PENNS GROVE – CARNEYS POINT REGIONAL SCHOOL DISTRICT
PENNS GROVE MIDDLE SCHOOL
ENERGY ASSESSMENT

for

NEW JERSEY
BOARD OF PUBLIC UTILITIES

CHA PROJECT NO. 24510

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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 facility 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 facility staff and spot measurements taken in the field.

1.0 EXECUTIVE SUMMARY

The Penns Grove – Carneys Point Regional School District recently engaged CHA to perform an energy audit in connection with the New Jersey Board of Public Utilities' Local Government Energy Audit Program. This report details the results of the energy audit conducted for:

Building Name	Address	Square Feet	Construction Date
Penns Grove Middle School	351 Maple Avenue Penns Grove, New Jersey	65,540 20,000	Original: 1935 Addition: 1954

The Energy Conservation Measures (ECMs) identified in this report will allow for a more efficient use of energy and if pursued have the opportunity to qualify for the New Jersey SmartStart Buildings Program and/or Direct Install Program. Potential annual savings of $11,300 for the recommended ECMs may be realized with a payback of 8.4 years. A summary of the costs, savings, and paybacks for the recommended ECMs follows:

Summary of Energy Conservation Measures							
Energy Conservation Measure		Approx. Costs ($)	Approx. Savings ($/year)	Payback (Years) w/o Incentive	Potential Incentive ($)*	Payback (Years) w/ Incentive	Recommended For Implementation
ECM-1	Install a Condensing Boiler	1,583,000	5,600	>20	2,600	>20	
2	Replace Domestic Hot Water Heater	14,000	3,500	4.0	600	3.8	X
3	Replace Exterior Door Seals & Sweeps	5,000	400	12.5	0	12.5	X
4	Lighting Replacements/ Upgrades	59,000	3,400	17.4	5,000	15.9	
5	Lighting Controls (Occupancy Sensors)	11,000	6,000	1.8	2,000	1.5	
6	Lighting Replacements/ Upgrades & Controls (Occupancy Sensors)	70,000	7,400	9.5	7,000	8.5	X
7	Water Conservation (Low Flow Fixtures)	65,000	3,600	18.1	0	18.1	

2.0 INTRODUCTION AND BACKGROUND

New Jersey's Clean Energy Program, funded by the New Jersey Board of Public Utilities, supports energy efficiency and sustainability for Municipal and Local Government Energy Audits. Through the support of a utility trust fund, New Jersey is able to assist state and local authorities in reducing energy consumption while increasing comfort.

The Penns Grove Middle School located in Penns Grove, NJ, is a combined 85,540 square foot three story building having masonry construction. The original building was constructed in 1935 and was a 65,540 square foot building with an addition in 1954 that added 20,000 square feet. It contains classrooms, reception/office areas, a kitchen, cafeteria, high bay auditorium, high bay gymnasium and restrooms. Occupancy includes approximately 500 students and 90 faculty members. The building operates Monday through Friday from 7:30 am to approximately 3:30 pm with custodians working until around 10:30 pm. The building is closed on the weekends, and occupancy levels are reduced in summer months for each year.

3.0 EXISTING CONDITIONS

3.1 Building - General

Originally built in 1935 with an addition constructed in 1954, the Penns Grove Middle School is a combined 85,540 square foot three story flat roof building containing with classrooms, reception/office areas, a kitchen, cafeteria, high bay auditorium, high bay gymnasium and restrooms. The main entrance is has glass doors with metal frames that opens into the front main stair well area on the south side of the building.

The Penns Grove middle School building has approximately 500 students and 90 faculty and staff; the building was empty during the field visit. The building is assumed to be fully occupied from 7:30 am until 3:30 pm during the week. The hours of operation are:

- Monday thru Friday 7:30 am to 3:30 pm.
- Monday thru Friday until 10:30 pm (for custodians)

The building is constructed of some wood with structural block and a red brick veneer. The majority of the interior walls are painted block but some contain fiberglass insulation finished with gypsum board. The flat roof system is comprised of a structural steel framing with a metal deck having rigid foam board insulation with a dark colored EPDM membrane. Windows are significant all around the building wherever there are classrooms, offices or hallways and minimal on the exterior walls of the gymnasium and auditorium walls. There are columns with a small roof overhang in the front of the building main entrance on the south end of the building. Windows are thermo pane set in painted wooden frames. The main entrance doors are part glass, and part wood panel with wood frames. The majority of the one three building is 36’ in height, with a shorter 25’ two story addition.

3.2 Utility Usage

The utility consumption for the school includes electricity, natural gas and potable water. Electricity is delivered by Atlantic City Electric and supplied by New Energy Inc. and South Jersey Electric Company (during the billed period). Natural gas is delivered by South Jersey Gas and supplied by third party Woodruff Energy. Potable water is provided by the municipally owned water department at a charge.

For the 12-month period ranging from July 2011 through June 2012, the utilities usage for the building was as follows:

Actual Cost & Site Usage by Utility

Electric		
Annual Usage	462,201	kWh/yr
Annual Cost	56,801	$
Blended Rate	0.123	$/kWh
Consumption Rate	0.096	$/kWh
Demand Rate	6.11	$/kW
Peak Demand	141.0	kW
Min. Demand	98.0	kW
Avg. Demand	126.9	kW
Natural Gas		
Annual Usage	44,056	Therms/yr
Annual Cost	43,593	$
Rate	0.989	$/Therms
Water		
Annual Usage	776,000	gallons/yr
Annual Cost	2,669	$
Rate	5.881	$/gallon

Both electrical and natural gas usages were generally higher in the winter months. See Appendix A for a detailed 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. With the supply portion open to competition, customers can shop around for the best price on their energy supplies. Their electric and natural gas distribution utilities will still deliver those supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing your 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 your service. 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.

3.3 HVAC Systems

The systems and equipment described below serve the Penns Grove Middle School building. Specifics on the mechanical equipment can be found within the equipment inventory located in Appendix B.

3.3.1 Heating Steam and Hot Water Systems

The main heating source of the building comes from a 6,968 MBH max output (168 BHP) H.B. Smith gas fired steam boiler installed in 2006. This boiler heats the original 1935 section of the building with low pressure steam , which has an area of 85,540 square feet. Classrooms in the 1935 construction are heated by wall-mounted radiators. The 1954 addition is heated by hot water which is created through a heat exchanger provided with steam from the steam boiler. Classrooms in the 1954 construction are heated by hot water coil unit ventilators. The gymnasium is heated by gas fired forced air, which was installed in 2005. The main offices are heated by hot water coil forced air unit ventilators. Approximately 76% of the building heating is supplied by steam with only 24% by hot water.

3.3.2 Air Conditioning Systems

The main offices are cooled by (2) 3 ton Carrier A/C units located on the ground level outside the offices that supply cooling to unit ventilators located inside the offices. There are several window A/C units in various rooms, but the majority of the building did not have any cooling. These units are manually controlled by school personnel.

3.3.3 Exhaust Systems

There is a kitchen exhaust hood used every day that is manually switched on and off by kitchen staff. There are some rooftop exhaust units in place for toilet rooms. The 1935 classrooms are ventilated through natural ventilation plenums within the walls.

3.4 Control Systems

The Penns Grove Middle School has full pneumatic controls in place to regulate both the hot water and steam heating systems with compressed air supplied by (1) 2 HP Baldor air compressor located in the mechanical room.

3.5 Lighting/Electrical Systems

The facility primarily utilizes fixtures with T-8 32 watt lamps with electronic ballasts; compact fluorescent fixtures and older style incandescent fixtures are also used in select areas. The gymnasium and auditorium are equipped with 250 watts high pressure sodium light fixtures. The primary sources of control for the lights are switches manually turned off at the end of the day.

Exterior lights consist of wall pack high pressure sodium fixtures on daylight sensors and timers. The wall pack lights are powered by the building's electrical system and are part of the lighting systems analysis.

3.6 Plumbing Systems

3.6.1 Domestic Hot Water System

The building contains one 18 kW Bradford White 120 gallon electric tank type hot water heater and one 1.65 kW State Industries Inc. 6 gallon electric tank type hot water heater. Hot water is provided to toilet rooms, the kitchen and custodial sinks. Domestic hot water temperature is maintained at 120°F.

3.6.2 Plumbing Fixtures

The building's lavatories, water closets, and urinals are original high flow plumbing fixtures that require upgrades. On average the faucets have a flow rate of 1.5 gallons per minute (gpm), urinals consume approximately 2.5 gallons per flush (gpf) and toilets typically use 3.5 gpf. It was determined that there are 18 faucets, 11 urinals and 34 toilets within the facility.

4.0 ENERGY CONSERVATION MEASURES

4.1 ECM-1 Replace Steam Heating System with a Hydronic Heating System

The main heating source of the building comes from a single 168 HP HB Smith gas fired steam boiler. The boiler is non-condensing with an estimated efficiency of 80% and an overall estimated system efficiency of 65%.

Due to the relatively low efficiency of the existing steam heating system, an assessment was made to replace the entire steam heating system with a modern hot water system that would include new high-efficiency condensing gas boilers (2) , hot water pumps having variable frequency drives, all new piping and new classroom unit ventilators. This is obviously a major reconstruction project, but should be considered if the school is to used long term.

Note: the added ventilation energy penalty which will result from implementing this ECM was not accounted for in these calculations. Only a comparison of boiler and system efficiencies are included. If this ECM is pursued, it will be necessary to include the added ventilation energy penalty in the building load calculations to predict actual annual fuel usage.

The boiler fuel consumption was calculated from the estimated system efficiency and the natural gas consumed annually per the utility bills. This was then compared to the improved efficiency of a new condensing boiler and hot water distribution system. The difference in fuel usage was the savings.

Natural gas-fired boilers have an expected life of 25 years, according to ASHRAE, and total energy savings over the life of the project are estimated at 140,800 therms and $139,300.

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

ECM-1 **Replace steam heating system with hydronic heating system**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
45,000	0	0	5,600	5,600	0	5,600	2.1	2,600	8.0	7.6

* Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is not recommended based on energy savings. This measure is recommended if extensive building renovations are planned in the near future.

4.2 ECM-2 Replace Domestic Hot Water Heater

The building utilizes one 18 kW Bradford White 120 gallon electric tank type hot water heater and one 1.65 kW State Industries Inc. 6 gallon electric tank type hot water heater. During periods of little to no domestic hot water use, the units must still heat the water within their storage tank. Energy required

maintaining the amount of hot water temperature set point during times of zero demand is known as standby losses; replacing these units with higher efficiency natural gas units was evaluated.

According to the U.S. Department of Energy, 2.5% of stored capacity is lost every hour during HW heater standby. This value was applied to the total volume of the existing DHW heater storage tank to determine the annual standby losses. Proposed efficiency was based on a typical tank type, high efficiency, condensing hot water heater. The new water heater will require gas and water piping modifications, venting, and electrical connections.

Domestic hot water heaters have an expected life of 12 years, according to ASHRAE, and total energy savings over the life of the project are estimated at 480,100 kWh, -13,300 therms (since the system is changed from electric to natural gas) and $50,200.

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

ECM-2 Replace Domestic Water Heater

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
16,000	40,000	0	-1,100	4,200	0	4,200	2.2	600	3.8	3.7

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities.

This measure is recommended.

4.3 ECM-3 Replace Exterior Door Seals & Sweeps

The exterior doors have a 3/8” gap between the two leafs permitting outdoor air to infiltrate the building which adds load to the HVAC. This ECM includes adding new door seals and door sweeps to these main entrance doors to reduce the amount of infiltration.

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

ECM-3 Replace Exterior Door Seals & Sweeps

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
	Electricity		Nat Gas	Total						
$	kW	kWh	Therms	$	$	$		$	Years	Years
5,000	0	0	400	400	0	400	(0.6)	0	12.5	12.5

* Incentive not applicable for this measure.

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This measure is recommended.

4.4 ECM-4 Lighting Replacements/Upgrades

The Penns Grove Middle School utilizes mainly 32 watt T-8 fluorescent lamps with electronic ballasts. The gymnasium and auditorium contain 250 watt high pressure sodium lamps. There were some fluorescent T-12 40 watt lamps in several areas of the building that are recommended to be upgraded. A comprehensive fixture survey was conducted of the entire building. There is an opportunity to continue to reduce that consumption even more by upgrading the classrooms to super T-8 lamps and the metal halides in the high bay areas to high bay fluorescent fixtures.

Energy savings for this measure were calculated by applying the existing and proposed fixture wattages to estimated times of operation. The difference between energy requirements resulted in a total annual savings of 26,400 kWh. Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C.

Lighting has an expected life of 15 years, according to the manufacturer, and total energy savings over the life of the project are estimated at 396,300 kWh and $51,000.

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

ECM-4 Lighting Replacement / Upgrades

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
59,000	26,400	0	0	3,400	0	3,400	(0.1)	5,000	17.4	15.9

* Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is not recommended in lieu of ECM-6.

4.5 ECM-5 Lighting Controls (Occupancy Sensors)

The current Penns Grove Middle School Building lighting is mostly controlled by manual switches. Lights are generally turned on in the morning and shut off at night. During school hours, there are rooms that are not occupied, however the lights remain on. Adding occupancy controls to the individual rooms will automatically control the lights based on occupancy. The occupancy sensor can be wall mounted near the switch or placed at the ceiling for larger room coverage. All occupancy sensors are equipped with a manual override feature. These sensors are generally not recommended in public toilet rooms.

Lighting controls have an expected life of 15 years, according to the manufacturer, and total energy savings over the life of the project are estimated at 735,600 kWh and $90,400.

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

ECM-5 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
11,000	49,000	0	0	6,000	0	6,000	7.0	2,000	1.8	1.5

* Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is not recommended in lieu of ECM-6.

4.6 ECM-6 Lighting Replacements/Upgrades & Controls (Occupancy Sensors)

Due to interactive effects, the energy and cost savings for occupancy sensors and lighting upgrades are not cumulative. This measure is a combination of ECM-4 and ECM-5 to reflect actual expected energy and demand reduction.

The lighting retrofits and controls have an expected lifetime of 15 years, according to the manufacturer, and total energy savings over the life of the project are estimated at 1,020,000 kWh and $110,400.

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

ECM-6 Lighting Replacements & Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
70,000	68,000	0	0	7,400	0	7,400	0.6	7,000	9.5	8.5

* Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is recommended.

4.7 ECM-7 Water Conservation (Low Flow Fixtures)

Faucets, toilets and urinals installed before the mid-90s consume more water than modern plumbing fixtures. On average faucets have a flow rate of 1.5 gallons per minute (gpm), urinals consume approximately 2.5 gallons per flush (gpf) and toilets typically use 3.5 gpf. It was determined that there are 18 faucets, 11 urinals and 34 toilets within the facility. Per building occupancy, it was estimated that each toilet and faucet is utilized approximately nine times per day.

The water savings associated from replacing these fixtures with low-flow fixtures was calculated by taking the difference of the annual water usage for the proposed and base case. The basis of this calculation is the number of times each fixture is used, gallons per use, and number of fixtures. Replacing the existing fixtures in the restrooms with 0.5 gpm faucets, 0.5 gpf urinals and 1.6 gpf toilets would save $3,600 annually.

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

ECM-7 Water Conservation (Low Flow Fixtures)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
	Electricity		Water	Total						
$	kW	kWh	Kgal	$	$	$		$	Years	Years
65,000	0	0	610	3,600	0	3,600	0.1	0	18.1	18.1

* Incentive not applicable for this measure.

This measure is not recommended.

5.0 PROJECT INCENTIVES

5.1 Incentives Overview

5.1.1 New Jersey Pay For Performance Program

The facility will 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 for qualified energy conservation projects applied to facilities whose demand in any of the preceding 12 months exceeds 100 kW. This average minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations, however. 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). 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).

- 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.

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

Incentives #2 and #3 can be combined to yield additive savings.

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.

Total P4P incentives are summarized below:

Total Recommended Project Savings 14.4%	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$5,000
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$5,000**

The current ECM's does not meet the minimum savings of 15% and therefore the building will not be eligible for incentives #2 and #3. See Appendix D for additional details.

5.1.2 New Jersey Smart Start Program

For this program, specific incentives for energy conservation measures are calculated on an individual basis utilizing the 2011 New Jersey Smart Start incentive program. This program provides incentives dependent upon mechanical and electrical equipment. If applicable, incentives from this program are reflected in the ECM summaries and attached appendices.

If the complex qualifies and enters into the New Jersey Pay for Performance Program, all energy savings will be included in the total site energy reduction, and savings will be applied towards the Pay for Performance incentive. A project is not applicable for both New Jersey incentive programs.

5.1.3 Direct Install Program

The Direct Install Program targets small and medium sized facilities where the peak electrical demand does not exceed 150 kW 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 or natural gas 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, natural gas, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can significantly reduce the implementation cost of energy conservation projects.

The program pays 70% of each project cost up to $75,000 per electrical utility account; total funding for each year is capped at $250,000 per customer. Installations must be completed by a Direct Install

participating contractor, a list of which can be found on the New Jersey Clean Energy Website at http://www.njcleanenergy.com. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this document.

The Penns Grove Middle School has a peak demand of 141 kW and therefore would be eligible for incentives under the Direct Install Program.

5.1.4 Energy Savings Improvement Plans (ESIP)

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" to pay for the capital costs of energy improvements to their facilities. This can be done over a maximum term of 15 years. Energy savings obligations 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 (see Appendix E). 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.

6.0 ALTERNATIVE ENERGY SCREENING EVALUATION

6.1 Solar

6.1.1 Photovoltaic Rooftop Solar Power Generation

The facility was evaluated for the potential to install rooftop photovoltaic (PV) solar panels for power generation. Present technology incorporates the use of solar cell arrays that produce direct current (DC) electricity. This DC current is converted to alternating current (AC) with the use of an electrical device known as an inverter. The building's roof has sufficient room to install a large solar cell array. All rooftop areas have been replaced, and are in good condition. It is recommended to install a permanent PV array at this time.

The PVWATTS solar power generation model was utilized to calculate PV power generation. The closest city available in the model is Newark, New Jersey and a fixed tilt array type was utilized to calculate energy production. The PVWATT solar power generation model is provided in Appendix F.

Federal tax credits are also available for renewable energy projects up to 30% of installation cost. Since the facility is a non-profit organization, federal taxes are paid and this project is eligible for this incentive.

Installation of (PV) arrays in the state New Jersey will allow the owner to participate in the New Jersey solar renewable energy certificates program (SREC). This is a program that has been set up to allow entities with large amounts of environmentally unfriendly emissions to purchase credits from zero emission (PV) solar-producers. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. The average SREC value per credit is estimated to be about $60/ SREC per year based on current market data, and this number was utilized in the cash flow for this report.

The existing available roof area justifies the use of 40 kW PV solar array. The system costs for PV installations were derived from contractor budgetary pricing in the state of New Jersey for estimates of total cost of system installation. It should be noted that the cost of installation is currently about $4.00 per watt or $4,000 per kW of installed system, for a 40 kW system. Other cost considerations will also need to be considered. PV panels have an approximate 20 year life span; however, the inverter device that converts DC electricity to AC has a life span of 10 to 12 years and will need to be replaced multiple times during the useful life of the PV system.

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

Photovoltaic (PV) Rooftop Solar Power Generation

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
160,000	**40**	**52,600**	**0**	**6,500**	**0**	**6,500**	**0**	**3,200**	**24.8**	**16.6**

This measure is not recommended due to the long payback time. It is suggested, however, that the market for SREC credits is closely monitored. This market is fluctuating, and if the value per SREC is increased the measure could potentially show for a shorter payback in the near future

6.1.2 Solar Thermal Hot Water Plant

Active solar thermal systems use solar collectors to gather the sun's energy to heat water, another fluid, or air. An absorber in the collector converts the sun's energy into heat. The heat is then transferred by circulating water, antifreeze, or sometimes air to another location for immediate use or storage for later utilization. Applications for active solar thermal energy include providing hot water, heating swimming pools, space heating, and 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 around the site's latitude, to maximize the amount of radiation collected on a yearly basis.

Several options exist for using active solar thermal systems for space heating. The most common method involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system). The most practical system would transfer the heat from the panels to thermal storage tanks and transfer solar produced thermal energy to use for domestic hot water production. DHW is presently produced by gas-fired water heaters and, therefore, this measure would offer natural gas utility savings.

Currently, an incentive is not available for installation of thermal solar systems; a Federal tax credit of 30% of installation cost for the thermal applications is available. This is not recommended since the facility currently uses natural gas, the building is not occupied year-round, and domestic hot water demand is not excessive.

6.2 Demand Response Curtailment

Presently, electricity is delivered by South Jersey Energy Company, which receives the electricity from regional power grid RFC. South Jersey Energy Company is a 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 July 2011 through June 2012, the Penns Grove Middle School had a maximum electricity demand of 141 kW and a minimum of 98 kW. The monthly average over the observed 12 month period was 127 kW.

This measure is not recommended because the facility is not operating year round, and the building does not have back up/emergency generator power.

