG)	F82EHS	227	3.18	SW	2688	8,542	C-OCC	facing up
5LED	Auditorium	Auditorium	8	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.48	SW	2688	1,290	C-OCC	
32LED	Hallway	Hallways	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	4368	2,097	C-OCC	
32LED	Boiler Room	Mechanical Room	11	1T 32 R F 2 (ELE)	F42LL	60	0.66	SW	8736	5,766	C-OCC	
46LED	Boiler Room	Mechanical Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	8736	515	C-OCC	
32LED	Office	Offices	6	1T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3024	1,089	C-OCC	
32LED	Office	Offices	6	1T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3024	1,089	C-OCC	
35LED	Athelic Director	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3024	1,089	C-OCC	
32LED	Room 4	Offices	13	1T 32 R F 2 (ELE)	F42LL	60	0.78	SW	3024	2,359	C-OCC	
185LED	Room 6	Offices	12	T 40 R F 4 (ELE)	F44SE	172	2.06	C-OCC	3024	6,242	NONE	
32LED	Office	Offices	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3024	181	C-OCC	
35LED	Apt Classroom 10	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	3360	1,814	C-OCC	
35LED	Apt Classroom 10	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	3360	1,814	C-OCC	
32LED	Closet	Storage Areas	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
32LED	Girls Restroom	Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
32LED	1st Floor Room129	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	Room 127	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	Room 127	Classrooms	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3360	403	C-OCC	
35LED	Office	Offices	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	3024	816	C-OCC	
32LED	125	Classrooms	14	1T 32 R F 2 (ELE)	F42LL	60	0.84	SW	3360	2,822	C-OCC	
32LED	123	Classrooms	14	1T 32 R F 2 (ELE)	F42LL	60	0.84	SW	3360	2,822	C-OCC	
185LED	Restroom	Restroom	2	T 40 R F 4 (ELE)	F44SE	172	0.34	SW	2688	925	C-OCC	
35LED	Book Storage	Storage Areas	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2688	968	C-OCC	
20LED	Restroom	Restroom	2	S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	2688	167	C-OCC	
32LED	124A	Classrooms	16	1T 32 R F 2 (ELE)	F42LL	60	0.96	SW	3360	3,226	C-OCC	
32LED	124B	Classrooms	6	1T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	

Energy Audit of Carteret High School
CHA Project No. 30201
Existing Lighting & Audit Input

Cost of Electricity: **$0.089** **$/kWh**
$3.01 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	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 annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
185LED	126	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	SW	3360	3,468	C-OCC	
32LED	128	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
40LED	128	Classrooms	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3360	806	C-OCC	
33	Restroom	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	2688	40	C-OCC	
20LED	storage	Storage Areas	1	S 28 P F 1 (ELE)	F41ILL	31	0.03	SW	2688	83	C-OCC	
185LED	112	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	C-OCC	3360	3,468	NONE	
185LED	110	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	C-OCC	3360	3,468	NONE	
185LED	108	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	C-OCC	3360	3,468	NONE	
40LED	Hallway	Hallways	5	T 32 R F 2 (ELE)	F42LL	60	0.30	SW	4368	1,310	C-OCC	
5LED	Hallway	Hallways	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.20	SW	4368	5,242	C-OCC	
40LED	Hallway	Hallways	5	T 32 R F 2 (ELE)	F42LL	60	0.30	SW	4368	1,310	C-OCC	
185LED	106	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	SW	3360	3,468	C-OCC	
185LED	Office	Offices	3	T 40 R F 4 (ELE)	F44SE	172	0.52	SW	3024	1,560	C-OCC	
40LED	Principle Office	Offices	3	T 32 R F 2 (ELE)	F42LL	60	0.18	SW	3024	544	C-OCC	
5LED	Main Office	Offices	12	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.72	SW	3024	2,177	C-OCC	
185LED	Hallway	Hallways	7	T 40 R F 4 (ELE)	F44SE	172	1.20	SW	4368	5,259	C-OCC	
5LED	Guidance Office	Offices	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	3024	726	C-OCC	
5LED	Guidance Office	Offices	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	3024	726	C-OCC	
5LED	Guidance Office	Offices	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.36	SW	3024	1,089	C-OCC	
5LED	Guidance Office	Offices	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	3024	363	C-OCC	
5LED	Guidance Office	Offices	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	3024	726	C-OCC	
5LED	Guidance Office	Offices	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	3024	544	C-OCC	
5LED	Guidance Office	Offices	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	3024	544	C-OCC	
32LED	Spec Ed 109	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	109 Small Office	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	111	Classrooms	10	1T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3360	2,016	C-OCC	
32LED	113	Classrooms	10	1T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3360	2,016	C-OCC	
5LED	Hallway	Hallways	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.20	SW	4368	5,242	C-OCC	
40LED	115	Classrooms	8	T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	117	Classrooms	14	1T 32 R F 2 (ELE)	F42LL	60	0.84	SW	3360	2,822	C-OCC	
40LED	Hallway	Hallways	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	4368	1,048	C-OCC	
32LED	2nd Floor Room 229	Classrooms	22	1T 32 R F 2 (ELE)	F42LL	60	1.32	SW	3360	4,435	C-OCC	
32LED	227	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	225	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	223	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
35LED	Restroom	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2688	484	C-OCC	
185LED	Hallway	Hallways	40	T 40 R F 4 (ELE)	F44SE	172	6.88	SW	4368	30,052	C-OCC	
32LED	Storage	Storage Areas	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
35LED	Restroom	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2688	484	C-OCC	
32LED	224	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	226	Classrooms	16	1T 32 R F 2 (ELE)	F42LL	60	0.96	SW	3360	3,226	C-OCC	
32LED	228	Classrooms	16	1T 32 R F 2 (ELE)	F42LL	60	0.96	SW	3360	3,226	C-OCC	
185LED	Hallway	Hallways	5	T 40 R F 4 (ELE)	F44SE	172	0.86	SW	4368	3,756	C-OCC	
40LED	212	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
40LED	Office	Offices	2	T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
185LED	Faculty	Offices	2	T 40 R F 4 (ELE)	F44SE	172	0.34	SW	3024	1,040	C-OCC	
40LED	Hallway	Hallways	5	T 32 R F 2 (ELE)	F42LL	60	0.30	SW	4368	1,310	C-OCC	
35LED	Vocal Music	Classrooms	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.89	SW	3360	6,350	C-OCC	
185LED	208	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	SW	3360	3,468	C-OCC	
185LED	206	Classrooms	6	T 40 R F 4 (ELE)	F44SE	172	1.03	SW	3360	3,468	C-OCC	
40LED	204	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
40LED	202	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
40LED	203	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	203B Not Accessible
40LED	205	Classrooms	5	T 32 R F 2 (ELE)	F42LL	60	0.30	SW	3360	1,008	C-OCC	
40LED	207	Classrooms	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3360	806	C-OCC	
40LED	209	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
40LED	211	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
20LED	Hallway	Hallways	7	S 28 P F 1 (ELE)	F41ILL	31	0.22	SW	4368	948	C-OCC	
40LED	215	Classrooms	10	T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3360	2,016	C-OCC	213 not accessible
40LED	217	Classrooms	10	T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3360	2,016	C-OCC	
35LED	Hallway	Hallways	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	4368	1,572	C-OCC	
32LED	Ground Floor Addition Weight Room 50	Classrooms	34	1T 32 R F 2 (ELE)	F42LL	60	2.04	SW	3360	6,854	C-OCC	
40LED	Ground Floor Addition Weight Room 50	Classrooms	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	3360	1,210	C-OCC	
32LED	Wrestling Room 52	Classrooms	52	1T 32 R F 2 (ELE)	F42LL	60	3.12	SW	3360	10,483	C-OCC	
32LED	Band Room 54	Classrooms	45	1T 32 R F 2 (ELE)	F42LL	60	2.70	SW	3360	9,072	C-OCC	
185LED	54 Storage	Storage Areas	2	T 40 R F 4 (ELE)	F44SE	172	0.34	SW	2688	925	C-OCC	
35LED	Girls Locker Room 56	Locker	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.17	SW	2688	3,145	C-OCC	
198LED	Girls Locker Room 56	Locker	1	2T 17 R F 2 (ELE)	F22LL	31	0.03	SW	2688	83	C-OCC	
5LED	Hallway	Hallways	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.20	SW	4368	5,242	C-OCC	
32LED	Science 51	Classrooms	24	1T 32 R F 2 (ELE)	F42LL	60	1.44	SW	3360	4,838	C-OCC	
32LED	55	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
35LED	Train Room	Classrooms	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	3360	1,512	C-OCC	
20LED	storage	Storage Areas	1	S 28 P F 1 (ELE)	F41ILL	31	0.03	SW	2688	83	C-OCC	
20LED	storage	Storage Areas	2	S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	2688	167	C-OCC	

Energy Audit of Carteret High School
CHA Project No. 30201
Existing Lighting & Audit Input

Cost of Electricity: **$0.089** **$/kWh**
$3.01 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	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 annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
252	Gym	Gymnasium	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.53	SW	2688	28,305	C-OCC	
32LED	Boys Locker Room	Locker	18	1T 32 R F 2 (ELE)	F42LL	60	1.08	SW	2688	2,903	C-OCC	
15LED	Boys Locker Room	Locker	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
32LED	Trainer	Offices	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3024	726	C-OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3024	363	C-OCC	
220	Restroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	2688	54	C-OCC	
5LED	Hallway	Hallways	23	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.38	SW	4368	6,028	C-OCC	
32LED	Boys Restroom	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
20LED	Boys Restroom	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.03	SW	2688	83	C-OCC	
32LED	Girls Restroom	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
20LED	Girls Restroom	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.03	SW	2688	83	C-OCC	
32LED	30	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	C-OCC	3360	2,419	NONE	
32LED	32	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	C-OCC	3360	2,419	NONE	
32LED	31	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	33	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	35	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3360	2,419	C-OCC	
32LED	37	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	C-OCC	3360	2,419	NONE	
32LED	39	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	C-OCC	3360	2,419	NONE	
32LED	41	Classrooms	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	C-OCC	3360	2,419	NONE	
55LED	Lobby	Hallways	6	2T 17 R F 3 (ELE)	F23ILL	47	0.28	SW	4368	1,232	C-OCC	
35LED	1st Floor Faculty	Offices	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3024	2,177	C-OCC	
32LED	Small Office	Offices	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3024	181	C-OCC	
32LED	Storage	Storage Areas	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	2688	161	C-OCC	
35LED	150	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	3360	4,838	C-OCC	
35LED	152	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	3360	4,838	C-OCC	
35LED	154	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	3360	4,838	C-OCC	
35LED	156	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	3360	4,838	C-OCC	
5LED	Hallway	Hallways	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.20	SW	4368	5,242	C-OCC	
35LED	151	Classrooms	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3360	2,419	C-OCC	
35LED	153	Classrooms	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3360	2,419	C-OCC	
35LED	155	Classrooms	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3360	2,419	C-OCC	
35LED	Conference Room 157	Conference	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2016	1,633	C-OCC	
32LED	Library	Library	35	1T 32 R F 2 (ELE)	F42LL	60	2.10	SW	2688	5,645	C-OCC	
20LED	Office	Offices	4	S 28 P F 1 (ELE)	F41ILL	31	0.12	SW	3024	375	C-OCC	
35LED	Office	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3024	544	C-OCC	
5LED	Hallway	Hallways	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.60	SW	4368	2,621	C-OCC	
5LED	Storage	Storage Areas	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2688	161	C-OCC	
17	Restroom	Restroom	1	2' 20 W F 1 (MAG)	F21SS	28	0.03	SW	2688	75	C-OCC	
55LED	Restroom	Restroom	1	2T 17 R F 3 (ELE)	F23ILL	47	0.05	SW	2688	126	C-OCC	
20LED	Restroom	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.03	SW	2688	83	C-OCC	
32LED	Restroom	Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2688	323	C-OCC	
32LED	132	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	130	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	131	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	133	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	135	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	137	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	139	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
32LED	141	Classrooms	8	1T 32 R F 2 (ELE)	F42LL	60	0.48	SW	3360	1,613	C-OCC	
5LED	Hallway	Hallways	16	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.96	SW	4368	4,193	C-OCC	
5LED	Hallway	Hallways	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.30	SW	4368	1,310	C-OCC	
142LED	Exterior Lights	Outdoor Lighting	17	MH 100	MH100/1	128	2.18	Breaker	4032	8,774	NONE	
273	Exterior Lights	Outdoor Lighting	2	QL85/1	QL85/1	85	0.17	Breaker	4032	685	NONE	
231LED	Exterior Lights	Outdoor Lighting	2	WP400MH1	MH400/1	458	0.92	Breaker	4032	3,693	NONE	
263	Stadium Pole Lights	Outdoor Lighting	10	MH1000 Fixt	MH1000/1	1080	10.80	Breaker	4032	43,546	NONE	
263	Stadium Pole Lights	Outdoor Lighting	12	MH1000 Fixt	MH1000/1	1080	12.96	Breaker	4032	52,255	NONE	
	Total		**1,582**				**149.34**			**521,055**		

