ENERGY AUDIT – FINAL REPORT

LAVALLETTE POLICE STATION

1300 GRAND CENTRAL AVENUE
LAVALLETTE, NJ 08735
ATTN: MR. CHRISTOPHER F. PARLOW
Borough Administrator / Municipal Clerk

CEG PROJECT NO. 9P08128

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I. EXECUTIVE SUMMARY

This report presents the findings of an energy audit conducted for:

Lavallette Police Department
1300 Grand Central Avenue
Lavallette, NJ 08735

Municipal Contact Person: Mr. Christopher F. Parlow
Borough Administrator / Municipal Clerk

This audit was performed in connection with the New Jersey Clean Energy Local Government Energy Audit Program. These energy audits are conducted to promote the office of Clean Energy's mission, which is to use innovation and technology to solve energy and environmental problems in a way that improves the State's economy. This can be achieved through the wiser and more efficient use of energy.

The annual energy costs at this facility are as follows:

Electricity	$ 13,527
Natural Gas	$ 3,124
Total	$ 16,651

The potential annual energy cost savings are shown below in Table 1. Be aware that the measures are not additive because of the interrelation of several of the measures. The cost of each measure for this level of auditing is ± 20% until detailed engineering, specifications, and hard proposals are obtained.

Table 1
Energy Conservation Measures (ECM's)

ECM NO.	DESCRIPTION	COST	ANNUAL SAVINGS	SIMPLE PAYBACK (YEARS)	RETURN ON INVESTMENT
1	Mini Split System	$29,628	$601	49	N/A
2	Airside Economizer	$9,000	$568	15.8	1.4 %
3	Upgrade Fluorescent Lighting	$1,610	$818	2.0	64.8 %
4	Install Compact Fluorescent Lighting	$151	$442	<1.0	209.5 %
5	Install Lighting Controls	$580	$50	11.6	5.5 %
6	5 KW PV Solar Panel System	$45,540	$4,114	11.07	8.2 %

The estimated demand and energy savings are shown below in Table 2. The information in this table corresponds to the ECM's in Table 1.

Table 2
Estimated Energy Savings

ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECT DEMAND (KW)	ELECT CONSUMPTION (KWH)	NAT GAS (THERMS)
1	Mini Split System	-	3,513	-
2	Airside Economizer	-	3,322	-
3	Upgrade Fluorescent Lighting	-	4,786	-
4	Install Compact Fluorescent Lighting	-	2,584	--
5	Install Lighting Controls	-	295	-
6	5 KW PV Solar Panel System	5	7,896	-

Recommendations:

Concord Engineering Group recommends the implementation of all ECM's that provide a calculated simple payback at or under seven (7) years. The potential energy and cost savings from these ECM's are economically justifiable. The following Energy Conservation Measures are recommended for the Lavallette Police Department:

- **ECM #3:** Upgrade Fluorescent Lighting
- **ECM #4:** Install Compact Fluorescent Lighting

II. INTRODUCTION

This comprehensive energy audit covers the 2,748 square foot Police Station that includes administrative offices, dispatch, records, booking, two small jail cells and locker room.

The first task was to collect and review one year worth of utility energy data for electricity and natural gas. This information was used to analyze operational characteristics, calculate energy benchmarks for comparison to industry averages, estimate savings potential, and establish a baseline to monitor the effectiveness of implemented measures. A computer spreadsheet was used to enter, sum, and calculate benchmarks and to graph utility information (see Appendix A).

The Energy Use Index (EUI) is expressed in British Thermal Units/square foot/year (BTU/ft^2/yr) and can be used to compare energy consumption to similar building types or to track consumption from year to year in the same building. The EUI is calculated by converting annual consumption of all fuels to BTU's then dividing by the area (gross square footage) of the building. EUI is a good indicator of the relative potential for energy savings. A comparatively low EUI indicates less potential for large energy savings. The gross square footage of the building was provided by the township, in the absence of blueprints.

After gathering the utility data and calculating the EUI, the next step in the audit process is obtaining Architectural and Engineering drawings (where available). By reviewing the Architectural and Engineering drawings, questions regarding the building envelope, lighting systems/controls, HVAC equipment and controls are noted. These questions are then compared to the energy usage profiles developed during the utility data gathering step. Furthermore, through the review of the architectural and engineering drawings a building profile can be defined that documents building age, type, usage, major energy consuming equipment or systems, etc. After this information is gathered the next step in the process is the site visit.

The site visit was spent inspecting the actual systems and answering specific questions from the preliminary review. The building manager provided occupancy schedules, O & M practices, the building energy management program, and other information that has an impact on energy consumption.

The post-site work included evaluation of the information gathered during the site visit, researching possible conservation opportunities, organizing the audit into a comprehensive report, and making recommendations on mechanical, lighting and building envelope improvements.

III. METHOD OF ANALYSIS

The first step in the energy analysis is the site survey. The auditor walks the entire site to inventory the building envelope (roof, windows, etc.), the heating, ventilation, and air conditioning equipment (HVAC), the lighting equipment, other facility-specific equipment, and to gain an understanding of how each facility is used.

The collected data is then processed using engineering calculations, Microsoft Excel spread sheets and Trane Trace 700™ building simulation software that calculate the anticipated energy usage. The actual energy usage is entered directly from the utility bills. The anticipated energy usage is compared to the actual usage. If necessary, corrections are made to the site-collected data until the anticipated energy usage matches the actual usage. This process develops an end-use baseline for all of the fuels used at the facility. This baseline is used to calculate the energy savings for the measures that are recommended in this report.

The savings in this report are not duplicative. The savings for each recommendation may actually be higher if the individual recommendations were installed instead of the entire project. For example, the lighting module calculates the change in wattage and multiplies it by the new operating hours instead of the existing operating hours (if there was a change in the hours at all). The lighting controls module calculates the change in hours and multiplies it by the new system wattage instead of the existing wattage. Therefore, if you chose to install the recommended lighting system but not the lighting controls, the savings achieved with the new lighting system would actually be higher because there would have been no reduction in the hours of use.

The same principal follows for heating, cooling, and temperature recommendations – even with fuel switching. If there are recommendations to change the temperature settings to reduce fuel use, then the savings for the heating/cooling equipment recommendations are reduced, as well. Thermal recommendations (insulation, windows, etc.) are evaluated by taking the difference in the thermal load due to reduced heat transfer. Again, the "thermal load" is the thermal load after the other recommendations have been accounted for.

Lastly, installation costs, refer to Appendix B, are then applied to each recommendation and simple paybacks are calculated. Costs are derived from Means Cost Data, other industry publications, and local contractors and suppliers. The NJ SmartStart Building® program incentives (refer to Appendix C) are calculated for the appropriate ECM's and subtracted from the installed cost prior to calculation of the simple payback. In addition, where applicable, maintenance cost savings are estimated and applied to the net savings.

IV. HISTORIC ENERGY CONSUMPTION/COST

A. Energy Usage / Tariffs

Electric

Table 3 and Figure 1 represent the electrical usage for the surveyed facility from January-08 to December-08. This electric rate has a component for consumption that is measured in kilowatt-hours (kWh). It is calculated by multiplying the wattage of the equipment times the hours that it operates. For example, a 1,000 Watt lamp operating for 5 hours would measure 5,000 Watt-hours. Since one kilowatt is equal to 1,000 Watts, the measured consumption would be 5 kWh. The basic usage charges are shown as generation service and delivery charges along with several non-utility generation charges. Rates used in this report reflect the most current rate structure available.

Natural Gas

Table 4 and Figure 2 show the natural gas energy usage for the surveyed police station from January-08 to December-08. Below is the average unit cost for the utilities at this facility.

Description	Average
Electricity	17.1¢/kWh
Natural Gas	$2.009/Therm

Table 3
Electricity Billing Data

Police Department

Provider	Month	Start Date	End Date	Account	Utility Type	Billing Days	Total Consumption	Units	Minimum Charge	Rate $/Kwh	Total $
Lavallette Electric Utility	January	1/25/2008	2/24/2008	1798	Electric	33	4,980	kwh	$ 14.75	$ 0.158	$ 801.59
Lavallette Electric Utility	February	2/25/2008	3/24/2008	1798	Electric	30	5,416	kwh	$ 14.75	$ 0.158	$ 870.48
Lavallette Electric Utility	March	3/25/2008	4/23/2008	1798	Electric	32	5,840	kwh	$ 14.75	$ 0.158	$ 937.47
Lavallette Electric Utility	April	4/24/2008	5/25/2008	1798	Electric	29	5,927	kwh	$ 14.75	$ 0.158	$ 951.22
Lavallette Electric Utility	May	5/26/2008	6/25/2008	1798	Electric	29	7,326	kwh	$ 14.75	$ 0.158	$ 1,172.26
Lavallette Electric Utility	June	6/26/2008	7/25/2008	1798	Electric	32	6,728	kwh	$ 14.75	$ 0.185	$ 1,259.43
Lavallette Electric Utility	July	7/26/2008	8/26/2008	1798	Electric	30	9,650	kwh	$ 14.75	$ 0.185	$ 1,800.00
Lavallette Electric Utility	August	8/27/2008	9/23/2008	1798	Electric	29	8,241	kwh	$ 14.75	$ 0.185	$ 1,539.34
Lavallette Electric Utility	September	9/24/2007	10/22/2008	1798	Electric	32	6,656	kwh	$ 14.75	$ 0.185	$ 1,246.11
Lavallette Electric Utility	October	10/23/2008	12/9/2008	1798	Electric	31	5,644	kwh	$ 14.75	$ 0.158	$ 906.50
Lavallette Electric Utility	November	12/9/2008	1/12/2009	1798	Electric	28	9,069	kwh	$ 14.75	$ 0.158	$ 1,447.65
Lavallette Electric Utility	December	1/12/2009	1/13/2009	1798	Electric	32	6,205	kwh	$ 14.75	$ 0.158	$ 995.14
						Total:	81682	kwh		**Total:**	$ 13,927.19
										Avg. Cost per kwh:	$ 0.171

