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**Local Government Energy Program
Energy audit report**

For

***Swim Club Pool Complex
Holmdel
Holmdel, NJ 07733***

Project Number: LGEA03



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INTRODUCTION

On May 13th Steven Winter Associates, Inc. (SWA) performed an energy audit and assessment of the Holmdel Township buildings located in Holmdel, NJ. Current conditions and energy-related information was collected in order to analyze and facilitate the implementation of energy conservation measures for the building.

Energy data collected in the field was imported into the eQUEST energy conservation software to generate a baseline model of the building. SWA simulated the installation of energy improvement measures on the baseline model of the building. Energy saving calculations and projected economics are automated and served as the basis for our conclusions.

There are five separate buildings that were evaluated for this energy audit; Town Hall, Department of Public Works (DPW), the Senior Community Center, Swim Club, and Middle Road Pump Station. The buildings were built at different times with several additions or expansions. Each building is unique in area and also building construction.

The present report is for the Swim Club building only.

The Swim Club contains an out-building with an area of approximately 1,021 square feet. The unconditioned, single story building houses changing rooms, showers and bathrooms. The building is used seasonally and the peak occupancy for the building is approximately 20 persons during operating hours.

The goal of this energy audit is to provide sufficient information to make decisions regarding the implementation of the most appropriate and most cost effective energy conservation measures for the building.

EXECUTIVE SUMMARY

This document contains the energy audit report for the Holmdel Swim Club located at Bailey Lane, Holmdel, NJ 07733. The Swim Club building is a one story building that contains approximately 1,021 square feet. Based on the field visit performed by Steven Winter Associates (SWA) staff on May 13th, 2009 and the results of a comprehensive energy analysis, this report describes the site's current conditions and recommendations for improvements. Suggestions for measures related to energy conservation and improved comfort are provided in the scope of work. Energy and resource savings are estimated for each measure that results in a reduction of heating, cooling, and electric usage.

The energy audit performed by SWA encompasses five buildings of various ages and constructions. A report has been generated for each building in order to fully document the existing conditions and recommended Energy Conservation Measures (ECMs). Based on the field visits performed by Steven Winter Associates (SWA) staff on May 13th, 2009 and the results of a comprehensive energy analysis, this report describes the site's current conditions and recommendations for improvements. Suggestions for measures related to energy and conservation and improved comfort are provided in the scope of work. Energy and resource savings are estimated for each measure that results in a reduction of heating, cooling and electric usage.

In the most recent year (June 2008-June 2009), the Pool electric meters recorded approximately 70,898 kWh or \$13,907 worth of electricity. The average aggregated cost of electricity was calculated to be \$0.30/kWh. The average rate of electricity seems high since the building is used seasonally. Regardless of the time of year, there is a minimum fee that the electricity company charges each month for electric service. Since the building is used seasonally, the winter months that use the least amount of electricity have artificially inflated rates since they are still subject to a minimum service charge that is not in proportion to the usage. There is no gas use in the building and therefore there is no gas meter. The building consumed 306 MMBtus of energy at a total cost of \$13,907 in the most recent year.

SWA benchmarked Holmdel Pool building using the U.S. Environmental Protection Agency's (EPA) *Energy Star Portfolio Manager* Energy benchmarking system. The Portfolio Manager was not capable of generating a benchmark score for the building since the building is a pool building and is not specifically categorized through the Energy Star rating system. The benchmark rating is based on the facility's source energy use, level of business activity, and geographical location. The Portfolio Manager is also capable of generating a site energy use intensity number using 2008 as a baseline year.

In order to compare commercial buildings equitably, the *Portfolio Manager* ratings convey the consumption of each type of energy in a single common unit. The EPA uses source energy to represent the total amount of raw fuel required to operate the building. The site energy use intensity for Pool building is 248.9 kBtu/sq.ft/year. After energy efficiency improvements are made, future utility bills can be added to the Portfolio Manager and the site energy use intensity for a different time period can be compared to the year 2008 baseline to track the changes in energy consumption associated with the energy improvements.

SWA recommends a total of 2 Energy Conservation Measures (ECMs) for the Holmdel Township Pool building. The total investment cost for these ECMs is **\$8,322**. SWA estimates a first year savings of **\$1,089** with a simple payback of **7.7 years**. SWA also estimates that Holmdel Pool building will be able to reduce their carbon footprint by **12,580 lbs of CO₂ annually**.

There are various incentives that the Pool building could apply for that could also help lower the cost of installing the ECMs. SWA recommends that the Pool building applies for the NJ SmartStart program

through the New Jersey Office of Clean Energy. This incentive can help provide technical assistance for the building in the implementation phase of any energy conservation project.