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L1 Lighting Replacements

		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 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" 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) * (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 Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
202	Ground Floor Main Entrance	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4,368	266	-	0.0	$ -	$ -	$0		#DIV/0!
202	Main Entrance Vestibule	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4,368	266	-	0.0	$ -	$ -	$0		#DIV/0!
55LED	Main Lobby	9	2T 17 R F 3 (ELE)	F23ILL	47	0.4	SW	4368	1,848	9	2T 25 R LED	2RTLED	25	0.2	SW	4,368	983	865	0.2	$ 84.12	$ 1,822.50	$450	21.7	16.3
40LED	Nurse Office	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3024	1,814	10	T 38 R LED	RTLED38	38	0.4	SW	3,024	1,149	665	0.2	$ 67.16	$ 2,362.50	$250	35.2	31.5
5LED	Nurse Office Copier Room	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	SW	3,024	227	318	0.1	$ 32.05	$ 607.50	$45	19.0	17.5
5LED	Nurse Office Bath Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	94	0.0	$ 9.64	$ 202.50	$15	21.0	19.5
39	Nurse Office Storage	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	2688	89	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	2,688	89	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Exam Room 1	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	SW	3,024	115	67	0.0	$ 6.72	$ 236.25	$25	35.2	31.5
40LED	Exam Room 2	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	SW	3,024	115	67	0.0	$ 6.72	$ 236.25	$25	35.2	31.5
40LED	Exam Room 3	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	SW	3,024	115	67	0.0	$ 6.72	$ 236.25	$25	35.2	31.5
5LED	Nurse Office Bath Room	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	323	2	2T 25 R LED	2RTLED	25	0.1	SW	2,688	134	188	0.1	$ 19.27	$ 405.00	$30	21.0	19.5
15LED	Nurse Office Storage	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	SW	2,688	215	108	0.0	$ 11.01	$ 713.40	$0	64.8	64.8
32LED	Stair to Nurse Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
185LED	Storage next to the small stair to Nurse Room	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	SW	2,688	269	656	0.2	$ 67.19	$ 472.50	$50	7.0	6.3
32LED	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
40LED	Office Space Next to Nurse Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	726	4	T 38 R LED	RTLED38	38	0.2	SW	3,024	460	266	0.1	$ 26.86	$ 945.00	$100	35.2	31.5
40LED	Small Office 1	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
33	Small Office 1 Floor Lamp	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3,024	136	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Small Office 2	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
33	Small Office 2	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	45	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	3,024	45	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Small Office 3	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
33	Small Office 3	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3,024	136	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Pathways Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544	3	T 38 R LED	RTLED38	38	0.1	SW	3,024	345	200	0.1	$ 20.15	$ 708.75	$75	35.2	31.5
35LED	Pathways Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3024	272	1	T 59 R LED	RTLED38	38	0.0	SW	3,024	115	157	0.1	$ 15.87	$ 236.25	$25	14.9	13.3
40LED	Pathways Small Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
35LED	Pathways Small Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544	2	T 59 R LED	RTLED38	38	0.1	SW	3,024	230	314	0.1	$ 31.75	$ 472.50	$50	14.9	13.3
40LED	Pathways Conference Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2016	726	6	T 38 R LED	RTLED38	38	0.2	SW	2,016	460	266	0.1	$ 28.45	$ 1,417.50	$150	49.8	44.5
185LED	Hallway	8	T 40 R F 4 (ELE)	F44SE	172	1.4	SW	4368	6,010	8	T 50 R LED	RTLED50	50	0.4	SW	4,368	1,747	4,263	1.0	$ 414.68	$ 1,890.00	$200	4.6	4.1
40LED	Instrumental Music	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	SW	3,360	511	296	0.1	$ 29.49	$ 945.00	$100	32.0	28.6
40LED	Instrumental Music Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
40LED	Instrumental Music Storage	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	T 38 R LED	RTLED38	38	0.1	SW	2,688	204	118	0.0	$ 12.12	$ 472.50	$50	39.0	34.9
40LED	R24	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	T 38 R LED	RTLED38	38	0.3	SW	3,360	1,021	591	0.2	$ 58.99	$ 1,890.00	$200	32.0	28.6
40LED	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	T 38 R LED	RTLED38	38	0.1	SW	2,688	204	118	0.0	$ 12.12	$ 472.50	$50	39.0	34.9
33	Closet	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2,688	40	-	0.0	$ -	$ -	$0		#DIV/0!
15LED	Cafeteria	80	S 32 C F 2 (ELE)	F42LL	60	4.8	SW	2688	12,902	80	STLED4	STLED4	40	3.2	SW	2,688	8,602	4,301	1.6	$ 440.56	$ 28,536.00	$0	64.8	64.8
35LED	Kitchen	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145	13	T 59 R LED	RTLED38	38	0.5	SW	2,688	1,328	1,817	0.7	$ 186.14	$ 3,071.25	$325	16.5	14.8
35LED	Kitchen Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,089	4	T 59 R LED	RTLED38	38	0.2	SW	3,024	460	629	0.2	$ 63.49	$ 945.00	$100	14.9	13.3
5LED	Restroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	94	0.0	$ 9.64	$ 202.50	$15	21.0	19.5
5LED	Closet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	94	0.0	$ 9.64	$ 202.50	$15	21.0	19.5
121	Back Closet	1	W 34 P F 4	F44EE	144	0.1	SW	2688	387	1	W 28 P F 4	F44SSILL	96	0.1	SW	2,688	258	129	0.0	$ 13.22	$ 141.75	$0	10.7	10.7
3	Back Closet	1	W 34 W F 1 (MAG)	F41EE	43	0.0	SW	2688	116	1	W 28 W F 1	F41SSILL	26	0.0	SW	2,688	70	46	0.0	$ 4.68	$ 189.00	$0	40.4	40.4
35LED	Dishwash Room	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2688	726	3	T 59 R LED	RTLED38	38	0.1	SW	2,688	306	419	0.2	$ 42.95	$ 708.75	$75	16.5	14.8
32LED	Dishwash Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
5LED	Dishwash Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	94	0.0	$ 9.64	$ 202.50	$15	21.0	19.5
20LED	Stair	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	4368	271	2	4 ft LED Tube	200732x1	15	0.0	SW	4,368	131	140	0.0	$ 13.60	$ 290.40	$30	21.4	19.2
35LED	Stair	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393	1	T 59 R LED	RTLED38	38	0.0	SW	4,368	166	227	0.1	$ 22.09	$ 236.25	$25	10.7	9.6
35LED	Hallway	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393	1	T 59 R LED	RTLED38	38	0.0	SW	4,368	166	227	0.1	$ 22.09	$ 236.25	$25	10.7	9.6
61LED	Hallway	3	T 34 R F 3 (MAG)	F43EE	115	0.3	SW	4368	1,507	3	T 38 R LED	RTLED38	38	0.1	SW	4,368	498	1,009	0.2	$ 98.15	$ 708.75	$75	7.2	6.5
30	Auditorium	14	1 B 96 C F 2 (MAG)	F82EHS	227	3.2	SW	2688	8,542	14	T 28 R F 4	F44SSILL	96	1.3	SW	2,688	3,613	4,930	1.8	$ 505.00	$ 3,780.00	$0	7.5	7.5
5LED	Auditorium	8	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	SW	2688	1,290	8	2T 25 R LED	2RTLED	25	0.2	SW	2,688	538	753	0.3	$ 77.10	$ 1,620.00	$120	21.0	19.5
32LED	Hallway	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	4368	2,097	8	STLED4	STLED4	40	0.3	SW	4,368	1,398	699	0.2	$ 67.98	$ 2,853.60	$120	42.0	40.2
32LED	Boiler Room	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	8736	5,766	11	STLED4	STLED4	40	0.4	SW	8,736	3,844	1,922	0.2	$ 179.00	$ 3,923.70	$165	21.9	21.0
46LED	Boiler Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	8736	515	1	4 ft LED Tube	200732x2	30	0.0	SW	8,736	262	253	0.0	$ 23.60	$ 163.35	$15	6.9	6.3
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,089	6	STLED4	STLED4	40	0.2	SW	3,024	726	363	0.1	$ 36.63	$ 2,140.20	$90	58.4	56.0
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,089	6	STLED4	STLED4	40	0.2	SW	3,024	726	363	0.1	$ 36.63	$ 2,140.20	$90	58.4	56.0
35LED	Athelic Director	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,089	4	T 59 R LED	RTLED38	38	0.2	SW	3,024	460	629	0.2	$ 63.49	$ 945.00	$100	14.9	13.3
32LED	Room 4	13	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3024	2,359	13	STLED4	STLED4	40	0.5	SW	3,024	1,572	786	0.3	$ 79.37	$ 4,637.10	$195	58.4	56.0
185LED	Room 6	12	T 40 R F 4 (ELE)	F44SE	172	2.1	C-OCC	3024	6,242	12	T 50 R LED	RTLED50	50	0.6	C-OCC	3,024	1,814	4,427	1.5	$ 446.89	$ 2,835.00	$300	6.3	5.7
32LED	Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	STLED4	STLED4	40	0.0	SW	3,024	121	60	0.0	$ 6.11	$ 356.70	$15	58.4	56.0
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814	6	T 59 R LED	RTLED38	38	0.2	SW	3,360	766	1,048	0.3	$ 104.57	$ 1,417.50	$150	13.6	12.1
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814	6	T 59 R LED	RTLED38	38	0.2	SW	3,360	766	1,048	0.3	$ 104.57	$ 1,417.50	$150	13.6	12.1
32LED	Closet	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
32LED	Girls Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	SW	2,688	215	108	0.0	$ 11.01	$ 713.40	$30	64.8	62.0
32LED	1st Floor Room129	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	Room 127	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	Room 127	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3360	403	2	STLED4	STLED4	40	0.1	SW	3,360	269	134	0.0	$ 13.41	$ 713.40	$30	53.2	51.0
35LED	Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	3024	816	3	T 59 R LED	RTLED38	38	0.1	SW	3,024	345	472	0.2	$ 47.62	$ 708.75	$75	14.9	13.3
32LED	125	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	SW	3,360	1,882	941	0.3	$ 93.84	$ 4,993.80	$210	53.2	51.0
32LED	123	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	SW	3,360	1,882	941	0.3	$ 93.84	$ 4,993.80	$210	53.2	51.0
185LED	Restroom	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	SW	2,688	269	656	0.2	$ 67.19	$ 472.50	$50	7.0	6.3
35LED	Book Storage	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2688	968	4	T 59 R LED	RTLED38	38	0.2	SW	2,688	409	559	0.2	$ 57.27	$ 945.00	$100	16.5	14.8
20LED	Restroom	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	167	2	4 ft LED Tube	200732x1	15	0.0	SW	2,688	81	86	0.0	$ 8.81	$ 290.40	$30	33.0	29.6
32LED	124A	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	SW	3,360	2,150	1,075	0.3	$ 107.25	$ 5,707.20	$240	53.2	51.0
32LED	124B	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	STLED4	STLED4	40	0.2	SW	3,360	806	403	0.1	$ 40.22	$ 2,140.20	$90	53.2	51.0
185LED	126	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	SW	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
32LED	128	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
40LED	128	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	SW	3,360	511	296	0.1	$ 29.49	$ 945.00	$100	32.0	28.6
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2,688	40	-	0.0	$ -	$ -	$0		#DIV/0!
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	SW	2,688	40	43	0.0	$ 4.41	$ 145.20	$15	33.0	29.6
185LED	112	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
185LED	110	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
185LED	108	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	SW	4,368	830	480	0.1	$ 46.74	$ 1,181.25	$125	25.3	22.6
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	SW	4,368	2,184	3,058	0.7	$ 297.41	$ 4,050.00	$300	13.6	12.6
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	SW	4,368	830	480	0.1	$ 46.74	$ 1,181.25	$125	25.3	22.6
185LED	106	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	SW	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
185LED	Office	3	T 40 R F 4 (ELE)	F44SE	172	0.5	SW	3024	1,560	3	T 50 R LED	RTLED50	50	0.2	SW	3,024	454	1,107	0.4	$ 111.72	$ 708.75	$75	6.3	5.7
40LED	Principle Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544	3	T 38 R LED	RTLED38	38	0.1	SW	3,024	345	200	0.1	$ 20.15	$ 708.75	$75	35.2	31.5
5LED	Main Office	12	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	3024	2,177	12	2T 25 R LED	2RTLED	25	0.3	SW	3,024	907	1,270	0.4	$ 128.21	$ 2,430.00	$180	19.0	17.5
185LED	Hallway	7	T 40 R F 4 (ELE)	F44SE	172	1.2	SW	4368	5,259	7	T 50 R LED	RTLED50	50	0.4	SW	4,368	1,529	3,730	0.9	$ 362.84	$ 1,653.75	$175	4.6	4.1
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	SW	3,024	302	423	0.1	$ 42.74	$ 810.00	$60	19.0	17.5
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	SW	3,024	302	423	0.1	$ 42.74	$ 810.00	$60	19.0	17.5
5LED	Guidance Office	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	SW	3024	1,089	6	2T 25 R LED	2RTLED	25	0.2	SW	3,024	454	635	0.2	$ 64.10	$ 1,215.00	$90	19.0	17.5
5LED	Guidance Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	3024	363	2	2T 25 R LED	2RTLED	25	0.1	SW	3,024	151	212	0.1	$ 21.37	$ 405.00	$30	19.0	17.5
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	SW	3,024	302	423	0.1	$ 42.74	$ 810.00	$60	19.0	17.5
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	SW	3,024	227	318	0.1	$ 32.05	$ 607.50	$45	19.0	17.5
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	SW	3,024	227	318	0.1	$ 32.05	$ 607.50	$45	19.0	17.5
32LED	Spec Ed 109	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	109 Small Office	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	111	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	STLED4	STLED4	40	0.4	SW	3,360	1,344	672	0.2	$ 67.03	$ 3,567.00	$150	53.2	51.0
32LED	113	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	STLED4	STLED4	40	0.4	SW	3,360	1,344	672	0.2	$ 67.03	$ 3,567.00	$150	53.2	51.0
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	SW	4,368	2,184	3,058	0.7	$ 297.41	$ 4,050.00	$300	13.6	12.6
40LED	115	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	T 38 R LED	RTLED38	38	0.3	SW	3,360	1,021	591	0.2	$ 58.99	$ 1,890.00	$200	32.0	28.6
32LED	117	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	SW	3,360	1,882	941	0.3	$ 93.84	$ 4,993.80	$210	53.2	51.0
40LED	Hallway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	4368	1,048	4	T 38 R LED	RTLED38	38	0.2	SW	4,368	664	384	0.1	$ 37.39	$ 945.00	$100	25.3	22.6
32LED	2nd Floor Room 229	22	1T 32 R F 2 (ELE)	F42LL	60	1.3	SW	3360	4,435	22	STLED4	STLED4	40	0.9	SW	3,360	2,957	1,478	0.4	$ 147.47	$ 7,847.40	$330	53.2	51.0
32LED	227	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	225	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	223	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	484	2	T 59 R LED	RTLED38	38	0.1	SW	2,688	204	280	0.1	$ 28.64	$ 472.50	$50	16.5	14.8
185LED	Hallway	40	T 40 R F 4 (ELE)	F44SE	172	6.9	SW	4368	30,052	40	T 50 R LED	RTLED50	50	2.0	SW	4,368	8,736	21,316	4.9	$ 2,073.38	$ 9,450.00	$1,000	4.6	4.1
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	484	2	T 59 R LED	RTLED38	38	0.1	SW	2,688	204	280	0.1	$ 28.64	$ 472.50	$50	16.5	14.8
32LED	224	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	226	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	SW	3,360	2,150	1,075	0.3	$ 107.25	$ 5,707.20	$240	53.2	51.0
32LED	228	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	SW	3,360	2,150	1,075	0.3	$ 107.25	$ 5,707.20	$240	53.2	51.0
185LED	Hallway	5	T 40 R F 4 (ELE)	F44SE	172	0.9	SW	4368	3,756	5	T 50 R LED	RTLED50	50	0.3	SW	4,368	1,092	2,664	0.6	$ 259.17	$ 1,181.25	$125	4.6	4.1
40LED	212	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
40LED	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	SW	3,024	230	133	0.0	$ 13.43	$ 472.50	$50	35.2	31.5
185LED	Faculty	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	3024	1,040	2	T 50 R LED	RTLED50	50	0.1	SW	3,024	302	738	0.2	$ 74.48	$ 472.50	$50	6.3	5.7
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	SW	4,368	830	480	0.1	$ 46.74	$ 1,181.25	$125	25.3	22.6
35LED	Vocal Music	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3360	6,350	21	T 59 R LED	RTLED38	38	0.8	SW	3,360	2,681	3,669	1.1	$ 365.99	$ 4,961.25	$525	13.6	12.1