Figure 1
Electricity Usage Profile

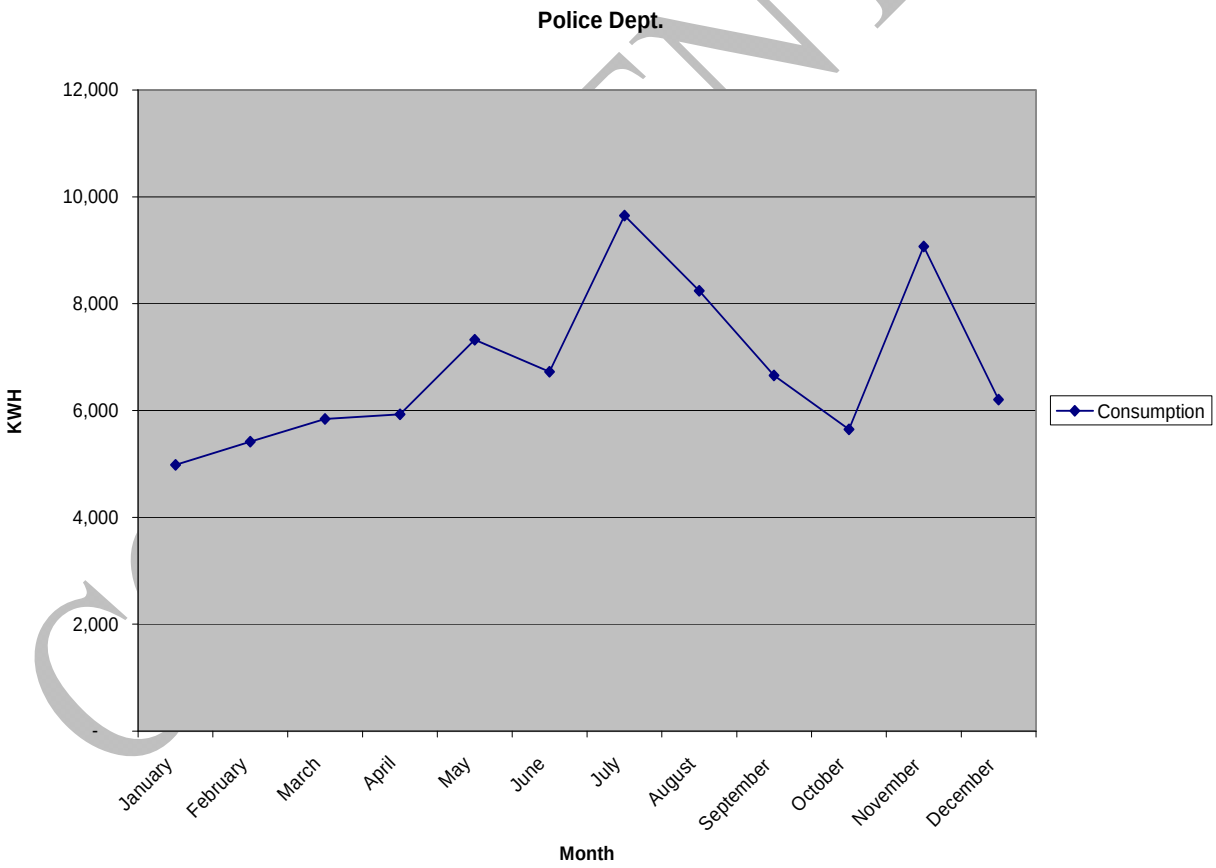
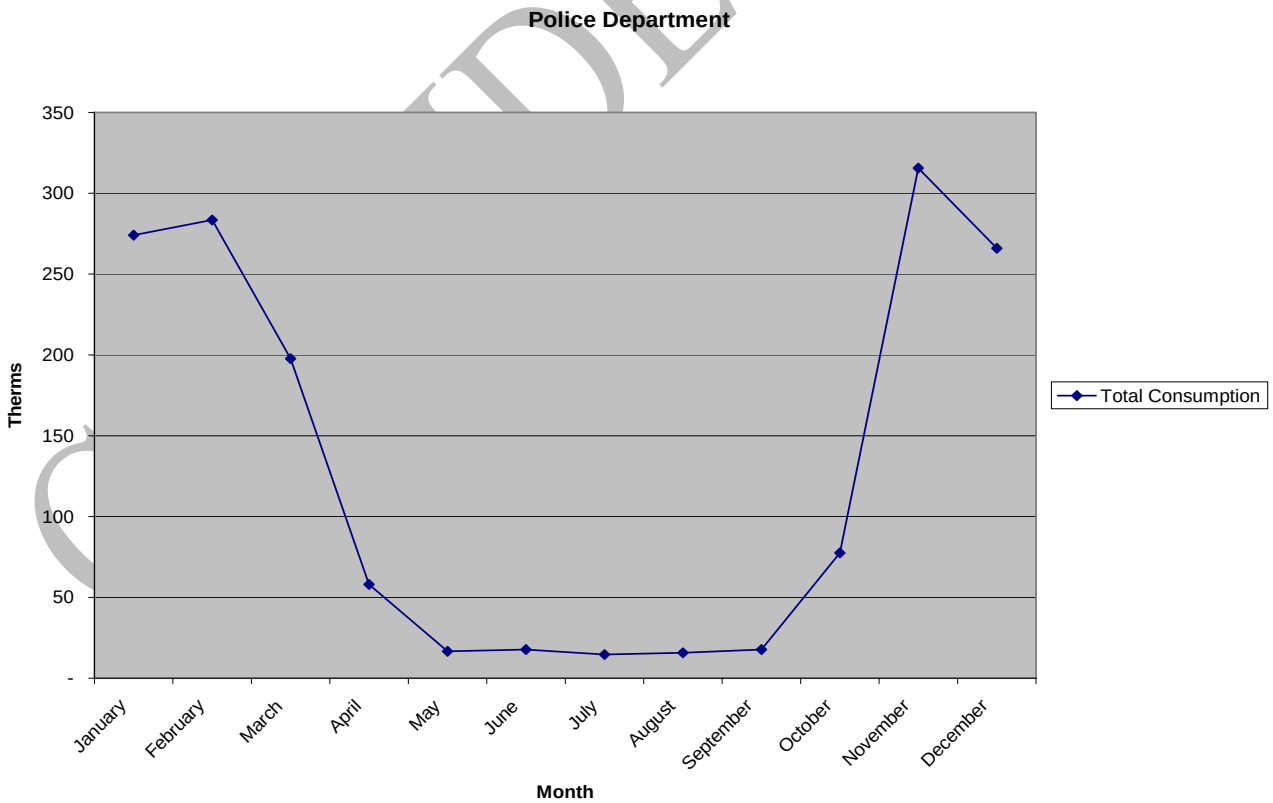


Table 4
Natural Gas Billing Data

Police Department

Provider	Month	Start Date	End Date	Account	Utility Type	Billing Days	Consumption	Units	Total $
NJ Natural Gas	January	1/10/2008	2/11/2008	19-4792-3860-25	Gas	32	274	therms	410.24
NJ Natural Gas	February	2/11/2008	3/11/2008	19-4792-3860-25	Gas	28	283	therms	846.20
NJ Natural Gas	March	3/11/2008	4/8/2008	19-4792-3860-25	Gas	28	198	therms	342.75
NJ Natural Gas	April	4/8/2008	5/9/2008	19-4792-3860-25	Gas	31	58	therms	102.24
NJ Natural Gas	May	5/9/2008	6/10/2008	19-4792-3860-25	Gas	32	17	therms	87.09
NJ Natural Gas	June	6/10/2008	7/10/2008	19-4792-3860-25	Gas	30	18	therms	62.27
NJ Natural Gas	July	7/10/2008	8/9/2008	19-4792-3860-25	Gas	30	15	therms	58.21
NJ Natural Gas	August	8/9/2008	9/8/2008	19-4792-3860-25	Gas	30	16	therms	57.51
NJ Natural Gas	September	9/8/2008	10/8/2008	19-4792-3860-25	Gas	30	18	therms	56.88
NJ Natural Gas	October	10/8/2008	11/6/2008	19-4792-3860-25	Gas	29	77	therms	149.83
NJ Natural Gas	November	11/6/2008	12/8/2008	19-4792-3860-25	Gas	32	316	therms	510.86
NJ Natural Gas	December	12/8/2008	1/9/2009	19-4792-3860-25	Gas	32	266	therms	440.07
						12 Month Total:	1554.957	therms	$ 3,124.15
						Average Cost per therm:	$ 2.009		

Figure 2
Natural Gas Usage Profile



B. Energy Use Index (EUI)

The Oak Ridge National Laboratory (ORNL) Buildings Technology Center under a contract with the U.S. Department of Energy maintains a Benchmarking Building Energy Performance Program. Their website allows the user to determine how well the client's building energy use intensity (EUI) compares with similar facilities throughout the U.S. and in your specific region or state.

$$Building\ \ EUI = \frac{(Electric\ Usage\ in\ kBtu/h + Gas\ Usage\ in\ kBtu/h)}{Building\ \ Square\ \ Footage}$$