7.0 EPA PORTFOLIO MANAGER

The EPA Portfolio Manager benchmarking tool was used to assess the building's energy performance. Portfolio Manager 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 ECMs, 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). Site EUI is a measure of a building's annual energy utilization per square foot. Site EUI is a good measure of a building's energy use and is utilized regularly for comparison of energy performance for similar building types.

$$\textbf{\textit{Site Energy Intensity}} = \frac{(\textit{Electric Usage in kBtu + Natural Gas in kBtu})}{\textit{Building Square Footage}}$$

To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, the Portfolio Manager uses the convention of Source EUIs. The source energy also accounts for all losses incurred in production, storage, transmission, and delivery of energy to the site; which provides an equivalent measure for various types of buildings with different energy sources.

$$\textbf{\textit{Source Energy Intensity}} = \frac{(\textit{Electric Usage in kBtu X Site/Source Ratio + Natural Gas in kBtu X Site/Source Ratio})}{\textit{Building Square Footage}}$$

The EPA Score, Site EUI, and Source EUI for the Penns Grove Middle School are as follows:

Energy Intensity	Penns Grove Middle School	National Average
EPA Score	27	50
Site (kBtu/sf/year)	63	52
Source (kBtu/sf/year)	109	89

The Penns Grove Middle School is considered a lower than average energy consumer by the EPA Portfolio Manager which gives it a higher than average EPA score. For the building to qualify for the Energy Star label the EPA score is required to be above 75. There are several energy conservation measures recommended in this report, that if implemented will further reduce the energy use intensity and increase the EPA score of the facility.

The Portfolio Manager account can be accessed by entering the username and password shown below at the login screen of the Portfolio Manager website (https://www.energystar.gov/istar/pmpam/).

Username: [redacted]
Password: [redacted]

A full EPA Energy Star Portfolio Manager Report is located in Appendix G.

The login information for the building's EPA Portfolio Manager Account has been provided to Frederick Weiss.

8.0 CONCLUSIONS & RECOMMENDATIONS

The Energy Conservation Measures (ECMs) identified in this report will allow for a more efficient use of energy and if pursued have the opportunity to qualify for the New Jersey SmartStart Buildings Program and/or Direct Install Program. Potential annual savings of $11,300 for the recommended ECMs may be realized with a payback of 8.4 years. A summary of the costs, savings, and paybacks for the recommended ECMs follows:

Summary of Energy Conservation Measures							
Energy Conservation Measure		**Approx. Costs ($)**	**Approx. Savings ($/year)**	**Payback (Years) w/o Incentive**	**Potential Incentive ($)***	**Payback (Years) w/ Incentive**	**Recommended For Implementation**
ECM-1	Install a Condensing Boiler	1,583,000	5,600	>20	2,600	>20	
2	Replace Domestic Hot Water Heater	14,000	3,500	4.0	600	3.8	X
3	Replace Exterior Door Seals & Sweeps	5,000	400	12.5	0	12.5	X
4	Lighting Replacements/ Upgrades	59,000	3,400	17.4	5,000	15.9	
5	Lighting Controls (Occupancy Sensors)	11,000	6,000	1.8	2,000	1.5	
6	Lighting Replacements/ Upgrades & Controls (Occupancy Sensors)	70,000	7,400	9.5	7,000	8.5	X
7	Water Conservation (Low Flow Fixtures)	65,000	3,600	18.1	0	18.1	

APPENDIX A

Utility Usage Analysis, Energy Suppliers List

Penns Grove - Carneys Point Board of Education
100 Iona Ave, Penns Grove, NJ 08069

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
0142 0469 9996	MS Stadium	S. Smith Ave Stadium, Penns Grove, NJ 08069	Electric	Stadium Lighting
0142 0289 9994	Middle School	Maple & Virginia Ave, Penns Grove, NJ 08069	Electric	
2 12 35 2797 0 6	PGR Middle School	Maple-Virginia Ave, Penns Grove, NJ	Gas	
18-1586569-4	Middle School	S. Virginia Ave, Penns Grove, NJ 08069	Water	

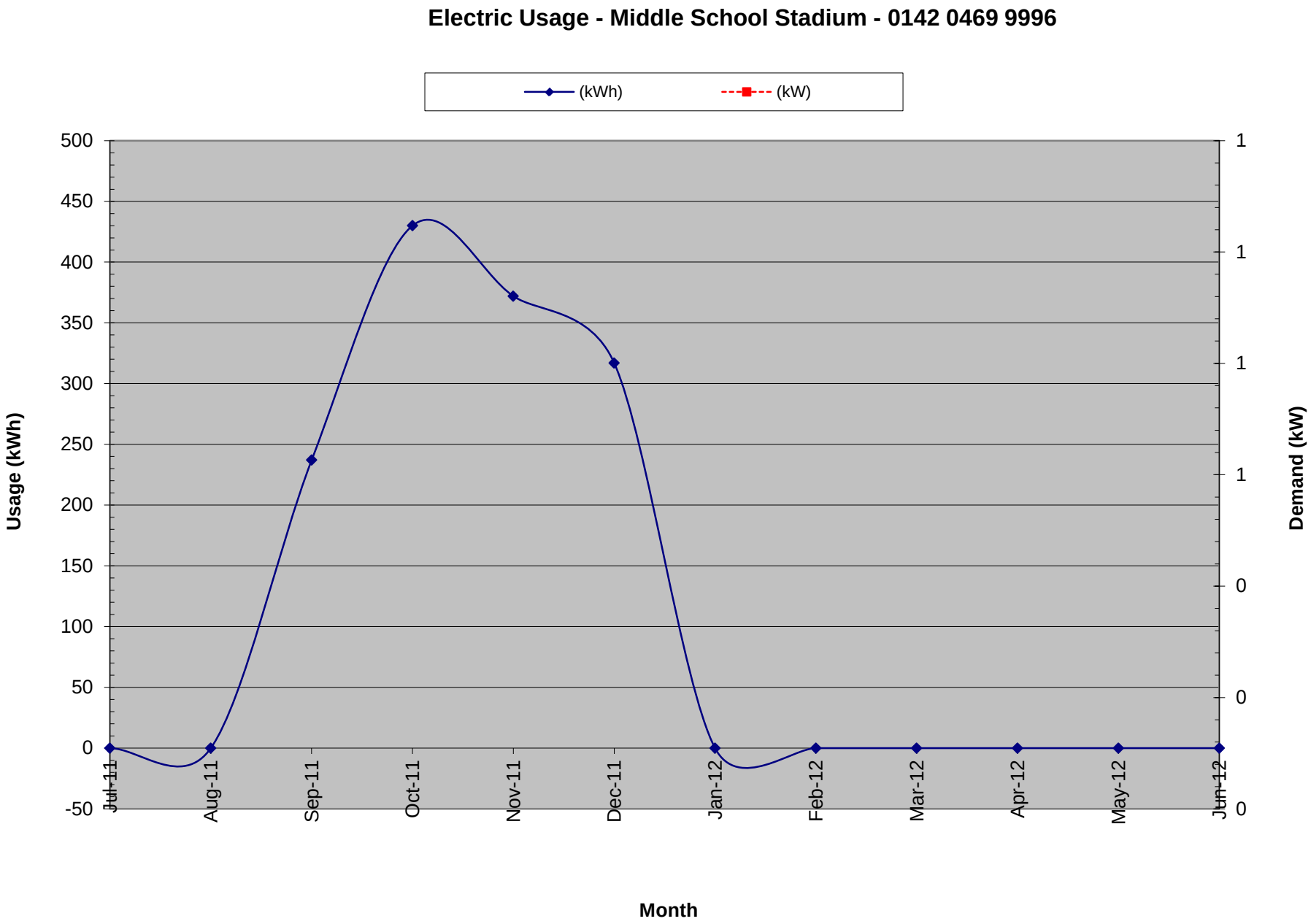
Penns Grove - Carneys Point Board of Education
100 Iona Ave, Penns Grove, NJ 08069

Electric Service
Delivery - ACE
Supplier - New Energy Inc / SJ Energy Co

For Service at: **MS Stadium**
Account No.: **0142 0469 9996**
Meter No.: **71411646**

			Charges			Unit Costs		
Month	Consumption (kWh)	Demand (kW)	Total ($)	Delivery ($)	Supply ($)	Blended Rate ($/kWh)	Consumption ($/kWh)	Demand ($/kW)
July-11	0		$5.21	$5.21		#DIV/0!	#DIV/0!	#DIV/0!
August-11	0		$5.38	$5.38		#DIV/0!	#DIV/0!	#DIV/0!
September-11	237		$44.54	$22.55	$21.99	$ 0.095	$ 0.188	#DIV/0!
October-11	430		$75.02	$33.27	$41.75	$ 0.174	$ 0.174	#DIV/0!
November-11	372		$64.68	$30.16	$34.52	$ 0.174	$ 0.174	#DIV/0!
December-11	317		$57.14	$27.72	$29.42	$ 0.180	$ 0.180	#DIV/0!
January-12	0		$5.73	$5.73		#DIV/0!	#DIV/0!	#DIV/0!
February-12	0		$4.86	$4.86		#DIV/0!	#DIV/0!	#DIV/0!
March-12	0		$5.56	$5.56		#DIV/0!	#DIV/0!	#DIV/0!
April-12	0		$5.04	$5.04		#DIV/0!	#DIV/0!	#DIV/0!
May-12	0		$5.21	$5.21		#DIV/0!	#DIV/0!	#DIV/0!
June-12	0		$0.00			#DIV/0!	#DIV/0!	#DIV/0!
			$0.00			#DIV/0!	#DIV/0!	#DIV/0!
			$0.00			#DIV/0!	#DIV/0!	#DIV/0!
			$0.00			#DIV/0!	#DIV/0!	#DIV/0!
			$0.00			#DIV/0!	#DIV/0!	#DIV/0!
Total (All)	**1,356**	**0.00**	**$278.37**	**$150.69**	**$127.68**	**$ 0.205**	**$ 0.205**	**#DIV/0!**

Notes
Designates an Interpolated value (data missing)


Electric Usage - Middle School Stadium - 0142 0469 9996
(kWh)
(kW)
Usage (kWh)
Demand (kW)
500
450
400
350
300
250
200
150
100
50
0
-50
1
1
1
1
0
0
0
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Jun-12
Month

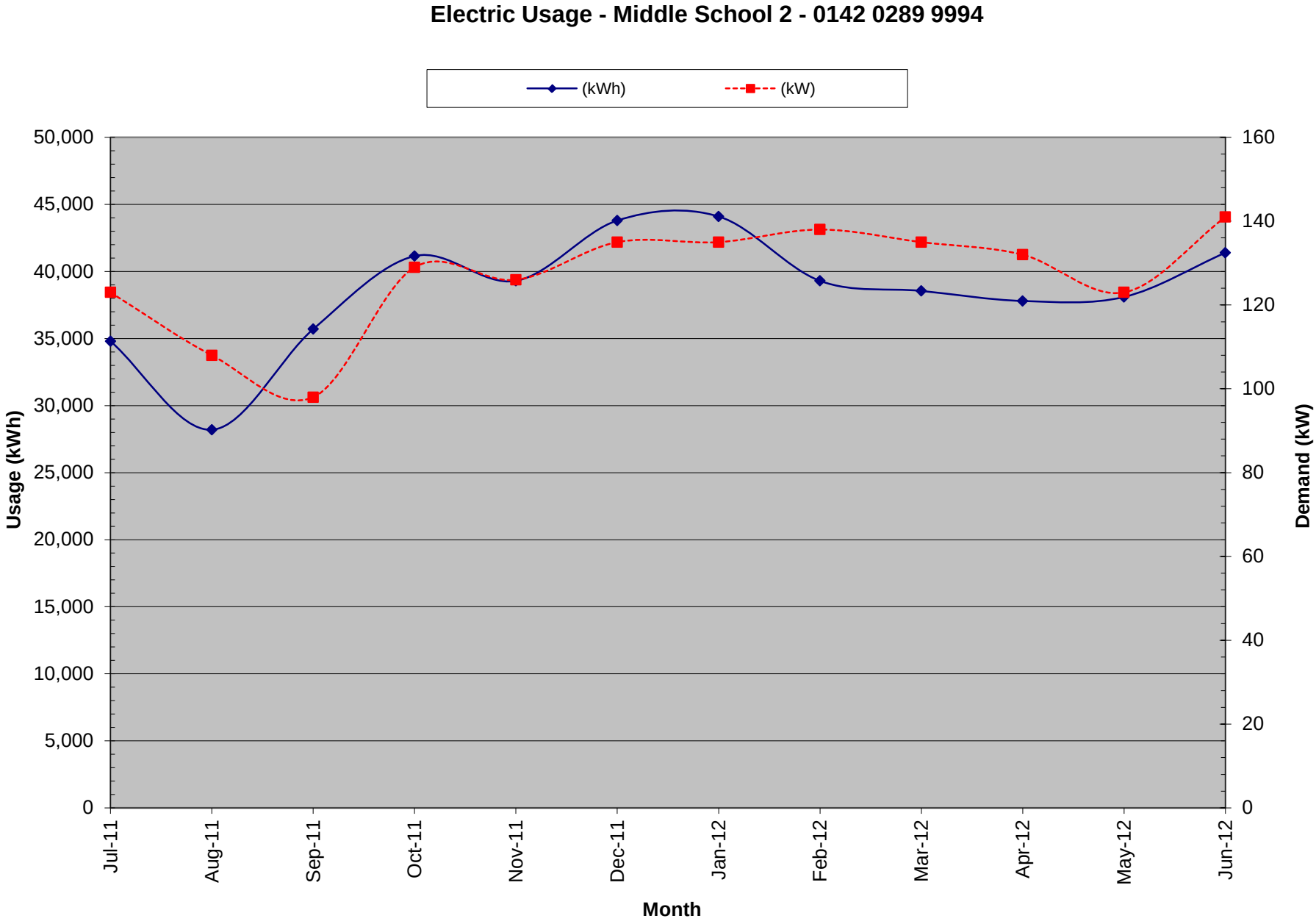
Penns Grove - Carneys Point Board of Education
100 Iona Ave, Penns Grove, NJ 08069

Electric Service
Delivery - ACE
Supplier - New Energy Inc / SJ Energy Co

For Service at: **Middle School**
Account No.: **0142 0289 9994**
Meter No.: **75766983**

			Charges			Unit Costs		
Month	Consumption (kWh)	Demand (kW)	Total ($)	Delivery ($)	Supply ($)	Blended Rate ($/kWh)	Consumption ($/kWh)	Demand ($/kW)
July-11	34,800	123.00	$1,781.63	$1,781.63		$ 0.051	$ 0.030	$ 5.93
August-11	28,200	108.00	$4,100.73	$1,537.07	$2,563.66	$ 0.145	$ 0.122	$ 6.13
September-11	35,700	98.00	$5,079.40	$1,833.91	$3,245.49	$ 0.051	$ 0.030	$ 7.69
October-11	41,151	129.00	$1,956.31	$1,956.31	$0.00	$ 0.048	$ 0.030	$ 5.73
November-11	39,300	126.00	$5,447.80	$1,875.04	$3,572.76	$ 0.139	$ 0.119	$ 6.13
December-11	43,800	135.00	$6,044.24	$2,062.38	$3,981.86	$ 0.138	$ 0.119	$ 6.13
January-12	44,100	135.00	$6,134.86	$2,125.73	$4,009.13	$ 0.139	$ 0.119	$ 6.52
February-12	39,300	138.00	$5,432.18	$1,859.42	$3,572.76	$ 0.138	$ 0.119	$ 5.53
March-12	38,550	135.00	$5,482.68	$1,882.64	$3,600.04	$ 0.142	$ 0.121	$ 5.92
April-12	37,800	132.00	$5,342.26	$1,905.86	$3,436.40	$ 0.141	$ 0.119	$ 6.33
May-12	38,100	123.00	$5,237.19	$1,773.52	$3,463.67	$ 0.137	$ 0.119	$ 5.73
June-12	41,400	141.00	$4,761.66	$1,992.01	$2,769.65	$ 0.115	$ 0.095	$ 5.93
Total (All)	**462,201**	**141.00**	**$56,800.94**	**$22,585.52**	**$34,215.42**	**$ 0.123**	**$ 0.096**	**$ 6.11**

Notes
Designates an Interpolated value (data missing)


Electric Usage - Middle School 2 - 0142 0289 9994
(kWh)
(kW)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
160
140
120
100
80
60
40
20
0
Usage (kWh)
Demand (kW)
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Jun-12
Month

Penns Grove - Carneys Point Board of Education
Maple & Virginia Ave, Penns Grove, NJ 08069

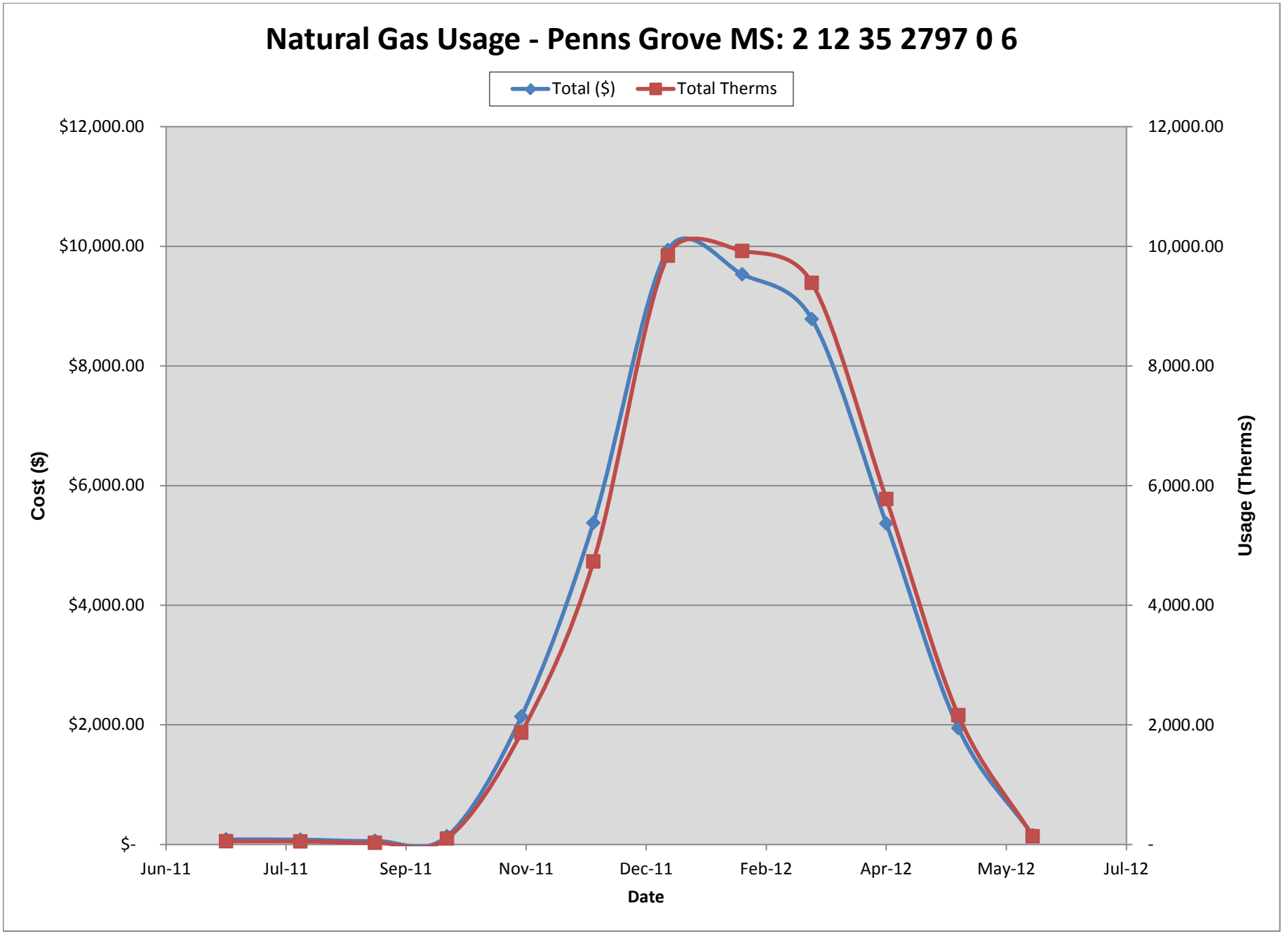
Gas Service
Delivery -
Supplier -

For Service at: **PGR Middle School**
Account No.: **2 12 35 2797 0 6**
Meter No.: **0292403**
0326049