When pursuing incentives through the SmartStart program, SWA encourages building managers to contact the program provider to obtain more detailed information on the program guidelines and request pre-approval for all planned upgrades. At the time of this report, there are prescriptive measure incentives that would pay the Pool building up to \$1,180 for lighting upgrades. Incentives are also available for the installation of occupancy sensors and dimming controls. Incentives for lighting controls vary and are based on the quantity and type of controls installed.

For further information on both custom and prescriptive incentives, please visit:

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/equipment-incentives/equi>

The New Jersey Clean Energy website also provides information on incentives for renewable energy. Visit the website to download a copy of the Renewable Energy Incentive Program (REIP) Guidebook. Incentives include up to \$1.00 per watt for eligible photovoltaic projects.

Holmdel Township personnel should become familiar with New Jersey Clean Energy programs if they are considering building new facilities or doing major renovations. For further information about specific program information, please visit:

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings>

The following table summarizes the proposed Energy Conservation Measures (ECM) and their economical relevance.

ECM Table without Incentives															
ECM #	ECM description	Installed Cost		1st year energy and cost savings							Simple Payback (SPP)	Life of Measure (LoM)	Lifetime Cost Savings (\$)	Return on Invest (ROI)	Annual Carbon Reduction (lbs of CO2)
		Estimated Cost (\$)	Source	Electric Savings			Fuel Savings		Cost Savings (\$)						
				Consumption	Demand	Natural Gas									
1	Upgrade existing lighting including daylight sensors	\$ 6,290	RS Means	3,886	kWh	0	kW	0	Therms	\$ 602	10.4	20	\$ 8,798	2.0%	6,958
2	Retro commissioning of existing pump system	\$ 2,042	RS Means	3,140	kWh	0	kW	0	Therms	\$ 487	4.2	10	\$ 4,110	10.1%	5,622
Total Scope of Work		\$ 8,332	-	-	-	0.0	-			\$ 1,089	7.7		\$ 12,907		12,580

Definitions:

SPP: Simple Payback (years)
 LoM: Life of Measure (years)
 ROI: Return on Investment (%)

Assumptions:

Discount rate = 3.2% per DOE FEMP guidelines
 Energy price escalation rate = 0% per DOE FEMP guidelines
 Average Electric Rate = 0.155 \$/kWh
 Average Fuel Rate = 1.55 \$/Therm
 Carbon Dioxide per unit Electricity = 1.7905 lbs of CO2/kWh
 Carbon Dioxide per unit of Fuel = 11.023 lbs of CO2/unit fuel

1. HISTORIC ENERGY CONSUMPTION

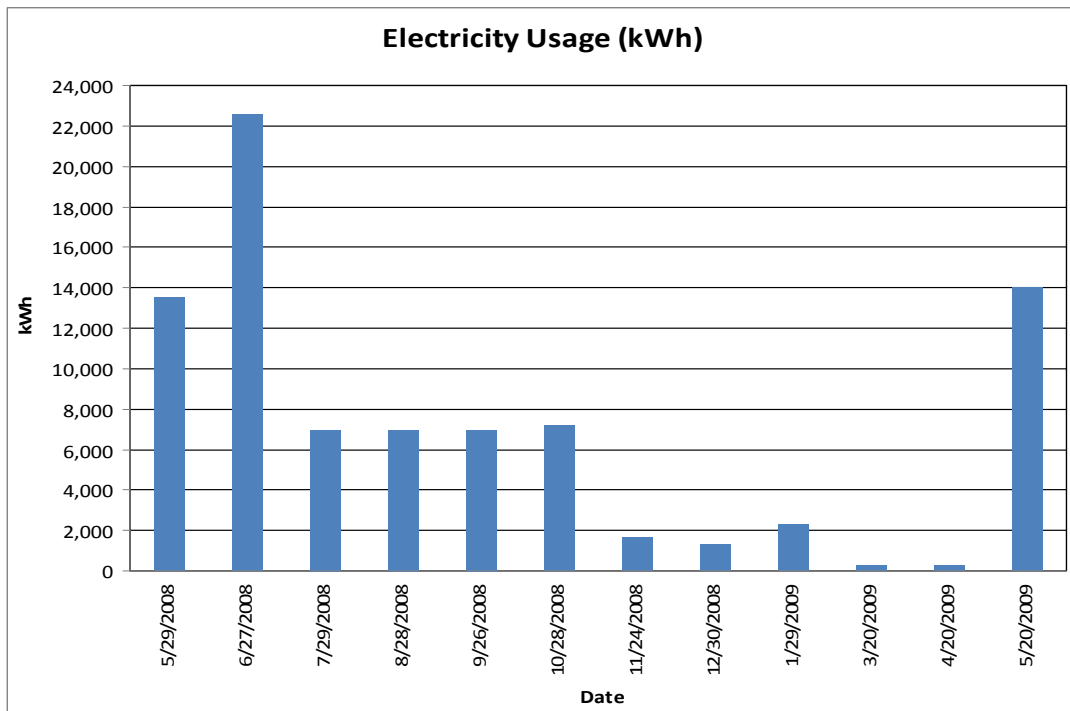
1.1. Energy usage and cost analysis

SWA analyzed utility bills from June 2008 through June 2009 that were received from Holmdel Township.