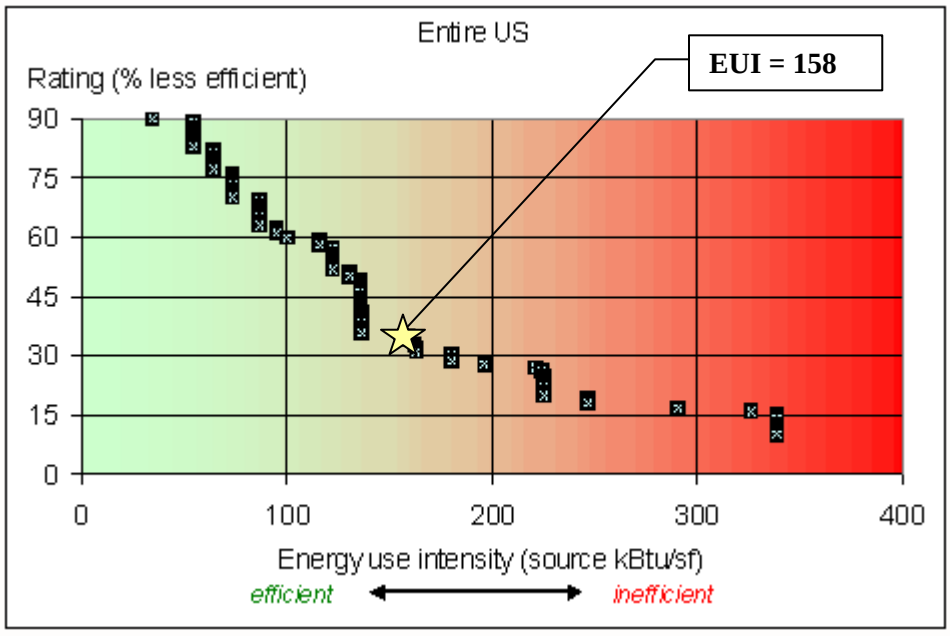
Electric = ((81,682 kWh) * (1000 W/kW) * (3.414 Btu/h / 1 W))/ (1000 Btu/ 1 kBtu)
= 278,862 kBtu

Gas = ((1,555 therms) * (100,000 Btu/h / 1 Therm)) / (1000 Btu / 1 kBtu) = 155,500 kBtu

$$Building\ \ EUI = \frac{(278{,}862\ kBtu + 155{,}500\ kBtu)}{2{,}748\ SF} = \frac{434{,}362\ kBtu}{2{,}748\ SF}$$

Police Department EUI = 158 kBtu/SF

Figure 3
Energy Use Intensity Distributions – Fire & Police Stations



C. EPA Energy Benchmarking System

The United States Environmental Protection Agency (EPA) in an effort to promote energy management has created a system for benchmarking energy use amongst various end users. The benchmarking tool utilized for this analysis is entitled Portfolio Manager. The Portfolio Manager tool allows you to track and assess energy consumption via the template forms located on the ENERGY STAR website (www.energystar.gov). The importance of benchmarking for local government municipalities is becoming more important as utility costs continue to increase and more emphasis is being placed throughout multiple arenas on carbon reduction, greenhouse gas emissions and other environmental impacts.

Based on information gathered from the ENERGY STAR website, Government agencies spend more than $10 billion a year on energy to provide public services and meet constituent needs. Furthermore, energy use in commercial buildings and industrial facilities is responsible for more than 50 percent of U.S. carbon dioxide emissions. Therefore, it is vital that local government municipalities assess their energy usage, benchmark this usage utilizing Portfolio Manager, set priorities and goals to lessen their energy usage and move forward with these priorites and goals. Saving energy will in-turn save the environment.

In accordance with the Local Government Energy Audit Program, CEG has created an Energy Star account for the municipality in order to allow access to monitor their yearly energy usage as it compares to facilities of similar type. The login page for the account can be accessed at the following web address; the username and password are also listed below:

https://www.energystar.gov/istar/pmpam/index.cfm?fuseaction=login.login

User Name:	lavalletteboro
Password:	lgeaceg09007

Utilizing the utility bills and other information gathered during the energy audit process, CEG entered the respective data into Portfolio Manager and the following is a summary of the results:

Table 5
ENERGY STAR Performance Rating

FACILITY DESCRIPTION	ENERGY PERFORMANCE RATING	NATIONAL AVERAGE
Police Station	N/A	N/A

Specific building types are detailed on the ENERGY STAR website. Non-typical buildings are covered by an "Other" category. The Lavallette Police Station fall under this "Other" category. The "Other" category is used if your building type or a section of the building is not represented by one of the specific categories. An Energy Performance Rating cannot be calculated if more then 10% of a building is classified as "Other." In addition, office buildings with less than 5000 S.F. cannot generate an Energy Performance Rating. Due to the square footage of the Police Department building being less than 5000 S.F. of floor space, an Energy Performance rating could not be calculated. Despite this, the Portfolio Manager calculates the building EUI. The EUI is an important tool that can be used to track the energy efficiency if the building. Baselines for improvement can be set that the municipality can strive to meet. CEG recommends that the Borough of Lavallette keep their Portfolio Manager account up to date to monitor the performance of the building.

The EUI calculated in the previous section is a good indicator of the energy performance of the Police Station in the absence of the Energy Star Portfolio Manager Program. The EUI distribution, figure 3, is specific for Fire and Police stations. The Police Station has an EUI of 158. The lower the EUI the less energy the facilty uses per squarefoot. A low EUI indicates a more efficient building.

V. FACILITY DESCRIPTION

Lavallette's Police Station consists of administrative offices, dispatch, records, booking, two small jail cells, locker room and beach badge office, totaling approximately 2,748 SF. The engine garage is a metal frame building with insulated walls. Vinyl replacement windows were installed in 2001. The building is a one story and constructed of typical brick and block construction. A full size attic space exists over the main structure. Within the attic, a room has been constructed to house the Police computers and communication equipment. The Police Station is occupied 24 hours a day. The beach badge office appears to have been a separate addition; it has a separate exterior entrance and is operated seasonally.

Heating System

The Police Station is heated by a hydronic system. A single hot water boiler and circulating pump are located in a small mechanical closet located in the rear of the building. The boiler is a Hydrotherm model HL-145C, 145,000 Btuh input. It is a Category 1, minimum efficiency appliance. Two (2) Taco brand circulators distribute hot water to cast iron radiator via copper piping. A galvanized flue pipe, shared with the HWH, discharges to the rooftop.

An electric floor heater is used in Dispatch during the winter months.

The Beach Badge office addition is not heated.

Domestic Hot Water

Domestic hot water needs for the facility are provided by an A.O. Smith 40 gallon standard HWH, 32,900 Btuh input, 1999 vintage

Cooling System

An American Standard "Allegiance 13" model 2A&A3060A 5 ton capacity condensing unit is mounted on grade at the rear of the building. Refrigerant piping connects to an indoor blower-coil unit located in the attic. This is a standard grade commercial unit, with minimum efficiency. A Robert Shaw thermostat controls the unit.

The attic computer room is cooled by a window type air conditioner which discharges hot condenser air into the attic.

Supplemental window air conditioners exist in the Dispatch office and the Beach Badge addition.

Lighting

The offices, corridors, locker room, toilet rooms, and common areas are lit by a combination of 2-foot by 2-foot and 2-foot by 4-foot lay-in fixtures, some containing T12 lamps with magnetic ballasts and some using T8 lamps with electronic ballasts. Standard switching is utilized and there are no other types of lighting controls present.

The jail cells are lit using 8-foot fixtures with T12 lamps with magnetic ballasts. Standard switching is utilized and there are no other types of lighting controls present.

The dispatch area is lit by recessed incandescent fixtures. Standard switching is utilized and there are no other types of lighting controls present.

The attic area is lit by a combination of incandescent fixtures and compact fluorescent fixtures. Standard switching is utilized and there are no other types of lighting controls present.

The exterior under canopy and building mounted flood lighting include an assortment of wall packs & incandescent down light fixtures.

VI. MAJOR EQUIPMENT LIST

Following the completion of the field survey a detailed equipment list was created. The equipment within this list is considered major energy consuming equipment whose replacement could yield substantial energy savings. Additionally, the list shows the major equipment in the facility and all pertinent information utilized in energy savings calculations. An approximate age was assigned to the equipment if a manufactures date was not shown on the equipment's nameplate. The ASHRAE service life for the equipment along with the remaining useful life is also shown in the Appendix.

Equipment denoted by an asterisk indicates an estimate of the equipment ratings due to equipment inaccessibility, worn nameplates, lack of nameplates, etc.

Refer to Appendix D for the Major Equipment List for this facility.

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VII. ENERGY CONSERVATION MEASURES (ECM)

Analysis of the gas and electric bills shows that the heating and cooling costs are 77% and 18% of the annual gas and electric costs respectively. The total annual gas use, at 1497 therms, is good for this facility. The electric use, however, is higher than expected at 81,682 kwh per year. Since approximately 82% of the electric costs are plug and lighting loads, the focus of the ECM's will concentrate on electric use. Plug loads include the 3 window air conditioners.

ECM #1: Mini Split System

Reportedly, the existing 5 Ton Split System does not perform an adequate job of cooling the spaces. Some of the spaces are perceived to be hot and have low airflow. Often times an undersized DX system will experience evaporator coil freeze-up when it operates continuously, which causes airflow blockage. In addition, three (3) window type AC units are used for the attic computer room, Dispatch Office and Beach badge office. The computer room unit discharges heat into the attic space causing inefficiencies with this unit and also adding load to the building.

This ECM proposes to add a supplemental ductless variable volume refrigerant split system. One 4 ton outdoor condensing unit will be connected to 4 indoor fan coils for the attic computer room, dispatch office, beach badge office and one of the private offices. In addition to providing energy savings, this ECM will provide improved comfort and temperature control. The Basis of design for this ECM is a Daiken brand VRV-S system which has a 14.3 SEER rating.

Cooling Energy Use Calculations:

$$EnergyUse = \frac{[CoolingTons \times 12{,}000\ Btu/ton \div 1000\ W/kW]}{EER} \times Avg.\ Load\ \ Factor \times Hrs.\ of\ \ Cooling$$

Cooling Season Hrs. of Operation = 1800 hrs/yr.
Average Cost of Electricity - $0.171/kWh

Existing Split System
Rated Capacity = 5 Tons
Unit Efficiency = 13 EER

$$EnergyUse = \frac{[1 CoolingTons \times 12{,}000 Btu/ton \div 1000 W/kW]}{13 EER} \times 1 \times 1800 = \underline{1661\ kWh\ per\ Ton}$$

Existing Window AC Units (3)
Capacity, each = 1 ton
Unit Efficiency = 8 EER

$$EnergyUse = \frac{[3 CoolingTons \times 12{,}000 Btu/ton \div 1000 W/kW]}{8 EER} \times 0.8 \times 1800 = \underline{6480\ kWh}$$

Proposed High-Efficiency Ductless Split System

Rated Capacity = 4 Tons
New Unit Efficiency = 14.3 SEER, 11.2 EER

$$EnergyUse = \frac{[3 CoolingTons \times 12{,}000\, Btu/ton \div 1000 W/kW]}{11.2 EER} \times 0.8 \times 1800 = \underline{4628\ kWh}$$

Cooling Energy Savings Calculations:

Energy Savings = (1661 + 6480) – 4628 = <u>3513 kWh / yr</u>.