Month	Total ($)	Delivery ($)	Supply ($)	Total Therms	$/Therm
Jul-11	$ 84.51	$ 50.75	$ 33.76	52.94	$ 1.60
Aug-11	$ 81.25	$ 48.85	$ 32.40	50.81	$ 1.60
Sep-11	$ 59.61	$ 41.02	$ 18.59	29.15	$ 2.04
Oct-11	$ 135.69	$ 72.45	$ 63.24	99.17	$ 1.37
Nov-11	$ 2,139.64	$ 948.01	$ 1,191.63	1,868.66	$ 1.15
Dec-11	$ 5,377.38	$ 2,361.53	$ 3,015.85	4,729.33	$ 1.14
Jan-12	$ 9,938.05	$ 4,872.89	$ 5,065.16	9,845.02	$ 1.01
Feb-12	$ 9,530.73	$ 4,862.99	$ 4,667.74	9,921.65	$ 0.96
Mar-12	$ 8,785.55	$ 4,604.66	$ 4,180.89	9,388.94	$ 0.94
Apr-12	$ 5,365.20	2,841.90	2,523.30	5,774.36	$ 0.92
May-12	$ 1,944.85	$ 1,079.14	$ 865.71	2,159.78	$ 0.90
Jun-12	$ 150.34	$ 90.10	$ 60.24	135.85	$ 1.11
Total	**$ 43,592.80**	**$ 21,874.29**	**$ 21,718.51**	**44,055.66**	**$ 0.99**

		Monthly	annual
	DHW	74	883
Notes	HHW Heating		43,173

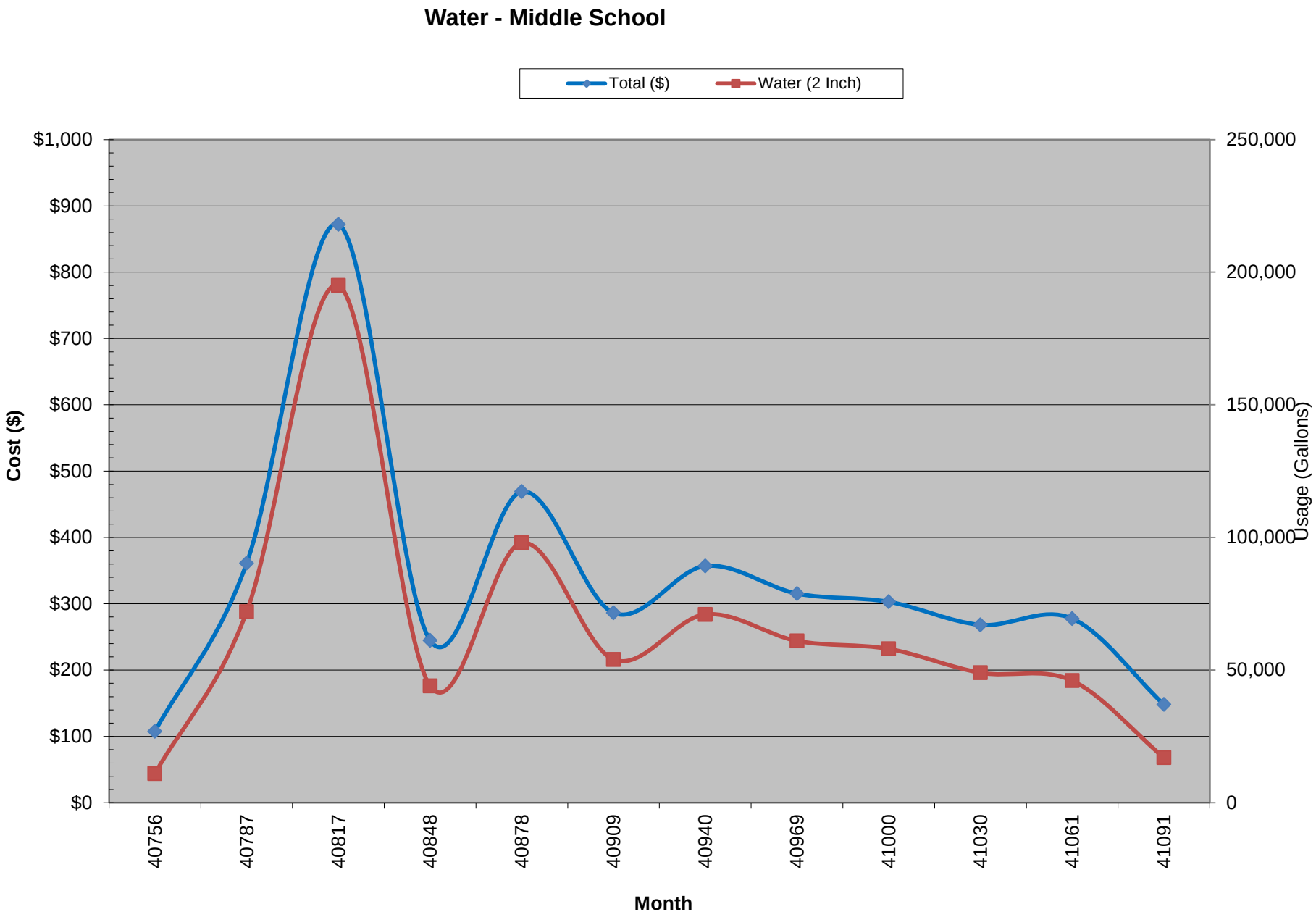
Designates an interpolated value (no data given)


Natural Gas Usage - Penns Grove MS: 2 12 35 2797 0 6
Total ($)
Total Therms
$12,000.00
$10,000.00
$8,000.00
$6,000.00
$4,000.00
$2,000.00
$-
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
-
Cost ($)
Usage (Therms)
Jun-11
Jul-11
Sep-11
Nov-11
Dec-11
Feb-12
Apr-12
May-12
Jul-12
Date

Penns Grove - Carneys Point Board of Education
100 Iona Ave, Penns Grove, NJ 08069

For Service at: **Middle School**
Account No.: **18-1586569-4**
Meter No.: **60580379** 2 Inch

Month	Total ($)	Gallons (2 Inch)	$/kGal
Aug-11	$ 107.72	11,000	$ 9.79
Sep-11	$ 361.24	72,000	$ 5.02
Oct-11	$ 872.11	195,000	$ 4.47
Nov-11	$ 244.80	44,000	$ 5.56
Dec-11	$ 469.14	98,000	$ 4.79
Jan-12	$ 286.34	54,000	$ 5.30
Feb-12	$ 356.97	71,000	$ 5.03
Mar-12	$ 315.41	61,000	$ 5.17
Apr-12	$ 302.96	58,000	$ 5.22
May-12	$ 268.21	49,000	$ 5.47
Jun-12	$ 277.64	46,000	$ 6.04
Jul-12	$ 148.00	17,000	$ 8.71
Jul-12			#REF!
Aug-12			#REF!
Sep-12			#REF!
Total	**$ 2,669.47**	**776,000**	**$ 5.88**


Water - Middle School
Total ($)
Water (2 Inch)
$1,000
$900
$800
$700
$600
$500
$400
$300
$200
$100
$0
Cost ($)
250,000
200,000
150,000
100,000
50,000
0
Usage (Gallons)
40756
40787
40817
40848
40878
40909
40940
40969
41000
41030
41061
41091
Month

ATLANTIC CITY ELECTRIC SERVICE TERRITORY
Last Updated: 09/11/12
***CUSTOMER CLASS - R – RESIDENTIAL C – COMMERCIAL I – INDUSTRIAL**

Supplier	Telephone	*Customer
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	(855) 553-6374 www.alphagasandelectric.com	**R/C** **ACTIVE**
Ambit Northeast, LLC 103 Carnegie Center Suite 300 Princeton, NJ 08540	(877) 30-AMBIT (877) 302-6248 www.ambitenergy.com	**R/C** **ACTIVE**
American Powernet Management, LP 437 North Grove St. Berlin, NJ 08009	(877) 977-2636 www.americanpowernet.com	**C** **ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	(201) 384-5552	**R/C/I** **ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	**C/I ACTIVE**
Champion Energy Services, LLC 72 Avenue L Newark, NJ 07105	(877) 653-5090 www.championenergyservices.com	**R/C/I** **ACTIVE**
Clearview Electric, Inc. 505 Park Drive Woodbury, NJ 08096	(888) CLR-VIEW (800) 746- 4702 www.clearviewenergy.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**
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(866) 237-7693 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**
Direct Energy Business, LLC 120 Wood Avenue	(888) 925-9115 www.directenergybusiness.com	**C/I** **ACTIVE**
Direct Energy Services, LLC 120 Wood Avenue	(866) 547-2722 www.directenergy.com	**C/I** **ACTIVE**
Discount Energy Group, LLC 811 Church Road, Suite 149	(800) 282-3331 www.discountenergygroup.com	**R/C** **ACTIVE**
DTE Energy Supply, Inc. One Gateway Center, Suite 2600	877-332-2450 www.dtesupply.com	**C/I** **ACTIVE**
Energy Plus Holdings LLC 309 Fellowship Road	(877) 866-9193 www.energypluscompany.com	**R/C** **ACTIVE**
Ethical Electric Benefit Co. d/b/a Ethical Electric	(888) 444-9452 www.ethicalelectric.com	**R/C ACTIVE**
FirstEnergy Solutions Corp. 300 Madison Avenue	(800) 977-0500 www.fes.com	**C/I** **ACTIVE**
Gateway Energy Services Corporation	(800) 805-8586 www.gesc.com	**R/C/I** **ACTIVE**
GDF SUEZ Energy Resources NA, Inc.	(866) 999-8374 www.gdfsuezenergyresources.com	**C/I** **ACTIVE**
Glacial Energy of New Jersey, Inc.	(888) 452-2425	**C/I**
Lafayette, NJ 07848	www.glacialenergy.com	**ACTIVE**

Hess Corporation 1 Hess Plaza	(800) 437-7872 www.hess.com	**C/I** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road	(888) 264-4908 www.hikoenergy.com	**R/C** **ACTIVE**
IDT Energy, Inc. 550 Broad Street	(973) 438-4380 www.idtenergy.com	**R/C** **ACTIVE**
Independence Energy Group, LLC	(877) 235-6708 www.chooseindependence.com	**R/C ACTIVE**
Integrys Energy Services, Inc. 99 Wood Avenue, South	(877) 769-9977 www.integrysenergy.com	**C/I** **ACTIVE**
Liberty Power Delaware, LLC 3000 Atrium Way, Suite 273	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Liberty Power Holdings, LLC 3000 Atrium Way, Suite 273	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Linde Energy Services 575 Mountain Avenue	(800) 247-2644 www.linde.com	**C/I** **ACTIVE**
NATGASCO, Inc. 532 Freeman St.	(973) 678-1800 x. 251 www.supremeenergyinc.com	**R/C** **ACTIVE**
NextEra Energy Services New Jersey, LLC	(877) 528-2890 Commercial (800) 882-1276 Residential	**R/C/I** **ACTIVE**
NJ Gas & Electric 1 Bridge Plaza fl. 2	866-568-0290 www.NJGandE.com	**R/C/I** **ACTIVE**
Noble Americas Energy Solutions The Mac-Cali Building	(877) 273-6772 www.noblesolutions.com	**C/I** **ACTIVE**
North American Power and Gas, LLC 222 Ridgedale Ave.	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**
Palmco Power NJ, LLC One Greentree Centre	(877) 726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Pepco Energy Services, Inc. 112 Main St.	(800) ENERGY-9 (363-7499) www.pepco-services.com	**C/I** **ACTIVE**
PPL EnergyPlus, LLC 811 Church Road	(800) 281-2000 www.pplenergyplus.com	**C/I** **ACTIVE**
Public Power & Utility of New Jersey, LLC	(888) 354-4415 www.ppandu.com	**R/C/I** **ACTIVE**
Reliant Energy	(877) 297-3795 (877) 297-3780 www.reliant.com/pjm	**R C/I ACTIVE**
ResCom Energy LLC 18C Wave Crest Ave.	(888) 238-4041 http://rescomenergy.com	**R/C/I** **ACTIVE**
Respond Power LLC 10 Regency CT	(877) 973-7763 www.respondpower.com	**R/C/I** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza, Route 54	(800) 266-6020 www.southjerseyenergy.com	**C/I** **ACTIVE**
Sperian Energy Corp. 1200 Route 22 East, Suite 2000	(888) 682-8082	**R/C/I** **ACTIVE**
Starion Energy PA Inc. 101 Warburton Avenue	(800) 600-3040 www.starionenergy.com	**R/C/I** **ACTIVE**
Stream Energy 309 Fellowship Road, Suite 200	(877) 369-8150 www.streamenergy.net	**R** **ACTIVE**
UGI Energy Services, Inc. d/b/a GASMARK 224 Strawbridge Drive	(856) 273-9995 www.ugienergyservices.com	**C/I** **ACTIVE**
Verde Energy USA, Inc. 50 East Palisades Avenue	(800) 388-3862 www.lowcostpower.com	**R/C/I** **ACTIVE**
Viridian Energy 2001 Route 46, Waterview Plaza	(866) 663-2508 www.viridian.com	**R/C/I** **ACTIVE**
Xoom Energy New Jersey, LLC 744 Broad Street	888-997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
YEP Energy 89 Headquarters Plaza North	855-363-7736 www.yepenergyNJ.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International	(855) 732-2493 www.thisisyourenergy.com	**R/C/I ACTIVE**

Back to main supplier information page

SOUTH JERSEY GAS SERVICE TERRITORY

Last Updated: 09/11/12

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

Supplier	Telephone	Customer
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	(855) 553-6374 www.alphagasandelectric.com	**R/C ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	201- 384-5552 www.astralenergyllc.com	**R/C/I ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	**C/I ACTIVE**
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. 1085 Morris Avenue, Suite 150 Union, NJ 07083	866-867-8328 908-638-6605 www.compassenergy.net	**C/I ACTIVE**
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 900A Lake Street, Suite 2 Ramsey, NJ 07466	(800) 900-1982 www.constellation.com	**C/I ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	888-925-9115 www.directenergy.com	**C/I ACTIVE**
Direct Energy Services, LLP 120 Wood Avenue, Suite 611 Iselin, NJ 08830	866-547-2722 www.directenergy.com	**R/C/I INACTIVE**
Energy Plus Natural Gas LP 309 Fellowship Road, East Gate Center, Suite 200 Mt. Laurel, NJ 08054	(877) 866-9193 www.energypluscompany.com	**R/C ACTIVE**
Gateway Energy Services Corp. 44 Whispering Pines Lane Lakewood, NJ 08701	800-805-8586 www.gesc.com	**R/C/I ACTIVE**
UGI Energy Services, Inc. d/b/a GASMARK 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	856-273-9995 www.ugienergyservices.com	**C/I ACTIVE**
Glacial Energy of New Jersey, Inc. 75 Route 15 Building E Lafayette, NJ 07848	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**
Hess Energy, Inc. One Hess Plaza Woodbridge, NJ 07095	800-437-7872 www.hess.com	**C/I ACTIVE**
Hess Small Business Services, LLC One Hess Plaza Woodbridge, NJ 07095	888-494-4377 www.hessenergy.com	**C/I ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	973-438-4380 www.idtenergy.com	**R/C ACTIVE**
Integrys Energy Services – Natural Gas, LLC 99 Wood Avenue South Suite #802 Iselin, NJ 08830	(800) 536-0151 www.integrysenergy.com	**C/I ACTIVE**
Intelligent Energy 2050 Center Avenue, Suite 500 Fort Lee, NJ 07024	800-927-9794 www.intelligentenergy.org	**R/C/I ACTIVE**
Metromedia Energy, Inc. 6 Industrial Way Eatontown, NJ 07724	800-828-9427 www.metromediaenergy.com	**C ACTIVE**
MxEnergy, Inc. 900 Lake Street Ramsey, NJ 07446	800-758-4374 www.mxenergy.com	**R/C/I ACTIVE**
NATGASCO (Mitchell Supreme) 532 Freeman Street Orange, NJ 07050	800-840-4GAS www.natgasco.com	**C ACTIVE**
New Jersey Gas & Electric 1 Bridge Plaza, Fl. 2 Fort Lee, NJ 07024	866-568-0290 www.NJGandE.com	**R/C ACTIVE**
North American Power & Gas, LLC **d/b/a North American Power** 197 Route 18 South Ste. 3000 East Brunswick, NJ 08816	(888) 313-9086 www.napower.com	**C/I 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**
Pepco Energy Services, Inc. 112 Main Street Lebanon, NJ 08833	800-363-7499 www.pepco-services.com	**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 811 Church Road - Office 105 Cherry Hill, NJ 08002	800-281-2000 www.pplenergyplus.com	**C/I ACTIVE**

Shell Energy North America (US) L.P. 17 Denison Street, Room 101B Highland Park, NJ 08904	800-281-2824 www.shell.com/us/energy	**C/I ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	800-266-6020 www.southjerseyenergy.com	**C/I ACTIVE**
Sprague Energy Corp. 12 Ridge Road Chatham Township, NJ 07928	855-466-2842 www.spragueenergy.com	**C/I ACTIVE**
Stream Energy New Jersey, LLC 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(973) 494-8097 www.streamenergy.net	**R/C 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 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

New Jersey BPU Energy Audit Program
CHA #24510
Penns Grove-Carneys Point Regional School District
Penns Grove Middle School
Original Construction Date: 1935
Renovation/Addtion Date: 1954

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.
Boiler-1	1	H.B. Smith	M450L	N/A	Boiler	2903 MBH Min /6968 MBH Max	Mechanical Equipment Room	School	1954	-23	N/A
Air Compressor	1	Baldor	M3167T	35B01-754	Air Compressor	2 HP	Mechanical Equipment Room	School	1954	-38	N/A
DHW Heater	1	Bradford-White	MII120-18-3SF-39	XB-01-1343	Storage Tank Water Heater	120 Gallons @180F /18 kW	Mechanical Equipment Room	School	2000	8	N/A
Motor	1	Baldor	M3219T	36B01-194	Air Compressor Motor	7.5 HP /3-Phase	Mechanical Equipment Room	School	1954	-40	N/A
DHW Heat Exchanger	1	Bell & Gossett	10VLR2-5	E7171-34902AF	Heat Exchanger	3-Phase	Mechanical Equipment Room	School	1954	-34	N/A
DHW Pump	1	Marathon Electric	HVL 56T34D55988 P	DMO 076	Pump	1.5 HP /3-Phase	Mechanical Equipment Room	School	1995	3	N/A
DHW Heater	1	State Industries Inc	CV 6 1SMS8 K	J95893201	Electric Water Heater	6 Gallons /1.65 kW	Custodial Room	School	2000	8	N/A
CU	1	Carrier	24ACA330A300	2506E29949	Condensor Unit	3 Ton /13 SEER	Outside	School	2006	14	N/A
CU	1	Carrier	24ANA736A300	2606E37444	Condensor Unit	5 Ton /17 SEER	Outside	School	2006	14	N/A
Window A/C	1	General Electric	AEH24DKH1	FM883135	Air Conditioning Unit /Electric	1.9 Ton /8.5 EER	Faculty Room	School	N/A	N/A	Good
Window A/C	1	White-Westinghouse	N/A	N/A	Air Conditioning Unit /Electric	N/A	Faculty Room	School	N/A	N/A	Poor
Window A/C	1	Fedders	A6D24E7D-A	FV139952158X	Air Conditioning Unit /Electric	2 Ton /8.5 EER	Faculty Room	School	N/A	N/A	Good
Window A/C	1	Fedders	A6D24E7A-L	CT518790089F	Air Conditioning Unit /Electric	2 Ton /8.5 EER	Faculty Room	School	N/A	N/A	Fair

New Jersey BPU Energy Audit Program
CHA #24510
Penns Grove-Carneys Point Regional School District
Penns Grove Middle School
Original Construction Date: 1935
Renovation/Addtion Date: 1954

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.
											New
											New
											New
											New

New Jersey BPU Energy Audit Program
CHA #24510
Penns Grove-Carneys Point Regional School District
Penns Grove Middle School
Original Construction Date: 1935
Renovation/Addtion Date: 1954

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.