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS							
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures No. of fixtures before the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	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 daily hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Number of Fixtures No. of fixtures after the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Number of Fixtures)	Retrofit Control Retrofit control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual kW Saved (Original Annual kW) - (Retrofit Annual kW)	Annual $ Saved (kWh Saved) * ($/kWh)	Retrofit Cost Cost for renovations to lighting system	NJ Smart Start Lighting Incentive Prescriptive Lighting Measures	Simple Payback With Out Incentive Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered
185LED	208	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	SW	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
185LED	206	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	SW	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$150	5.8	5.2
40LED	204	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
40LED	202	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
40LED	203	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
40LED	205	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	3360	1,008	5	T 38 R LED	RTLED38	38	0.2	SW	3,360	638	370	0.1	$ 36.87	$ 1,181.25	$125	32.0	28.6
40LED	207	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	SW	3,360	511	296	0.1	$ 29.49	$ 945.00	$100	32.0	28.6
40LED	209	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
40LED	211	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
20LED	Hallway	7	S 28 P F 1 (ELE)	F41ILL	31	0.2	SW	4368	948	7	4 ft LED Tube	200732x1	15	0.1	SW	4,368	459	489	0.1	$ 47.59	$ 1,016.40	$105	21.4	19.2
40LED	215	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	T 38 R LED	RTLED38	38	0.4	SW	3,360	1,277	739	0.2	$ 73.74	$ 2,362.50	$250	32.0	28.6
40LED	217	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	T 38 R LED	RTLED38	38	0.4	SW	3,360	1,277	739	0.2	$ 73.74	$ 2,362.50	$250	32.0	28.6
35LED	Hallway	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	4368	1,572	4	T 59 R LED	RTLED38	38	0.2	SW	4,368	664	909	0.2	$ 88.37	$ 945.00	$100	10.7	9.6
32LED	Ground Floor Addition Weight Room 50	34	1T 32 R F 2 (ELE)	F42LL	60	2.0	SW	3360	6,854	34	STLED4	STLED4	40	1.4	SW	3,360	4,570	2,285	0.7	$ 227.91	$ 12,127.80	$510	53.2	51.0
40LED	Ground Floor Addition Weight Room 50	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	SW	3,360	766	444	0.1	$ 44.24	$ 1,417.50	$150	32.0	28.6
32LED	Wrestling Room 52	52	1T 32 R F 2 (ELE)	F42LL	60	3.1	SW	3360	10,483	52	STLED4	STLED4	40	2.1	SW	3,360	6,989	3,494	1.0	$ 348.57	$ 18,548.40	$780	53.2	51.0
32LED	Band Room 54	45	1T 32 R F 2 (ELE)	F42LL	60	2.7	SW	3360	9,072	45	STLED4	STLED4	40	1.8	SW	3,360	6,048	3,024	0.9	$ 301.64	$ 16,051.50	$675	53.2	51.0
185LED	54 Storage	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	SW	2,688	269	656	0.2	$ 67.19	$ 472.50	$50	7.0	6.3
35LED	Girls Locker Room 56	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145	13	T 59 R LED	RTLED38	38	0.5	SW	2,688	1,328	1,817	0.7	$ 186.14	$ 3,071.25	$325	16.5	14.8
198LED	Girls Locker Room 56	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2688	83	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	16	0.0	$ 1.65	$ 202.50	$50	122.6	92.3
5LED	Hallway	20	2T 32 R F 2 (ul) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	SW	4,368	2,184	3,058	0.7	$ 297.41	$ 4,050.00	$300	13.6	12.6
32LED	Science 51	24	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3360	4,838	24	STLED4	STLED4	40	1.0	SW	3,360	3,226	1,613	0.5	$ 160.88	$ 8,560.80	$360	53.2	51.0
32LED	55	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
35LED	Train Room	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,512	5	T 59 R LED	RTLED38	38	0.2	SW	3,360	638	874	0.3	$ 87.14	$ 1,181.25	$125	13.6	12.1
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	SW	2,688	40	43	0.0	$ 4.41	$ 145.20	$15	33.0	29.6
20LED	storage	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	167	2	4 ft LED Tube	200732x1	15	0.0	SW	2,688	81	86	0.0	$ 8.81	$ 290.40	$30	33.0	29.6
252	Gym	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.5	SW	2688	28,305	30	T 54 W F 6 ELE) (T-5)	F46GHL	351	10.5	SW	2,688	28,305	-	0.0	$ -	$ -	$0		#DIV/0!
32LED	Boys Locker Room	18	1T 32 R F 2 (ELE)	F42LL	60	1.1	SW	2688	2,903	18	STLED4	STLED4	40	0.7	SW	2,688	1,935	968	0.4	$ 99.13	$ 6,420.60	$270	64.8	62.0
15LED	Boys Locker Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	SW	2,688	215	108	0.0	$ 11.01	$ 713.40	$0	64.8	64.8
32LED	Trainer	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	726	4	STLED4	STLED4	40	0.2	SW	3,024	484	242	0.1	$ 24.42	$ 1,426.80	$60	58.4	56.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	STLED4	STLED4	40	0.1	SW	3,024	242	121	0.0	$ 12.21	$ 713.40	$30	58.4	56.0
220	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	2688	54	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	2,688	54	-	0.0	$ -	$ -	$0		#DIV/0!
5LED	Hallway	23	2T 32 R F 2 (ul) (ELE)	FU2LL	60	1.4	SW	4368	6,028	23	2T 25 R LED	2RTLED	25	0.6	SW	4,368	2,512	3,516	0.8	$ 342.02	$ 4,657.50	$345	13.6	12.6
32LED	Boys Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
20LED	Boys Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	SW	2,688	40	43	0.0	$ 4.41	$ 145.20	$15	33.0	29.6
32LED	Girls Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
20LED	Girls Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	SW	2,688	40	43	0.0	$ 4.41	$ 145.20	$15	33.0	29.6
32LED	30	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	32	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	31	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	33	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	35	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	SW	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	37	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	39	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
32LED	41	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$180	53.2	51.0
55LED	Lobby	6	2T 17 R F 3 (ELE)	F23ILL	47	0.3	SW	4368	1,232	6	2T 25 R LED	2RTLED	25	0.2	SW	4,368	655	577	0.1	$ 56.08	$ 1,215.00	$300	21.7	16.3
35LED	1st Floor Faculty	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3024	2,177	8	T 59 R LED	RTLED38	38	0.3	SW	3,024	919	1,258	0.4	$ 126.99	$ 1,890.00	$200	14.9	13.3
32LED	Small Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	STLED4	STLED4	40	0.0	SW	3,024	121	60	0.0	$ 6.11	$ 356.70	$15	58.4	56.0
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	SW	2,688	108	54	0.0	$ 5.51	$ 356.70	$15	64.8	62.0
35LED	150	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	SW	3,360	2,043	2,796	0.8	$ 278.85	$ 3,780.00	$400	13.6	12.1
35LED	152	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	SW	3,360	2,043	2,796	0.8	$ 278.85	$ 3,780.00	$400	13.6	12.1
35LED	154	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	SW	3,360	2,043	2,796	0.8	$ 278.85	$ 3,780.00	$400	13.6	12.1
35LED	156	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	SW	3,360	2,043	2,796	0.8	$ 278.85	$ 3,780.00	$400	13.6	12.1
5LED	Hallway	20	2T 32 R F 2 (ul) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	SW	4,368	2,184	3,058	0.7	$ 297.41	$ 4,050.00	$300	13.6	12.6
35LED	151	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	SW	3,360	1,021	1,398	0.4	$ 139.43	$ 1,890.00	$200	13.6	12.1
35LED	153	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	SW	3,360	1,021	1,398	0.4	$ 139.43	$ 1,890.00	$200	13.6	12.1
35LED	8	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	SW	3,360	1,021	1,398	0.4	$ 139.43	$ 1,890.00	$200	13.6	12.1
35LED	Conference Room 157	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2016	1,633	9	T 59 R LED	RTLED38	38	0.3	SW	2,016	689	943	0.5	$ 100.87	$ 2,126.25	$225	21.1	18.8
32LED	Library	35	1T 32 R F 2 (ELE)	F42LL	60	2.1	SW	2688	5,645	35	STLED4	STLED4	40	1.4	SW	2,688	3,763	1,882	0.7	$ 192.75	$ 12,484.50	$525	64.8	62.0
20LED	Office	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	3024	375	4	4 ft LED Tube	200732x1	15	0.1	SW	3,024	181	194	0.1	$ 19.54	$ 580.80	$60	29.7	26.7
35LED	Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544	2	T 59 R LED	RTLED38	38	0.1	SW	3,024	230	314	0.1	$ 31.75	$ 472.50	$50	14.9	13.3
5LED	Hallway	10	2T 32 R F 2 (ul) (ELE)	FU2LL	60	0.6	SW	4368	2,621	10	2T 25 R LED	2RTLED	25	0.3	SW	4,368	1,092	1,529	0.4	$ 148.71	$ 2,025.00	$150	13.6	12.6
5LED	Storage	1	2T 32 R F 2 (ul) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	94	0.0	$ 9.64	$ 202.50	$15	21.0	19.5
17	Restroom	1	2' 20 W F 1 (MAG)	F21SS	28	0.0	SW	2688	75	1	2' 17 W F 1	F21ILL	20	0.0	SW	2,688	54	22	0.0	$ 2.20	$ 101.25	$0	46.0	46.0
55LED	Restroom	1	2T 17 R F 3 (ELE)	F23ILL	47	0.0	SW	2688	126	1	2T 25 R LED	2RTLED	25	0.0	SW	2,688	67	59	0.0	$ 6.06	$ 202.50	$50	33.4	25.2
20LED	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	SW	2,688	40	43	0.0	$ 4.41	$ 145.20	$15	33.0	29.6
32LED	Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	SW	2,688	215	108	0.0	$ 11.01	$ 713.40	$30	64.8	62.0
32LED	132	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	130	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	131	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	133	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	135	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	137	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	139	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
32LED	141	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	SW	3,360	1,075	538	0.2	$ 53.63	$ 2,853.60	$120	53.2	51.0
5LED	Hallway	16	2T 32 R F 2 (ul) (ELE)	FU2LL	60	1.0	SW	4368	4,193	16	2T 25 R LED	2RTLED	25	0.4	SW	4,368	1,747	2,446	0.6	$ 237.93	$ 3,240.00	$240	13.6	12.6
5LED	Hallway	5	2T 32 R F 2 (ul) (ELE)	FU2LL	60	0.3	SW	4368	1,310	5	2T 25 R LED	2RTLED	25	0.1	SW	4,368	546	764	0.2	$ 74.35	$ 1,012.50	$75	13.6	12.6
142LED	Exterior Lights	17	MH 100	MH100/1	128	2.2	Breaker	4032	8,774	17	FXLED39	FXLED39/1	39	0.7	Breaker	4,032	2,673	6,100	1.5	$ 597.59	$ 9,455.40	$850	15.8	14.4
273	Exterior Lights	2	QL85/1	QL85/1	85	0.2	Breaker	4032	685	2	QL85/1	QL85/1	85	0.2	Breaker	4,032	685	-	0.0	$ -	$ -	$0		#DIV/0!
231LED	Exterior Lights	2	WP400MH1	MH400/1	458	0.9	Breaker	4032	3,693	2	WPLED2T78	WPLED2T78	91	0.2	Breaker	4,032	734	2,959	0.7	$ 289.91	$ 2,048.38	$200	7.1	6.4
263	Stadium Pole Lights	10	MH1000 Fixt	MH1000/1	1080	10.8	Breaker	4032	43,546	10	MH1000 Fixt	MH1000/1	1080	10.8	Breaker	4,032	43,546	-	0.0	$ -	$ -	$0		#DIV/0!
263	Stadium Pole Lights	12	MH1000 Fixt	MH1000/1	1080	13.0	Breaker	4032	52,255	12	MH1000 Fixt	MH1000/1	1080	13.0	Breaker	4,032	52,255	-	0.0	$ -	$ -	$0		#DIV/0!
	Total	**1,582**				**149.3**			**521,055**	**1,582**			**9,976**	**93.1**				**324,076**	**196,979**	**56.2**	**$19,562**	**$447,609**	**$27,460**		
																		Demand Savings			**56.2**	**$2,031**			
																		kWh Savings			**196,979**	**$17,531**			
																		Total savings				**$19,562**		**22.9**	**21.5**

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L2 Install Occupancy Sensors