Cost Savings = 3513 kWh/Yr/ x $0.171/kWh = <u>$601 / Yr.</u>

The SmartStart Buildings® incentive is $93 per ton which equates to $372.

Energy Savings Summary:

ECM #1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	**$30,000**
NJ Smart Start Equipment Incentive ($):	**($372)**
Maintenance Savings ($):	**($0)**
Net Installation Cost ($):	**$29,628**
Total Energy Savings ($ / yr):	**$601**
Simple Payback (yrs):	**49**
Simple Return on Investment:	**N/A**

ECM #2: Airside Economizer

Since the police Station is a 24 hr operation, it does not have temperature setbacks in the night hours. During the busy summer months there exist many evening and night hours when the outdoor air is cool enough to permit airside economizer cooling of the space. This ECM proposes adding a mixing box, modulating return/OA dampers, roof penetration with gooseneck, and economizer controller to the existing 5 ton split system.

Cooling Energy Use Calculations:

$$EnergyUse = \frac{[CoolingTons \times 12{,}000\ Btu/ton \div 1000\ W/kW]}{EER} \times Avg.\ Load\ Factor \times Hrs.\ of\ Cooling$$

Cooling Season Hrs. of Operation = 1800 hrs/yr.

Economizer Hrs. of Operation = 720 hrs. /yr.
Average Cost of Electricity - $0.171/kWh

Existing Split System
Rated Capacity = 5 Tons
Unit Efficiency = 13 EER

$$EnergySavings = \frac{[5 CoolingTons \times 12{,}000 Btu/ton \div 1000 W/kW]}{13 EER} \times 1 \times 720 = \underline{3322 \text{ kWh per year}}$$

Cost Savings = 3322 kWh/Yr/ x $0.171/kWh = $568 / Yr.

Energy Savings Summary:

ECM #2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	**$9,000**
NJ Smart Start Equipment Incentive ($):	**($0)**
Maintenance Savings ($):	**($0)**
Net Installation Cost ($):	**$9,000**
Total Energy Savings ($ / yr):	**$568**
Simple Payback (yrs):	**15.8**
Simple Return on Investment:	**1.4 %**

ECM #3: Lighting Upgrade - Upgrade the Fluorescent Lighting

Description:

Improved fluorescent lamps and ballasts are available as direct replacements for the existing lamps and ballasts. A simple retrofit of the existing fixture can provide substantial savings. A conventional drop-ceiling lay in fixture with four, 4-foot lamps has a total wattage of 154 Watts per fixture. By using the improved lamps and ballasts, the total wattage would be reduced to 95 Watts. The light levels would increase by about 15% and the light quality would increase by 35%.

CEG recommends replacement of the existing T8 and T12 lamps and ballasts with the latest technology T8 lamps and high efficiency electronic ballasts. The new energy efficient, T8 lamps will provide adequate lighting and will save the Owner on electrical costs due to the better

performance of the electronic ballasts. In addition to functional cost savings, the fixture replacement will also provide operational cost savings. The operational cost savings will be realized through the decreased number of lamps that will be required to be replaced per year. The expected lamp life of the latest high efficiency T8 lamps is approximately 30,000 burn-hours, requiring fewer lamps to replace per year. Based on the operating hours of this portion of the facility, approximately 3000–8000 hours per year, the Owner will be changing approximately 33% less lamps per year.

In addition, a single electronic ballast can operate one, two, three, or four lamps in a fixture. The existing magnetic ballasts can only operate up to two lamps. The electronic ballasts could reduce the amount of ballasts in the facility by half. This can be taken advantage of with "tandem wiring" of ballasts. Instead of using one electronic ballast for every one fixture it is sometimes feasible to use one electronic ballast for every two or more fixtures. The electrician wires a single ballast to operate the lamps in adjacent light fixtures which further reduces the amount of ballasts needed.

Energy Savings Calculations:

A detailed Investment Grade Lighting Audit can be found in Appendix E that outlines the proposed retrofits, costs, savings, and payback periods.

Maintenance Savings are calculated as follows:

Maintenance Savings = (*# of lamps* x % *reduction* x $ *per lamp*) + *Installation Labor*

Maintenance Savings = (72 x 33% *reduction* x $2.00) + ($20 x 24) = $528

Energy Savings Summary:

ECM #3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	**$2,398**
NJ Smart Start Equipment Incentive ($):	**($260)**
Maintenance Savings ($):	**($528)**
Net Installation Cost ($):	**$1,610**
Total Energy Savings ($ / yr):	**$818**
Simple Payback (yrs):	**2.0**
Simple Return on Investment:	**64.8 %**

ECM #4: Lighting Upgrade – Install Compact Fluorescent Lighting

Description:

Compact fluorescent lamps (CFL's) were created to be direct replacements for the standard incandescent lamps which are common to table lamps, spot lights, hi-hats, bathroom vanity lighting, etc. The light output of the CFL has been designed to resemble the incandescent lamp. The color rendering index (CRI) of the CFL is much higher than standard fluorescent lighting, and therefore provides a much "truer" light.

The CFL is available in a myriad of shapes and sizes depending on the specific application. Typical replacements are: a 13-Watt CFL for a 60-Watt incandescent lamp, an 18-Watt CFL for a 75-Watt incandescent lamp, and a 25-Watt CFL for a 100-Watt incandescent lamp.

The CFL is also available for a number of "brightness colors" that is indicated by the Kelvin rating. A 2700K CFL is the "warmest" color available and is closest in color to the incandescent lamp. CFL's are also available in 3000K, 3500K, and 4100K. The 4100K would be the "brightest" or "coolest" output.

A CFL can be chosen to screw right into existing fixtures, or hardwired into existing fixtures.

Energy Savings Calculations:

A detailed Investment Grade Lighting Audit can be found in Appendix E that outlines the proposed retrofits, costs, savings, and payback periods.

Maintenance Savings are calculated as follows:

Maintenance Savings = (*# of lamps* x % *reduction* x $ *per lamp*) + *Installation Labor*

Maintenance Savings = (8 x 75% *reduction* x $5) + ($15 x 6) = $120

Energy Savings Summary:

ECM #4 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	**$271**
NJ Smart Start Equipment Incentive ($):	**$0**
Annual Maintenance Savings ($):	**($120)**
Net Installation Cost ($) After 1 Year:	**$151**
Total Energy Savings ($ / yr):	**$442**
Simple Payback (yrs):	**<1**
Simple Return on Investment:	**209.5 %**

ECM #5: Lighting Upgrade – Install Lighting Controls

Description:

In some areas the lighting is left on unnecessarily. There has been a belief that it is better to keep the lights on rather than to continuously switch them on and off. The on/off dilemma was studied and it was determined that the best option is to turn the lights off whenever possible. Although this practice reduces the lamp life, the energy savings far outweigh the lamp replacement costs.

Lighting controls are available in many forms. Lighting controls can be as simplistic as an additional switch. Time-clocks are often used which allows the user to set an on/off schedule. Time-clocks range from a dial clock with on/off indicators to a small box the size of a thermostat with user programs for on/off schedule in a digital format. Occupancy sensors detect motion and will switch the lights on when the room is occupied. They can either be mounted in place of the current wall switch, or they can be mounted on the ceiling to cover large areas. Lastly, photocells are a lighting control that sense light levels and will turn the lights off when there is adequate daylight. These are mostly used outside, but they are becoming much more popular in energy-efficient office designs as well.

To determine an estimated savings for lighting controls, we used ASHRAE 90.1-2004 (NJ Energy Code). Appendix G states that occupancy sensors have a 10% power adjustment factor for daytime occupancies for buildings over 5,000 SF. CEG recommends the installation of dual technology occupancy sensors in all offices and the front locker room.

CEG would recommend wall switches for individual rooms, ceiling mount sensors for large office areas, and fixture mount box sensors for some applications as manufactured by Sensorswitch, Watt Stopper, etc.

Energy Savings Calculations:

From Appendix E of this report, we calculated the annual kilowatt hours (kwh) savings for the areas where the proposed occupancy sensors will be located:

Savings = *Total kilowatts* x *Annual Average Burn Hours*

= 2,959 kwh/yr. x 10% x $0.17/kwH

Annual Savings = $50 / yr

Installation cost per dual-technology sensor is $165/unit.

The SmartStart Buildings® incentive is $20 per control which equates to an installed cost of $145/unit. Total number of rooms to be retrofitted is 4.

Total cost to install sensors is $145 x 4 units = $580.

Energy Savings Summary:

ECM #5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	**$660**
NJ Smart Start Equipment Incentive ($):	**($80)**
Maintenance Savings ($):	**$0**
Net Installation Cost ($):	**$580**
Total Energy Savings ($ / yr):	**$50**
Simple Payback (yrs):	**11.6**
Simple Return on Investment:	**5.5 %**

VIII. RENEWABLE/DISTRIBUTED ENERGY MEASURES (ECM #6)

Globally, renewable energy has become a priority affecting international and domestic energy policy. The State of New Jersey has taken a proactive approach, and has recently adopted in its Energy Master Plan a goal of 30% renewable energy by 2020. To help reach this goal New Jersey created the Office of Clean Energy under the direction of the Board of Public Utilities and instituted a Renewable Energy Incentive Program to provide additional funding to private and public entities for installing qualified renewable technologies. A renewable energy source can greatly reduce a building's operating expenses while producing clean environmentally friendly energy. CEG has assessed the feasibility of installing renewable energy technologies for Lawrence Township, and concluded that there is potential for solar energy generation.