APPENDIX C

ECM Calculations

Summary of Energy Conservation Measures							
Energy Conservation Measure		**Approx. Costs ($)**	**Approx. Savings ($/year)**	**Payback (Years) w/o Incentive**	**Potential Incentive ($)***	**Payback (Years) w/ Incentive**	**Recommended For Implementation**
ECM-1	Install a Condensing Boiler	1,583,000	12,500	>20	2,600	>20	
ECM-2	Replace Domestic Hot Water Heater	14,000	3,500	4.0	600	3.8	X
ECM-3	Replace Exterior Door Seals & Sweeps	5,000	400	12.5	0	12.5	X
ECM-4	Lighting Replacement/Upgrades	59,000	3,400	17.4	5,000	15.9	
ECM-5	Lighting Controls (Occupancy Sensors)	11,000	6,000	1.8	2,000	1.5	
ECM-6	Lighting Replacement/Upgrades & Controls (Occupancy Sensors)	70,000	7,400	9.5	7,000	8.5	X
ECM-7	Water Conservation (Low Flow Fixtures)	65,000	3,600	18.1	0	18.1	

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM Summary Sheet

ECM-1 Install a Condensing Boiler

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
1,583,000	0	0	12,700	12,500	0	12,500	(0.8)	2,600	>20	>20

ECM-2 Replace Domestic Hot Water Heater

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
14,000	29,400	0	-800	3,500	0	3,500	2.1	600	4.0	3.8

ECM-3 Replace Exterior Door Seals & Sweeps

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
5,000	0	0	400	400	0	400	(0.6)	0	12.5	12.5

ECM-4 Lighting Replacement/Upgrades

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
59,000	26,400	0	0	3,400	0	3,400	(0.1)	5,000	17.4	15.9

ECM-5 Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
11,000	49,000	0	0	6,000	0	6,000	7.0	2,000	1.8	1.5

ECM-6 Lighting Replacement/Upgrades & Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
70,000	68,000	0	0	7,400	0	7,400	0.6	7,000	9.5	8.5

ECM-7 Water Conservation (Low Flow Fixtures)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
65,000	0	0	0	3,600	0	3,600	0.1	0	18.1	18.1

Penns Grove-Carneys Point Regional School District **NJBPU**
CHA #24510

Utility Costs		Yearly Usage	MTCDE	Building Area	Annual Utility Cost	
$ 0.123	$/kWh blended		0.00042021	85,540	Electric	Natural Gas
$ 0.096	$/kWh supply	462,201	0.00042021		$ 56,801	$ 43,593
$ 6.11	$/kW	141				
$ 0.99	$/Therm	44,056	0.00533471			
$ 5.88	$/kgals	776				

Penns Grove Middle School

	Item	Savings						Cost	Simple Payback	MTCDE	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings						ROI
		kW	kWh	therms	cooling kWh	kgal/yr	$										kW	kWh	therms	cooling	kgal/yr	$	
ECM-1	Install a Condensing Boiler	0.0	0	12,670	0	0	$ 12,500	$ 1,582,800	126.6	67.6	25	$ 2,625	Y	$ 75,000	$ 2,625	126.4	0.0	0	316,756	0	0	$ 313,588	(0.8)
ECM-2	Replace Domestic Hot Water Heater	19.7	29,421	-759	0	0	$ 3,500	$ 13,745	3.9	8.3	12	$ 600	Y	$ 9,600	$ 600	3.8	235.8	353,050	(9,107)	0	0	$ 42,166	2.1
ECM-3	Replace Exterior Door Seals & Sweeps	0.0	0	426	0	0	$ 400	$ 5,352	13.4	2.3	5			$ -	$ -	13.4	0.0	0	2,130	0	0	$ 2,109	(0.6)
ECM-4	Lighting Replacement/Upgrades	11.6	26,424	0	0	0	$ 3,400	$ 59,124	17.4	11.1	15.0	$ 5,010	Y	$ 41,400	$ 5,010	15.9	174.6	396,361	0	0	0	$ 50,851	(0.1)
ECM-5	Lighting Controls (Occupancy Sensors)	0.0	49,044	0	0	0	$ 6,000	$ 11,340	1.9	20.6	15.0	$ 1,960	Y	$ 7,900	$ 1,960	1.6	0.0	735,657	0	0	0	$ 90,486	7.0
ECM-6	Lighting Replacement/Upgrades & Controls (Occupancy Sensors)	11.6	67,985	0	0	0	$ 7,400	$ 70,464	9.5	28.6	15.0	$ 6,970	Y	$ 49,300	$ 6,970	8.6	174.6	1,019,777	0	0	0	$ 110,699	0.6
ECM-7	Water Conservation (Low Flow Fixtures)	0.0	0	0	0	608	$ 3,600	$ 65,076	18.1	0.0	20.0		Y	$ 45,600	$ -	18.1	0.0	0	0	0	12,167	$ 71,544	0.1
	Total (Does Not Include ECM-13 & ECM-14)	**31**	**97,406**	**12,337**	**0**	**608**	**$ 27,400**	**$ 1,737,437**	**63.4**	**106.7**		**10,195**		**179,500**	**10,195**	**63.0**	**410.4**	**1,372,827**	**309,780**	**0.0**	**12,167**	**540,106.3**	(0.7)
	Total Measures with Payback <15	**31**	**97,406**	**(333)**	**0**	**0**	**$ 11,300**	**$ 89,561**	**7.9**	**39.2**		**7,570**		**58,900**	**7,570**	**7.3**	**410.4**	**1,372,827**	**(6,976)**	**0.0**	**0.0**	**154,974.4**	0.7
	% of Existing	**22%**	**21%**	**28%**	**0%**	**78%**																	

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-1: Steam heating system to hot water

Existing Fuel	Nat.Gas
Proposed Fuel	Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 0.99	/ Therm	
Proposed Fuel Cost	$ 0.99	/ Therm	
Baseline Fuel Use	43,173	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	65%		Estimated or Measured
Baseline Boiler Load	2,806,222	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 42,741		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	30,502	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 30,197		

*Note to engineer: Link savings back to summary sheet in appropriate column.

BOILER REPLACEMENT SAVINGS SUMMARY					
	Electric Demand	**Electric Usage**	**Nat Gas Usage**	**Maint.**	**Total Cost**
	(kW)	**(kWh)**	**(Therms)**	**($)**	**($)**
Savings	**0**	**0**	**12,670**	**$0**	**$12,544**

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

Multipliers	
Material:	0.98
Labor:	1.22
Equipment:	1.09

ECM-1: Steam heating system to hot water

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Demolition	1	LS		$ 50,000					$ 50,000	
3,000 MBH NG Condensing Boiler	2	EA	$ 45,000	$ 45,000					$ 90,000	
Flue Installation	2	EA	$ 10,000.0	$ 5,000.00		$ 19,520	$ 12,240	$ -	$ 31,760	
Controls	2	EA	$ 1,500.0	$ 1,000.00		$ 2,928	$ 2,448	$ -	$ 5,376	
Miscellaneous Electrical	2	LS	$ 5,000	$ 15,000		$ 9,760	$ 36,720	$ -	$ 46,480	
HW Piping	1	LS	$ 150,000	$ 250,000		$ 146,400	$ 306,000	$ -	$ 452,400	
primary pump	2	EA	$ 1,500	$ 1,000		$ 2,928	$ 2,448	$ -	$ 5,376	
Secondary pumps	2	EA	$ 3,500	$ 2,000		$ 6,832	$ 4,896	$ -	$ 11,728	
Hydronic Specialties	1	LS	$ 10,000	$ 10,000		$ 9,760	$ 12,240	$ -	$ 22,000	
Unit Ventilators	40	EA	$ 5,000	$ 5,000		$ 195,200	$ 244,800	$ -	$ 440,000	
Controls	40	EA	$ 500	$ 500		$ 19,520	$ 24,480	$ -	$ 44,000	

Note: Costs are used for savings calulations only. Do not use for procurement

$ 1,199,120	Subtotal
$119,912.00	10% Contingency
$263,806.40	20% Contractor O&P
$ -	
$ 1,582,800	**Total**

ECM-2: Replace two (2) Electric DHW Heaters w/ two (2) Tankless Condensing Gas-Fired DHW Heaters

Summary

* Replace Electric DHW Heater w/ Instantaneous, Condensing, Gas-Fired DHW Heater

Item	Value	Units	Formula/Comments
Occupied days per week	5	days/wk	
Water supply Temperature	55	˚F	Termperature of water coming into building
Hot Water Temperature	120	˚F	
Hot Water Usage per day	518	gal/day	Calculated from usage below
Annual Hot Water Energy Demand	72,852	MBTU/yr	Energy required to heat annual quantity of hot water to setpoint
Existing Tank Size	120	Gallons	Per manufacturer nameplate
Hot Water Temperature	150	˚F	Per building personnel
Average Room Temperature	70	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	2.0	MBH	
Annual Standby Hot Water Load	17,520	MBTU/yr	
Total Annual Hot Water Demand (w/ standby losses)	90,372	Mbtu/yr	Building demand plus standby losses
Existing Water Heater Efficiency	90%		Per Manufacturer
Total Annual Energy Required	100,413	Mbtu/yr	
Total Annual Electric Required	**29,421**	**kWh/yr**	**Electrical Savings**
Average Annual Electric Demand	3.36	kW	
Peak Electric Demand	**19.7**	**kW**	**Per Manufacturer's Nameplate (Demand Savings)**
New Tank Size	0	Gallons	tankless
Hot Water Temperature	120	˚F	
Average Room Temperature	70	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	0.0	MBH	
Annual Standby Hot Water Load	0	MBTU/yr	
Prop Annual Hot Water Demand (w/ standby losses)	72,852	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on Navien CR180 instantaneous, condensing DHW Heater
Proposed Total Annual Energy Required	75,888	MBTU/yr	
Proposed Fuel Use	759	Therms/yr	Standby Losses and inefficient DHW heater eliminated
Elec Utility Demand Unit Cost	$6.11	$/kW	
Elec Utility Supply Unit Cost	$0.10	$/kWh	
NG Utility Unit Cost	$0.99	$/Therm	
Existing Operating Cost of DHW	$4,265	$/yr	
Proposed Operating Cost of DHW	$751	$/yr	
Annual Utility Cost Savings	**$3,514**	**$/yr**	

Daily Hot Water Demand

			#USES PER DAY		FULL TIME OCCUPANTS**				
FIXTURE	*BASE WATER USE GPM	DURATION OF USE (MIN)	MALE	FEMALE	MALE	FEMALE	TOTAL GAL/DAY	% HOT WATER	TOTAL HW GAL/DAY
LAVATORY (Low-Flow Lavs use 0.5 GPM)	2.5	0.25	3	3	245	245	919	50%	459
SHOWER	2.5	5	1	1	0	0	0	75%	0
KITCHEN SINK	2.5	0.5	1	1	3	3	8	75%	6
MOP SINK	2.5	2	1	1	3	3	30	75%	23
Dishwasher (gal per u	10	1	1	0	3	3	30	100%	30
						TOTAL	956		**518**

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-2 Replace electric water heaters with gas water heaters

Multipliers	
Material:	0.98
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Gas-Fired DHW Heater Removal	2	LS		$ 150		$ -	$ 367	$ -	$ 367	
High Efficiency Gas-Fired DHW Heater	2	LS	$ 1,500	$ 1,000		$ 2,928	$ 2,448	$ -	$ 5,376	
Miscellaneous Electrical	2	LS	$ 300	$ 300		$ 586	$ 734	$ -	$ 1,320	
Venting Kit	2	EA	$ 450	$ 650		$ 878	$ 1,591	$ -	$ 2,470	
Miscellaneous Piping and Valves	2	LS	$ 200	$ 200		$ 390	$ 490	$ -	$ 880	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Note: Costs are used for savings calulations only. Do not use for procurement

$ 10,413	Subtotal
$ 1,041	10% Contingency
$ 2,291	20% Contractor O&P
$ -	
$ 13,745	**Total**

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-3: Install Door Seals

Existing: Lack of door seals result in excessive heat loss and infiltration
Proposed: Install door seals and/or weather-stripping to reduce air infiltration

Heating System Efficiency	75%		Ex Occupied Clng Temp.	70	*F	Ex Occupied Htg Temp.	65	*F
Cooling System Efficiency	0.00	kW/ton	Ex Unoccupied Clng Temp.	78	*F	Ex Unoccupied Htg Temp.	62	*F
Linear Feet of Door Edge	248.75		Cooling Occ Enthalpy Setpoint	27.5	Btu/lb	Electricity	$ 0.12	$/kWh
Existing Infiltration Factor*	1.5	cfm/LF	Cooling Unocc Enthalpy Setpoint	27.5	Btu/lb	Natural Gas	$ 0.99	$/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
97.5	39.7	9	2	7	-20,485	-20,485	-6,145	-6,145	0	0	0	0
92.5	37.7	69	16	53	-17,126	-17,126	-5,138	-5,138	0	0	0	0
87.5	35.7	132	31	101	-13,768	-13,768	-4,130	-4,130	0	0	0	0
82.5	33.7	344	82	262	-10,410	-10,410	-3,123	-3,123	0	0	0	0
77.5	31.3	566	135	431	-6,380	0	-1,914	0	0	0	0	0
72.5	29.7	755	180	575	-3,694	0	-1,108	0	0	0	0	0
67.5	28	780	186	594	0	0	0	0	0	0	0	0
62.5	25.2	889	212	677	1,007	0	302	0	0	0	3	1
57.5	21.8	742	177	565	3,022	1,813	907	544	0	0	21	6
52.5	18.8	627	149	478	5,037	3,828	1,511	1,148	0	0	34	10
47.5	16.9	725	173	552	7,052	5,843	2,116	1,753	0	0	59	18
42.5	14.5	795	189	606	9,067	7,858	2,720	2,357	0	0	86	26
37.5	12.7	784	187	597	11,082	9,873	3,325	2,962	0	0	106	32
32.5	10.9	682	162	520	13,097	11,888	3,929	3,566	0	0	111	33
27.5	8.8	345	82	263	15,112	13,903	4,533	4,171	0	0	65	20
22.5	7.2	229	55	174	17,126	15,918	5,138	4,775	0	0	49	15
17.5	5.6	189	45	144	19,141	17,932	5,742	5,380	0	0	46	14
12.5	4.1	70	17	53	21,156	19,947	6,347	5,984	0	0	19	6
7.5	2.7	20	5	15	23,171	21,962	6,951	6,589	0	0	6	2
2.5	1.3	8	2	6	25,186	23,977	7,556	7,193	0	0	3	1
TOTALS		**8,760**	**2,086**	**6,674**					**0**	**0**	**609**	**183**

Existing Door Infiltration	**373**	**cfm**
Existing Unoccupied Door Infiltration	**373**	**cfm**
Proposed Door Infiltration	**112**	**cfm**
Proposed Unoccupied Door Infiltration	**112**	**cfm**

Savings	**426**	**therms**	**$ 422**
	0	**kWh**	**$ -**
			$ 422

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

Multipliers	
Material:	0.98
Labor:	1.22
Equipment:	1.09

ECM- 3 replace door seals

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
									$ -	
Door Seals (3'x7')	26	ea	$ 35	$ 50	$ -	$ 888	$ 1,591	$ -	$ 2,479	
36" Door Threshold Seal	26	ea	$ 50.00	$ 45.00	$ -	$ 1,269	$ 1,432	$ -	$ 2,701	
Side and Top Door Seal	26	ft	$ 3.00	$ 3.00		$ 76	$ 95	$ -	$ 172	
						$ -	$ -	$ -	$ -	

Note: Costs are used for savings calulations only. Do not use for procurement

$ 5,352	Subtotal
$ -	
$ -	
$ -	
$ 5,352	**Total**

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-7 Replace urinals and flush valves with low flow

EXISTING CONDITIONS		
Cost of Water / 1000 Gallons	$5.88	$ / kGal
Urinals in Building	11	
Average Flushes / Urinal (per Day)	20	
Average Gallons / Flush	3.0	Gal

PROPOSED CONDITIONS		
Proposed Urinals to be Replaced	11	
Proposed Gallons / Flush	0.5	Gal
Proposed Material Cost	$1,000	
Proposed Installation Cost	$228	
Total cost of new urinals & valves	$13,508	

SAVINGS		
Current Urinal Water Use	242	kGal / year
Proposed Urinal Water Use	40	kGal / year
Water Savings	202	kGal / year
Cost Savings	$1,187	/ year
Simple Payback	11.37678	years

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-7 Replace toilets and flush valves with low flow

EXISTING CONDITIONS		
Cost of Water / 1000 Gallons	$5.88	$ / kGal
Toilets in Building	34	
Average Flushes / Toilet (per Day)	9	
Average Gallons / Flush	3.5	Gal

PROPOSED CONDITIONS		
Proposed Toilets to be Replaced	34	
Proposed Gallons / Flush	1.6	Gal
Proposed Material Cost of new Flush Valves	$1,000	
Proposed Installation cost of new Flush Valves	$252	
Total cost of new toilets & valves	$42,568	

SAVINGS		
Current Toilet Water Use	377	kGal / year
Proposed Toilet Water Use	172	kGal / year
Water Savings	205	kGal / year
Cost Savings	$1,203	/ year
Simple Payback	35.3801	years

Penns Grove-Carneys Point Regional School District
CHA #24510
Penns Grove Middle School

ECM-7: Replace faucets with low flow

EXISTING CONDITIONS		
Cost of Water / 1000 Gallons	$5.88	$ / kGal
Faucets in Building	18	
Average Uses / Faucet (per day)	25	Gal
Average Time of Use	0.5	min
Average Flowrate	3.0	gpm

PROPOSED CONDITIONS		
Proposed Faucets to be Replaced	18	
Proposed Flowrate	0.5	gpm
Proposed Material Cost of new Faucets	$250	
Proposed Installation cost of new Faucets	$250	
Total cost of new faucets	$9,000	

SAVINGS		
Current Faucet Water Use	242	kGal / year
Proposed Faucet Water Use	40	kGal / year
Water Savings	202	kGal / year
Cost Savings	$1,187	/ year
Simple Payback	7.6	years

ECM-4 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
$59,124	**11.6**	**26,424**	**0**	**$4,101**	**0**	**$4,101**	**$5,010**	**14.4**	**13.2**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-5 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
$11,340	**0.0**	**49,044**	**0**	**$6,027**	**0**	**$6,027**	**$1,960**	**1.9**	**1.6**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-6 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
$70,464	**11.6**	**67,985**	**0**	**$9,208**	**0**	**$9,208**	**$6,970**	**7.7**	**6.9**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

Existing Lighting

Cost of Electricity: **$0.123** **$/kWh**

$6.11 **$/kW**

			EXISTING CONDITIONS									
	Area Description	**Usage**	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Retrofit Control**	**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" 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 annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	C-OCC	60	
18	230	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
18	229	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
71	Womens Bathroom Closet (3rd Floor)	Storage Areas	2	I 60	I60/1	60	0.12	SW	1000	C-OCC	120	
18	Womens Bathroom	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	C-OCC	672	
18	228	Classrooms	10	T 32 R F 4 (ELE)	F44ILL	112	1.12	SW	2400	NONE	2,688	
18	227	Classrooms	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	2400	NONE	1,613	
18	227A	Classrooms	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2400	C-OCC	1,075	
18	B2	Classrooms	8	T 32 R F 4 (ELE)	F44ILL	112	0.90	SW	2400	C-OCC	2,150	
18	126	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	C-OCC	3,226	
71	Closet	Storage Areas	2	I 60	I60/1	60	0.12	SW	1000	C-OCC	120	
18	Hallway	Hallways	16	T 32 R F 4 (ELE)	F44ILL	112	1.79	SW	2280	C-OCC	4,086	
X5	Main Entrance	Hallways	5	CF42/1-L	CF42/1-L	48	0.24	SW	2280	C-OCC	547	
X5	Main Entrance	Hallways	4	CF42/1-L	CF42/1-L	48	0.19	SW	2280	NONE	438	
71	Main Entrance	Hallways	2	I 60	I60/1	60	0.12	SW	2280	NONE	274	
71	Entrance	Hallways	2	I 60	I60/1	60	0.12	SW	2280	NONE	274	
18	130	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	NONE	3,226	
18	129	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	NONE	3,226	
71	Womens Bathroom Closet (2nd Floor)	Storage Areas	2	I 60	I60/1	60	0.12	SW	1000	C-OCC	120	
18	Womens Bathroom	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	C-OCC	672	
18	Library	Classrooms	23	T 32 R F 4 (ELE)	F44ILL	112	2.58	SW	2400	C-OCC	6,182	
16	A2	Classrooms	12	T 34 R F 2 (MAG)	F42EE	72	0.86	SW	2400	NONE	2,074	
141	Auditorium	Auditorium	24	HPS 250	HPS250/1	295	7.08	SW	1000	NONE	7,080	
71	Auditorium	Auditorium	4	I 60	I60/1	60	0.24	SW	1000	NONE	240	
16	A1	Classrooms	12	T 34 R F 2 (MAG)	F42EE	72	0.86	SW	2400	C-OCC	2,074	
18	Nurse	Offices	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2400	NONE	1,075	
16	Nurse	Offices	1	T 34 R F 2 (MAG)	F42EE	72	0.07	SW	2400	C-OCC	173	
35	Main Office	Offices	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2400	NONE	648	
35	Main Office	Offices	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	2400	C-OCC	1,728	
35	Vice Principal Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2400	NONE	864	
35	Main Office Bathroom	Bath Room	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	2000	NONE	180	
35	Guidance Office	Offices	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	2400	C-OCC	1,728	
18	121	Classrooms	10	T 32 R F 4 (ELE)	F44ILL	112	1.12	SW	2400	C-OCC	2,688	
18	Mens Bathroom (2nd Floor)	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	C-OCC	672	
71	Mens Bathroom (2nd Floor)	Bath Room	2	I 60	I60/1	60	0.12	SW	2000	C-OCC	240	
71	Mens Bathroom Closet (2nd Floor)	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	C-OCC	60	
18	Main Office	Offices	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2400	C-OCC	538	
X5	Main Office Entrance	Hallways	1	CF42/1-L	CF42/1-L	48	0.05	SW	2280	C-OCC	109	
71	Exit	Hallways	2	I 60	I60/1	60	0.12	SW	2280	C-OCC	274	
16	29	Classrooms	24	T 34 R F 2 (MAG)	F42EE	72	1.73	SW	2400	C-OCC	4,147	
18	Hallway (2nd Floor)	Hallways	26	T 32 R F 4 (ELE)	F44ILL	112	2.91	SW	2280	C-OCC	6,639	
18	Hallway (1st Floor)	Hallways	26	T 32 R F 4 (ELE)	F44ILL	112	2.91	SW	2280	NONE	6,639	
16	29-A Closet	Storage Areas	4	T 34 R F 2 (MAG)	F42EE	72	0.29	SW	1000	C-OCC	288	
18	29-A	Classrooms	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	2400	C-OCC	1,613	
71	Womens Bathroom (1st Floor)	Bath Room	2	I 60	I60/1	60	0.12	SW	2000	NONE	240	
18	Womens Bathroom (1st Floor)	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	NONE	672	
18	27	Classrooms	19	T 32 R F 4 (ELE)	F44ILL	112	2.13	SW	2400	C-OCC	5,107	
20	Kitchen	Cafeteria	29	S 32 C F 1 (ELE)	F41LL	32	0.93	SW	1600	NONE	1,485	
71	Kitchen Exitway	Hallways	2	I 60	I60/1	60	0.12	SW	2280	NONE	274	
71	Kitchen Bathroom	Bath Room	1	I 60	I60/1	60	0.06	SW	2000	NONE	120	
18	Kitchen Breakroom	Staff Lounge	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	5000	NONE	2,240	
18	Cafeteria	Cafeteria	28	T 32 R F 4 (ELE)	F44ILL	112	3.14	SW	1600	NONE	5,018	