		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 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.)**	**Pre-inst. control device**	**Estimated annual 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)**	**(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	Ground Floor Main Entrance	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266.4	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	C-OCC	4368	266.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
202	Main Entrance Vestibule	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266.4	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	C-OCC	4368	266.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
55LED	Main Lobby	9	2T 17 R F 3 (ELE)	F23ILL	47	0.4	SW	4368	1,847.7	9	2T 17 R F 3 (ELE)	F23ILL	47	0.4	C-OCC	4368	1,847.7	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	Nurse Office	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3024	1,814.4	10	T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2116.8	1,270.1	544.3	0.0	$48.44	$270.00	$20.00	5.6	5.2
5LED	Nurse Office Copier Room	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544.3	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
5LED	Nurse Office Bath Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161.3	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
39	Nurse Office Storage	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	2688	88.7	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1881.6	62.1	26.6	0.0	$2.37	$270.00	$20.00	114.0	105.6
40LED	Exam Room 1	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181.4	1	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	127.0	54.4	0.0	$4.84	$270.00	$20.00	55.7	51.6
40LED	Exam Room 2	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181.4	1	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	127.0	54.4	0.0	$4.84	$270.00	$20.00	55.7	51.6
40LED	Exam Room 3	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181.4	1	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	127.0	54.4	0.0	$4.84	$270.00	$20.00	55.7	51.6
5LED	Nurse Office Bath Room	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	322.6	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
15LED	Nurse Office Storage	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
32LED	Stair to Nurse Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
185LED	Storage next to the small stair to Nurse Room	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	924.7	2	T 40 R F 4 (ELE)	F44SE	172	0.3	C-OCC	1881.6	647.3	277.4	0.0	$24.69	$270.00	$20.00	10.9	10.1
32LED	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
40LED	Office Space Next to Nurse Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	725.8	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2116.8	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
40LED	Small Office 1	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
33	Small Office 1 Floor Lamp	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136.1	3	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2116.8	95.3	40.8	0.0	$3.63	$270.00	$20.00	74.3	68.8
40LED	Small Office 2	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
33	Small Office 2	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	45.4	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2116.8	31.8	13.6	0.0	$1.21	$270.00	$20.00	222.9	206.4
40LED	Small Office 3	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
33	Small Office 3	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136.1	3	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2116.8	95.3	40.8	0.0	$3.63	$270.00	$20.00	74.3	68.8
40LED	Pathways Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544.3	3	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
35LED	Pathways Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3024	272.2	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	C-OCC	2116.8	190.5	81.6	0.0	$7.27	$270.00	$20.00	37.2	34.4
40LED	Pathways Small Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
35LED	Pathways Small Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544.3	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
40LED	Pathways Conference Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2016	725.8	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	1411.2	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
185LED	Hallway	8	T 40 R F 4 (ELE)	F44SE	172	1.4	SW	4368	6,010.4	8	T 40 R F 4 (ELE)	F44SE	172	1.4	C-OCC	4368	6,010.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	Instrumental Music	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806.4	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2352	564.5	241.9	0.0	$21.53	$270.00	$20.00	12.5	11.6
40LED	Instrumental Music Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
40LED	Instrumental Music Storage	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
40LED	R24	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
40LED	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
33	Closet	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40.3	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1881.6	28.2	12.1	0.0	$1.08	$270.00	$20.00	250.8	232.2
15LED	Cafeteria	80	S 32 C F 2 (ELE)	F42LL	60	4.8	SW	2688	12,902.4	80	S 32 C F 2 (ELE)	F42LL	60	4.8	C-OCC	2688	12,902.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	Kitchen	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145.0	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	C-OCC	2688	3,145.0	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	Kitchen Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,088.6	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	2116.8	762.0	326.6	0.0	$29.07	$270.00	$20.00	9.3	8.6
5LED	Restroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161.3	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
5LED	Closet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161.3	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
121	Back Closet	1	W 34 P F 4	F44EE	144	0.1	SW	2688	387.1	1	W 34 P F 4	F44EE	144	0.1	C-OCC	1881.6	271.0	116.1	0.0	$10.33	$270.00	$20.00	26.1	24.2
3	Back Closet	1	W 34 W F 1 (MAG)	F41EE	43	0.0	SW	2688	115.6	1	W 34 W F 1 (MAG)	F41EE	43	0.0	C-OCC	1881.6	80.9	34.7	0.0	$3.09	$270.00	$20.00	87.5	81.0
35LED	Dishwash Room	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2688	725.8	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	C-OCC	2688	725.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Dishwash Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2688	161.3	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Dishwash Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161.3	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	2688	161.3	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
20LED	Stair	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	4368	270.8	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	C-OCC	4368	270.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	Stair	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393.1	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	C-OCC	4368	393.1	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	Hallway	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393.1	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	C-OCC	4368	393.1	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
61LED	Hallway	3	T 34 R F 3 (MAG)	F43EE	115	0.3	SW	4368	1,507.0	3	T 34 R F 3 (MAG)	F43EE	115	0.3	C-OCC	4368	1,507.0	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
30	Auditorium	14	1 B 96 C F 2 (MAG)	F82EHS	227	3.2	SW	2688	8,542.5	14	1 B 96 C F 2 (MAG)	F82EHS	227	3.2	C-OCC	2688	8,542.5	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Auditorium	8	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	SW	2688	1,290.2	8	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	C-OCC	2688	1,290.2	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Hallway	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	4368	2,096.6	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	4368	2,096.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Boiler Room	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	8736	5,765.8	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	8736	5,765.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
46LED	Boiler Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	8736	515.4	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	C-OCC	8736	515.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,088.6	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2116.8	762.0	326.6	0.0	$29.07	$270.00	$20.00	9.3	8.6
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,088.6	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2116.8	762.0	326.6	0.0	$29.07	$270.00	$20.00	9.3	8.6
35LED	Athelic Director	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,088.6	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	2116.8	762.0	326.6	0.0	$29.07	$270.00	$20.00	9.3	8.6
32LED	Room 4	13	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3024	2,358.7	13	1T 32 R F 2 (ELE)	F42LL	60	0.8	C-OCC	2116.8	1,651.1	707.6	0.0	$62.98	$270.00	$20.00	4.3	4.0
185LED	Room 6	12	T 40 R F 4 (ELE)	F44SE	172	2.1	C-OCC	3024	6,241.5	12	T 40 R F 4 (ELE)	F44SE	172	2.1	NONE	3024	6,241.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181.4	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	127.0	54.4	0.0	$4.84	$270.00	$20.00	55.7	51.6
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814.4	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	C-OCC	2352	1,270.1	544.3	0.0	$48.44	$270.00	$20.00	5.6	5.2
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814.4	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	C-OCC	2352	1,270.1	544.3	0.0	$48.44	$270.00	$20.00	5.6	5.2
32LED	Closet	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
32LED	Girls Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
32LED	1st Floor Room129	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	Room 127	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	Room 127	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3360	403.2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2352	282.2	121.0	0.0	$10.77	$270.00	$20.00	25.1	23.2
35LED	Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	3024	816.5	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	C-OCC	2116.8	571.5	244.9	0.0	$21.80	$270.00	$20.00	12.4	11.5
32LED	125	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822.4	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	C-OCC	2352	1,975.7	846.7	0.0	$75.36	$270.00	$20.00	3.6	3.3
32LED	123	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822.4	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	C-OCC	2352	1,975.7	846.7	0.0	$75.36	$270.00	$20.00	3.6	3.3
185LED	Restroom	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	924.7	2	T 40 R F 4 (ELE)	F44SE	172	0.3	C-OCC	1881.6	647.3	277.4	0.0	$24.69	$270.00	$20.00	10.9	10.1
35LED	Book Storage	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2688	967.7	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	1881.6	677.4	290.3	0.0	$25.84	$270.00	$20.00	10.5	9.7
20LED	Restroom	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	166.7	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	C-OCC	1881.6	116.7	50.0	0.0	$4.45	$270.00	$20.00	60.7	56.2
32LED	124A	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,225.6	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	C-OCC	2352	2,257.9	967.7	0.0	$86.12	$270.00	$20.00	3.1	2.9
32LED	124B	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
185LED	126	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	2352	2,427.3	1,040.3	0.0	$92.58	$270.00	$20.00	2.9	2.7
32LED	128	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
40LED	128	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806.4	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2352	564.5	241.9	0.0	$21.53	$270.00	$20.00	12.5	11.6
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40.3	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1881.6	28.2	12.1	0.0	$1.08	$270.00	$20.00	250.8	232.2
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83.3	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	C-OCC	1881.6	58.3	25.0	0.0	$2.22	$270.00	$20.00	121.4	112.4
185LED	112	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	NONE	3360	3,467.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
185LED	110	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	NONE	3360	3,467.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
185LED	108	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	NONE	3360	3,467.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310.4	5	T 32 R F 2 (ELE)	F42LL	60	0.3	C-OCC	4368	1,310.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,241.6	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	C-OCC	4368	5,241.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310.4	5	T 32 R F 2 (ELE)	F42LL	60	0.3	C-OCC	4368	1,310.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
185LED	106	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	2352	2,427.3	1,040.3	0.0	$92.58	$270.00	$20.00	2.9	2.7
185LED	Office	3	T 40 R F 4 (ELE)	F44SE	172	0.5	SW	3024	1,560.4	3	T 40 R F 4 (ELE)	F44SE	172	0.5	C-OCC	2116.8	1,092.3	468.1	0.0	$41.66	$270.00	$20.00	6.5	6.0
40LED	Principle Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544.3	3	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
5LED	Main Office	12	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	3024	2,177.3	12	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	C-OCC	2116.8	1,524.1	653.2	0.0	$58.13	$270.00	$20.00	4.6	4.3
185LED	Hallway	7	T 40 R F 4 (ELE)	F44SE	172	1.2	SW	4368	5,259.1	7	T 40 R F 4 (ELE)	F44SE	172	1.2	C-OCC	4368	5,259.1	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	725.8	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	725.8	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
5LED	Guidance Office	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	SW	3024	1,088.6	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	C-OCC	2116.8	762.0	326.6	0.0	$29.07	$270.00	$20.00	9.3	8.6
5LED	Guidance Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	3024	362.9	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	725.8	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544.3	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544.3	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
32LED	Spec Ed 109	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	109 Small Office	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	111	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016.0	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2352	1,411.2	604.8	0.0	$53.83	$270.00	$20.00	5.0	4.6
32LED	113	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016.0	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2352	1,411.2	604.8	0.0	$53.83	$270.00	$20.00	5.0	4.6
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,241.6	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	C-OCC	4368	5,241.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	115	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	117	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822.4	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	C-OCC	2352	1,975.7	846.7	0.0	$75.36	$270.00	$20.00	3.6	3.3
40LED	Hallway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	4368	1,048.3	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	4368	1,048.3	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	2nd Floor Room 229	22	1T 32 R F 2 (ELE)	F42LL	60	1.3	SW	3360	4,435.2	22	1T 32 R F 2 (ELE)	F42LL	60	1.3	C-OCC	2352	3,104.6	1,330.6	0.0	$118.42	$270.00	$20.00	2.3	2.1
32LED	227	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	225	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	223	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	483.8	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	C-OCC	1881.6	338.7	145.2	0.0	$12.92	$270.00	$20.00	20.9	19.4
185LED	Hallway	40	T 40 R F 4 (ELE)	F44SE	172	6.9	SW	4368	30,051.8	40	T 40 R F 4 (ELE)	F44SE	172	6.9	C-OCC	4368	30,051.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	483.8	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	C-OCC	1881.6	338.7	145.2	0.0	$12.92	$270.00	$20.00	20.9	19.4
32LED	224	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	226	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,225.6	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	C-OCC	2352	2,257.9	967.7	0.0	$86.12	$270.00	$20.00	3.1	2.9
32LED	228	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,225.6	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	C-OCC	2352	2,257.9	967.7	0.0	$86.12	$270.00	$20.00	3.1	2.9
185LED	Hallway	5	T 40 R F 4 (ELE)	F44SE	172	0.9	SW	4368	3,756.5	5	T 40 R F 4 (ELE)	F44SE	172	0.9	C-OCC	4368	3,756.5	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	212	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
40LED	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
185LED	Faculty	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	3024	1,040.3	2	T 40 R F 4 (ELE)	F44SE	172	0.3	C-OCC	2116.8	728.2	312.1	0.0	$27.77	$270.00	$20.00	9.7	9.0
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310.4	5	T 32 R F 2 (ELE)	F42LL	60	0.3	C-OCC	4368	1,310.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	Vocal Music	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3360	6,350.4	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	C-OCC	2352	4,445.3	1,905.1	0.0	$169.56	$270.00	$20.00	1.6	1.5

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L2 Install Occupancy Sensors