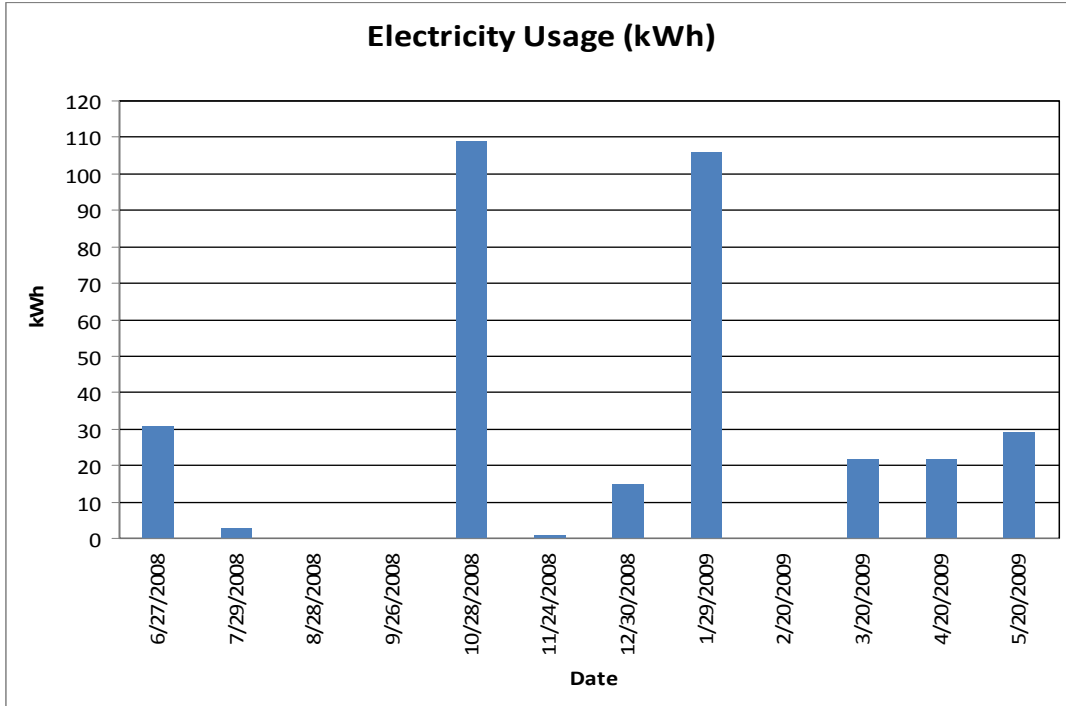
Electricity –The Pool building currently has two separate electric meters. One electric meter is for the operations within the Pool building and the other electric meter is assumed for exterior lighting year round. The meter that is used for exterior lights has a minimal amount of use and is therefore combined with the main electric meter for this report. Together, both electric meters currently buy electricity from JCP&L at **an average rate of \$.30/kWh** based on the previous 12 months worth of utility bills. The pool electric meter purchased **approximately 70,898 kWh or \$13,907 worth of electricity** in the previous year.

Natural Gas – Natural gas is currently not used at the Pool building and therefore there is no gas meter. Domestic Hot Water loads are met by electric water heaters and the pool is heated naturally.

The following chart shows electricity usage for the main Pool electric meter based on utility bills for the 12 month period of June 2008 – June 2009.



The following chart shows electricity usage for the auxiliary electric meter based on utility bills for the 12 month period of June 2008 – June 2009.



1.2. Utility rate

Electricity is received from two separate electric meters at the Pool building which is purchased from JCP&L at a general service market rate for electricity usage (kWh) with a separate (kW) demand charge. The electric meter charges are currently an average rate of approximately \$0.30/kWh based on the previous 12 months of utility bills. The rate is artificially inflated since the building is seasonal and pays a minimum monthly charge regardless of use.