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

Existing Lighting

Cost of Electricity: **$0.123** **$/kWh**

$6.11 **$/kW**

			EXISTING CONDITIONS									
	Area Description	**Usage**	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Retrofit Control**	**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" 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 annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
18	26	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	C-OCC	3,226	
18	23	Classrooms	16	T 32 R F 4 (ELE)	F44ILL	112	1.79	SW	2400	C-OCC	4,301	
18	22	Classrooms	18	T 32 R F 4 (ELE)	F44ILL	112	2.02	SW	2400	C-OCC	4,838	
18	Mens Bathroom (1st Floor)	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	NONE	672	
71	Mens Bathroom (1st Floor)	Bath Room	1	I 60	I60/1	60	0.06	SW	2000	NONE	120	
71	Mens Bathroom Closet (1st Floor)	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
18	21	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	C-OCC	3,226	
71	Stair Tower 1	Stairway	8	I 60	I60/1	60	0.48	SW	3200	NONE	1,536	
71	Stair Tower 2	Stairway	8	I 60	I60/1	60	0.48	SW	3200	NONE	1,536	
71	Kitchen	Cafeteria	8	I 60	I60/1	60	0.48	SW	1600	NONE	768	
47	Girls Locker Room	Locker	10	1B 34 C F 2 (MAG)	F42EE	72	0.72	SW	2800	NONE	2,016	
71	Hallway	Hallways	2	I 60	I60/1	60	0.12	SW	2280	NONE	274	
71	Hallway	Hallways	2	I 60	I60/1	60	0.12	SW	2280	NONE	274	
47	Mens Locker Room	Locker	12	1B 34 C F 2 (MAG)	F42EE	72	0.86	SW	2800	NONE	2,419	
13	Office	Offices	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	2400	C-OCC	432	
71	Office Bathroom	Bath Room	1	I 60	I60/1	60	0.06	SW	2000	NONE	120	
18	Exitway Gym	Hallways	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2280	NONE	255	
18	Exitway Gym	Hallways	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2280	NONE	255	
35	Principals Office	Offices	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2400	C-OCC	2,592	
93	Science Storage	Storage Areas	1	I 75	I75/1	75	0.08	SW	1000	NONE	75	
18	220	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
18	Mens Bathroom	Bath Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2000	NONE	672	
93	Mens Bathroom Janitor Closet	inen/Utility/Wet/Janitor/Electrica	2	I 75	I75/1	75	0.15	SW	1000	NONE	150	
18	221	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
16	222	Classrooms	12	T 34 R F 2 (MAG)	F42EE	72	0.86	SW	2400	C-OCC	2,074	
18	Stairway Room	Classrooms	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2400	C-OCC	269	
18	224	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
16	B-1	Classrooms	8	T 34 R F 2 (MAG)	F42EE	72	0.58	SW	2400	C-OCC	1,382	
18	Foster	Classrooms	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	2400	C-OCC	1,613	
93	Foster Bathroom	Bath Room	1	I 75	I75/1	75	0.08	SW	2000	NONE	150	
18	223	Classrooms	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2400	C-OCC	2,419	
47	Main Womens Bathroom	Bath Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.14	SW	2000	NONE	288	
47	Janitor Closet	inen/Utility/Wet/Janitor/Electrica	1	1B 34 C F 2 (MAG)	F42EE	72	0.07	SW	1000	NONE	72	
18	Main Boys Bathroom	Bath Room	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2000	NONE	448	
20	112	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	111	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	114	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	113	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	116	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	115	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
47	Roof Access / Supply Room	Storage Areas	2	1B 34 C F 2 (MAG)	F42EE	72	0.14	SW	1000	NONE	144	
47	LA/SS Supply Room	Storage Areas	2	1B 34 C F 2 (MAG)	F42EE	72	0.14	SW	1000	NONE	144	
18	Electrical and Paper Supply Room	Storage Areas	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	1000	NONE	336	
20	117	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
47	Faculty Lounge	Staff Lounge	1	1B 34 C F 2 (MAG)	F42EE	72	0.07	SW	5000	C-OCC	360	
20	Faculty Lounge	Staff Lounge	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	5000	C-OCC	1,600	
47	Faculty Lounge Mens Bathroom	Bath Room	1	1B 34 C F 2 (MAG)	F42EE	72	0.07	SW	2000	NONE	144	
47	Faculty Lounge Womens Bathroom	Bath Room	1	1B 34 C F 2 (MAG)	F42EE	72	0.07	SW	2000	NONE	144	
16	120	Classrooms	10	T 34 R F 2 (MAG)	F42EE	72	0.72	SW	2400	C-OCC	1,728	
47	Girls Bathroom	Bath Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.14	SW	2000	NONE	288	
39	Janitor Closet	inen/Utility/Wet/Janitor/Electrica	1	2' 17 W F 2 (ELE)	F22ILL	33	0.03	SW	1000	NONE	33	
18	Boys Bathroom	Bath Room	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2000	NONE	448	

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

Existing Lighting

Cost of Electricity: **$0.123** **$/kWh**

$6.11 **$/kW**

			EXISTING CONDITIONS									
	Area Description	**Usage**	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Retrofit Control**	**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" 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 annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
20	12	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
18	10	Classrooms	24	T 32 R F 4 (ELE)	F44ILL	112	2.69	SW	2400	C-OCC	6,451	
16	10-Band Office	Offices	3	T 34 R F 2 (MAG)	F42EE	72	0.22	SW	2400	C-OCC	518	
47	10-Band Office Storage	Storage Areas	1	1B 34 C F 2 (MAG)	F42EE	72	0.07	SW	1000	NONE	72	
11	10-Far Office	Offices	2	S 34 P F 2 (MAG)	F42EE	72	0.14	SW	2400	C-OCC	346	
11	10-Storage	Storage Areas	2	S 34 P F 2 (MAG)	F42EE	72	0.14	SW	1000	NONE	144	
47	11	Classrooms	2	1B 34 C F 2 (MAG)	F42EE	72	0.14	SW	2400	C-OCC	346	
20	13	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382	
20	15	Classrooms	48	S 32 C F 1 (ELE)	F41LL	32	1.54	SW	2400	C-OCC	3,686	
16	15-Storage	Storage Areas	2	T 34 R F 2 (MAG)	F42EE	72	0.14	SW	1000	NONE	144	
16	Larson Office	Offices	1	T 34 R F 2 (MAG)	F42EE	72	0.07	SW	2400	C-OCC	173	
18	DL	Classrooms	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	2400	C-OCC	1,613	
18	DL1	Classrooms	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2400	C-OCC	3,226	
18	DL2	Classrooms	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	2400	C-OCC	1,613	
18	DL3	Classrooms	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2400	C-OCC	806	
13	DL Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
18	D Storage	Storage Areas	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	1000	NONE	224	
16	20	Classrooms	12	T 34 R F 2 (MAG)	F42EE	72	0.86	SW	2400	C-OCC	2,074	
127	20 Upper Storage	Storage Areas	3	DC 40 C I 2	I40/2	80	0.24	SW	1000	NONE	240	
16	20 Lower Storage	Storage Areas	2	T 34 R F 2 (MAG)	F42EE	72	0.14	SW	1000	NONE	144	
191	Boiler Room	Mechanical Room	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.49	SW	1000	NONE	492	
18	Coaches Office	Offices	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2400	C-OCC	806	
141	Gym	Gymnasium	28	HPS 250	HPS250/1	295	8.26	SW	2912	NONE	24,053	
228	Gym Equipment Room	Gymnasium	1	W60CF1	F81EL	60	0.06	SW	2912	NONE	175	
228	Gym PA Room	Gymnasium	1	W60CF1	F81EL	60	0.06	SW	2912	NONE	175	
229	Gym Equipment Room	Gymnasium	1	DC135CI1	i135/1	135	0.14	SW	2912	NONE	393	
142LED	Exterior	Outdoor Lighting	2	MH 100	MH100/1	128	0.26	SW	4368	C-OCC	1,118	
236	Exterior	Outdoor Lighting	22	R 75 C Q 1	h75/1	75	1.65	SW	4368	C-OCC	7,207	
236	Exterior	Outdoor Lighting	8	R 75 C Q 1	h75/1	75	0.60	SW	4368	C-OCC	2,621	
93	Exterior	Outdoor Lighting	3	I 75	I75/1	75	0.23	SW	4368	C-OCC	983	
	Total		**1,032**				**93.27**				**216,093**	

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-4 Lighting Replacements

Cost of Electricity: **$0.123 $/kWh**

$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA 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
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	0	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.35	$ 106.25	$10	45.1	8.0
18	230	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
18	229	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
71	Womens Bathroom Closet (3rd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	SW	1,000	54	66	0.1	$ 12.95	$ 13.50	$0	1.0	0.2
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
18	228	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688	10	0	F44SSILL	96	1.0	SW	2,400	2,304	384	0.2	$ 58.92	$ 1,062.50	$100	18.0	2.5
18	227	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	SW	2,400	1,382	230	0.1	$ 35.35	$ 637.50	$60	18.0	2.5
18	227A	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	0	F44SSILL	96	0.4	SW	2,400	922	154	0.1	$ 23.57	$ 425.00	$40	18.0	2.5
18	B2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2400	2,150	8	0	F44SSILL	96	0.8	SW	2,400	1,843	307	0.1	$ 47.14	$ 850.00	$80	18.0	2.5
18	126	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
71	Closet	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	SW	1,000	54	66	0.1	$ 12.95	$ 13.50	$0	1.0	0.2
18	Hallway	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2280	4,086	16	0	F44SSILL	96	1.5	SW	2,280	3,502	584	0.3	$ 90.50	$ 1,700.00	$160	18.8	2.6
X5	Main Entrance	5	CF42/1-L	CF42/1-L	48	0.2	SW	2280	547	5	CF42/1-L	CF42/1-L	48	0.2	SW	2,280	547	-	0.0	$ -	$ -	$0		
X5	Main Entrance	4	CF42/1-L	CF42/1-L	48	0.2	SW	2280	438	4	CF42/1-L	CF42/1-L	48	0.2	SW	2,280	438	-	0.0	$ -	$ -	$0		
71	Main Entrance	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
71	Entrance	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
18	130	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
18	129	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
71	Womens Bathroom Closet (2nd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	SW	1,000	54	66	0.1	$ 12.95	$ 13.50	$0	1.0	0.2
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
18	Library	23	T 32 R F 4 (ELE)	F44ILL	112	2.6	SW	2400	6,182	23	0	F44SSILL	96	2.2	SW	2,400	5,299	883	0.4	$ 135.51	$ 2,443.75	$230	18.0	2.5
16	A2	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,382	691	0.3	$ 106.05	$ 1,377.00	$120	13.0	1.8
141	Auditorium	24	HPS 250	HPS250/1	295	7.1	SW	1000	7,080	24	HPS 250	HPS250/1	295	7.1	SW	1,000	7,080	-	0.0	$ -	$ -	$0		
71	Auditorium	4	I 60	I60/1	60	0.2	SW	1000	240	4	CF 26	CFQ26/1-L	27	0.1	SW	1,000	108	132	0.1	$ 25.90	$ 27.00	$0	1.0	0.2
16	A1	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,382	691	0.3	$ 106.05	$ 1,377.00	$120	13.0	1.8
18	Nurse	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	0	F44SSILL	96	0.4	SW	2,400	922	154	0.1	$ 23.57	$ 425.00	$40	18.0	2.5
16	Nurse	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	T 28 R F 2	F42SSILL	48	0.0	SW	2,400	115	58	0.0	$ 8.84	$ 114.75	$10	13.0	1.8
35	Main Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2400	648	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2,400	648	-	0.0	$ -	$ -	$0		
35	Main Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2,400	1,728	-	0.0	$ -	$ -	$0		
35	Vice Principal Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2,400	864	-	0.0	$ -	$ -	$0		
35	Main Office Bathroom	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2000	180	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2,000	180	-	0.0	$ -	$ -	$0		
35	Guidance Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2,400	1,728	-	0.0	$ -	$ -	$0		
18	121	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688	10	0	F44SSILL	96	1.0	SW	2,400	2,304	384	0.2	$ 58.92	$ 1,062.50	$100	18.0	2.5
18	Mens Bathroom (2nd Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
71	Mens Bathroom (2nd Floor)	2	I 60	I60/1	60	0.1	SW	2000	240	2	CF 26	CFQ26/1-L	27	0.1	SW	2,000	108	132	0.1	$ 21.06	$ 13.50	$0	0.6	0.1
71	Mens Bathroom Closet (2nd Floor)	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.47	$ 6.75	$0	1.0	0.2
18	Main Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2400	538	2	0	F44SSILL	96	0.2	SW	2,400	461	77	0.0	$ 11.78	$ 212.50	$20	18.0	2.5
X5	Main Office Entrance	1	CF42/1-L	CF42/1-L	48	0.0	SW	2280	109	1	CF42/1-L	CF42/1-L	48	0.0	SW	2,280	109	-	0.0	$ -	$ -	$0		
71	Exit	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
16	29	24	T 34 R F 2 (MAG)	F42EE	72	1.7	SW	2400	4,147	24	T 28 R F 2	F42SSILL	48	1.2	SW	2,400	2,765	1,382	0.6	$ 212.11	$ 2,754.00	$240	13.0	1.8
18	Hallway (2nd Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639	26	0	F44SSILL	96	2.5	SW	2,280	5,691	948	0.4	$ 147.06	$ 2,762.50	$260	18.8	2.6
18	Hallway (1st Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639	26	0	F44SSILL	96	2.5	SW	2,280	5,691	948	0.4	$ 147.06	$ 2,762.50	$260	18.8	2.6
16	29-A Closet	4	T 34 R F 2 (MAG)	F42EE	72	0.3	SW	1000	288	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	96	0.1	$ 18.83	$ 459.00	$40	24.4	4.4
18	29-A	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	SW	2,400	1,382	230	0.1	$ 35.35	$ 637.50	$60	18.0	2.5
71	Womens Bathroom (1st Floor)	2	I 60	I60/1	60	0.1	SW	2000	240	2	CF 26	CFQ26/1-L	27	0.1	SW	2,000	108	132	0.1	$ 21.06	$ 13.50	$0	0.6	0.1
18	Womens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
18	27	19	T 32 R F 4 (ELE)	F44ILL	112	2.1	SW	2400	5,107	19	0	F44SSILL	96	1.8	SW	2,400	4,378	730	0.3	$ 111.95	$ 2,018.75	$190	18.0	2.5
20	Kitchen	29	S 32 C F 1 (ELE)	F41LL	32	0.9	SW	1600	1,485	29	S 32 C F 1 (ELE)	F41LL	32	0.9	SW	1,600	1,485	-	0.0	$ -	$ -	$0		
71	Kitchen Exitway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
71	Kitchen Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	SW	2,000	54	66	0.0	$ 10.53	$ 6.75	$0	0.6	0.1
18	Kitchen Breakroom	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	5000	2,240	4	0	F44SSILL	96	0.4	SW	5,000	1,920	320	0.1	$ 44.02	$ 425.00	$40	9.7	1.2
18	Cafeteria	28	T 32 R F 4 (ELE)	F44ILL	112	3.1	SW	1600	5,018	28	0	F44SSILL	96	2.7	SW	1,600	4,301	717	0.4	$ 120.93	$ 2,975.00	$280	24.6	3.8
18	26	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
18	23	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2400	4,301	16	0	F44SSILL	96	1.5	SW	2,400	3,686	614	0.3	$ 94.27	$ 1,700.00	$160	18.0	2.5
18	22	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	2400	4,838	18	0	F44SSILL	96	1.7	SW	2,400	4,147	691	0.3	$ 106.05	$ 1,912.50	$180	18.0	2.5
18	Mens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
71	Mens Bathroom (1st Floor)	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	SW	2,000	54	66	0.0	$ 10.53	$ 6.75	$0	0.6	0.1
71	Mens Bathroom Closet (1st Floor)	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.47	$ 6.75	$0	1.0	0.2
18	21	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
71	Stair Tower 1	8	I 60	I60/1	60	0.5	SW	3200	1,536	8	CF 26	CFQ26/1-L	27	0.2	SW	3,200	691	845	0.3	$ 123.17	$ 54.00	$0	0.4	0.1
71	Stair Tower 2	8	I 60	I60/1	60	0.5	SW	3200	1,536	8	CF 26	CFQ26/1-L	27	0.2	SW	3,200	691	845	0.3	$ 123.17	$ 54.00	$0	0.4	0.1
71	Kitchen	8	I 60	I60/1	60	0.5	SW	1600	768	8	CF 26	CFQ26/1-L	27	0.2	SW	1,600	346	422	0.3	$ 71.26	$ 54.00	$0	0.8	0.1
47	Girls Locker Room	10	1B 34 C F 2 (MAG)	F42EE	72	0.7	SW	2800	2,016	10	1B 28 C F 2	F42SSILL	48	0.5	SW	2,800	1,344	672	0.2	$ 100.18	$ 1,282.50	$0	12.8	1.9
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	SW	2,280	123	150	0.1	$ 23.33	$ 13.50	$0	0.6	0.1
47	Mens Locker Room	12	1B 34 C F 2 (MAG)	F42EE	72	0.9	SW	2800	2,419	12	1B 28 C F 2	F42SSILL	48	0.6	SW	2,800	1,613	806	0.3	$ 120.21	$ 1,539.00	$0	12.8	1.9
13	Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432	3	0	F42SSILL	48	0.1	SW	2,400	346	86	0.0	$ 13.26	$ 318.75	$30	24.0	3.3
71	Office Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	SW	2,000	54	66	0.0	$ 10.53	$ 6.75	$0	0.6	0.1
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255	1	0	F44SSILL	96	0.1	SW	2,280	219	36	0.0	$ 5.66	$ 106.25	$10	18.8	2.6
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255	1	0	F44SSILL	96	0.1	SW	2,280	219	36	0.0	$ 5.66	$ 106.25	$10	18.8	2.6
35	Principals Office	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2400	2,592	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2,400	2,592	-	0.0	$ -	$ -	$0		
93	Science Storage	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	48	0.0	$ 9.42	$ 5.00	$0	0.5	0.1
18	220	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
18	Mens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	SW	2,000	576	96	0.0	$ 15.32	$ 318.75	$30	20.8	3.0
93	Mens Bathroom Janitor Closet	2	I 75	I75/1	75	0.2	SW	1000	150	2	CF 26	CFQ26/1-L	27	0.1	SW	1,000	54	96	0.1	$ 18.83	$ 10.00	$0	0.5	0.1
18	221	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
16	222	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,382	691	0.3	$ 106.05	$ 1,377.00	$120	13.0	1.8
18	Stairway Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2400	269	1	0	F44SSILL	96	0.1	SW	2,400	230	38	0.0	$ 5.89	$ 106.25	$10	18.0	2.5
18	224	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
16	B-1	8	T 34 R F 2 (MAG)	F42EE	72	0.6	SW	2400	1,382	8	T 28 R F 2	F42SSILL	48	0.4	SW	2,400	922	461	0.2	$ 70.70	$ 918.00	$80	13.0	1.8
18	Foster	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	SW	2,400	1,382	230	0.1	$ 35.35	$ 637.50	$60	18.0	2.5
93	Foster Bathroom	1	I 75	I75/1	75	0.1	SW	2000	150	1	CF 26	CFQ26/1-L	27	0.0	SW	2,000	54	96	0.0	$ 15.32	$ 5.00	$0	0.3	0.1
18	223	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	SW	2,400	2,074	346	0.1	$ 53.03	$ 956.25	$90	18.0	2.5
47	Main Womens Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288	2	1B 28 C F 2	F42SSILL	48	0.1	SW	2,000	192	96	0.0	$ 15.32	$ 256.50	$0	16.7	2.7
47	Janitor Closet	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72	1	1B 28 C F 2	F42SSILL	48	0.0	SW	1,000	48	24	0.0	$ 4.71	$ 128.25	$0	27.2	5.3
18	Main Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448	2	0	F44SSILL	96	0.2	SW	2,000	384	64	0.0	$ 10.21	$ 212.50	$20	20.8	3.0
20	112	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
20	111	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
20	114	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
20	113	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
20	116	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-4 Lighting Replacements