		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 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.)	Pre-inst. control device	Estimated annual 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)	(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
185LED	208	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	2352	2,427.3	1,040.3	0.0	$92.58	$270.00	$20.00	2.9	2.7
185LED	206	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,467.5	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	2352	2,427.3	1,040.3	0.0	$92.58	$270.00	$20.00	2.9	2.7
40LED	204	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
40LED	202	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
40LED	203	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
40LED	205	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	3360	1,008.0	5	T 32 R F 2 (ELE)	F42LL	60	0.3	C-OCC	2352	705.6	302.4	0.0	$26.91	$270.00	$20.00	10.0	9.3
40LED	207	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806.4	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2352	564.5	241.9	0.0	$21.53	$270.00	$20.00	12.5	11.6
40LED	209	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
40LED	211	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
20LED	Hallway	7	S 28 P F 1 (ELE)	F41ILL	31	0.2	SW	4368	947.9	7	S 28 P F 1 (ELE)	F41ILL	31	0.2	C-OCC	4368	947.9	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
40LED	215	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016.0	10	T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2352	1,411.2	604.8	0.0	$53.83	$270.00	$20.00	5.0	4.6
40LED	217	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016.0	10	T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2352	1,411.2	604.8	0.0	$53.83	$270.00	$20.00	5.0	4.6
35LED	Hallway	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	4368	1,572.5	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	4368	1,572.5	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Ground Floor Addition Weight Room 50	34	1T 32 R F 2 (ELE)	F42LL	60	2.0	SW	3360	6,854.4	34	1T 32 R F 2 (ELE)	F42LL	60	2.0	C-OCC	2352	4,798.1	2,056.3	0.0	$183.01	$270.00	$20.00	1.5	1.4
40LED	Ground Floor Addition Weight Room 50	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,209.6	6	T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2352	846.7	362.9	0.0	$32.30	$270.00	$20.00	8.4	7.7
32LED	Wrestling Room 52	52	1T 32 R F 2 (ELE)	F42LL	60	3.1	SW	3360	10,483.2	52	1T 32 R F 2 (ELE)	F42LL	60	3.1	C-OCC	2352	7,338.2	3,145.0	0.0	$279.90	$270.00	$20.00	1.0	0.9
32LED	Band Room 54	45	1T 32 R F 2 (ELE)	F42LL	60	2.7	SW	3360	9,072.0	45	1T 32 R F 2 (ELE)	F42LL	60	2.7	C-OCC	2352	6,350.4	2,721.6	0.0	$242.22	$270.00	$20.00	1.1	1.0
185LED	54 Storage	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	924.7	2	T 40 R F 4 (ELE)	F44SE	172	0.3	C-OCC	2688	1881.6	647.3	277.4	$24.69	$270.00	$20.00	10.9	10.1
35LED	Girls Locker Room 56	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145.0	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	C-OCC	2688	3,145.0	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
198LED	Girls Locker Room 56	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2688	83.3	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	C-OCC	2688	83.3	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,241.6	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	C-OCC	4368	5,241.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Science 51	24	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3360	4,838.4	24	1T 32 R F 2 (ELE)	F42LL	60	1.4	C-OCC	2352	3,386.9	1,451.5	0.0	$129.19	$270.00	$20.00	2.1	1.9
32LED	55	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
35LED	Train Room	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,512.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	C-OCC	2352	1,058.4	453.6	0.0	$40.37	$270.00	$20.00	6.7	6.2
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83.3	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	C-OCC	1881.6	58.3	25.0	0.0	$2.22	$270.00	$20.00	121.4	112.4
20LED	storage	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	166.7	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	C-OCC	1881.6	116.7	50.0	0.0	$4.45	$270.00	$20.00	60.7	56.2
252	Gym	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.5	SW	2688	28,304.6	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.5	C-OCC	2688	28,304.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Boys Locker Room	18	1T 32 R F 2 (ELE)	F42LL	60	1.1	SW	2688	2,903.0	18	1T 32 R F 2 (ELE)	F42LL	60	1.1	C-OCC	2688	2,903.0	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
15LED	Boys Locker Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	2688	322.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Trainer	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	725.8	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	2116.8	508.0	217.7	0.0	$19.38	$270.00	$20.00	13.9	12.9
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	362.9	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	254.0	108.9	0.0	$9.69	$270.00	$20.00	27.9	25.8
220	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	2688	53.8	1	S 17 C F 1(ELE)	F21ILL	20	0.0	C-OCC	1881.6	37.6	16.1	0.0	$1.44	$270.00	$20.00	188.1	174.2
5LED	Hallway	23	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	SW	4368	6,027.8	23	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	C-OCC	4368	6,027.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
32LED	Boys Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
20LED	Boys Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83.3	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	C-OCC	1881.6	58.3	25.0	0.0	$2.22	$270.00	$20.00	121.4	112.4
32LED	Girls Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
20LED	Girls Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83.3	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	C-OCC	1881.6	58.3	25.0	0.0	$2.22	$270.00	$20.00	121.4	112.4
32LED	30	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	3360	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	32	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	3360	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	31	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	33	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	35	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
32LED	37	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	3360	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	39	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	3360	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	41	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419.2	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	3360	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
55LED	Lobby	6	2T 17 R F 3 (ELE)	F23ILL	47	0.3	SW	4368	1,231.8	6	2T 17 R F 3 (ELE)	F23ILL	47	0.3	C-OCC	4368	1,231.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	1st Floor Faculty	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3024	2,177.3	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	2116.8	1,524.1	653.2	0.0	$58.13	$270.00	$20.00	4.6	4.3
32LED	Small Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181.4	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2116.8	127.0	54.4	0.0	$4.84	$270.00	$20.00	55.7	51.6
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161.3	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
35LED	150	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838.4	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	C-OCC	2352	3,386.9	1,451.5	0.0	$129.19	$270.00	$20.00	2.1	1.9
35LED	152	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838.4	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	C-OCC	2352	3,386.9	1,451.5	0.0	$129.19	$270.00	$20.00	2.1	1.9
35LED	154	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838.4	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	C-OCC	2352	3,386.9	1,451.5	0.0	$129.19	$270.00	$20.00	2.1	1.9
35LED	156	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838.4	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	C-OCC	2352	3,386.9	1,451.5	0.0	$129.19	$270.00	$20.00	2.1	1.9
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,241.6	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	C-OCC	4368	5,241.6	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
35LED	151	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419.2	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
35LED	153	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419.2	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
35LED	155	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419.2	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	2352	1,693.4	725.8	0.0	$64.59	$270.00	$20.00	4.2	3.9
35LED	Conference Room 157	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2016	1,633.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	C-OCC	1411.2	1,143.1	489.9	0.0	$43.60	$270.00	$20.00	6.2	5.7
32LED	Library	35	1T 32 R F 2 (ELE)	F42LL	60	2.1	SW	2688	5,644.8	35	1T 32 R F 2 (ELE)	F42LL	60	2.1	C-OCC	2688	5,644.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
20LED	Office	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	3024	375.0	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	C-OCC	2116.8	262.5	112.5	0.0	$10.01	$270.00	$20.00	27.0	25.0
35LED	Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544.3	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	C-OCC	2116.8	381.0	163.3	0.0	$14.53	$270.00	$20.00	18.6	17.2
5LED	Hallway	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	SW	4368	2,620.8	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	C-OCC	4368	2,620.8	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Storage	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161.3	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1881.6	112.9	48.4	0.0	$4.31	$270.00	$20.00	62.7	58.1
17	Restroom	1	2' 20 W F 1 (MAG)	F21SS	28	0.0	SW	2688	75.3	1	2' 20 W F 1 (MAG)	F21SS	28	0.0	C-OCC	1881.6	52.7	22.6	0.0	$2.01	$270.00	$20.00	134.4	124.4
55LED	Restroom	1	2T 17 R F 3 (ELE)	F23ILL	47	0.0	SW	2688	126.3	1	2T 17 R F 3 (ELE)	F23ILL	47	0.0	C-OCC	1881.6	88.4	37.9	0.0	$3.37	$270.00	$20.00	80.0	74.1
20LED	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83.3	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	C-OCC	1881.6	58.3	25.0	0.0	$2.22	$270.00	$20.00	121.4	112.4
32LED	Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	322.6	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1881.6	225.8	96.8	0.0	$8.61	$270.00	$20.00	31.4	29.0
32LED	132	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	130	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	131	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	133	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	135	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	137	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	139	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
32LED	141	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,612.8	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	C-OCC	2352	1,129.0	483.8	0.0	$43.06	$270.00	$20.00	6.3	5.8
5LED	Hallway	16	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.0	SW	4368	4,193.3	16	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.0	C-OCC	4368	4,193.3	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
5LED	Hallway	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	4368	1,310.4	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	C-OCC	4368	1,310.4	0.0	0.0	$0.00	$270.00	$20.00		#DIV/0!
142LED	Exterior Lights	17	MH 100	MH100/1	128	2.2	Breaker	4032	8,773.6	17	MH 100	MH100/1	128	2.2	NONE	4032	8,773.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
273	Exterior Lights	2	QL85/1	QL85/1	85	0.2	Breaker	4032	685.4	2	QL85/1	QL85/1	85	0.2	NONE	4032	685.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
231LED	Exterior Lights	2	WP400MH1	MH400/1	458	0.9	Breaker	4032	3,693.3	2	WP400MH1	MH400/1	458	0.9	NONE	4032	3,693.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
263	Stadium Pole Lights	10	MH1000 Fixt	MH1000/1	1080	10.8	Breaker	4032	43,545.6	10	MH1000 Fixt	MH1000/1	1080	10.8	NONE	4032	43,545.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
263	Stadium Pole Lights	12	MH1000 Fixt	MH1000/1	1080	13.0	Breaker	4032	52,254.7	12	MH1000 Fixt	MH1000/1	1080	13.0	NONE	4032	52,254.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
	Total	**1,582**				**149.3**			**521054.7**	**1582.0**				**149.3**			**456920.8**	**64133.9**	**0.0**	**5707.9**	**51300.0**	**3800.0**		
																	Demand Savings			**0.0**	**$0**			
																	kWh Savings			**64,134**	**55,708**			
																	Total Savings				**$5,708**		**9.0**	**8.3**

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L3 Lighting Replacements with Occupancy Sensors