Solar energy produces clean energy and reduces a building's carbon footprint. This is accomplished via photovoltaic panels which will be mounted on all south and southwestern facades of the building. Flat roof, as well as sloped areas can be utilized; flat areas will have the panels turned to an optimum solar absorbing angle. (A structural survey of the roof would be necessary before the installation of PV panels is considered). Parking lots can also be utilized for the installation of a solar array. A truss system can be installed that is high enough to park a vehicle under the array, this way no parking lot area is lost. The state of NJ has instituted a program in which one Solar Renewable Energy Certificate (SREC) is given to the Owner for every 1000 kWh of generation. SREC's can be sold anytime on the market at their current market value. The value of the credit varies upon the current need of the power companies. The average value per credit is around $350, this value was used in our financial calculations. This equates to $0.35 per kWh generated.

CEG has reviewed the existing area of the building and its grounds for the building being audited for the purposes of determining the potential for the installation of a PV system. An area of 336 S.F. can be utilized for the PV system on the Police Station roof. A depiction of the area utilized is shown in Appendix F. Using this square footage it was determined that a system size of 5.06 kilowatts could be installed to match the maximum peak monthly demand. The required square footage for a system of this size is 323 S.F. and a system of this size has an estimated kilowatt hour production of 7,896 KWh annually, reducing the overall utility bill by 9.7% percent. A detailed financial analysis can be found in Appendix F. This analysis illustrates the payback of the system over a 25 year period. The eventual degradation of the solar panels and the price of accumulated SREC's are factored into the payback.

CEG has reviewed financing options for the owner. Two options were studied and they are as follows: Self-financed and direct purchase without finance. Self-finance was calculated with 95% of the total project cost financed at a 7% interest rate over 25 years. Direct purchase involves the local government paying for 100% of the total project cost upfront. Both of these calculations include a utility inflation rate as well as the degradation of the solar panels over time. Based on our calculations the following are the payback periods for the respective method of payment:

PAYMENT TYPE	SIMPLE PAYBACK	INTERNAL RATE OF RETURN
Self-Finance	11.07 Years	14.3 %
Direct Purchase	11.07 Years	8.2 %

The above information is concluded as ECM #6 showing installation costs, energy savings and other pertinent summarized information in Section I of this report.

Wind energy production is another option available through the Renewable Energy Incentive Program. Small wind turbines can be utilized to produce clean energy on a per building basis. Cash incentives are available per kWh of electric usage. CEG has reviewed the applicability of wind energy for the Borough of Lavallette and has determined it is not a viable option. Low average wind speeds for the area are not adequate for wind turbine generation. Typical wind turbines start producing energy at 8 mph wind speeds. The nearest wind station to Lavallette is located in Toms River with average 5.4 mph wind speeds, making this application impractical.

IX. ENERGY PURCHASING AND PROCUREMENT STRATEGY

Load Profile:

Load Profile analysis was performed to determine the seasonal energy usage of the facility. Irregularities in the load profile will indicate potential problems within the facility. Consequently based on the profile a recommendation will be made to remedy the irregularity in energy usage. For this report, the facility's energy consumption data was gathered in table format and plotted in graph form to create the load profile. Refer to Section IV, Figures 1 and 2 included within this report to reference the respective electricity and natural gas usage load profile for January 2008 through December 2009.

Electricity:

Section IV, Figure 1 demonstrates a typical cooling profile, (April –October), complimenting the heating load (November – March). It is evident that there is an increase in consumption from April through October and a spike in consumption from July through August (the typical hottest months). This load-profile is quite flat or base-load in shape. Base-load shaping is important because a flat consumption profile will yield more competitive pricing. This facility does show a sharp spike in consumption in November. The Borough may want to investigate this further. A 5-ton condensing unit supplies the cooling. The computer room is cooled by a window type air conditioner unit. Several other window units cool other parts of this facility.

Natural Gas:

Section IV, Figure 2 demonstrates a typical heating load (November –March), and a very complimentary cooling load (April –October). Consequently there is a clear separation between summer and winter loads consistent with energy commodity prices traded on the New York Mercantile Exchange. Heating loads carry a much higher average cost because of the higher demand for natural gas during the winter for heating purposes. This facility is heated by a hydronic system. A single hot water boiler and circulating pump are also present. Distributors circulate hot water to iron radiators.

Tariff Analysis:

Electricity:

This facility receives electrical service from the Lavallette Electric Utility on a General Service tariff rate. General Service is for electric service for customers other than Residential and/or Residential Total Electric. Lavallette has installed new rates for the period October 1 through May 31, 2009 of $.14050/kWh, (this represents a 12% decrease in rates) and June 1 through September 30, 2009 of $.16750 / kWh (this represents a 10% decrease in rates). The General Service customers also pay a Customer Charge of $14.75 per month.

Natural Gas:

The Borough receives natural gas Delivery Service through New Jersey Natural Gas Company on a GSS (General Service Small) or GSL (General Service Large) tariff rate schedule. The Police Department utilizes the GSS rate schedule, and it is available to any Customer in the entire territory served by the Company who use is *less* than 5,000 therms annually and uses gas for all purposes other than residential and interruptible service. Where the customer uses the Cooling, Air Conditioning and Pool Heating Service (CAC) under Special Provision 1 applicable to customers purchasing gas supply under Rider "A", the Company will, upon application of the Customer, meter the space heating and the "CAC" separately.

This service is considered a "firm" service. Where the customer may either purchase gas from Company's Rider "A", for Basic Gas Supply Service (BGSS) or from a Marketer or Broker.

The basic charges under this tariff are for: Customer Charge, Demand Charge, Delivery Charge and if the customer elects, the BGSS Supply Charge.

The customer can elect to have the Commodity Charge serviced through the utility or by a Third Party Supplier (TPS). It is pertinent to note, should the TPS not deliver, and the customer will receive replacement service from the utility which carries an extremely high penalty cost of service.

Imbalances can occur when Third Party Suppliers are used to supply natural gas, full-delivery is not made, and when a new supplier is contracted or the customer returns to the utility. It is important when utilizing a Third Party Supplier, that an experienced regional supplier is used. Otherwise, under delivery can occur, jeopardizing economics and scheduling.

The information provided by Lavallette represents that they are currently utilizing the service of a Third Party Supplier PEPCO Energy Services. CEG believes there is room within in the "upcharge" for improvement (please see comments below).

Recommendations:

CEG recommends a global approach that will be consistent with all facilities within the Borough. CEG's primary observation is seen in the electricity costs. The Total Weighted Average price per kWh (kilowatt) for all buildings is $.167704 / kWh, (kWh, kilowatt hour is the common unit of electric measure). Energy commodities are among the most volatile of all commodities, however at this point and time, energy is extremely competitive. The Township could see significant savings if it were to take advantage of these current market prices quickly, before energy increases. Based on last year's historical consumption (January – December 2008) and current electric rates, the Borough could improve end-user energy costs by approximately 25%. (Note: Savings were calculated using Lavallette's Total Annual Consumption of 791,483 kWh's and a variance of approximately $.0427/kWh, utilizing a fixed one-year commodity contract). CEG recommends aggregating the entire electric load to gain the most optimal energy costs. CEG also recommends advisement for alternative sourcing and supply of energy on a "managed approach" basis. CEG realizes that Lavallette is a Municipal Electric Company, but also realizes

that energy costs are at historic lows, and that there is an opportunity here if/that the Borough should investigate.

CEG's realizes that The Borough utilizes the services of a Third Party Supplier for Natural Gas. The contract with PEPCO Energy Services will terminate in January 31, 2010. CEG recommends renegotiation of the agreement before winter, when prices intrinsically escalate. When The Borough renegotiates this agreement CEG suggests careful consideration of the basis, "upcharge". CEG believes that this charge could see improvement of 30%. CEG recommends energy advisory services to create a strategy for energy procurement.

CEG also recommends that the Borough of Lavallette schedule a meeting with their current utility providers to review their utility charges and current tariff structures for electricity and natural gas. This meeting would provide insight regarding alternative procurement options that are currently available. Through its meeting with the Local Distribution Company (LDC), the Township will learn more about the competitive supply process and can acquire a list of approved Third Party Suppliers from the New Jersey Board of Public Utilities website at www.nj.gov/bpu. (If competition is allowed). They should also consider using a billing-auditing service to further analyze the utility invoices, manage the data and use the data to manage ongoing demand-side management projects. Furthermore, CEG recommends special attention to credit mechanisms, imbalances, balancing charges and commodity charges when meeting with their utility representative. In addition, The Borough should consider alternative billing options. Some utilities allow for consolidated billing options when utilizing the service of a Third Party Supplier.

Finally, if the Borough of Lavallette frequently changes its supplier for energy (natural gas), it needs to closely monitor balancing, particularly when the contract is close to termination.

X. INSTALLATION FUNDING OPTIONS

CEG has reviewed various funding options for the Owner to utilize in subsidizing the costs for installing the energy conservation measures noted within this report. Below are a few alternative funding methods:

i. *Energy Savings Improvement Program (ESIP)* – Public Law 2009, Chapter 4 authorizes government entities to make energy related improvements to their facilities and par for the costs using the value of energy savings that result from the improvements. The "Energy Savings Improvement Program (ESIP)" law provides a flexible approach that can allow all government agencies in New Jersey to improve and reduce energy usage with minimal expenditure of new financial resources.

ii. *Municipal Bonds* – Municipal bonds are a bond issued by a city or other local government, or their agencies. Potential issuers of municipal bonds include cities, counties, redevelopment agencies, school districts, publicly owned airports and seaports, and any other governmental entity (or group of governments) below the state level. Municipal bonds may be general obligations of the issuer or secured by specified revenues. Interest income received by holders of municipal bonds is often exempt from the federal income tax and from the income tax of the state in which they are issued, although municipal bonds issued for certain purposes may not be tax exempt.

iii. *Power Purchase Agreement* – Public Law 2008, Chapter 3 authorizes contractor of up to fifteen (15) years for contracts commonly known as "power purchase agreements." These are programs where the contracting unit (Owner) procures a contract for, in most cases, a third party to install, maintain, and own a renewable energy system. These renewable energy systems are typically solar panels, windmills or other systems that create renewable energy. In exchange for the third party's work of installing, maintaining and owning the renewable energy system, the contracting unit (Owner) agrees to purchase the power generated by the renewable energy system from the third party at agreed upon energy rates.