Cost of Electricity: **$0.123 $/kWh**
$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA 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
20	115	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
47	Roof Access / Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	1B 28 C F 2	F42SSILL	48	0.1	SW	1,000	96	48	0.0	$ 9.42	$ 256.50	$0	27.2	5.3
47	LA/SS Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	1B 28 C F 2	F42SSILL	48	0.1	SW	1,000	96	48	0.0	$ 9.42	$ 256.50	$0	27.2	5.3
18	Electrical and Paper Supply Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	1000	336	3	0	F44SSILL	96	0.3	SW	1,000	288	48	0.0	$ 9.42	$ 318.75	$30	33.8	6.0
20	117	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
47	Faculty Lounge	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	5000	360	1	1B 28 C F 2	F42SSILL	48	0.0	SW	5,000	240	120	0.0	$ 16.51	$ 128.25	$0	7.8	1.1
20	Faculty Lounge	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	5000	1,600	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	5,000	1,600	-	0.0	$ -	$ -	$0		
47	Faculty Lounge Mens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144	1	1B 28 C F 2	F42SSILL	48	0.0	SW	2,000	96	48	0.0	$ 7.66	$ 128.25	$0	16.7	2.7
47	Faculty Lounge Womens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144	1	1B 28 C F 2	F42SSILL	48	0.0	SW	2,000	96	48	0.0	$ 7.66	$ 128.25	$0	16.7	2.7
16	120	10	T 34 R F 2 (MAG)	F42EE	72	0.7	SW	2400	1,728	10	T 28 R F 2	F42SSILL	48	0.5	SW	2,400	1,152	576	0.2	$ 88.38	$ 1,147.50	$100	13.0	1.8
47	Girls Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288	2	1B 28 C F 2	F42SSILL	48	0.1	SW	2,000	192	96	0.0	$ 15.32	$ 256.50	$0	16.7	2.7
39	Janitor Closet	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	1000	33	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		
18	Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448	2	0	F44SSILL	96	0.2	SW	2,000	384	64	0.0	$ 10.21	$ 212.50	$20	20.8	3.0
20	12	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
18	10	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	2400	6,451	24	0	F44SSILL	96	2.3	SW	2,400	5,530	922	0.4	$ 141.41	$ 2,550.00	$240	18.0	2.5
16	10-Band Office	3	T 34 R F 2 (MAG)	F42EE	72	0.2	SW	2400	518	3	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	346	173	0.1	$ 26.51	$ 344.25	$30	13.0	1.8
47	10-Band Office Storage	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72	1	1B 28 C F 2	F42SSILL	48	0.0	SW	1,000	48	24	0.0	$ 4.71	$ 128.25	$0	27.2	5.3
11	10-Far Office	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	346	2	C 28 P F 2	F42SSILL	48	0.1	SW	2,400	230	115	0.0	$ 17.68	$ 212.50	$20	12.0	1.7
11	10-Storage	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	C 28 P F 2	F42SSILL	48	0.1	SW	1,000	96	48	0.0	$ 9.42	$ 212.50	$20	22.6	4.0
47	11	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2400	346	2	1B 28 C F 2	F42SSILL	48	0.1	SW	2,400	230	115	0.0	$ 17.68	$ 256.50	$0	14.5	2.2
20	13	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2,400	1,382	-	0.0	$ -	$ -	$0		
20	15	48	S 32 C F 1 (ELE)	F41LL	32	1.5	SW	2400	3,686	48	S 32 C F 1 (ELE)	F41LL	32	1.5	SW	2,400	3,686	-	0.0	$ -	$ -	$0		
16	15-Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	48	0.0	$ 9.42	$ 229.50	$20	24.4	4.4
16	Larson Office	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	T 28 R F 2	F42SSILL	48	0.0	SW	2,400	115	58	0.0	$ 8.84	$ 114.75	$10	13.0	1.8
18	DL	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	SW	2,400	1,382	230	0.1	$ 35.35	$ 637.50	$60	18.0	2.5
18	DL1	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	SW	2,400	2,765	461	0.2	$ 70.70	$ 1,275.00	$120	18.0	2.5
18	DL2	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	SW	2,400	1,382	230	0.1	$ 35.35	$ 637.50	$60	18.0	2.5
18	DL3	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806	3	0	F44SSILL	96	0.3	SW	2,400	691	115	0.0	$ 17.68	$ 318.75	$30	18.0	2.5
13	DL Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	0	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.71	$ 212.50	$20	45.1	8.0
18	D Storage	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	1000	224	2	0	F44SSILL	96	0.2	SW	1,000	192	32	0.0	$ 6.28	$ 212.50	$20	33.8	6.0
16	20	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,382	691	0.3	$ 106.05	$ 1,377.00	$120	13.0	1.8
127	20 Upper Storage	3	DC 40 C I 2	I40/2	80	0.2	SW	1000	240	3	CF 13	CFQ13/1-L	15	0.0	SW	1,000	45	195	0.2	$ 38.26	$ 60.75	$0	1.6	0.3
16	20 Lower Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	48	0.0	$ 9.42	$ 229.50	$20	24.4	4.4
191	Boiler Room	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	SW	1000	492	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	SW	1,000	492	-	0.0	$ -	$ -	$0		
18	Coaches Office	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806	3	0	F44SSILL	96	0.3	SW	2,400	691	115	0.0	$ 17.68	$ 318.75	$30	18.0	2.5
141	Gym	28	HPS 250	HPS250/1	295	8.3	SW	2912	24,053	28	HPS 250	HPS250/1	295	8.3	SW	2,912	24,053	-	0.0	$ -	$ -	$0		
228	Gym Equipment Room	1	W60CF1	F81EL	60	0.1	SW	2912	175	1	W60CF1	F81EL	60	0.1	SW	2,912	175	-	0.0	$ -	$ -	$0		
228	Gym PA Room	1	W60CF1	F81EL	60	0.1	SW	2912	175	1	W60CF1	F81EL	60	0.1	SW	2,912	175	-	0.0	$ -	$ -	$0		
229	Gym Equipment Room	1	DC135CI1	i135/1	135	0.1	SW	2912	393	1	DC135CI1	i135/1	135	0.1	SW	2,912	393	-	0.0	$ -	$ -	$0		
142LED	Exterior	2	MH 100	MH100/1	128	0.3	SW	4368	1,118	2	FXLED39	FXLED39/1	39	0.1	SW	4,368	341	778	0.2	$ 108.60	$ 897.00	$20	8.3	1.1
236	Exterior	22	R 75 C Q 1	h75/1	75	1.7	SW	4368	7,207	22	CF 26	CFQ26/1-L	27	0.6	SW	4,368	2,595	4,613	1.1	$ 644.26	$ 148.50	$0	0.2	0.0
236	Exterior	8	R 75 C Q 1	h75/1	75	0.6	SW	4368	2,621	8	CF 26	CFQ26/1-L	27	0.2	SW	4,368	943	1,677	0.4	$ 234.28	$ 54.00	$0	0.2	0.0
93	Exterior	3	I 75	I75/1	75	0.2	SW	4368	983	3	CF 26	CFQ26/1-L	27	0.1	SW	4,368	354	629	0.1	$ 87.85	$ 15.00	$0	0.2	0.0
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	Total	**917**				**77.2**			**169,624**	**917**			**7,441**	**65.6**			**143,200**	**26,424**	**11.6**	**$4,101**	**$59,124**	**$5,010**		
																	Demand Savings			**11.6**	**$853**			
																	kWh Savings			**26,424**	**$3,247**			
																	Total savings				**$4,101**		**14.4**	**13.2**

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-5 Install Occupancy Sensors

Cost of Electricity: **$0.123 $/kWh**

$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA 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 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
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	250	15.0	45.0	0.0	$5.53	$0.00	$0.00	0.0	0.0
18	230	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
18	229	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
71	Womens Bathroom Closet (3rd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120.0	2	I 60	I60/1	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	2000	672.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	228	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688.0	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	C-OCC	1680	1,881.6	806.4	0.0	$99.10	$202.50	$35.00	2.0	1.7
18	227	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,612.8	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	1680	1,129.0	483.8	0.0	$59.46	$202.50	$35.00	3.4	2.8
18	227A	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075.2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1680	752.6	322.6	0.0	$39.64	$202.50	$35.00	5.1	4.2
18	B2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2400	2,150.4	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	C-OCC	1680	1,505.3	645.1	0.0	$79.28	$202.50	$35.00	2.6	2.1
18	126	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
71	Closet	2	I 60	I60/1	60	0.1	SW	1000	120.0	2	I 60	I60/1	60	0.1	NONE	250	30.0	90.0	0.0	$11.06	$0.00	$0.00	0.0	0.0
18	Hallway	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2280	4,085.8	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	NONE	2280	4,085.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
X5	Main Entrance	5	CF42/1-L	CF42/1-L	48	0.2	SW	2280	547.2	5	CF42/1-L	CF42/1-L	48	0.2	NONE	2280	547.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
X5	Main Entrance	4	CF42/1-L	CF42/1-L	48	0.2	SW	2280	437.8	4	CF42/1-L	CF42/1-L	48	0.2	NONE	2280	437.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Main Entrance	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Entrance	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	130	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
18	129	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
71	Womens Bathroom Closet (2nd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120.0	2	I 60	I60/1	60	0.1	NONE	250	30.0	90.0	0.0	$11.06	$0.00	$0.00	0.0	0.0
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	672	225.8	446.2	0.0	$54.84	$0.00	$0.00	0.0	0.0
18	Library	23	T 32 R F 4 (ELE)	F44ILL	112	2.6	SW	2400	6,182.4	23	T 32 R F 4 (ELE)	F44ILL	112	2.6	C-OCC	1680	4,327.7	1,854.7	0.0	$227.93	$202.50	$35.00	0.9	0.7
16	A2	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,073.6	12	T 34 R F 2 (MAG)	F42EE	72	0.9	C-OCC	1680	1,451.5	622.1	0.0	$76.45	$202.50	$35.00	2.6	2.2
141	Auditorium	24	HPS 250	HPS250/1	295	7.1	SW	1000	7,080.0	24	HPS 250	HPS250/1	295	7.1	NONE	750	5,310.0	1,770.0	0.0	$217.52	$0.00	$0.00	0.0	0.0
71	Auditorium	4	I 60	I60/1	60	0.2	SW	1000	240.0	4	I 60	I60/1	60	0.2	NONE	750	180.0	60.0	0.0	$7.37	$0.00	$0.00	0.0	0.0
16	A1	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,073.6	12	T 34 R F 2 (MAG)	F42EE	72	0.9	C-OCC	1680	1,451.5	622.1	0.0	$76.45	$202.50	$35.00	2.6	2.2
18	Nurse	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075.2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1200	537.6	537.6	0.0	$66.07	$202.50	$35.00	3.1	2.5
16	Nurse	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	172.8	1	T 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	1200	86.4	86.4	0.0	$10.62	$202.50	$35.00	19.1	15.8
35	Main Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2400	648.0	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	C-OCC	1200	324.0	324.0	0.0	$39.82	$202.50	$35.00	5.1	4.2
35	Main Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728.0	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	1200	864.0	864.0	0.0	$106.18	$202.50	$35.00	1.9	1.6
35	Vice Principal Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	1200	432.0	432.0	0.0	$53.09	$202.50	$35.00	3.8	3.2
35	Main Office Bathroom	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2000	180.0	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	NONE	180	16.2	163.8	0.0	$20.13	$0.00	$0.00	0.0	0.0
35	Guidance Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728.0	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	1200	864.0	864.0	0.0	$106.18	$202.50	$35.00	1.9	1.6
18	121	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688.0	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	C-OCC	1680	1,881.6	806.4	0.0	$99.10	$202.50	$35.00	2.0	1.7
18	Mens Bathroom (2nd Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	672	225.8	446.2	0.0	$54.84	$0.00	$0.00	0.0	0.0
71	Mens Bathroom (2nd Floor)	2	I 60	I60/1	60	0.1	SW	2000	240.0	2	I 60	I60/1	60	0.1	NONE	240	28.8	211.2	0.0	$25.95	$0.00	$0.00	0.0	0.0
71	Mens Bathroom Closet (2nd Floor)	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	250	15.0	45.0	0.0	$5.53	$0.00	$0.00	0.0	0.0
18	Main Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2400	537.6	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1200	268.8	268.8	0.0	$33.03	$202.50	$35.00	6.1	5.1
X5	Main Office Entrance	1	CF42/1-L	CF42/1-L	48	0.0	SW	2280	109.4	1	CF42/1-L	CF42/1-L	48	0.0	NONE	2280	109.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Exit	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
16	29	24	T 34 R F 2 (MAG)	F42EE	72	1.7	SW	2400	4,147.2	24	T 34 R F 2 (MAG)	F42EE	72	1.7	C-OCC	1680	2,903.0	1,244.2	0.0	$152.90	$202.50	$35.00	1.3	1.1
18	Hallway (2nd Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639.4	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	NONE	2280	6,639.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	Hallway (1st Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639.4	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	NONE	2280	6,639.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
16	29-A Closet	4	T 34 R F 2 (MAG)	F42EE	72	0.3	SW	1000	288.0	4	T 34 R F 2 (MAG)	F42EE	72	0.3	NONE	250	72.0	216.0	0.0	$26.54	$0.00	$0.00	0.0	0.0
18	29-A	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,612.8	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	1680	1,129.0	483.8	0.0	$59.46	$202.50	$35.00	3.4	2.8
71	Womens Bathroom (1st Floor)	2	I 60	I60/1	60	0.1	SW	2000	240.0	2	I 60	I60/1	60	0.1	NONE	240	28.8	211.2	0.0	$25.95	$0.00	$0.00	0.0	0.0
18	Womens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	672	225.8	446.2	0.0	$54.84	$0.00	$0.00	0.0	0.0
18	27	19	T 32 R F 4 (ELE)	F44ILL	112	2.1	SW	2400	5,107.2	19	T 32 R F 4 (ELE)	F44ILL	112	2.1	C-OCC	1680	3,575.0	1,532.2	0.0	$188.29	$202.50	$35.00	1.1	0.9
20	Kitchen	29	S 32 C F 1 (ELE)	F41LL	32	0.9	SW	1600	1,484.8	29	S 32 C F 1 (ELE)	F41LL	32	0.9	NONE	1200	1,113.6	371.2	0.0	$45.62	$0.00	$0.00	0.0	0.0
71	Kitchen Exitway	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Kitchen Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120.0	1	I 60	I60/1	60	0.1	NONE	120	7.2	112.8	0.0	$13.86	$0.00	$0.00	0.0	0.0
18	Kitchen Breakroom	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	5000	2,240.0	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	3000	1,344.0	896.0	0.0	$110.11	$202.50	$35.00	1.8	1.5
18	Cafeteria	28	T 32 R F 4 (ELE)	F44ILL	112	3.1	SW	1600	5,017.6	28	T 32 R F 4 (ELE)	F44ILL	112	3.1	NONE	1200	3,763.2	1,254.4	0.0	$154.16	$0.00	$0.00	0.0	0.0
18	26	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
18	23	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2400	4,300.8	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	C-OCC	1680	3,010.6	1,290.2	0.0	$158.56	$202.50	$35.00	1.3	1.1
18	22	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	2400	4,838.4	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	C-OCC	1680	3,386.9	1,451.5	0.0	$178.38	$202.50	$35.00	1.1	0.9
18	Mens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	672	225.8	446.2	0.0	$54.84	$0.00	$0.00	0.0	0.0
71	Mens Bathroom (1st Floor)	1	I 60	I60/1	60	0.1	SW	2000	120.0	1	I 60	I60/1	60	0.1	NONE	120	7.2	112.8	0.0	$13.86	$0.00	$0.00	0.0	0.0
71	Mens Bathroom Closet (1st Floor)	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	250	15.0	45.0	0.0	$5.53	$0.00	$0.00	0.0	0.0
18	21	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
71	Stair Tower 1	8	I 60	I60/1	60	0.5	SW	3200	1,536.0	8	I 60	I60/1	60	0.5	NONE	3200	1,536.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Stair Tower 2	8	I 60	I60/1	60	0.5	SW	3200	1,536.0	8	I 60	I60/1	60	0.5	NONE	3200	1,536.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Kitchen	8	I 60	I60/1	60	0.5	SW	1600	768.0	8	I 60	I60/1	60	0.5	NONE	1200	576.0	192.0	0.0	$23.60	$0.00	$0.00	0.0	0.0
47	Girls Locker Room	10	1B 34 C F 2 (MAG)	F42EE	72	0.7	SW	2800	2,016.0	10	1B 34 C F 2 (MAG)	F42EE	72	0.7	NONE	2000	1,440.0	576.0	0.0	$70.79	$0.00	$0.00	0.0	0.0
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	273.6	2	I 60	I60/1	60	0.1	NONE	2280	273.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
47	Mens Locker Room	12	1B 34 C F 2 (MAG)	F42EE	72	0.9	SW	2800	2,419.2	12	1B 34 C F 2 (MAG)	F42EE	72	0.9	NONE	2000	1,728.0	691.2	0.0	$84.94	$0.00	$0.00	0.0	0.0
13	Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	C-OCC	1200	216.0	216.0	0.0	$26.54	$202.50	$35.00	7.6	6.3
71	Office Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120.0	1	I 60	I60/1	60	0.1	NONE	120	7.2	112.8	0.0	$13.86	$0.00	$0.00	0.0	0.0
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255.4	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	2280	255.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255.4	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	2280	255.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35	Principals Office	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2400	2,592.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	C-OCC	1200	1,296.0	1,296.0	0.0	$159.27	$202.50	$35.00	1.3	1.1
93	Science Storage	1	I 75	I75/1	75	0.1	SW	1000	75.0	1	I 75	I75/1	75	0.1	NONE	250	18.8	56.3	0.0	$6.91	$0.00	$0.00	0.0	0.0
18	220	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
18	Mens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	672	225.8	446.2	0.0	$54.84	$0.00	$0.00	0.0	0.0
93	Mens Bathroom Janitor Closet	2	I 75	I75/1	75	0.2	SW	1000	150.0	2	I 75	I75/1	75	0.2	NONE	500	75.0	75.0	0.0	$9.22	$0.00	$0.00	0.0	0.0
18	221	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
16	222	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,073.6	12	T 34 R F 2 (MAG)	F42EE	72	0.9	C-OCC	1680	1,451.5	622.1	0.0	$76.45	$202.50	$35.00	2.6	2.2
18	Stairway Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2400	268.8	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	1680	188.2	80.6	0.0	$9.91	$0.00	$0.00	0.0	0.0
18	224	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
16	B-1	8	T 34 R F 2 (MAG)	F42EE	72	0.6	SW	2400	1,382.4	8	T 34 R F 2 (MAG)	F42EE	72	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
18	Foster	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,612.8	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	1680	1,129.0	483.8	0.0	$59.46	$202.50	$35.00	3.4	2.8
93	Foster Bathroom	1	I 75	I75/1	75	0.1	SW	2000	150.0	1	I 75	I75/1	75	0.1	NONE	150	11.3	138.8	0.0	$17.05	$0.00	$0.00	0.0	0.0
18	223	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419.2	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1680	1,693.4	725.8	0.0	$89.19	$202.50	$35.00	2.3	1.9
47	Main Womens Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288.0	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	288	41.5	246.5	0.0	$30.30	$0.00	$0.00	0.0	0.0
47	Janitor Closet	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72.0	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	500	36.0	36.0	0.0	$4.42	$0.00	$0.00	0.0	0.0
18	Main Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448.0	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	NONE	448	100.4	347.6	0.0	$42.72	$0.00	$0.00	0.0	0.0
20	112	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
20	111	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
20	114	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-5 Install Occupancy Sensors