		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 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.)**	**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**
202	Ground Floor Main Entrance	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	C-OCC	4,368	266	-	0.0	$ -	$ 270.00	$ 20		
202	Main Entrance Vestibule	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	SW	4368	266	1	2T 17 R F 4 (ELE)	F24ILL	61	0.1	C-OCC	4,368	266	-	0.0	$ -	$ 270.00	$ 20		
55LED	Main Lobby	9	2T 17 R F 3 (ELE)	F23ILL	47	0.4	SW	4368	1,848	9	2T 25 R LED	2RTLED	25	0.2	C-OCC	4,368	983	865	0.2	$ 84.12	$ 2,092.50	$ 470	24.9	19.3
40LED	Nurse Office	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3024	1,814	10	T 38 R LED	RTLED38	38	0.4	C-OCC	2,117	804	1,010	0.2	$ 97.84	$ 2,632.50	$ 270	26.9	24.1
5LED	Nurse Office Copier Room	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	159	386	0.1	$ 38.11	$ 877.50	$ 65	23.0	21.3
5LED	Nurse Office Bath Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,882	47	114	0.0	$ 11.43	$ 472.50	$ 35	41.3	38.3
39	Nurse Office Storage	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	2688	89	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1,882	62	27	0.0	$ 2.37	$ 270.00	$ 20	114.0	105.6
40LED	Exam Room 1	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	C-OCC	2,117	80	101	0.0	$ 9.78	$ 506.25	$ 45	51.7	47.1
40LED	Exam Room 2	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	C-OCC	2,117	80	101	0.0	$ 9.78	$ 506.25	$ 45	51.7	47.1
40LED	Exam Room 3	1	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	T 38 R LED	RTLED38	38	0.0	C-OCC	2,117	80	101	0.0	$ 9.78	$ 506.25	$ 45	51.7	47.1
5LED	Nurse Office Bath Room	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	323	2	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,882	94	228	0.1	$ 22.86	$ 675.00	$ 50	29.5	27.3
15LED	Nurse Office Storage	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	C-OCC	1,882	151	172	0.0	$ 16.76	$ 983.40	$ 20	58.7	57.5
32LED	Stair to Nurse Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
185LED	Storage next to the small stair to Nurse Room	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,882	188	737	0.2	$ 74.36	$ 742.50	$ 70	10.0	9.0
32LED	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
40LED	Office Space Next to Nurse Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	726	4	T 38 R LED	RTLED38	38	0.2	C-OCC	2,117	322	404	0.1	$ 39.14	$ 1,215.00	$ 120	31.0	28.0
40LED	Small Office 1	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
33	Small Office 1 Floor Lamp	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136	3	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2,117	95	41	0.0	$ 3.63	$ 270.00	$ 20	74.3	68.8
40LED	Small Office 2	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
33	Small Office 2	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	45	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2,117	32	14	0.0	$ 1.21	$ 270.00	$ 20	222.9	206.4
40LED	Small Office 3	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
33	Small Office 3	3	13 W CF 1	CFQ13/1-L	15	0.0	SW	3024	136	3	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	2,117	95	41	0.0	$ 3.63	$ 270.00	$ 20	74.3	68.8
40LED	Pathways Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544	3	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	241	303	0.1	$ 29.35	$ 978.75	$ 95	33.3	30.1
35LED	Pathways Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3024	272	1	T 59 R LED	RTLED38	38	0.0	C-OCC	2,117	80	192	0.1	$ 18.94	$ 506.25	$ 45	26.7	24.4
40LED	Pathways Small Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
35LED	Pathways Small Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544	2	T 59 R LED	RTLED38	38	0.1	C-OCC	2,117	161	383	0.1	$ 37.88	$ 742.50	$ 70	19.6	17.8
40LED	Pathways Conference Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2016	726	6	T 38 R LED	RTLED38	38	0.2	C-OCC	1,411	322	404	0.1	$ 40.72	$ 1,687.50	$ 170	41.4	37.3
185LED	Hallway	8	T 40 R F 4 (ELE)	F44SE	172	1.4	SW	4368	6,010	8	T 50 R LED	RTLED50	50	0.4	C-OCC	4,368	1,747	4,263	1.0	$ 414.68	$ 2,160.00	$ 220	5.2	4.7
40LED	Instrumental Music	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	358	449	0.1	$ 43.13	$ 1,215.00	$ 120	28.2	25.4
40LED	Instrumental Music Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
40LED	Instrumental Music Storage	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,882	143	180	0.0	$ 17.57	$ 742.50	$ 70	42.3	38.3
40LED	R24	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	T 38 R LED	RTLED38	38	0.3	C-OCC	2,352	715	898	0.2	$ 86.26	$ 2,160.00	$ 220	25.0	22.5
40LED	Restroom	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,882	143	180	0.0	$ 17.57	$ 742.50	$ 70	42.3	38.3
33	Closet	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1,882	28	12	0.0	$ 1.08	$ 270.00	$ 20	250.8	232.2
15LED	Cafeteria	80	S 32 C F 2 (ELE)	F42LL	60	4.8	SW	2688	12,902	80	STLED4	STLED4	40	3.2	C-OCC	2,688	8,602	4,301	1.6	$ 440.56	$ 28,806.00	$ 20	65.4	65.3
35LED	Kitchen	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145	13	T 59 R LED	RTLED38	38	0.5	C-OCC	2,688	1,328	1,817	0.7	$ 186.14	$ 3,341.25	$ 345	18.0	16.1
35LED	Kitchen Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,089	4	T 59 R LED	RTLED38	38	0.2	C-OCC	2,117	322	767	0.2	$ 75.77	$ 1,215.00	$ 120	16.0	14.5
5LED	Restroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,882	47	114	0.0	$ 11.43	$ 472.50	$ 35	41.3	38.3
5LED	Closet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,882	47	114	0.0	$ 11.43	$ 472.50	$ 35	41.3	38.3
121	Back Closet	1	W 34 P F 4	F44EE	144	0.1	SW	2688	387	1	W 28 P F 4	F44SSILL	96	0.1	C-OCC	1,882	181	206	0.0	$ 20.11	$ 411.75	$ 20	20.5	19.5
3	Back Closet	1	W 34 W F 1 (MAG)	F41EE	43	0.0	SW	2688	116	1	W 28 W F 1	F41SSILL	26	0.0	C-OCC	1,882	49	67	0.0	$ 6.55	$ 459.00	$ 20	70.1	67.1
35LED	Dishwash Room	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2688	726	3	T 59 R LED	RTLED38	38	0.1	C-OCC	2,688	306	419	0.2	$ 42.95	$ 978.75	$ 95	22.8	20.6
32LED	Dishwash Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	2,688	108	54	0.0	$ 5.51	$ 626.70	$ 35	113.8	107.4
5LED	Dishwash Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	2,688	67	94	0.0	$ 9.64	$ 472.50	$ 35	49.0	45.4
20LED	Stair	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	4368	271	2	4 ft LED Tube	200732x1	15	0.0	C-OCC	4,368	131	140	0.0	$ 13.60	$ 560.40	$ 50	41.2	37.5
35LED	Stair	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393	1	T 59 R LED	RTLED38	38	0.0	C-OCC	4,368	166	227	0.1	$ 22.09	$ 506.25	$ 45	22.9	20.9
35LED	Hallway	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	4368	393	1	T 59 R LED	RTLED38	38	0.0	C-OCC	4,368	166	227	0.1	$ 22.09	$ 506.25	$ 45	22.9	20.9
61LED	Hallway	3	T 34 R F 3 (MAG)	F43EE	115	0.3	SW	4368	1,507	3	T 38 R LED	RTLED38	38	0.1	C-OCC	4,368	498	1,009	0.2	$ 98.15	$ 978.75	$ 95	10.0	9.0
30	Auditorium	14	1 B 96 C F 2 (MAG)	F82EHS	227	3.2	SW	2688	8,542	14	T 28 R F 4	F44SSILL	96	1.3	C-OCC	2,688	3,613	4,930	1.8	$ 505.00	$ 4,050.00	$ 20	8.0	8.0
5LED	Auditorium	8	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	SW	2688	1,290	8	2T 25 R LED	2RTLED	25	0.2	C-OCC	2,688	538	753	0.3	$ 77.10	$ 1,890.00	$ 140	24.5	22.7
32LED	Hallway	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	4368	2,097	8	STLED4	STLED4	40	0.3	C-OCC	4,368	1,398	699	0.2	$ 67.98	$ 3,123.60	$ 140	45.9	43.9
32LED	Boiler Room	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	8736	5,766	11	STLED4	STLED4	40	0.4	C-OCC	8,736	3,844	1,922	0.2	$ 179.00	$ 4,193.70	$ 185	23.4	22.4
46LED	Boiler Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	8736	515	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	8,736	262	253	0.0	$ 23.60	$ 433.35	$ 35	18.4	16.9
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,089	6	STLED4	STLED4	40	0.2	C-OCC	2,117	508	581	0.1	$ 56.01	$ 2,410.20	$ 110	43.0	41.1
32LED	Office	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3024	1,089	6	STLED4	STLED4	40	0.2	C-OCC	2,117	508	581	0.1	$ 56.01	$ 2,410.20	$ 110	43.0	41.1
35LED	Athelic Director	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3024	1,089	4	T 59 R LED	RTLED38	38	0.2	C-OCC	2,117	322	767	0.2	$ 75.77	$ 1,215.00	$ 120	16.0	14.5
32LED	Room 4	13	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3024	2,359	13	STLED4	STLED4	40	0.5	C-OCC	2,117	1,101	1,258	0.3	$ 121.35	$ 4,907.10	$ 215	40.4	38.7
185LED	Room 6	12	T 40 R F 4 (ELE)	F44SE	172	2.1	C-OCC	3024	6,242	12	T 50 R LED	RTLED50	50	0.6	NONE	3,024	1,814	4,427	1.5	$ 446.89	$ 2,835.00	$ 300	6.3	5.7
32LED	Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	STLED4	STLED4	40	0.0	C-OCC	2,117	85	97	0.0	$ 9.33	$ 626.70	$ 35	67.1	63.4
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814	6	T 59 R LED	RTLED38	38	0.2	C-OCC	2,352	536	1,278	0.3	$ 125.02	$ 1,687.50	$ 170	13.5	12.1
35LED	Apt Classroom 10	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,814	6	T 59 R LED	RTLED38	38	0.2	C-OCC	2,352	536	1,278	0.3	$ 125.02	$ 1,687.50	$ 170	13.5	12.1
32LED	Closet	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
32LED	Girls Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	C-OCC	1,882	151	172	0.0	$ 16.76	$ 983.40	$ 50	58.7	55.7
32LED	1st Floor Room129	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	Room 127	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	Room 127	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3360	403	2	STLED4	STLED4	40	0.1	C-OCC	2,352	188	215	0.0	$ 20.58	$ 983.40	$ 50	47.8	45.3
35LED	Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	3024	816	3	T 59 R LED	RTLED38	38	0.1	C-OCC	2,117	241	575	0.2	$ 56.82	$ 978.75	$ 95	17.2	15.6
32LED	125	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	C-OCC	2,352	1,317	1,505	0.3	$ 144.08	$ 5,263.80	$ 230	36.5	34.9
32LED	123	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	C-OCC	2,352	1,317	1,505	0.3	$ 144.08	$ 5,263.80	$ 230	36.5	34.9
185LED	Restroom	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,882	188	737	0.2	$ 74.36	$ 742.50	$ 70	10.0	9.0
35LED	Book Storage	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2688	968	4	T 59 R LED	RTLED38	38	0.2	C-OCC	1,882	286	682	0.2	$ 68.18	$ 1,215.00	$ 120	17.8	16.1
20LED	Restroom	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	167	2	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	56	110	0.0	$ 10.96	$ 560.40	$ 50	51.1	46.6
32LED	124A	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	C-OCC	2,352	1,505	1,720	0.3	$ 164.67	$ 5,977.20	$ 260	36.3	34.7
32LED	124B	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	STLED4	STLED4	40	0.2	C-OCC	2,352	564	645	0.1	$ 61.75	$ 2,410.20	$ 110	39.0	37.3
185LED	126	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	2,352	706	2,762	0.7	$ 272.25	$ 1,687.50	$ 170	6.2	5.6
32LED	128	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
40LED	128	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	358	449	0.1	$ 43.13	$ 1,215.00	$ 120	28.2	25.4
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	2688	40	1	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1,882	28	12	0.0	$ 1.08	$ 270.00	$ 20	250.8	232.2
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	28	55	0.0	$ 5.48	$ 415.20	$ 35	75.7	69.4
185LED	112	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	NONE	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$ 150	5.8	5.2
185LED	110	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	NONE	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$ 150	5.8	5.2
185LED	108	6	T 40 R F 4 (ELE)	F44SE	172	1.0	C-OCC	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	NONE	3,360	1,008	2,460	0.7	$ 245.34	$ 1,417.50	$ 150	5.8	5.2
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	C-OCC	4,368	830	480	0.1	$ 46.74	$ 1,451.25	$ 145	31.1	27.9
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	C-OCC	4,368	2,184	3,058	0.7	$ 297.41	$ 4,320.00	$ 320	14.5	13.4
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	C-OCC	4,368	830	480	0.1	$ 46.74	$ 1,451.25	$ 145	31.1	27.9
185LED	106	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	2,352	706	2,762	0.7	$ 272.25	$ 1,687.50	$ 170	6.2	5.6
185LED	Office	3	T 40 R F 4 (ELE)	F44SE	172	0.5	SW	3024	1,560	3	T 50 R LED	RTLED50	50	0.2	C-OCC	2,117	318	1,243	0.4	$ 123.83	$ 978.75	$ 95	7.9	7.1
40LED	Principle Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	544	3	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	241	303	0.1	$ 29.35	$ 978.75	$ 95	33.3	30.1
5LED	Main Office	12	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	3024	2,177	12	2T 25 R LED	2RTLED	25	0.3	C-OCC	2,117	635	1,542	0.4	$ 152.43	$ 2,700.00	$ 200	17.7	16.4
185LED	Hallway	7	T 40 R F 4 (ELE)	F44SE	172	1.2	SW	4368	5,259	7	T 50 R LED	RTLED50	50	0.4	C-OCC	4,368	1,529	3,730	0.9	$ 362.84	$ 1,923.75	$ 195	5.3	4.8
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	212	514	0.1	$ 50.81	$ 1,080.00	$ 80	21.3	19.7
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	212	514	0.1	$ 50.81	$ 1,080.00	$ 80	21.3	19.7
5LED	Guidance Office	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	SW	3024	1,089	6	2T 25 R LED	2RTLED	25	0.2	C-OCC	2,117	318	771	0.2	$ 76.21	$ 1,485.00	$ 110	19.5	18.0
5LED	Guidance Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	3024	363	2	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	106	257	0.1	$ 25.40	$ 675.00	$ 50	26.6	24.6
5LED	Guidance Office	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	726	4	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	212	514	0.1	$ 50.81	$ 1,080.00	$ 80	21.3	19.7
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	159	386	0.1	$ 38.11	$ 877.50	$ 65	23.0	21.3
5LED	Guidance Office	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3024	544	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,117	159	386	0.1	$ 38.11	$ 877.50	$ 65	23.0	21.3
32LED	Spec Ed 109	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	109 Small Office	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	111	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	STLED4	STLED4	40	0.4	C-OCC	2,352	941	1,075	0.2	$ 102.92	$ 3,837.00	$ 170	37.3	35.6
32LED	113	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	STLED4	STLED4	40	0.4	C-OCC	2,352	941	1,075	0.2	$ 102.92	$ 3,837.00	$ 170	37.3	35.6
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	C-OCC	4,368	2,184	3,058	0.7	$ 297.41	$ 4,320.00	$ 320	14.5	13.4
40LED	115	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	T 38 R LED	RTLED38	38	0.3	C-OCC	2,352	715	898	0.2	$ 86.26	$ 2,160.00	$ 220	25.0	22.5
32LED	117	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3360	2,822	14	STLED4	STLED4	40	0.6	C-OCC	2,352	1,317	1,505	0.3	$ 144.08	$ 5,263.80	$ 230	36.5	34.9
40LED	Hallway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	4368	1,048	4	T 38 R LED	RTLED38	38	0.2	C-OCC	4,368	664	384	0.1	$ 37.39	$ 1,215.00	$ 120	32.5	29.3
32LED	2nd Floor Room 229	22	1T 32 R F 2 (ELE)	F42LL	60	1.3	SW	3360	4,435	22	STLED4	STLED4	40	0.9	C-OCC	2,352	2,070	2,365	0.4	$ 226.42	$ 8,117.40	$ 350	35.9	34.3
32LED	227	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	225	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	223	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	484	2	T 59 R LED	RTLED38	38	0.1	C-OCC	1,882	143	341	0.1	$ 34.09	$ 742.50	$ 70	21.8	19.7
185LED	Hallway	40	T 40 R F 4 (ELE)	F44SE	172	6.9	SW	4368	30,052	40	T 50 R LED	RTLED50	50	2.0	C-OCC	4,368	8,736	21,316	4.9	$ 2,073.38	$ 9,720.00	$ 1,020	4.7	4.2
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
35LED	Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2688	484	2	T 59 R LED	RTLED38	38	0.1	C-OCC	1,882	143	341	0.1	$ 34.09	$ 742.50	$ 70	21.8	19.7
32LED	224	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	226	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	C-OCC	2,352	1,505	1,720	0.3	$ 164.67	$ 5,977.20	$ 260	36.3	34.7
32LED	228	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	3360	3,226	16	STLED4	STLED4	40	0.6	C-OCC	2,352	1,505	1,720	0.3	$ 164.67	$ 5,977.20	$ 260	36.3	34.7
185LED	Hallway	5	T 40 R F 4 (ELE)	F44SE	172	0.9	SW	4368	3,756	5	T 50 R LED	RTLED50	50	0.3	C-OCC	4,368	1,092	2,664	0.6	$ 259.17	$ 1,451.25	$ 145	5.6	5.0
40LED	212	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
40LED	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,117	161	202	0.0	$ 19.57	$ 742.50	$ 70	37.9	34.4
185LED	Faculty	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	3024	1,040	2	T 50 R LED	RTLED50	50	0.1	C-OCC	2,117	212	829	0.2	$ 82.56	$ 742.50	$ 70	9.0	8.1
40LED	Hallway	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	4368	1,310	5	T 38 R LED	RTLED38	38	0.2	C-OCC	4,368	830	480	0.1	$ 46.74	$ 1,451.25	$ 145	31.1	27.9
35LED	Vocal Music	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3360	6,350	21	T 59 R LED	RTLED38	38	0.8	C-OCC	2,352	1,877	4,474	1.1	$ 437.58	$ 5,231.25	$ 545	12.0	10.7
185LED	208	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	2,352	706	2,762	0.7	$ 272.25	$ 1,687.50	$ 170	6.2	5.6
185LED	206	6	T 40 R F 4 (ELE)	F44SE	172	1.0	SW	3360	3,468	6	T 50 R LED	RTLED50	50	0.3	C-OCC	2,352	706	2,762	0.7	$ 272.25	$ 1,687.50	$ 170	6.2	5.6
40LED	204	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5

Energy Audit of Carteret High School
CHA Project No. 30201
ECM-L3 Lighting Replacements with Occupancy Sensors