CEG recommends the Owner review the use of the above-listed funding options in addition to utilizing their standard method of financing for facilities upgrades in order to fund the proposed energy conservation measures.

XI. ADDITIONAL RECOMMENDATIONS

The following recommendations include no cost/low cost measures, Operation & Maintenance (O&M) items, and water conservation measures with attractive paybacks. These measures are not eligible for the Smart Start Buildings incentives from the office of Clean Energy but save energy none the less.

A. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.

B. Maintain all weather stripping on windows and doors.

C. Use cog-belts instead of v-belts on all belt-driven fans, etc. These can reduce electrical consumption of the motor by 2-5%.

D. Reduce lighting in specified areas where the foot candle levels are above 70 in private offices and above 30 in corridor, lobbies, etc.

E. Provide more frequent air filter changes to decrease overall fan horsepower requirements and maintain better IAQ.

F. Recalibrate existing sensors serving the office spaces

G. Install a Vending Miser system to turn off the vending machines in the lunch room when not in use.

H. Clean all light fixtures to maximize light output.

I. Confirm that outside air economizers on the rooftop units that serve the Office Areas are functioning properly to take advantage of free cooling.

APPENDIX

Electric Cost Summary

Police Station

Appendix A

Lavallett Electric Utility
Acct.No: 1798

Month	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Total
Last Meter Read Date	1/25/2008	2/25/2008	3/25/2008	4/24/2008	5/26/2008	6/26/2008	7/26/2008	8/27/2008	9/24/2007	10/23/2008	12/9/2008	1/12/2009	1/25/2008
Current Meter Read Date	2/25/2008	3/25/2008	4/24/2008	5/26/2008	6/26/2008	7/26/2008	8/27/2008	9/24/2007	10/23/2008	12/9/2008	1/12/2009	1/25/2008	1/25/2008
Billing Days	33	30	32	29	29	32	30	29	32	31	28	32	367
KWH	4,980	5,416	5,840	5,927	7,326	6,728	9,650	8,241	6,656	5,644	9,069	6,205	81,682
KW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monthly Load Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Minium Charge	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$177
Delivery $/kwh	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Electric Supply, $	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Supply $/kwh	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Cost, $	$802	$870	$937	$951	$1,172	$1,259	$1,800	$1,539	$1,246	$907	$1,448	$995	$13,927
$/KWH	$0.1610	$0.1607	$0.1605	$0.1605	$0.1600	$0.1872	$0.1865	$0.1868	$0.1872	$0.1606	$0.1596	$0.1604	$0.1705

Natural Gas Cost Summary

Police Station

New Jersey Natural Gas
Acct. No.19-4792-3860-25

Month	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Total
Billing Days	32	28	28	31	32	30	30	30	30	29	32	32	364
Last Meter Read Date	1/10/2008	2/11/2008	3/11/2008	4/8/2008	5/9/2008	6/10/2008	7/10/2008	8/9/2008	9/8/2008	10/8/2008	11/6/2008	12/8/2008	1/10/2008
Current Meter Read Date	2/11/2008	3/11/2008	4/8/2008	5/9/2008	6/10/2008	7/10/2008	8/9/2008	9/8/2008	10/8/2008	11/6/2008	12/8/2008	1/9/2009	1/9/2009
Gas Used per 100 cu ft	262	271	189	76	16	17	14	15	17	74	302	254	1,507
BTU Factor	1.05	1.05	1.05	1.05	1.04	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Therms (Burner Tip)	274	283	198	79	17	18	15	16	18	77	316	266	1,576
Total Distribution Cost	$410	$137	$102	$102	$62	$35	$34	$34	$34	$61	$174	$151	$1,337
Cost per Therm	$1.497	$0.484	$0.517	$1.285	$3.739	$1.952	$2.286	$2.162	$1.937	$0.792	$0.552	$0.567	$1.481
Total Commodity Cost	$672	$709	$241	$102	$25	$27	$25	$24	$22	$88	$337	$289	$2,561
Cost per Therm	$2.45	$2.50	$1.22	$1.29	$1.47	$1.54	$1.67	$1.50	$1.26	$1.14	$1.07	$1.09	$1.52
Total Cost	$410	$846	$343	$102	$87	$62	$58	$58	$57	$150	$511	$440	$3,124
Cost per Therm	$1.50	$2.99	$1.73	$1.29	$5.21	$3.50	$3.96	$3.66	$3.20	$1.93	$1.62	$1.65	$1.982

Borough of Lavallette - Police Department

CONSTRUCTION COST AND REBATES					
ECM 1 MINI SPLIT SYSTEMS	Qty	Unit Cost $	Material $	Labor $	Total $
Daiken VRV-S Ductless Split System, 4 ton Outdoor , (4) 1 ton indoor	1	$8,000	$8,000	$16,000	$24,000
Electrical & Controls	1	$1,000	$1,000	$5,000	$6,000
Utility Incentive					$372
Total					**$29,628**
ECM 2 AIRSIDE ECONOMIZER	Qty	Unit Cost $	Material $	Labor $	Total $
Return / OA plenum w. Dampers	1	$1,000	$1,000	$2,000	$3,000
Duct with rooftop gooseneck	1	$1,000	$1,000	$2,000	$3,000
Controller and Wiring	1	$1,000	$1,000	$2,000	$3,000
Total					**$9,000**
ECM #3 - LIGHTING UPGRADE	Qty	Unit Cost $	Material $	Labor $	Total $
Lighting Retrofit	1	$2,398	$2,398	included	$2,398
Utility Incentive					$260
Total					**$2,138**
ECM #4 - LIGHTING UPGRADE	Qty	Unit Cost $	Material $	Labor $	Total $
Lighting Retrofit	1	$271	$271	included	$271
Utility Incentive					$0
Total					**$271**
ECM #5 - LIGHTING CONTROLS	Qty	Unit Cost $	Material $	Labor $	Total $
Lighting Controls	1	$660	$660	included	$660
Utility Incentive					$80
Total					**$580**
ECM #6 - PV SOLAR	Qty	Unit Cost $	Material $	Labor $	Total $
PV Solar	22	$2,070	$45,540	included	$45,540

Concord Engineering Group, Inc.

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SmartStart Building Incentives

The NJ SmartStart Buildings Program offers financial incentives on a wide variety of building system equipment. The incentives were developed to help offset the initial cost of energy-efficient equipment. The following tables show the current available incentives as of January, 2009:

Electric Chillers

Water-Cooled Chillers	$12 - $170 per ton
Air-Cooled Chillers	$8 - $52 per ton

Gas Cooling

Gas Absorption Chillers	$185 - $400 per ton
Gas Engine-Driven Chillers	Calculated through custom measure path)

Desiccant Systems

	$1.00 per cfm – gas or electric

Electric Unitary HVAC

Unitary AC and Split Systems	$73 - $93 per ton
Air-to-Air Heat Pumps	$73 - $92 per ton
Water-Source Heat Pumps	$81 per ton
Packaged Terminal AC & HP	$65 per ton
Central DX AC Systems	$40- $72 per ton
Dual Enthalpy Economizer Controls	$250

Ground Source Heat Pumps

Closed Loop & Open Loop	$370 per ton

Gas Heating

Gas Fired Boilers < 300 MBH	$300 per unit
Gas Fired Boilers ≥ 300 - 1500 MBH	$1.75 per MBH
Gas Fired Boilers ≥1500 - ≤ 4000 MBH	$1.00 per MBH
Gas Fired Boilers > 4000 MBH	(Calculated through Custom Measure Path)
Gas Furnaces	$300 - $400 per unit

Variable Frequency Drives

Variable Air Volume	$65 - $155 per hp
Chilled-Water Pumps	$60 per hp
Compressors	$5,250 to $12,500 per drive

Natural Gas Water Heating

Gas Water Heaters ≤ 50 gallons	$50 per unit
Gas-Fired Water Heaters >50 gallons	$1.00 - $2.00 per MBH
Gas-Fired Booster Water Heaters	$17 - $35 per MBH

Premium Motors

Three-Phase Motors	$45 - $700 per motor

Prescriptive Lighting

T-5 and T-8 Lamps w/Electronic Ballast in Existing Facilities	$10 - $30 per fixture, (depending on quantity)
Hard-Wired Compact Fluorescent	$25 - $30 per fixture
Metal Halide w/Pulse Start	$25 per fixture
LED Exit Signs	$10 - $20 per fixture
T-5 and T-8 High Bay Fixtures	$16 - $284 per fixture

Lighting Controls – Occupancy Sensors

Wall Mounted	$20 per control
Remote Mounted	$35 per control
Daylight Dimmers	$25 per fixture
Occupancy Controlled hi-low Fluorescent Controls	$25 per fixture controlled

Lighting Controls – HID or Fluorescent Hi-Bay Controls

Occupancy hi-low	$75 per fixture controlled
Daylight Dimming	$75 per fixture controlled

Other Equipment Incentives

Performance Lighting	$1.00 per watt per SF below program incentive threshold, currently 5% more energy efficient than ASHRAE 90.1-2004 for New Construction and Complete Renovation
Custom Electric and Gas Equipment Incentives	not prescriptive

Borough of Lavallette - Police Station

MAJOR EQUIPMENT LIST								
TAG	MAKE	MODEL	TYPE	CAPACITY	EFFICIENCY	SERVES	REMAINING USEFUL LIFE	NOTES
AC-1	AMERICAN STANDARD	ALLEGIENCE 13 #2A7A3060A	SPLIT SYSTEM AIR CONDITIONER	5 TONS	13 SEER	ENTIRE 1ST FLOOR	12 YEARS	SPLIT SYSTEM. ELECTRIC COOLING, NO HEATING.
B-1	HYDROTHERM	HL-145C	GAS-FIRED HW BOILER	145,000 BTUH INPUT	78%	ENTIRE 1ST FLOOR	20 YEARS	CAST IRON CONSTRUCTION
HWP-1 & 2	TACO	NOT AVAILABLE	IN-LINE	APPROX. 15 GPM	50%	ENTIRE 1ST FLOOR	UNKNOWN	CONSTANT SPEED
"WINDOW" AC UNITS (3)	GENERIC	UNKNOWN	WINDOW AC	1 TON EACH	10 EER	ATTIC COMPUTER ROOM, DISPACH, BEACH BADGE	UNKNOWN	THE ATTIC COMPUTER ROOM UNIT DISCHARGES HOT CONDENSER AIR INTO THE ATTIC
AC-1	A.O. SMITH	NOT AVAILABLE	GAS-FIRED DOMESTIC HWH	40 GAL, 32,900 Btuh	80%	RSTROOMS, SHOWER.	10 YEARS	STANDARD RESIDENTIAL TYPE HWH