Cost of Electricity: **$0.123 $/kWh**

$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**NYSERDA 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 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
20	113	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
20	116	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
20	115	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
47	Roof Access / Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	250	36.0	108.0	0.0	$13.27	$0.00	$0.00	0.0	0.0
47	LA/SS Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	250	36.0	108.0	0.0	$13.27	$0.00	$0.00	0.0	0.0
18	Electrical and Paper Supply Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	1000	336.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	NONE	250	84.0	252.0	0.0	$30.97	$0.00	$0.00	0.0	0.0
20	117	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
47	Faculty Lounge	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	5000	360.0	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	C-OCC	3000	216.0	144.0	0.0	$17.70	$202.50	$35.00	11.4	9.5
20	Faculty Lounge	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	5000	1,600.0	10	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	3000	960.0	640.0	0.0	$78.65	$202.50	$35.00	2.6	2.1
47	Faculty Lounge Mens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144.0	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	144	10.4	133.6	0.0	$16.42	$0.00	$0.00	0.0	0.0
47	Faculty Lounge Womens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144.0	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	144	10.4	133.6	0.0	$16.42	$0.00	$0.00	0.0	0.0
16	120	10	T 34 R F 2 (MAG)	F42EE	72	0.7	SW	2400	1,728.0	10	T 34 R F 2 (MAG)	F42EE	72	0.7	C-OCC	1680	1,209.6	518.4	0.0	$63.71	$202.50	$35.00	3.2	2.6
47	Girls Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288.0	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	288	41.5	246.5	0.0	$30.30	$0.00	$0.00	0.0	0.0
39	Janitor Closet	1	2' 17 W F 2 (ELE)	F22LL	33	0.0	SW	1000	33.0	1	2' 17 W F 2 (ELE)	F22LL	33	0.0	NONE	500	16.5	16.5	0.0	$2.03	$0.00	$0.00	0.0	0.0
18	Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448.0	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	NONE	448	100.4	347.6	0.0	$42.72	$0.00	$0.00	0.0	0.0
20	12	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
18	10	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	2400	6,451.2	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	C-OCC	1680	4,515.8	1,935.4	0.0	$237.84	$202.50	$35.00	0.9	0.7
16	10-Band Office	3	T 34 R F 2 (MAG)	F42EE	72	0.2	SW	2400	518.4	3	T 34 R F 2 (MAG)	F42EE	72	0.2	C-OCC	1200	259.2	259.2	0.0	$31.85	$202.50	$35.00	6.4	5.3
47	10-Band Office Storage	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72.0	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	NONE	250	18.0	54.0	0.0	$6.64	$0.00	$0.00	0.0	0.0
11	10-Far Office	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	345.6	2	S 34 P F 2 (MAG)	F42EE	72	0.1	C-OCC	1200	172.8	172.8	0.0	$21.24	$202.50	$35.00	9.5	7.9
11	10-Storage	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	S 34 P F 2 (MAG)	F42EE	72	0.1	NONE	250	36.0	108.0	0.0	$13.27	$0.00	$0.00	0.0	0.0
47	11	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2400	345.6	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	C-OCC	1680	241.9	103.7	0.0	$12.74	$202.50	$35.00	15.9	13.1
20	13	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382.4	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1680	967.7	414.7	0.0	$50.97	$202.50	$35.00	4.0	3.3
20	15	48	S 32 C F 1 (ELE)	F41LL	32	1.5	SW	2400	3,686.4	48	S 32 C F 1 (ELE)	F41LL	32	1.5	C-OCC	1680	2,580.5	1,105.9	0.0	$135.91	$202.50	$35.00	1.5	1.2
16	15-Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	T 34 R F 2 (MAG)	F42EE	72	0.1	NONE	250	36.0	108.0	0.0	$13.27	$0.00	$0.00	0.0	0.0
16	Larson Office	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	172.8	1	T 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	1200	86.4	86.4	0.0	$10.62	$202.50	$35.00	19.1	15.8
18	DL	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,612.8	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	1680	1,129.0	483.8	0.0	$59.46	$202.50	$35.00	3.4	2.8
18	DL1	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,225.6	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	1680	2,257.9	967.7	0.0	$118.92	$202.50	$35.00	1.7	1.4
18	DL2	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,612.8	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	1680	1,129.0	483.8	0.0	$59.46	$202.50	$35.00	3.4	2.8
18	DL3	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806.4	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1680	564.5	241.9	0.0	$29.73	$202.50	$35.00	6.8	5.6
13	DL Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	250	30.0	90.0	0.0	$11.06	$0.00	$0.00	0.0	0.0
18	D Storage	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	1000	224.0	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	NONE	250	56.0	168.0	0.0	$20.65	$0.00	$0.00	0.0	0.0
16	20	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,073.6	12	T 34 R F 2 (MAG)	F42EE	72	0.9	C-OCC	1680	1,451.5	622.1	0.0	$76.45	$202.50	$35.00	2.6	2.2
127	20 Upper Storage	3	DC 40 C I 2	I40/2	80	0.2	SW	1000	240.0	3	DC 40 C I 2	I40/2	80	0.2	NONE	250	60.0	180.0	0.0	$22.12	$0.00	$0.00	0.0	0.0
16	20 Lower Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	T 34 R F 2 (MAG)	F42EE	72	0.1	NONE	250	36.0	108.0	0.0	$13.27	$0.00	$0.00	0.0	0.0
191	Boiler Room	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	SW	1000	492.0	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	NONE	1000	492.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18	Coaches Office	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806.4	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1200	403.2	403.2	0.0	$49.55	$202.50	$35.00	4.1	3.4
141	Gym	28	HPS 250	HPS250/1	295	8.3	SW	2912	24,053.1	28	HPS 250	HPS250/1	295	8.3	NONE	2912	24,053.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
228	Gym Equipment Room	1	W60CF1	F81EL	60	0.1	SW	2912	174.7	1	W60CF1	F81EL	60	0.1	NONE	2912	174.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
228	Gym PA Room	1	W60CF1	F81EL	60	0.1	SW	2912	174.7	1	W60CF1	F81EL	60	0.1	NONE	2912	174.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
229	Gym Equipment Room	1	DC135CI1	i135/1	135	0.1	SW	2912	393.1	1	DC135CI1	i135/1	135	0.1	NONE	2912	393.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
142LED	Exterior	2	MH 100	MH100/1	128	0.3	SW	4368	1,118.2	2	MH 100	MH100/1	128	0.3	C-OCC	4368	1,118.2	0.0	0.0	$0.00	$202.50	$35.00		#DIV/0!
236	Exterior	22	R 75 C Q 1	h75/1	75	1.7	SW	4368	7,207.2	22	R 75 C Q 1	h75/1	75	1.7	C-OCC	4368	7,207.2	0.0	0.0	$0.00	$202.50	$35.00		#DIV/0!
236	Exterior	8	R 75 C Q 1	h75/1	75	0.6	SW	4368	2,620.8	8	R 75 C Q 1	h75/1	75	0.6	C-OCC	4368	2,620.8	0.0	0.0	$0.00	$202.50	$35.00		#DIV/0!
93	Exterior	3	I 75	I75/1	75	0.2	SW	4368	982.8	3	I 75	I75/1	75	0.2	C-OCC	4368	982.8	0.0	0.0	$0.00	$202.50	$35.00		#DIV/0!
	Total	**917**				**77.2**			**169,624**	**917**				**77**			**120,580**	**49,044**	**0**	**6,027**	**$11,340**	**1,960**		
																		Demand Savings		**0.0**	**$0**			
																		kWh Savings		**49,044**	**$6,027**			
																		Total Savings			**$6,027**		**1.9**	**1.6**

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-6 Lighting Replacements with Occupancy Sensors

Cost of Electricity: **$0.123 $/kWh**

$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA 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
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	0	F42SSILL	48	0.0	NONE	250	12	48	0.0	$ 6.78	$ 106.25	$ 10	15.7	14.2
18	230	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
18	229	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
71	Womens Bathroom Closet (3rd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	NONE	1,000	54	66	0.1	$ 12.95	$ 13.50	$ -	1.0	1.0
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	2,000	576	96	0.0	$ 15.32	$ 318.75	$ 30	20.8	18.9
18	228	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688	10	0	F44SSILL	96	1.0	C-OCC	1,680	1,613	1,075	0.2	$ 143.86	$ 1,265.00	$ 135	8.8	7.9
18	227	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	C-OCC	1,680	968	645	0.1	$ 86.32	$ 840.00	$ 95	9.7	8.6
18	227A	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	0	F44SSILL	96	0.4	C-OCC	1,680	645	430	0.1	$ 57.55	$ 627.50	$ 75	10.9	9.6
18	B2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2400	2,150	8	0	F44SSILL	96	0.8	C-OCC	1,680	1,290	860	0.1	$ 115.09	$ 1,052.50	$ 115	9.1	8.1
18	126	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
71	Closet	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	NONE	250	14	107	0.1	$ 17.93	$ 13.50	$ -	0.8	0.8
18	Hallway	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2280	4,086	16	0	F44SSILL	96	1.5	NONE	2,280	3,502	584	0.3	$ 90.50	$ 1,700.00	$ 160	18.8	17.0
X5	Main Entrance	5	CF42/1-L	CF42/1-L	48	0.2	SW	2280	547	5	CF42/1-L	CF42/1-L	48	0.2	NONE	2,280	547	-	0.0	$ -	$ -	$ -		
X5	Main Entrance	4	CF42/1-L	CF42/1-L	48	0.2	SW	2280	438	4	CF42/1-L	CF42/1-L	48	0.2	NONE	2,280	438	-	0.0	$ -	$ -	$ -		
71	Main Entrance	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
71	Entrance	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
18	130	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
18	129	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
71	Womens Bathroom Closet (2nd Floor)	2	I 60	I60/1	60	0.1	SW	1000	120	2	CF 26	CFQ26/1-L	27	0.1	NONE	250	14	107	0.1	$ 17.93	$ 13.50	$ -	0.8	0.8
18	Womens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	672	194	478	0.0	$ 62.32	$ 318.75	$ 30	5.1	4.6
18	Library	23	T 32 R F 4 (ELE)	F44ILL	112	2.6	SW	2400	6,182	23	0	F44SSILL	96	2.2	C-OCC	1,680	3,709	2,473	0.4	$ 330.88	$ 2,646.25	$ 265	8.0	7.2
16	A2	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	C-OCC	1,680	968	1,106	0.3	$ 157.02	$ 1,579.50	$ 155	10.1	9.1
141	Auditorium	24	HPS 250	HPS250/1	295	7.1	SW	1000	7,080	24	HPS 250	HPS250/1	295	7.1	NONE	750	5,310	1,770	0.0	$ 217.52	$ -	$ -	0.0	0.0
71	Auditorium	4	I 60	I60/1	60	0.2	SW	1000	240	4	CF 26	CFQ26/1-L	27	0.1	NONE	750	81	159	0.1	$ 29.22	$ 27.00	$ -	0.9	0.9
16	A1	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	C-OCC	1,680	968	1,106	0.3	$ 157.02	$ 1,579.50	$ 155	10.1	9.1
18	Nurse	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	0	F44SSILL	96	0.4	C-OCC	1,200	461	614	0.1	$ 80.20	$ 627.50	$ 75	7.8	6.9
16	Nurse	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	T 28 R F 2	F42SSILL	48	0.0	C-OCC	1,200	58	115	0.0	$ 15.92	$ 317.25	$ 45	19.9	17.1
35	Main Office	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2400	648	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	C-OCC	1,200	324	324	0.0	$ 39.82	$ 202.50	$ 35	5.1	4.2
35	Main Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	1,200	864	864	0.0	$ 106.18	$ 202.50	$ 35	1.9	1.6
35	Vice Principal Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	1,200	432	432	0.0	$ 53.09	$ 202.50	$ 35	3.8	3.2
35	Main Office Bathroom	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2000	180	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	NONE	180	16	164	0.0	$ 20.13	$ -	$ -	0.0	0.0
35	Guidance Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	C-OCC	1,200	864	864	0.0	$ 106.18	$ 202.50	$ 35	1.9	1.6
18	121	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2400	2,688	10	0	F44SSILL	96	1.0	C-OCC	1,680	1,613	1,075	0.2	$ 143.86	$ 1,265.00	$ 135	8.8	7.9
18	Mens Bathroom (2nd Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	672	194	478	0.0	$ 62.32	$ 318.75	$ 30	5.1	4.6
71	Mens Bathroom (2nd Floor)	2	I 60	I60/1	60	0.1	SW	2000	240	2	CF 26	CFQ26/1-L	27	0.1	NONE	240	13	227	0.1	$ 32.74	$ 13.50	$ -	0.4	0.4
71	Mens Bathroom Closet (2nd Floor)	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	250	7	53	0.0	$ 8.96	$ 6.75	$ -	0.8	0.8
18	Main Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2400	538	2	0	F44SSILL	96	0.2	C-OCC	1,200	230	307	0.0	$ 40.10	$ 415.00	$ 55	10.3	9.0
X5	Main Office Entrance	1	CF42/1-L	CF42/1-L	48	0.0	SW	2280	109	1	CF42/1-L	CF42/1-L	48	0.0	NONE	2,280	109	-	0.0	$ -	$ -	$ -		
71	Exit	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
16	29	24	T 34 R F 2 (MAG)	F42EE	72	1.7	SW	2400	4,147	24	T 28 R F 2	F42SSILL	48	1.2	C-OCC	1,680	1,935	2,212	0.6	$ 314.04	$ 2,956.50	$ 275	9.4	8.5
18	Hallway (2nd Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639	26	0	F44SSILL	96	2.5	NONE	2,280	5,691	948	0.4	$ 147.06	$ 2,762.50	$ 260	18.8	17.0
18	Hallway (1st Floor)	26	T 32 R F 4 (ELE)	F44ILL	112	2.9	SW	2280	6,639	26	0	F44SSILL	96	2.5	NONE	2,280	5,691	948	0.4	$ 147.06	$ 2,762.50	$ 260	18.8	17.0
16	29-A Closet	4	T 34 R F 2 (MAG)	F42EE	72	0.3	SW	1000	288	4	T 28 R F 2	F42SSILL	48	0.2	NONE	250	48	240	0.1	$ 36.53	$ 459.00	$ 40	12.6	11.5
18	29-A	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	C-OCC	1,680	968	645	0.1	$ 86.32	$ 840.00	$ 95	9.7	8.6
71	Womens Bathroom (1st Floor)	2	I 60	I60/1	60	0.1	SW	2000	240	2	CF 26	CFQ26/1-L	27	0.1	NONE	240	13	227	0.1	$ 32.74	$ 13.50	$ -	0.4	0.4
18	Womens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	672	194	478	0.0	$ 62.32	$ 318.75	$ 30	5.1	4.6
18	27	19	T 32 R F 4 (ELE)	F44ILL	112	2.1	SW	2400	5,107	19	0	F44SSILL	96	1.8	C-OCC	1,680	3,064	2,043	0.3	$ 273.34	$ 2,221.25	$ 225	8.1	7.3
20	Kitchen	29	S 32 C F 1 (ELE)	F41LL	32	0.9	SW	1600	1,485	29	S 32 C F 1 (ELE)	F41LL	32	0.9	NONE	1,200	1,114	371	0.0	$ 45.62	$ -	$ -	0.0	0.0
71	Kitchen Exitway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
71	Kitchen Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	NONE	120	3	117	0.0	$ 16.77	$ 6.75	$ -	0.4	0.4
18	Kitchen Breakroom	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	5000	2,240	4	0	F44SSILL	96	0.4	C-OCC	3,000	1,152	1,088	0.1	$ 138.40	$ 627.50	$ 75	4.5	4.0
18	Cafeteria	28	T 32 R F 4 (ELE)	F44ILL	112	3.1	SW	1600	5,018	28	0	F44SSILL	96	2.7	NONE	1,200	3,226	1,792	0.4	$ 253.06	$ 2,975.00	$ 280	11.8	10.6
18	26	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
18	23	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	2400	4,301	16	0	F44SSILL	96	1.5	C-OCC	1,680	2,580	1,720	0.3	$ 230.18	$ 1,902.50	$ 195	8.3	7.4
18	22	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	2400	4,838	18	0	F44SSILL	96	1.7	C-OCC	1,680	2,903	1,935	0.3	$ 258.95	$ 2,115.00	$ 215	8.2	7.3
18	Mens Bathroom (1st Floor)	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	672	194	478	0.0	$ 62.32	$ 318.75	$ 30	5.1	4.6
71	Mens Bathroom (1st Floor)	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	NONE	120	3	117	0.0	$ 16.77	$ 6.75	$ -	0.4	0.4
71	Mens Bathroom Closet (1st Floor)	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	250	7	53	0.0	$ 8.96	$ 6.75	$ -	0.8	0.8
18	21	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
71	Stair Tower 1	8	I 60	I60/1	60	0.5	SW	3200	1,536	8	CF 26	CFQ26/1-L	27	0.2	NONE	3,200	691	845	0.3	$ 123.17	$ 54.00	$ -	0.4	0.4
71	Stair Tower 2	8	I 60	I60/1	60	0.5	SW	3200	1,536	8	CF 26	CFQ26/1-L	27	0.2	NONE	3,200	691	845	0.3	$ 123.17	$ 54.00	$ -	0.4	0.4
71	Kitchen	8	I 60	I60/1	60	0.5	SW	1600	768	8	CF 26	CFQ26/1-L	27	0.2	NONE	1,200	259	509	0.3	$ 81.88	$ 54.00	$ -	0.7	0.7
47	Girls Locker Room	10	1B 34 C F 2 (MAG)	F42EE	72	0.7	SW	2800	2,016	10	1B 28 C F 2	F42SSILL	48	0.5	NONE	2,000	960	1,056	0.2	$ 147.37	$ 1,282.50	$ -	8.7	8.7
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
71	Hallway	2	I 60	I60/1	60	0.1	SW	2280	274	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,280	123	150	0.1	$ 23.33	$ 13.50	$ -	0.6	0.6
47	Mens Locker Room	12	1B 34 C F 2 (MAG)	F42EE	72	0.9	SW	2800	2,419	12	1B 28 C F 2	F42SSILL	48	0.6	NONE	2,000	1,152	1,267	0.3	$ 176.84	$ 1,539.00	$ -	8.7	8.7
13	Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432	3	0	F42SSILL	48	0.1	C-OCC	1,200	173	259	0.0	$ 34.49	$ 521.25	$ 65	15.1	13.2
71	Office Bathroom	1	I 60	I60/1	60	0.1	SW	2000	120	1	CF 26	CFQ26/1-L	27	0.0	NONE	120	3	117	0.0	$ 16.77	$ 6.75	$ -	0.4	0.4
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255	1	0	F44SSILL	96	0.1	NONE	2,280	219	36	0.0	$ 5.66	$ 106.25	$ 10	18.8	17.0
18	Exitway Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2280	255	1	0	F44SSILL	96	0.1	NONE	2,280	219	36	0.0	$ 5.66	$ 106.25	$ 10	18.8	17.0
35	Principals Office	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2400	2,592	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	C-OCC	1,200	1,296	1,296	0.0	$ 159.27	$ 202.50	$ 35	1.3	1.1
93	Science Storage	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	NONE	250	7	68	0.0	$ 11.91	$ 5.00	$ -	0.4	0.4
18	220	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
18	Mens Bathroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	0	F44SSILL	96	0.3	NONE	672	194	478	0.0	$ 62.32	$ 318.75	$ 30	5.1	4.6
93	Mens Bathroom Janitor Closet	2	I 75	I75/1	75	0.2	SW	1000	150	2	CF 26	CFQ26/1-L	27	0.1	NONE	500	27	123	0.1	$ 22.15	$ 10.00	$ -	0.5	0.5
18	221	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
16	222	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	C-OCC	1,680	968	1,106	0.3	$ 157.02	$ 1,579.50	$ 155	10.1	9.1
18	Stairway Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2400	269	1	0	F44SSILL	96	0.1	NONE	1,680	161	108	0.0	$ 14.39	$ 106.25	$ 10	7.4	6.7
18	224	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
16	B-1	8	T 34 R F 2 (MAG)	F42EE	72	0.6	SW	2400	1,382	8	T 28 R F 2	F42SSILL	48	0.4	C-OCC	1,680	645	737	0.2	$ 104.68	$ 1,120.50	$ 115	10.7	9.6
18	Foster	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	C-OCC	1,680	968	645	0.1	$ 86.32	$ 840.00	$ 95	9.7	8.6
93	Foster Bathroom	1	I 75	I75/1	75	0.1	SW	2000	150	1	CF 26	CFQ26/1-L	27	0.0	NONE	150	4	146	0.0	$ 21.45	$ 5.00	$ -	0.2	0.2
18	223	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2400	2,419	9	0	F44SSILL	96	0.9	C-OCC	1,680	1,452	968	0.1	$ 129.48	$ 1,158.75	$ 125	8.9	8.0
47	Main Womens Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288	2	1B 28 C F 2	F42SSILL	48	0.1	NONE	288	28	260	0.0	$ 35.51	$ 256.50	$ -	7.2	7.2
47	Janitor Closet	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72	1	1B 28 C F 2	F42SSILL	48	0.0	NONE	500	24	48	0.0	$ 7.66	$ 128.25	$ -	16.7	16.7
18	Main Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448	2	0	F44SSILL	96	0.2	NONE	448	86	362	0.0	$ 46.83	$ 212.50	$ 20	4.5	4.1
20	112	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
20	111	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
20	114	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
20	113	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
20	116	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3