		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 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.)	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
40LED	202	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
40LED	203	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
40LED	205	5	T 32 R F 2 (ELE)	F42LL	60	0.3	SW	3360	1,008	5	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	447	561	0.1	$ 53.91	$ 1,451.25	$ 145	26.9	24.2
40LED	207	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3360	806	4	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	358	449	0.1	$ 43.13	$ 1,215.00	$ 120	28.2	25.4
40LED	209	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
40LED	211	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
20LED	Hallway	7	S 28 P F 1 (ELE)	F41ILL	31	0.2	SW	4368	948	7	4 ft LED Tube	200732x1	15	0.1	C-OCC	4,368	459	489	0.1	$ 47.59	$ 1,286.40	$ 125	27.0	24.4
40LED	215	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	T 38 R LED	RTLED38	38	0.4	C-OCC	2,352	894	1,122	0.2	$ 107.83	$ 2,632.50	$ 270	24.4	21.9
40LED	217	10	T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3360	2,016	10	T 38 R LED	RTLED38	38	0.4	C-OCC	2,352	894	1,122	0.2	$ 107.83	$ 2,632.50	$ 270	24.4	21.9
35LED	Hallway	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	4368	1,572	4	T 59 R LED	RTLED38	38	0.2	C-OCC	4,368	664	909	0.2	$ 88.37	$ 1,215.00	$ 120	13.7	12.4
32LED	Ground Floor Addition Weight Room 50	34	1T 32 R F 2 (ELE)	F42LL	60	2.0	SW	3360	6,854	34	STLED4	STLED4	40	1.4	C-OCC	2,352	3,199	3,656	0.7	$ 349.92	$ 12,397.80	$ 530	35.4	33.9
40LED	Ground Floor Addition Weight Room 50	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3360	1,210	6	T 38 R LED	RTLED38	38	0.2	C-OCC	2,352	536	673	0.1	$ 64.70	$ 1,687.50	$ 170	26.1	23.5
32LED	Wrestling Room 52	52	1T 32 R F 2 (ELE)	F42LL	60	3.1	SW	3360	10,483	52	STLED4	STLED4	40	2.1	C-OCC	2,352	4,892	5,591	1.0	$ 535.17	$ 18,818.40	$ 800	35.2	33.7
32LED	Band Room 54	45	1T 32 R F 2 (ELE)	F42LL	60	2.7	SW	3360	9,072	45	STLED4	STLED4	40	1.8	C-OCC	2,352	4,234	4,838	0.9	$ 463.13	$ 16,321.50	$ 695	35.2	33.7
185LED	54 Storage	2	T 40 R F 4 (ELE)	F44SE	172	0.3	SW	2688	925	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,882	188	737	0.2	$ 74.36	$ 742.50	$ 70	10.0	9.0
35LED	Girls Locker Room 56	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2688	3,145	13	T 59 R LED	RTLED38	38	0.5	C-OCC	2,688	1,328	1,817	0.7	$ 186.14	$ 3,341.25	$ 345	18.0	16.1
198LED	Girls Locker Room 56	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2688	83	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	2,688	67	16	0.0	$ 1.65	$ 472.50	$ 70	286.0	243.6
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	C-OCC	4,368	2,184	3,058	0.7	$ 297.41	$ 4,320.00	$ 320	14.5	13.4
32LED	Science 51	24	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3360	4,838	24	STLED4	STLED4	40	1.0	C-OCC	2,352	2,258	2,580	0.5	$ 247.00	$ 8,830.80	$ 380	35.8	34.2
32LED	55	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
35LED	Train Room	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3360	1,512	5	T 59 R LED	RTLED38	38	0.2	C-OCC	2,352	447	1,065	0.3	$ 104.19	$ 1,451.25	$ 145	13.9	12.5
20LED	storage	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	28	55	0.0	$ 5.48	$ 415.20	$ 35	75.7	69.4
20LED	storage	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2688	167	2	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	56	110	0.0	$ 10.96	$ 560.40	$ 50	51.1	46.6
252	Gym	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.5	SW	2688	28,305	30	T 54 W F 6 (ELE) (T-5)	F46GHL	351	10.5	C-OCC	2,688	28,305	-	0.0	$ -	$ 270.00	$ 20		
32LED	Boys Locker Room	18	1T 32 R F 2 (ELE)	F42LL	60	1.1	SW	2688	2,903	18	STLED4	STLED4	40	0.7	C-OCC	2,688	1,935	968	0.4	$ 99.13	$ 6,690.60	$ 290	67.5	64.6
15LED	Boys Locker Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	C-OCC	2,688	215	108	0.0	$ 11.01	$ 983.40	$ 20	89.3	87.5
32LED	Trainer	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3024	726	4	STLED4	STLED4	40	0.2	C-OCC	2,117	339	387	0.1	$ 37.34	$ 1,696.80	$ 80	45.4	43.3
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	363	2	STLED4	STLED4	40	0.1	C-OCC	2,117	169	194	0.0	$ 18.67	$ 983.40	$ 50	52.7	50.0
220	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	2688	54	1	S 17 C F 1(ELE)	F21ILL	20	0.0	C-OCC	1,882	38	16	0.0	$ 1.44	$ 270.00	$ 20	188.1	174.2
5LED	Hallway	23	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	SW	4368	6,028	23	2T 25 R LED	2RTLED	25	0.6	C-OCC	4,368	2,512	3,516	0.8	$ 342.02	$ 4,927.50	$ 365	14.4	13.3
32LED	Boys Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
20LED	Boys Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	28	55	0.0	$ 5.48	$ 415.20	$ 35	75.7	69.4
32LED	Girls Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
20LED	Girls Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	28	55	0.0	$ 5.48	$ 415.20	$ 35	75.7	69.4
32LED	30	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	NONE	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$ 180	53.2	51.0
32LED	32	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	NONE	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$ 180	53.2	51.0
32LED	31	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	33	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	35	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3360	2,419	12	STLED4	STLED4	40	0.5	C-OCC	2,352	1,129	1,290	0.2	$ 123.50	$ 4,550.40	$ 200	36.8	35.2
32LED	37	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	NONE	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$ 180	53.2	51.0
32LED	39	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	NONE	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$ 180	53.2	51.0
32LED	41	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	3360	2,419	12	STLED4	STLED4	40	0.5	NONE	3,360	1,613	806	0.2	$ 80.44	$ 4,280.40	$ 180	53.2	51.0
55LED	Lobby	6	2T 17 R F 3 (ELE)	F23ILL	47	0.3	SW	4368	1,232	6	2T 25 R LED	2RTLED	25	0.2	C-OCC	4,368	655	577	0.1	$ 56.08	$ 1,485.00	$ 320	26.5	20.8
35LED	1st Floor Faculty	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3024	2,177	8	T 59 R LED	RTLED38	38	0.3	C-OCC	2,117	644	1,534	0.4	$ 151.53	$ 2,160.00	$ 220	14.3	12.8
32LED	Small Office	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3024	181	1	STLED4	STLED4	40	0.0	C-OCC	2,117	85	97	0.0	$ 9.33	$ 626.70	$ 35	67.1	63.4
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	161	1	STLED4	STLED4	40	0.0	C-OCC	1,882	75	86	0.0	$ 8.38	$ 626.70	$ 35	74.8	70.6
35LED	150	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	C-OCC	2,352	1,430	3,408	0.8	$ 333.40	$ 4,050.00	$ 420	12.1	10.9
35LED	152	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	C-OCC	2,352	1,430	3,408	0.8	$ 333.40	$ 4,050.00	$ 420	12.1	10.9
35LED	154	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	C-OCC	2,352	1,430	3,408	0.8	$ 333.40	$ 4,050.00	$ 420	12.1	10.9
35LED	156	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	3360	4,838	16	T 59 R LED	RTLED38	38	0.6	C-OCC	2,352	1,430	3,408	0.8	$ 333.40	$ 4,050.00	$ 420	12.1	10.9
5LED	Hallway	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	4368	5,242	20	2T 25 R LED	2RTLED	25	0.5	C-OCC	4,368	2,184	3,058	0.7	$ 297.41	$ 4,320.00	$ 320	14.5	13.4
35LED	151	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	C-OCC	2,352	715	1,704	0.4	$ 166.70	$ 2,160.00	$ 220	13.0	11.6
35LED	153	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	C-OCC	2,352	715	1,704	0.4	$ 166.70	$ 2,160.00	$ 220	13.0	11.6
35LED	155	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3360	2,419	8	T 59 R LED	RTLED38	38	0.3	C-OCC	2,352	715	1,704	0.4	$ 166.70	$ 2,160.00	$ 220	13.0	11.6
35LED	Conference Room 157	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2016	1,633	9	T 59 R LED	RTLED38	38	0.3	C-OCC	1,411	483	1,150	0.5	$ 119.28	$ 2,396.25	$ 245	20.1	18.0
32LED	Library	35	1T 32 R F 2 (ELE)	F42LL	60	2.1	SW	2688	5,645	35	STLED4	STLED4	40	1.4	C-OCC	2,688	3,763	1,882	0.7	$ 192.75	$ 12,754.50	$ 545	66.2	63.3
20LED	Office	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	3024	375	4	4 ft LED Tube	200732x1	15	0.1	C-OCC	2,117	127	248	0.1	$ 24.38	$ 850.80	$ 80	34.9	31.6
35LED	Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3024	544	2	T 59 R LED	RTLED38	38	0.1	C-OCC	2,117	161	383	0.1	$ 37.88	$ 742.50	$ 70	19.6	17.8
5LED	Hallway	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	SW	4368	2,621	10	2T 25 R LED	2RTLED	25	0.3	C-OCC	4,368	1,092	1,529	0.4	$ 148.71	$ 2,295.00	$ 170	15.4	14.3
5LED	Storage	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2688	161	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,882	47	114	0.0	$ 11.43	$ 472.50	$ 35	41.3	38.3
55LED	Restroom	1	2T 17 R F 3 (ELE)	F23ILL	47	0.0	SW	2688	126	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,882	47	79	0.0	$ 7.85	$ 472.50	$ 70	60.2	51.3
20LED	Restroom	1	S 28 P F 1 (ELE)	F41ILL	31	0.0	SW	2688	83	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,882	28	55	0.0	$ 5.48	$ 415.20	$ 35	75.7	69.4
32LED	Restroom	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2688	323	2	STLED4	STLED4	40	0.1	C-OCC	1,882	151	172	0.0	$ 16.76	$ 983.40	$ 50	58.7	55.7
32LED	132	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	130	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	131	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	133	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	135	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	137	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	139	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
32LED	141	8	1T 32 R F 2 (ELE)	F42LL	60	0.5	SW	3360	1,613	8	STLED4	STLED4	40	0.3	C-OCC	2,352	753	860	0.2	$ 82.33	$ 3,123.60	$ 140	37.9	36.2
5LED	Hallway	16	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.0	SW	4368	4,193	16	2T 25 R LED	2RTLED	25	0.4	C-OCC	4,368	1,747	2,446	0.6	$ 237.93	$ 3,510.00	$ 260	14.8	13.7
5LED	Hallway	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	4368	1,310	5	2T 25 R LED	2RTLED	25	0.1	C-OCC	4,368	546	764	0.2	$ 74.35	$ 1,282.50	$ 95	17.2	16.0
142LED	Exterior Lights	17	MH 100	MH100/1	128	2.2	Breaker	4032	8,774	17	FXLED39	FXLED39/1	39	0.7	NONE	4,032	2,673	6,100	1.5	$ 597.59	$ 9,455.40	$ 850	15.8	14.4
273	Exterior Lights	2	OL85/1	QL85/1	85	0.2	Breaker	4032	685	2	OL85/1	OL85/1	85	0.2	NONE	4,032	685	-	0.0	$ -	$ -	$ -		
231LED	Exterior Lights	2	WP400MH1	MH400/1	458	0.9	Breaker	4032	3,693	2	WPLED2T78	WPLED2T78	91	0.2	NONE	4,032	734	2,959	0.7	$ 289.91	$ 2,048.38	$ 200	7.1	6.4
263	Stadium Pole Lights	10	MH1000 Fixt	MH1000/1	1080	10.8	Breaker	4032	43,546	10	MH1000 Fixt	MH1000/1	1080	10.8	NONE	4,032	43,546	-	0.0	$ -	$ -	$ -		
263	Stadium Pole Lights	12	MH1000 Fixt	MH1000/1	1080	13.0	Breaker	4032	52,255	12	MH1000 Fixt	MH1000/1	1080	13.0	NONE	4,032	52,255	-	0.0	$ -	$ -	$ -		
															0	#N/A							#VALUE!
S	Total	1,582				149.3			521,055	1,582				93.1	0	#N/A	287,939		56.2	22,778	498,909	$31,260		#VALUE!
S																	Demand Savings			56.2	$2,031				
S																	kWh Savings			233,116	$20,747				
S																	Total Savings				$22,778		21.9	20.5	

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

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 & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs

NJ SmartStart Buildings

Program Overview

With New Jersey SmartStart Buildings …

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

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

- Project Categories
- SmartStart Applications
- Program Terms and Conditions
- Find a Trade Ally

Incentives for Qualifying Equipment and Projects

Financial incentives are available for size projects which can offset some - or maybe even all - of the added cost to purchase qualifying energy-efficient equipment.

Support for Custom Energy-Efficiency Measures

Custom measures gives you the opportunity to receive an incentive for unique energy-efficiency measures that are not on the prescriptive equipment list, but are new/innovative or project/facility specific.

Application and Eligibility Process

We have made it even easier to participate! Pre-approval is no longer required for prescriptive measures, with the exception of prescriptive & performance lighting and lighting controls. Please note that anyone who purchases and installs equipment without Market Manager approval does so at his/her own risk.

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Applications and Brochures
Download the Latest Program Materials

Success Stories

Panasonic Corporation of North America
Continued Commitment to Saving Energy

Local Govt and Schools

Find out what financial incentives are available today!

Business Energy Advisor

Learn more about energy use & savings in your industry

Subscribe to eNewsletter

E-Newsletter
Subscribe for the Latest Rebate News

Follow Us:

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 & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs » NJ SmartStart Buildings

Equipment Incentives

More reasons for a smart start on your next project!

New Jersey SmartStart Buildings provides **financial incentives for qualifying equipment**. These incentives help 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)

Application and Eligibility Process

For all Prescriptive measures with the exception of Prescriptive & Performance Lighting and Lighting Controls, pre-approval is not required prior to installation, however any customer and/or agent who purchases and installs equipment without Market Manager approval does so at their own risk.

Eligibility: in order to be eligible for program incentives, a customer, or an agent (contractor/vendor) authorized by a customer, must submit a properly completed application package. A complete application package should include:

- Completed application forms signed by the customer
- Manufacturer specification sheets and supporting documentation of qualifications.
- Recent copy of a full utility bill from a participating utility (gas or electric depending on technology) showing societal benefits charge.
  - Name of the customer listed on the application must match the name of the customer listed on the utility bill.
  - For new construction projects where a utility account has not yet been established, the customer will be required to submit a utility bill prior to incentive payment however it does not need to be included with the initial application submission.
- W-9 form completed for incentive payee.

For completed projects that do not require program pre-approval (excluding Prescriptive Lighting, Prescriptive Lighting Controls, Performance Lighting and Custom Measures) the application must be submitted to the Market Manager within 12 months of equipment purchase. Sufficient documentation must be provided confirming the date of equipment purchase (material invoice, purchase order, etc.). Customers may choose to submit additional documentation to allow the program to process payment including a valid Tax Clearance Certificate for the customer (see tax clearance requirements) and final invoice documentation. All projects are subject to post-inspection to confirm equipment installation prior to payment.

Pre-Inspections: the Market Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of lighting, lighting control equipment and custom measures. This will be done prior to the issuance of the approval letter. Work must not begin prior to formal program approval.

Tax Clearance Requirements: the name of the customer listed on the certificate must match the customer name listed on the utility bill and application. In addition, the customer tax ID listed on the application must agree with the tax ID on the Certificate. Certificates are valid for 180 days and must be valid on the date the Market Manager signs off on the incentive.

Utility account: Each utility account requires a complete, separate application. Projects for the same utility account that are being done at the same time must be submitted on one application. Applications for measures that are self-installed by customers must be signed by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Market Manager on or before June 30, 2016 in order to be eligible for the fiscal year program (July 1, 2015 - June 30, 2016) incentives.

Expirations: Pre-approved projects are given a one year approval in which the proposed measure is to be installed and operational. When a project has expired the customer will have 30 days to either submit a request for an extension OR submit final project paperwork. Extension requests must be in writing from the customer and include the circumstances that led to the extension request, and the percentage of the project completed. Extension requests may be granted for a period no longer than six (6) months. The Market Manager may provide up to two, six month extensions from the original approval expiration date. If the project has not started and the applicant is still interested in installing the equipment, the existing application will be cancelled and a new application must be submitted and approved

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Applications and Brochures
Download the Latest Program Materials

Success Stories

Rutgers University
Continued Commitment to Saving Energy

Local Govt and Schools

Find out what financial incentives are available today!