INVESTMENT GRADE LIGHTING AUDIT

CONCORD ENERGY SERVICES

BS09-007
Borough of Lavallette - Police Department
1300 Grand Central Avenue
Lavallette, NJ

Date:

	Existing Fixtures						Proposed Fixtures									Fixtures Retrofitted			Unit Installation Cost						
Existing Lighting Fixture Type	**Room Name**	**Lighting Fixture Description**	**Lamps per Fixture**	**Watts**	**Qty of Fixtures**	**Total Watts**	**Existing/Replace**	**Description**	**Lamps per Fixture**	**Watts**	**Qty of Fixtures**	**Total Watts**	**Wattage Reduction**	**Average Burn Hours**	**Ave $/kwh**	**Energy Savings, kWh**	**Energy Savings, $**	**Qty**	**Material Each**	**Labor Each**	**Total Each**	**Total Materials**	**Total Labor**	**Total All**	**Rebate Estimate**	**Simple Payback**
First Floor																										
C	Lobby	2L-T12-U Tube-2'	2	77	2	154	Reballast, Relamp	Sylvania Lamps FBO32/835/XP/6/ECO Sylvania Ballast QHE 2X32T8/UNV ISL-SC	2	48	2	96	58	8760	$0.17	508	$86.88	2	$ 46.20	$ 60.00	$106.20	$92.40	$120.00	$212.40	$20.00	2.2
G		1L-A-60w Edison-base	1	60	2	120	Relamp	Sylvania CF19EL/MINI/830	1	18	2	36	84	8760	$0.17	736	$125.83	2	$ 5.86	$ 28.00	$33.86	$11.72	$56.00	$67.72	$0.00	0.5
G	Dispatch	1L-A-60w Edison-base	1	60	5	300	Relamp	Sylvania CF19EL/MINI/830	1	18	5	90	210	8760	$0.17	1,840	$314.57	5	$ 5.86	$ 28.00	$33.86	$29.30	$140.00	$169.30	$0.00	0.5
B	Office - Chief	4L-T12-40W 4' Linear	4	154	3	462	Reballast, Relamp	Sylvania Lamps FO32/835/XP/ECO Sylvania Ballast QHE 4X32T8/UNV ISN-SC	4	95	3	285	177	3640	$0.17	644	$110.17	3	$ 42.70	$ 60.00	$102.70	$128.10	$180.00	$308.10	$60.00	2.3
F	Office - Records	4L-T8-32W 4' Linear	4	108	3	324	Reballast, Relamp	Sylvania Lamps FO30/835/XP/SS/ECO Sylvania Ballast QHE 4X32T8/UNV ISL-SC	4	89	3	267	57	3640	$0.17	207	$35.48	3	$ 44.75	$ 60.00	$104.75	$134.25	$180.00	$314.25	$0.00	8.9
A	Closet	2L-T12-40W 4' Linear	2	77	1	77	Relamp, Reballast	Sylvania Lamps FO32/835/XP/ECO Sylvania Ballast QHE 2X32T8/UNV ISL-SC	2	48	1	48	29	520	$0.17	15	$2.58	1	$ 25.05	$ 60.00	$85.05	$25.05	$60.00	$85.05	$10.00	29.1
E	Office - Sergeant	3L-T8-32W 4' Linear	3	83	2	166	Existing to Remain	Existing to Remain	3	83	2	166	0	3640	$0.17	0	$0.00	0	$ -	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	
B	Front Locker Room	4L-T12-40W 4' Linear	4	154	2	308	Reballast, Relamp	Sylvania Lamps FO32/835/XP/ECO Sylvania Ballast QHE 4X32T8/UNV ISN-SC	4	95	2	190	118	1820	$0.17	215	$36.72	2	$ 42.70	$ 60.00	$102.70	$85.40	$120.00	$205.40	$40.00	4.5
F	Corridor	4L-T8-32W 4' Linear	4	108	1	108	Reballast, Relamp	Sylvania Lamps FO30/835/XP/SS/ECO Sylvania Ballast QHE 4X32T8/UNV ISL-SC	4	89	1	89	19	8760	$0.17	166	$28.46	1	$ 44.75	$ 60.00	$104.75	$44.75	$60.00	$104.75	$0.00	3.7
B	Booking Area	4L-T12-40W 4' Linear	4	154	4	616	Reballast, Relamp	Sylvania Lamps FO32/835/XP/ECO Sylvania Ballast QHE 4X32T8/UNV ISN-SC	4	95	4	380	236	8760	$0.17	2,067	$353.52	4	$ 42.70	$ 60.00	$102.70	$170.80	$240.00	$410.80	$80.00	0.9
F		4L-T8-32W 4' Linear	4	108	1	108	Reballast, Relamp	Sylvania Lamps FO30/835/XP/SS/ECO Sylvania Ballast QHE 4X32T8/UNV ISL-SC	4	89	1	89	19	8760	$0.17	166	$28.46	1	$ 44.75	$ 60.00	$104.75	$44.75	$60.00	$104.75	$0.00	3.7
C		2L-T12-U Tube-2'	2	77	3	231	Reballast, Relamp	Sylvania Lamps FBO32/835/XP/6/ECO Sylvania Ballast QHE 2X32T8/UNV ISL-SC	2	48	3	144	87	8760	$0.17	762	$130.32	3	$ 46.20	$ 60.00	$106.20	$138.60	$180.00	$318.60	$30.00	2.2
H	Cells	4L-T12-8' Linear	4	270	1	270	Relamp, Reballast	Sylvania Lamps FO96/835/XP/SS/ECO Sylvania Ballasts 2-QHE 2X59T8/UNV ISN-SC	4	214	1	214	56	600	$0.17	34	$5.75	1	$ 274.35	$ 60.00	$334.35	$274.35	$60.00	$334.35	$20.00	54.7
D	Toilet Room "A"	2L-T8-32w- 4' Linear	2	55	1	55	Existing to Remain	Existing to Remain	2	55	1	55	0	520	$0.17	0	$0.00	0	$ -	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	
E	Toilet Room "B"	3L-T8-32W 4' Linear	3	83	1	83	Existing to Remain	Existing to Remain	3	83	1	83	0	520	$0.17	0	$0.00	0	$ -	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	
E	Locker Room	3L-T8-32W 4' Linear	3	83	5	415	Existing to Remain	Existing to Remain	3	83	5	415	0	1820	$0.17	0	$0.00	0	$ -	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	
First Floor Summary					**37**	**3797**					**37**	**2647**	**1150**			**7,361**	**$1,258.74**	**28**				**$1,179**	**$1,456**	**$2,635**	**$260**	**1.9**
Attic																										
I		1L-CFL-13w pin-base	1	13	6	78	Existing to Remain	Existing to Remain	1	13	6	78	0	200	$0.17	0	$0.00	0	$ -	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	
G		1L-A-60w Edison-base	1	60	1	60	Relamp	Sylvania CF19EL/MINI/830	1	18	1	18	42	200	$0.17	8	$1.44	1	$ 5.86	$ 28.00	$33.86	$5.86	$28.00	$33.86	$0.00	23.6
Attic Summary					**7**	**138**					**7**	**96**	**42**			**8**	**$1.44**	**1**				**$6**	**$28**	**$34**	**$0**	**23.6**

Project Name: Borough of Lavallette - Police Station
Location: Lavallette, NJ
Description: Photovoltaic System 95% Financing - 20 year

Simple Payback Analysis

	Photovoltaic System 95% Financing - 20 year
Total Construction Cost	$45,540
Annual kWh Production	7,896
Annual Energy Cost Reduction	$1,350
Annual SREC Revenue	$2,764
First Cost Premium	**$45,540**
Simple Payback:	**11.07** Years

Life Cycle Cost Analysis

Analysis Period (years):	25	Financing %:	95%
Financing Term (mths):	240	Maintenance Escalation Rate:	3.0%
Average Energy Cost ($/kWh)	**$0.171**	Energy Cost Escalation Rate:	3.0%
Financing Rate:	7.00%	SREC Value ($/kWh)	$0.350

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Interest Expense	Loan Principal	Net Cash Flow	Cumulative Cash Flow
0	$2,277	0	0	0	$0	0	0	(2,277)	0
1	$0	7,896	$1,350	$0	$2,764	$2,996	$1,029	$89	($2,188)
2	$0	7,857	$1,391	$0	$2,750	$2,921	$1,104	$116	($2,072)
3	$0	7,818	$1,433	$0	$2,736	$2,842	$1,183	$144	($1,929)
4	$0	7,779	$1,475	$0	$2,722	$2,756	$1,269	$173	($1,756)
5	$0	7,740	$1,520	$80	$2,709	$2,664	$1,361	$124	($1,632)
6	$0	7,701	$1,565	$79	$2,695	$2,566	$1,459	$156	($1,475)
7	$0	7,662	$1,612	$79	$2,682	$2,461	$1,565	$190	($1,285)
8	$0	7,624	$1,661	$79	$2,668	$2,347	$1,678	$226	($1,060)
9	$0	7,586	$1,710	$78	$2,655	$2,226	$1,799	$262	($797)
10	$0	7,548	$1,762	$78	$2,642	$2,096	$1,929	$301	($496)
11	$0	7,510	$1,815	$77	$2,629	$1,957	$2,068	$341	($156)
12	$0	7,473	$1,869	$77	$2,615	$1,807	$2,218	$383	$227
13	$0	7,435	$1,925	$77	$2,602	$1,647	$2,378	$426	$653
14	$0	7,398	$1,983	$76	$2,589	$1,475	$2,550	$471	$1,124
15	$0	7,361	$2,042	$76	$2,576	$1,291	$2,734	$518	$1,642
16	$0	7,324	$2,104	$75	$2,564	$1,093	$2,932	$567	$2,209
17	$0	7,288	$2,167	$75	$2,551	$881	$3,144	$617	$2,826
18	$0	7,251	$2,232	$75	$2,538	$654	$3,371	$670	$3,496
19	$0	7,215	$2,299	$74	$2,525	$410	$3,615	$725	$4,221
20	$0	7,179	$2,368	$74	$2,513	$149	$3,876	$781	$5,003
21	$0	7,143	$2,439	$74	$2,500	$126	$3,564	$1,176	$6,178
22	$0	7,107	$2,512	$73	$2,488	$86	$2,933	$1,908	$8,086
23	$0	7,072	$2,587	$73	$2,475	$0	$0	$4,990	$13,075
24	$0	7,037	$2,665	$72	$2,463	$0	$0	$5,055	$18,131
25	$0	7,001	$2,745	$72	$2,450	$0	$0	$5,123	$23,254
	Totals:	150,646	$36,282	$1,229	$52,726	$37,237	$43,263	$49,759	$75,280