Energy Audit of Penns Grove Middle School

CHA Project No. 24510

ECM-6 Lighting Replacements with Occupancy Sensors

Cost of Electricity: $0.123 $/kWh
$6.11 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA 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
20	115	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
47	Roof Access / Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	1B 28 C F 2	F42SSILL	48	0.1	NONE	250	24	120	0.0	$ 18.27	$ 256.50	$ -	14.0	14.0
47	LA/SS Supply Room	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	1B 28 C F 2	F42SSILL	48	0.1	NONE	250	24	120	0.0	$ 18.27	$ 256.50	$ -	14.0	14.0
18	Electrical and Paper Supply Room	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	1000	336	3	0	F44SSILL	96	0.3	NONE	250	72	264	0.0	$ 35.96	$ 318.75	$ 30	8.9	8.0
20	117	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
47	Faculty Lounge	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	5000	360	1	1B 28 C F 2	F42SSILL	48	0.0	C-OCC	3,000	144	216	0.0	$ 28.30	$ 330.75	$ 35	11.7	10.4
20	Faculty Lounge	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	5000	1,600	10	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	3,000	960	640	0.0	$ 78.65	$ 202.50	$ 35	2.6	2.1
47	Faculty Lounge Mens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144	1	1B 28 C F 2	F42SSILL	48	0.0	NONE	144	7	137	0.0	$ 18.61	$ 128.25	$ -	6.9	6.9
47	Faculty Lounge Womens Bathroom	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	144	1	1B 28 C F 2	F42SSILL	48	0.0	NONE	144	7	137	0.0	$ 18.61	$ 128.25	$ -	6.9	6.9
16	120	10	T 34 R F 2 (MAG)	F42EE	72	0.7	SW	2400	1,728	10	T 28 R F 2	F42SSILL	48	0.5	C-OCC	1,680	806	922	0.2	$ 130.85	$ 1,350.00	$ 135	10.3	9.3
47	Girls Bathroom	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2000	288	2	1B 28 C F 2	F42SSILL	48	0.1	NONE	288	28	260	0.0	$ 35.51	$ 256.50	$ -	7.2	7.2
39	Janitor Closet	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	1000	33	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	NONE	500	17	17	0.0	$ 2.03	$ -	$ -	0.0	0.0
18	Boys Bathroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2000	448	2	0	F44SSILL	96	0.2	NONE	448	86	362	0.0	$ 46.83	$ 212.50	$ 20	4.5	4.1
20	12	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
18	10	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	2400	6,451	24	0	F44SSILL	96	2.3	C-OCC	1,680	3,871	2,580	0.4	$ 345.27	$ 2,752.50	$ 275	8.0	7.2
16	10-Band Office	3	T 34 R F 2 (MAG)	F42EE	72	0.2	SW	2400	518	3	T 28 R F 2	F42SSILL	48	0.1	C-OCC	1,200	173	346	0.1	$ 47.75	$ 546.75	$ 65	11.5	10.1
47	10-Band Office Storage	1	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	1000	72	1	1B 28 C F 2	F42SSILL	48	0.0	NONE	250	12	60	0.0	$ 9.13	$ 128.25	$ -	14.0	14.0
11	10-Far Office	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	346	2	C 28 P F 2	F42SSILL	48	0.1	C-OCC	1,200	115	230	0.0	$ 31.83	$ 415.00	$ 55	13.0	11.3
11	10-Storage	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	C 28 P F 2	F42SSILL	48	0.1	NONE	250	24	120	0.0	$ 18.27	$ 212.50	$ 20	11.6	10.5
47	11	2	1B 34 C F 2 (MAG)	F42EE	72	0.1	SW	2400	346	2	1B 28 C F 2	F42SSILL	48	0.1	C-OCC	1,680	161	184	0.0	$ 26.17	$ 459.00	$ 35	17.5	16.2
20	13	18	S 32 C F 1 (ELE)	F41LL	32	0.6	SW	2400	1,382	18	S 32 C F 1 (ELE)	F41LL	32	0.6	C-OCC	1,680	968	415	0.0	$ 50.97	$ 202.50	$ 35	4.0	3.3
20	15	48	S 32 C F 1 (ELE)	F41LL	32	1.5	SW	2400	3,686	48	S 32 C F 1 (ELE)	F41LL	32	1.5	C-OCC	1,680	2,580	1,106	0.0	$ 135.91	$ 202.50	$ 35	1.5	1.2
16	15-Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	T 28 R F 2	F42SSILL	48	0.1	NONE	250	24	120	0.0	$ 18.27	$ 229.50	$ 20	12.6	11.5
16	Larson Office	1	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	T 28 R F 2	F42SSILL	48	0.0	C-OCC	1,200	58	115	0.0	$ 15.92	$ 317.25	$ 45	19.9	17.1
18	DL	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	C-OCC	1,680	968	645	0.1	$ 86.32	$ 840.00	$ 95	9.7	8.6
18	DL1	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2400	3,226	12	0	F44SSILL	96	1.2	C-OCC	1,680	1,935	1,290	0.2	$ 172.64	$ 1,477.50	$ 155	8.6	7.7
18	DL2	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2400	1,613	6	0	F44SSILL	96	0.6	C-OCC	1,680	968	645	0.1	$ 86.32	$ 840.00	$ 95	9.7	8.6
18	DL3	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806	3	0	F44SSILL	96	0.3	C-OCC	1,680	484	323	0.0	$ 43.16	$ 521.25	$ 65	12.1	10.6
13	DL Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	0	F42SSILL	48	0.1	NONE	250	24	96	0.0	$ 13.56	$ 212.50	$ 20	15.7	14.2
18	D Storage	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	1000	224	2	0	F44SSILL	96	0.2	NONE	250	48	176	0.0	$ 23.97	$ 212.50	$ 20	8.9	8.0
16	20	12	T 34 R F 2 (MAG)	F42EE	72	0.9	SW	2400	2,074	12	T 28 R F 2	F42SSILL	48	0.6	C-OCC	1,680	968	1,106	0.3	$ 157.02	$ 1,579.50	$ 155	10.1	9.1
127	20 Upper Storage	3	DC 40 C I 2	I40/2	80	0.2	SW	1000	240	3	CF 13	CFQ13/1-L	15	0.0	NONE	250	11	229	0.2	$ 42.41	$ 60.75	$ -	1.4	1.4
16	20 Lower Storage	2	T 34 R F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	T 28 R F 2	F42SSILL	48	0.1	NONE	250	24	120	0.0	$ 18.27	$ 229.50	$ 20	12.6	11.5
191	Boiler Room	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	SW	1000	492	4	S 60 C F 2 (ELE) 8'	F82EE	123	0.5	NONE	1,000	492	-	0.0	$ -	$ -	$ -		
18	Coaches Office	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2400	806	3	0	F44SSILL	96	0.3	C-OCC	1,200	346	461	0.0	$ 60.15	$ 521.25	$ 65	8.7	7.6
141	Gym	28	HPS 250	HPS250/1	295	8.3	SW	2912	24,053	28	HPS 250	HPS250/1	295	8.3	NONE	2,912	24,053	-	0.0	$ -	$ -	$ -		
228	Gym Equipment Room	1	W60CF1	F81EL	60	0.1	SW	2912	175	1	W60CF1	F81EL	60	0.1	NONE	2,912	175	-	0.0	$ -	$ -	$ -		
228	Gym PA Room	1	W60CF1	F81EL	60	0.1	SW	2912	175	1	W60CF1	F81EL	60	0.1	NONE	2,912	175	-	0.0	$ -	$ -	$ -		
229	Gym Equipment Room	1	DC135CI1	i135/1	135	0.1	SW	2912	393	1	DC135CI1	i135/1	135	0.1	NONE	2,912	393	-	0.0	$ -	$ -	$ -		
142LED	Exterior	2	MH 100	MH100/1	128	0.3	SW	4368	1,118	2	FXLED39	FXLED39/1	39	0.1	C-OCC	4,368	341	778	0.2	$ 108.60	$ 1,099.50	$ 55	10.1	9.6
236	Exterior	22	R 75 C Q 1	h75/1	75	1.7	SW	4368	7,207	22	CF 26	CFQ26/1-L	27	0.6	C-OCC	4,368	2,595	4,613	1.1	$ 644.26	$ 351.00	$ 35	0.5	0.5
236	Exterior	8	R 75 C Q 1	h75/1	75	0.6	SW	4368	2,621	8	CF 26	CFQ26/1-L	27	0.2	C-OCC	4,368	943	1,677	0.4	$ 234.28	$ 256.50	$ 35	1.1	0.9
93	Exterior	3	I 75	I75/1	75	0.2	SW	4368	983	3	CF 26	CFQ26/1-L	27	0.1	C-OCC	4,368	354	629	0.1	$ 87.85	$ 217.50	$ 35	2.5	2.1
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S	**Total**	**917**				**77.2**			**169,624**	**917**				**65.6**			**101,639**		**11.6**	**9,208**	**70,464**	**$6,970**		
S																	**Demand Savings**			**11.6**	**$853**			
S																	**kWh Savings**			**67,985**	**$8,355**			
S																	**Total Savings**				**$9,208**		**7.7**	**6.9**

APPENDIX D

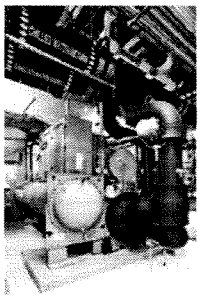
New Jersey Pay For Performance Incentive Program

Pay for Performance - Existing Buildings

Download program applications and incentive forms.

The Greater the Savings, the Greater Your Incentives

Take a comprehensive, whole-building approach to saving energy in your existing facilities and earn incentives that are directly linked to your savings. Pay for Performance relies on a network of program partners who provide technical services under direct contract to you. Acting as your energy expert, your partner will develop an energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for funding the energy efficient measures and a construction schedule for installation.



Eligibility

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

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

ENERGY STAR Portfolio Manager

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

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

Incentives

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

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

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

Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-implementation results. Incentives for electricity and natural gas savings will be paid based on actual savings, provided that the minimum performance threshold of 15% savings has been achieved.

CONTACT US

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

Energy Efficiency Revolving Loan Fund (EE RLF)

New Jersey-based commercial, institutional or industrial entities (including 501(c)(3) organizations) that have received an approved energy reduction plan under Pay for Performance may be eligible for supplemental financing through the EE RLF. The financing, in the form of low-interest loans, can be used to support up to 80% of total eligible project costs, not to exceed $2.5 million or 100% of total eligible project costs from all public state funding sources. Visit the NJ EDA website for details.

Steps to Participation

Click here for a step-by-step description of the program.

New Jersey's Clean Energy PROGRAM
Your Power to Save
njcleanenergy.com

New Jersey SmartStart BUILDINGS®

BPU

2012 PAY FOR PERFORMANCE PROGRAM
Existing Buildings Incentive Structure

Incentive #1: Energy Reduction Plan

Incentive Amount: ..... $0.10 per sq ft
Minimum Incentive: $5,000
Maximum Incentive:: ..... $50,000 or 50% of facility annual energy cost (whichever is less)

This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP) and is paid upon ERP approval. Incentive is contingent on implementation of recommended measures outlined in the ERP.

Incentive #2: Installation of Recommended Measures

Minimum Performance Target: 15%

Electric Incentives

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 per projected kWh saved

Gas Incentives

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

This incentive is based on projected energy savings outlined in the ERP. Incentive is paid upon successful installation of recommended measures.

Incentive #3: Post-Construction Benchmarking Report

Minimum Performance Target: 15%

Electric Incentives

Base Incentive based on 15% savings: ..... $0.09 per actual kWh saved
For each % over 15% add: ..... $0.005 per actual kWh saved
Maximum Incentive: ..... $0.11 per actual kWh saved

Gas Incentives

Base Incentive based on 15% savings: ..... $0.90 per actual Therm saved
For each % over 15% add: ..... $0.05 per actual Therm saved
Maximum Incentive: ..... $1.25 per actual Therm saved

Incentive Cap: ..... 25% of total project cost

This incentive will be released upon submittal of a Post-Construction Benchmarking Report that verifies that the level of savings actually achieved by the installed measures meets or exceeds the minimum performance threshold. To validate the savings and achievement of the Energy Target, the EPA Portfolio Manager shall be used. Savings should be rounded to the nearest percent. Total value of Incentive #2 and Incentive #3 may not exceed 50% of the total project cost. Incentives will be limited to $1 million per gas and electric account per building; maximum of $2 million per project. See Participation Agreement for details.

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.
Values used in this calculation are for measures with a positive return on investment (ROI) only.

Total Building Area (Square Feet)	85,540
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)	$56,801	$43,593
Existing Usage (from utility)	462,201	44,056
Proposed Savings	97,406	-333
Existing Total MMBtus	5,983	
Proposed Savings MMBtus	299	
% Energy Reduction	**5.0%**	
Proposed Annual Savings	$11,300	

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

Total Recommended Project Savings	Incentives $		
5.0%	Elec	Gas	Total
Incentive #1	$0	$0	$5,000
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$5,000**

Total Project Cost	$89,561

		Allowable Incentive
% Incentives #1 of Utility Cost*	5.0%	$5,000
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$5,000**	
Project Cost w/ Incentives	$84,561	

Project Payback (years)	
w/o Incentives	w/ Incentives
7.9	7.5

* 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

APPENDIX E

Energy Savings Improvement Plan (ESIP)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
  - COMBINED HEAT & POWER AND FUEL CELLS
  - LOCAL GOVERNMENT ENERGY AUDIT
  - LARGE ENERGY USERS PILOT
  - ENERGY SAVINGS IMPROVEMENT PLAN
  - DIRECT INSTALL
  - ENERGY BENCHMARKING
  - T-12 SCHOOLS LIGHTING INITIATIVE
  - OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - TEACH
  - ARRA
- TECHNOLOGIES
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Plan

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 the recently enacted 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.

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)

The Board also adopted protocols to measure energy savings.

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.

FIRST STEP – ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. As explained in the Local Finance Notice, this may be done internally if an agency has qualified staff to conduct the audit. If not, the audit must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach - and it's free. **Incentives provide 100% of the cost of the audit.**

ENERGY REDUCTION PLANS

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

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

Program Updates

- Board Order - Standby Charges for Distributed Generation Customers
- T-12 Schools Lighting Replacement Initiative - Funding Allocation Reached

Other updates posted.

APPENDIX F

Solar Photovoltaic Analysis

Penns Grove-Carneys Point Regional School District
Penns Grove Middle School

Cost of Electricity	$0.123	/kWh
Electricity Usage	462,201	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
$160,000	**40.0**	**52,549**	**0**	**$6,464**	**0**	**$6,464**	**$0**	**$3,153**	**24.8**	**16.6**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $60 /1000kwh

Area Output*
1,730 m2
18,617 ft2

Perimeter Output*
364 m
1,193 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
5,685 ft2

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

8	watt/ft2	
45,479	DC watts	
40	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	07632	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
52,549 annual kWh calculated in PV Watts program

% Offset Calc

Usage	462,201	(from utilities)
PV Generation	52,549	(generated using PV Watts)
% offset	11%	

* http://www.freemaptools.com/area-calculator.htm
**http://www.flettexchange.com

PVWatts * * * * *

AC Energy & Cost Savings

* * * * *

Cautions for Interpreting the Results

Penns Grove Middle School - Penns Grove Board of Education

Station Identification

Cell ID:	0266373
State:	New Jersey
Latitude:	39.8 ° N
Longitude:	75.3 ° W

PV System Specifications

DC Rating:	40.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	33.2 kW
Array Type:	Fixed Tilt
Array Tilt:	20.0 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	12.3 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.80	2901	356.82
2	3.53	3338	410.57
3	4.96	4999	614.88
4	5.39	5119	629.64
5	5.96	5691	699.99
6	6.25	5602	689.05
7	5.95	5458	671.33
8	5.75	5258	646.73
9	5.17	4684	576.13
10	4.19	4075	501.23
11	2.96	2863	352.15
12	2.55	2561	315.00
Year	4.63	52549	6463.53

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (http://rredc.nrel.gov)

APPENDIX G

EPA Portfolio Manager

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Penns Grove Middle School

Building ID: 3242244
For 12-month Period Ending: June 30, 2012[1]
Date SEP becomes ineligible: N/A

Date SEP Generated: August 30, 2012

Facility
Penns Grove Middle School
351 Maple Avenue
Penns Grove, NJ 08069

Facility Owner
N/A

Primary Contact for this Facility
N/A

Year Built: 1935
Gross Floor Area (ft²): 85,540

Energy Performance Rating[2] (1-100) 27

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	1,581,656
Natural Gas (kBtu)[4]	3,828,130
Total Energy (kBtu)	5,409,786

Energy Intensity[4]

Site (kBtu/ft²/yr)	63
Source (kBtu/ft²/yr)	109

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	428

Electric Distribution Utility
Atlantic City Electric Co [Pepco Holdings Inc]

National Median Comparison

National Median Site EUI	52
National Median Source EUI	89
% Difference from National Median Source EUI	22%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional
N/A

Meets Industry Standards[5] **for Indoor Environmental Conditions:**

Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.
NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	Penns Grove Middle School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	351 Maple Avenue, Penns Grove, NJ 08069	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		☐
Penns Grove Middle School (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	85,540 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Open Weekends?	No	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		☐
Number of PCs	75	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	0	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		☐
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		☐
Percent Cooled	0 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐
Months	10(Optional)	Is this school in operation for at least 8 months of the year?		☐

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		☐

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Atlantic City Electric Co [Pepco Holdings Inc]

Fuel Type: Electricity

Meter: Electric Stadium (0142 0469 9996) (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
06/01/2012	06/30/2012	0.00
05/01/2012	05/31/2012	0.00
04/01/2012	04/30/2012	0.00
03/01/2012	03/31/2012	0.00
02/01/2012	02/29/2012	0.00
01/01/2012	01/31/2012	0.00
12/01/2011	12/31/2011	317.00
11/01/2011	11/30/2011	372.00
10/01/2011	10/31/2011	430.00
09/01/2011	09/30/2011	237.00
08/01/2011	08/31/2011	0.00
07/01/2011	07/31/2011	0.00
Electric Stadium (0142 0469 9996) Consumption (kWh (thousand Watt-hours))		**1,356.00**
Electric Stadium (0142 0469 9996) Consumption (kBtu (thousand Btu))		**4,626.67**

Meter: Electric (0142 0289 9994) (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
06/01/2012	06/30/2012	41,400.00
05/01/2012	05/31/2012	38,100.00
04/01/2012	04/30/2012	37,800.00
03/01/2012	03/31/2012	38,550.00
02/01/2012	02/29/2012	39,300.00
01/01/2012	01/31/2012	44,100.00
12/01/2011	12/31/2011	43,800.00
11/01/2011	11/30/2011	39,300.00
10/01/2011	10/31/2011	41,151.00
09/01/2011	09/30/2011	35,700.00
08/01/2011	08/31/2011	28,200.00
07/01/2011	07/31/2011	34,800.00
Electric (0142 0289 9994) Consumption (kWh (thousand Watt-hours))		**462,201.00**

Electric (0142 0289 9994) Consumption (kBtu (thousand Btu))	**1,577,029.81**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))	**1,581,656.48**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?	☐

Fuel Type: Natural Gas

Meter: Gas Meter (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
06/01/2012	06/30/2012	135.85
05/01/2012	05/31/2012	2,159.78
04/01/2012	04/30/2012	0.00
03/01/2012	03/31/2012	9,388.94
02/01/2012	02/29/2012	9,921.65
01/01/2012	01/31/2012	9,845.02
12/01/2011	12/31/2011	4,729.33
11/01/2011	11/30/2011	1,868.66
10/01/2011	10/31/2011	99.17
09/01/2011	09/30/2011	29.15
08/01/2011	08/31/2011	50.81
07/01/2011	07/31/2011	52.94

Gas Meter Consumption (therms)	**38,281.30**
Gas Meter Consumption (kBtu (thousand Btu))	**3,828,130.00**
Total Natural Gas Consumption (kBtu (thousand Btu))	**3,828,130.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?	☐

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	☐

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	☐

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Penns Grove Middle School
351 Maple Avenue
Penns Grove, NJ 08069

Facility Owner
N/A

Primary Contact for this Facility
N/A

General Information

Penns Grove Middle School	
Gross Floor Area Excluding Parking: (ft²)	85,540
Year Built	1935
For 12-month Evaluation Period Ending Date:	June 30, 2012

Facility Space Use Summary

Penns Grove Middle School	
Space Type	K-12 School
Gross Floor Area (ft²)	85,540
Open Weekends?	No
Number of PCs	75
Number of walk-in refrigeration/freezer units	0
Presence of cooking facilities	Yes
Percent Cooled	0
Percent Heated	100
Months °	10
High School?	No
School District °	Penns Grove-Carneys Point

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 06/30/2012)	**Baseline** (Ending Date 06/30/2012)	**Rating of 75**	**Target**	**National Median**
Energy Performance Rating	27	27	75	N/A	50
Energy Intensity					
Site (kBtu/ft²)	63	63	40	N/A	52
Source (kBtu/ft²)	109	109	69	N/A	89
Energy Cost					
$/year	$ 95,306.91	$ 95,306.91	$ 60,915.64	N/A	$ 77,900.29
$/ft²/year	$ 1.11	$ 1.11	$ 0.71	N/A	$ 0.91
Greenhouse Gas Emissions					
$MtCO_2e$/year	428	428	274	N/A	350
$kgCO_2e$/ft²/year	5	5	3	N/A	4

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:
o - This attribute is optional.
d - A default value has been supplied by Portfolio Manager.