Business Energy Advisor

Learn more about energy use & savings in your industry

Subscribe to eNewsletter

E-Newsletter
Subscribe for the Latest Rebate News

Follow Us:

prior to installation. The incentive amount will be based upon the program guidelines in effect at the time of the new submission. If no response is received within 30 days of expiration the project will be cancelled.

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**.

Electric Chillers

Gas Cooling

Electric Unitary HVAC

Ground Source Heat Pumps

Gas Heating

Variable Frequency Drives

Gas Water Heating

Prescriptive lighting Application

Lighting Controls

Performance Lighting

Refrigeration Doors

Refrigeration Controls

Food Service Equipment

Refrigerator/Freezer Motors

Custom Measures

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

II. DIRECT INSTALL

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- HURRICANE SANDY
- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
  - COMBINED HEAT & POWER AND FUEL CELLS
  - LOCAL GOVERNMENT ENERGY AUDIT
  - LARGE ENERGY USERS PROGRAM
  - ENERGY SAVINGS IMPROVEMENT PROGRAM
  - DIRECT INSTALL
    - PARTICIPATION STEPS
    - PARTICIPATING CONTRACTORS
    - SUSTAINABLE JERSEY
  - ENERGY BENCHMARKING
  - OIL, PROPANE, MUNICIPAL & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs

Direct Install

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 start and how to get through the process. Created specifically for existing small to medium-sized facilities, Direct Install is a turnkey solution that makes it easy and affordable to upgrade to high efficiency equipment. Direct Install is designed to cut your facility's energy costs by replacing lighting, HVAC and other outdated operational equipment with energy efficiency 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 one of 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 1,500,000 Btuh and furnaces may not exceed 140,000 Btuh. Limitations on packaged HVAC, motors and other equipment also apply. Larger capacity equipment may be eligible for financial incentives through NJ SmartStart Buildings.

See how other small businesses owners have saved!

BENEFITS OF DIRECT INSTALL

Turnkey Process - A network of selected participating contractors address your project from start to finish, beginning with an assessment of your facility, and ending with the installation of eligible energy-efficient equipment.

Minimal Cost - Your share of the project's cost will be approximately 30%, the program pays the remaining 70%. With incentives so dramatic, your upgrade project can very quickly pay for itself.

Fast Turnaround Time - Project installations are typically completed within 90 days from the time of scheduling your energy assessment.

Ongoing Savings - Your new energy-efficient equipment will provide savings for years to come through dramatically reduced energy costs on your monthly utility bills.

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Applications and Brochures
Download the Latest Program Materials

Success Stories

Rutgers University
Continued Commitment to Saving Energy

Local Govt and Schools

Find out what financial incentives are available today!

Business Energy Advisor

Learn more about energy use & savings in your industry

Subscribe to eNewsletter

E-Newsletter
Subscribe for the Latest Rebate News

Follow Us:

STEPS TO PARTICIPATION

View a step-by-step description of the program.

Program Participants

Home | Residential | Commercial & Industrial | Renewable Energy
About Us | Press Room | Library | FAQs | Calendar | Newsletters | Contact Us | Privacy | Site Map

III. PAY FOR PERFORMANCE (P4P)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- HURRICANE SANDY
- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
    - EXISTING BUILDINGS
    - NEW CONSTRUCTION
    - FAQS
    - BECOME A PARTNER
  - 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 & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs

Pay for Performance

NEW JERSEY'S CLEAN ENERGY PROGRAM
P4P
PAY FOR PERFORMANCE
APPROVED PARTNER

Pay for Performance is a comprehensive energy efficiency program that provides incentives towards whole-building energy improvements. Choose the component that best describes your building.

Program Participants

EXISTING BUILDINGS

The Existing Buildings component is designed for commercial and industrial buildings with a peak demand in excess of 200 kW in any of the preceding twelve months, and 100kW for select multifamily buildings. Save 15% or more on the energy consumption in your buildings with the help of our approved partners and receive incentives along the way.

NEW CONSTRUCTION

The New Construction component is designed for new commercial, industrial, and multifamily buildings with 50,000 square feet or more of planned space, as well as buildings undergoing substantial renovation. Construct your building to achieve energy costs 15% below the current energy code with the help of our approved partners and receive incentives.

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Applications and Brochures
Download the Latest Program Materials

Success Stories

Jersey Shore University Medical Center
Co-generation units at the center of major expansion

Local Govt and Schools

Find out what financial incentives are available today!

Business Energy Advisor

Learn more about energy use & savings in your industry

Subscribe to eNewsletter

E-Newsletter
Subscribe for the Latest Rebate News

Follow Us:

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- HURRICANE SANDY
- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
    - EXISTING BUILDINGS
      - PARTICIPATION STEPS
      - APPLICATIONS AND FORMS
      - APPROVED PARTNERS
    - NEW CONSTRUCTION
    - FAQS
    - BECOME A PARTNER
  - 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 & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs » Pay for Performance » Existing Buildings

Pay for Performance - Existing Buildings - Participation Steps

Participating in the Pay for Performance Program is easy. Just follow this step-by-step process...

- Select a program partner from this list of approved partners. Be sure to download this flyer for tips on how to select a partner as well as ideas for what to expect from your working relationship.
- Submit Application Package - With your assistance, your partner will download and complete the Application and Participation Agreement and submit the forms and required documentation according to the Instructions section of the application.
- Receive Approval Notice - Program representatives will review your application package and if approved, will send a notice to proceed. A case manager will be assigned to your project.
- Develop Benchmarks and Goals. Your partner will benchmark your building, identify performance goals and create an energy reduction plan to achieve no less than 15% energy savings.
- Submit Your Plan - Your partner will submit your energy reduction plan, a complete benchmarking report and partner-participant contract with a request for Incentive #1 as defined in the participation agreement. When the energy reduction plan is approved, you will receive Incentive #1.
- Implement Your Project - Your partner will help you with the bidding process and will monitor construction to ensure that the appropriate steps are being taken to achieve the expected performance goals.

- Submit Request for Second Incentive - Your partner will submit a request for Incentive #2 along with the material and labor invoices when the project is complete. When approved, you will receive Incentive #2.
- Submit Request for Final Incentive - Within approximately 12 months after the project is completed, your partner will re-benchmark the building and submit a request for Incentive #3 along with the post-construction benchmarking report. If the building performance goal is met, you will receive Incentive #3.

A detailed Incentive Structure document is available on the applications and forms page.

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Success Stories

Local Govt and Schools

Business Energy Advisor

Subscribe to eNewsletter

Follow Us:

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- HURRICANE SANDY
- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
    - EXISTING BUILDINGS
      - PARTICIPATION STEPS
      - APPLICATIONS AND FORMS
      - APPROVED PARTNERS
    - NEW CONSTRUCTION
    - FAQS
    - BECOME A PARTNER
  - 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 & COOP ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - SBC CREDIT PROGRAM
  - PAST PROGRAMS
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs » Pay for Performance » Existing Buildings

Pay for Performance - Existing Buildings - Applications and Forms

Forms should be completed with the assistance of your program partner. The forms are available in electronic (eForms) format, which allows you to complete the forms on your computer and save them at your convenience. Acrobat Reader 5.0 or greater is required to use eForms.

Incentive Structure

- Program Application
- Incentive Request Form One
- Incentive Request Form Two
- Incentive Request Form Three
- Installation Agreement
- Building Performance with ENERGY STAR Participation Agreement

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Success Stories

Local Govt and Schools

Business Energy Advisor

Subscribe to eNewsletter

Follow Us:

New Jersey's cleanenergy program — njcleanenergy.com

BPU — New Jersey Board of Public Utilities

NEW JERSEY'S CLEAN ENERGY PROGRAM
P4P PAY FOR PERFORMANCE

How did you learn about this Energy Efficiency Program?
☐ Advertisement ☐ Internet Search ☐ Mailer ☐ Video
☐ Tradeshow/Event ☐ Word of Mouth ☐ Radio ☐ Contractor
☐ Other _____

PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2015 – June 30, 2016

Utility Serving Applicant: ☐ Atlantic City Electric ☐ Jersey Central Power & Light ☐ PSE&G
☐ New Jersey Natural Gas ☐ Elizabethtown Gas ☐ Rockland Electric Co. ☐ South Jersey Gas
☐ Other Electric Service Provider (please specify): _____
☐ Other Fuel Provider:_____ ☐ Oil:_____ ☐ Other (Please specify):_____

Instructions

1. Read the Participation Agreement (pages 3,4) and sign where indicated.
2. Fill out all applicable spaces on this form. Note Customer/Owner Information must be listed for the utility rate payer of the Project facility.
3. Provide a copy of the customer's company W-9 form.
4. Provide the most recent (within 2 years) 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.
5. Provide brief description of facility, noting any special or unusual circumstances and/or site conditions.
6. 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	NAICS Code

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	
* Note: Please use the back of this page for additional utility accounts if quantity exceeds space allotment.			
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 – Utility:_____ Program Name: _____

Federal Program – 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

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, 2016 in order to be eligible for the Fiscal Year 2016 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 and industrial buildings with peak kilowatt demand usage of more than 200 kW in any of the most recent preceding twelve months of utility bills, 100 kW for multifamily buildings, and a customer of the New Jersey Utilities. Market Manager has the discretion to approve applications that fall below the 200 kW minimum, 100 kW for multifamily, 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.

Projects may not participate or apply for incentives for energy efficient measures through other New Jersey's Clean Energy Programs while participating in this Program. Equipment procured by participating Customer through another program offered by New Jersey Utilities, as applicable, is not eligible for incentives through this Program. Customers who, from July 1, 2014 - June 30, 2015, have not contributed to the Societal Benefits Charge 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

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, a 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, up to twenty four months with extension approvals).

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 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 project cost, lesser of estimated or actual. Incentive #1 will be capped not to exceed 50% of the project's annual energy cost. Program Incentives (Incentive #1, #2 and #3) are restricted to $1M per gas and electric account (limited to $2M per project) in a program year. Campus style facilities, which are mastered-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 Entity Cap of $4M or $5M if a Combined Heat and Power/Fuel Cell Application is approved for the same facility (Definition of an Entity 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, up to twenty four months with extension approvals. Failure to complete the installation of the measures in the Energy Reduction Plan may result in the repayment of Incentive #1, and the forfeiting of Incentives #2 and #3. 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 approval 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 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 approval date. If after this time the minimum performance target is still not met, the final Incentive #3 will not be paid.

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. Incentives may cover some, or potentially all, of the Partner fees.

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 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; up to 70% lighting savings may be considered but performance target will increase by 1% for each percent over 50% (e.g. project with 60% savings from lighting will have a minimum performance target of 25%). A 4% performance target may be offered to customers whose annual energy consumption is heavily weighted to manufacturing and process loads, as well as hospitals. 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. For hospitals, 50% or more of the gross floor area must be used for general medical and surgical services and 50% or more of the licensed beds must provide acute care services. The total energy savings may not come from a single measure. 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 to twenty four 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 incentive

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, 2015.

PROJECT – A commercial or industrial existing building with peak demand in excess of 200 kW in any of the most recent preceding twelve months of electric usage, 100 kW for multifamily buildings. 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. Refer to Multifamily Decision Tree.

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 IMPLICITY. 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)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- HURRICANE SANDY
- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - 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 & COOP 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 improve and reduce energy usage with minimal expenditure of new financial resources.

Please review the New Jersey's Clean Energy Program (NJCEP) and ESIP Interaction memo and flow chart for recommendations on when to submit incentive applications to various NJCEP programs relative to the ESIP timeframe.

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

- Local Government
- School Districts (K-12)

All RFPs and final Energy Savings Plan (ESP) 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 case studies 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 SAVINGS 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).

- Ocean Township Board of Education:
  - Part 1
  - Part 2
  - Part 3
  - Part 4
- Tabernacle Board of Education
- Robbinsville Board of Education
- Frankford Township School District
- Northern Hunterdon-Voorhees Regional High School
- Manalapan Township ***(180 MB** - Right Click, Save As)*

Home | Residential | Commercial & Industrial | Renewable Energy
About Us | Press Room | Library | FAQs | Calendar | Newsletters | Contact Us | Privacy | Site Map

Program Updates

- Notice of Fiscal Year 2016 Program Changes

Other updates posted.

Program Literature

Success Stories

Local Govt and Schools

Business Energy Advisor

Subscribe to eNewsletter

Follow Us:

APPENDIX E

Photovoltaic Analysis

Carteret Board of Education
Carteret High School

Cost of Electricity	$0.150	/kWh
Electricity Usage	256,240	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$480,000	**120.0**	**79,455**	**0**	**$11,918**	**0**	**$11,918**	**$0**	**$13,507**	**40.3**	**18.9**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $170 /1000kwh

Area Output*
2,305 m2
24,811 ft2

Perimeter Output*
177 m
581 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
16,147 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
129,179 DC watts
120 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	07008	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
79,455 annual kWh calculated in PV Watts program

% Offset Calc

Usage	256,240	(from utilities)
PV Generation	79,455	(generated using PV Watts)
% offset	31%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

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.

RESULTS

152,986 kWh per Year *

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Energy Value ($)
January	2.78	9,035	667
February	3.52	10,223	754
March	4.34	13,592	1,003
April	4.95	14,478	1,069
May	5.69	16,709	1,233
June	5.86	16,229	1,198
July	5.73	16,199	1,196
August	5.47	15,332	1,131
September	4.91	13,695	1,011
October	3.99	11,896	878
November	2.68	8,082	596
December	2.35	7,516	555
Annual	**4.36**	**152,986**	**$ 11,291**

Location and Station Identification

Requested Location	199 washington avenue, carteret, nj
Weather Data Source	(TMY2) NEWARK, NJ 9.7 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Commercial)*

DC System Size	120 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

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

1: Carteret High School

2: Cleaver Brooks steam boilers

2: Steam-to-hot water generator

4: AAON unit serving the Cafeteria

5: Kitchen MAU unit and associated ductwork

APPENDIX G

EPA Benchmarking Report

ENERGY STAR® Statement of Energy Performance

94

ENERGY STAR® Score[1]

Carteret High School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 157,745
Built: 1962

For Year Ending: April 30, 2015
Date Generated: June 05, 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	Property Owner	Primary Contact
Carteret High School 199 Washington Ave Carteret, New Jersey 07008	_____ , (____)____-_____	____ _____ , (____)____-_____ _____

Property ID: 4439003

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
50.4 kBtu/ft²

Source EUI
69.6 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	6,685,090 (84%)
Electric - Grid (kBtu)	1,262,699 (16%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	89.2
National Median Source EUI (kBtu/ft²)	123.3
% Diff from National Median Source EUI	-44%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	524

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)