Net Present Value (NPV)	**$3,927**
Internal Rate of Return (IRR)	**14.3%**

Project Name: **Borough of Lavallette - Police Station**
Location: **Lavallette, NJ**
Description: **Photovoltaic System - Direct Purchase**

Simple Payback Analysis

	Photovoltaic System - Direct Purchase
Total Construction Cost	$45,540
Annual kWh Production	7,896
Annual Energy Cost Reduction	$1,350
Annual SREC Revenue	$2,764
First Cost Premium	**$45,540**
Simple Payback:	**11.07** **Years**

Life Cycle Cost Analysis

Analysis Period (years):	25	Financing %:	0%
Financing Term (mths):	0	Maintenance Escalation Rate:	3.0%
Average Energy Cost ($/kWh)	**$0.171**	Energy Cost Escalation Rate:	3.0%
Financing Rate:	0.00%	SREC Value ($/kWh)	$0.350

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Net Cash Flow	Cumulative Cash Flow
0	$45,540	0	0	0	$0	(45,540)	0
1	$0	7,896	$1,350	$0	$2,764	$4,114	($41,426)
2	$0	7,857	$1,391	$0	$2,750	$4,141	($37,285)
3	$0	7,818	$1,433	$0	$2,736	$4,169	($33,117)
4	$0	7,779	$1,475	$0	$2,722	$4,198	($28,919)
5	$0	7,740	$1,520	$80	$2,709	$4,149	($24,770)
6	$0	7,701	$1,565	$79	$2,695	$4,181	($20,588)
7	$0	7,662	$1,612	$79	$2,682	$4,215	($16,373)
8	$0	7,624	$1,661	$79	$2,668	$4,251	($12,123)
9	$0	7,586	$1,710	$78	$2,655	$4,287	($7,835)
10	$0	7,548	$1,762	$78	$2,642	$4,326	($3,509)
11	$0	7,510	$1,815	$77	$2,629	$4,366	$857
12	$0	7,473	$1,869	$77	$2,615	$4,408	$5,264
13	$0	7,435	$1,925	$77	$2,602	$4,451	$9,715
14	$0	7,398	$1,983	$76	$2,589	$4,496	$14,211
15	$0	7,361	$2,042	$76	$2,576	$4,543	$18,754
16	$0	7,324	$2,104	$75	$2,564	$4,592	$23,346
17	$0	7,288	$2,167	$75	$2,551	$4,642	$27,989
18	$0	7,251	$2,232	$75	$2,538	$4,695	$32,684
19	$0	7,215	$2,299	$74	$2,525	$4,750	$37,433
20	$0	7,179	$2,368	$74	$2,513	$4,806	$42,240
21	$1	7,143	$2,439	$74	$2,500	$4,865	$47,105
22	$2	7,107	$2,512	$73	$2,488	$4,926	$52,031
23	$3	7,072	$2,587	$73	$2,475	$4,990	$57,021
24	$4	7,037	$2,665	$72	$2,463	$5,055	$62,076
25	$5	7,001	$2,745	$72	$2,450	$5,123	$67,199
	Totals:	150,646	$36,282	$1,229	$52,726	$112,739	$87,780
				Net Present Value (NPV)		**$67,224**	
				Internal Rate of Return (IRR)		**8.2%**	

Building	Usable Roof Area (sq ft)	Panel	Qty	Panel Sq Ft	Panel Total Sq Ft	Total KW	Total Annual kWh	Panel Weight (33 lbs)	W/SQFT
Police Station	336	Sunpower SPR230	22	14.7	323	5.06	7,896	726	15.64

Total Roof Area 40 x 12 = 600 x .70 = 336 Sq. Ft.

.= Proposed PV Layout

Notes:

1. Estimated kWH based on 4.68 hours full output per day per 365 day year. Actual kWH will vary day to day.

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Police Department

Building ID: 1804081
For 12-month Period Ending: December 31, 2008[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: July 30, 2009

Facility
Police Department
1300 Grand Central Avenue
Lavallette, NJ 08735

Facility Owner
N/A

Primary Contact for this Facility
N/A

Year Built: 1950
Gross Floor Area (ft²): 2,748

Energy Performance Rating[2] (1-100) N/A

Site Energy Use Summary[3]

Natural Gas (kBtu)[4]	147,877
Electricity (kBtu)	262,308
Total Energy (kBtu)	410,185

Energy Intensity[5]

Site (kBtu/ft²/yr)	157
Source (kBtu/ft²/yr)	398

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	48

Electric Distribution Utility
Borough of Lavallette

National Average Comparison

National Average Site EUI	78
National Average Source EUI	157
% Difference from National Average Source EUI	153%
Building Type	Fire Station/Police Station

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[6] **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. Natural Gas values in units of volume (e.g. cubic feet) are converted to kBtu with adjustments made for elevation based on Facility zip code.
5. Values represent energy intensity, annualized to a 12-month period.
6. 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) 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 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	Police Department	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	Fire Station/Police Station	Is this an accurate description of the space in question?		☐
Location	1300 Grand Central Avenue, Lavallette, NJ 08735	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 acute care or children's hospitals) nor can they be submitted as representing only a portion of a building		☐
Police Station (Other)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	2,748 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.		☐
Number of PCs	10 (Optional)	Is this the number of personal computers in the space?		☐
Weekly operating hours	168 Hours(Optional)	Is this the total number of hours per week that the space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		☐
Workers on Main Shift	12 (Optional)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100.		☐

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Borough of Lavallette

Fuel Type: Electricity		
Meter: Electric (kWh (thousand Watt-hours)) **Space(s):** Entire Facility		
Start Date	**End Date**	**Energy Use (kWh (thousand Watt-hours))**
11/25/2008	12/24/2008	9,069.00
10/25/2008	11/24/2008	5,644.00
09/25/2008	10/24/2008	6,656.00
08/25/2008	09/24/2008	8,241.00
07/25/2008	08/24/2008	9,650.00
06/25/2008	07/24/2008	6,728.00
05/25/2008	06/24/2008	7,326.00
04/25/2008	05/24/2008	5,927.00
03/25/2008	04/24/2008	5,840.00
02/25/2008	03/24/2008	5,416.00
01/25/2008	02/24/2008	4,980.00
Electric Consumption (kWh (thousand Watt-hours))		**75,477.00**
Electric Consumption (kBtu)		**257,527.52**
Total Electricity Consumption (kBtu)		**257,527.52**
Is this the total Electricity consumption at this building including all Electricity meters?		☐

Fuel Type: Natural Gas		
Meter: Gas (therms) **Space(s):** Entire Facility		
Start Date	**End Date**	**Energy Use (therms)**
11/10/2008	12/09/2008	316.00
10/10/2008	11/09/2008	77.00
09/10/2008	10/09/2008	18.00
08/10/2008	09/09/2008	16.00
07/10/2008	08/09/2008	15.00
06/10/2008	07/09/2008	18.00
05/10/2008	06/09/2008	17.00
04/10/2008	05/09/2008	58.00
03/10/2008	04/09/2008	198.00
02/10/2008	03/09/2008	283.00

01/10/2008	02/09/2008	274.00
Gas Consumption (therms)		**1,290.00**
Gas Consumption (kBtu)		**129,000.00**
Total Natural Gas Consumption (kBtu)		**129,000.00**
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.	☐

Certifying Professional

(When applying for the ENERGY STAR, this must be the same PE 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
Police Department
1300 Grand Central Avenue
Lavallette, NJ 08735

Facility Owner
N/A

Primary Contact for this Facility
N/A

General Information

Police Department	
Gross Floor Area Excluding Parking: (ft^2)	2,748
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2008

Facility Space Use Summary

Police Station	
Space Type	Other - Fire Station/Police Station
Gross Floor Area(ft^2)	2,748
Number of PCs[o]	10
Weekly operating hours[o]	168
Workers on Main Shift[o]	12

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 12/31/2008)	**Baseline** (Ending Date 12/31/2008)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	N/A	N/A	75	N/A	N/A
Energy Intensity					
Site (kBtu/ft^2)	157	157	0	N/A	78
Source (kBtu/ft^2)	398	398	0	N/A	157
Energy Cost					
$/year	$ 16,153.15	$ 16,153.15	N/A	N/A	$ 8,030.76
$/$ft^2$/year	$ 5.88	$ 5.88	N/A	N/A	$ 2.92
Greenhouse Gas Emissions					
$MtCO_2e$/year	48	48	0	N/A	24
$kgCO_2e/ft^2$/year	17	17	0	N/A	8

More than 50% of your building is defined as Fire Station/Police Station. This building is currently ineligible for a rating. Please note the National Average column represents the CBECS national average data for Fire Station/Police Station. This building uses X% less energy per square foot than the CBECS national average for Fire Station/Police Station.

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