1.3. Energy benchmarking

The Pool building information and utility data were entered into the U.S. Environmental Protection Agency’s (EPA) *Energy Star Portfolio Manager* Energy benchmarking system. The building data could be documented; however, a performance score could not be generated since the pool building is not specifically categorized. The Energy Star Portfolio Manager currently is not capable of generating a benchmark score for certain building types such as mixed use buildings. SWA recommends that Holmdel Township create a Portfolio Manager account at the link below. When an account is created, SWA can share the Holmdel Township facilities and allow future data to be added and tracked using the benchmarking tool.

http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

2. FACILITY AND SYSTEMS DESCRIPTION

2.1. Building Characteristics

The unconditioned, single story Pool building contains a total area of approximately 1,021 square feet. The Pool building houses changing rooms, showers and bathrooms.

2.2. Building occupancy profiles

The peak occupancy for the Pool building is approximately 20 people during operating hours in the summer months. The Pool is open typically from Memorial Day to Labor Day from 8:30am to 8pm. The Pool building operates from 11am to 7:30pm during the month of August.

2.3. Building envelope

2.3.1. Exterior walls

The Pool building's exterior walls consist of CMU block construction. The building is neither conditioned nor insulated.

2.3.2. Roof

The Pool building consists of a roof with approximately a 4/12 pitch. The medium brown colored asphalt shingle roof is framed with wood rafters. No insulation was detected. On the day of the site visit, SWA inspected the roof and observed no major deficiencies.

2.3.3. Base

The building's base is a 4" concrete slab-on-grade. No insulation was detected. There were no reported problems with water penetration or moisture.

2.3.4. Windows

The building has no windows, only ventilation slats in locker room areas.

2.3.5. Exterior doors

The exterior doors are aluminum type doors and do not require insulation since the building is not conditioned.

2.3.6. Building air tightness

The Pool building is a seasonal building that is not conditioned and therefore air tightness has no relevance.

2.4. HVAC systems

2.4.1. Heating

The Pool building is not conditioned and therefore contains no heating equipment. The pool is a seasonal pool that is heated naturally by outside temperatures.

2.4.2. Cooling

The Pool building is not conditioned and therefore contains no cooling equipment.

2.4.3. Ventilation

The building contains ventilation slats in the walls for natural ventilation.

2.4.4. Domestic Hot Water

Domestic Hot Water (DHW) is provided by an A O Smith electric water heater with 50 gallon storage capacity and an electrical input of 3.0 kW. DHW use in the building is minimal and is mainly used for washing hands and showers.

More efficient water-consuming fixtures and appliances save both energy and money through reduced energy consumption for water heating, as well decreased water and sewer bills. SWA recommends adding controlled on/off timers on all lavatory faucets to reduce domestic hot water demand and save water. Building staff can also easily install faucet aerators and/or low-flow fixtures to reduce hot water consumption. In addition, routine maintenance practices that identify and quickly address water leaks are a low-cost way to save water and energy.

2.5. Electrical systems

2.5.1. Lighting

The Pool building contains a limited amount of light fixtures due to the size of the building. The lighting fixtures in the building vary in type and also efficiency. There are T12 magnetic fluorescent fixtures that SWA recommends should be replaced with T8 electronic fluorescent fixtures. SWA also recommends replacing all 75W exterior flood lights with 32W reflective CFL replacements. The two locker rooms also have vented slots that allow a lot of outside light in the building. SWA recommends installing a daylight sensor in each locker room so that the general lighting of the locker rooms will not come on when a set lighting level is achieved through daylight. Also, there were 2 fluorescent exit signs in the pool building. SWA recommends upgrading the fluorescent exit signs to LED exit signs. Improving the efficiency of the exit sign is recommended since these lights stay on 24 hours per day, 365 days per year regardless of seasonal operating hours.

2.5.2. Appliances and process

Appliances, such as refrigerators, that are over 10 years of age should be replaced with newer efficient models with the Energy Star label. For example, Energy Star refrigerators use as little as 315kwh/hr. When compared to the average electrical consumption of older equipment, Energy Star equipment results in a large savings. Look for the Energy Star label when replacing appliances and equipment, including: window air conditioners, refrigerators, printers, computers, copy machines, etc. More information can be found in the “Products” section of the Energy Star website at: <http://www.energystar.gov>

2.5.3. Elevators

The Pool building does not contain elevators since it consists of only one story.

2.5.4. Other electrical systems

2.5.4.1. Pool Pumps

The Pool building contains 5 individual pumps for the various pools. The pumps operate 24 hours a day from Memorial Day to Labor Day and are only shut off for major storms. The pumps are maintained by Aquatic Services of Spotswood, NJ. A complete list of pumps is located in Section 3. - Equipment List.

3. EQUIPMENT LIST

INVENTORY

Building System	Description	Model#	Fuel	Space served	Estimated Remaining useful life %
Pumps	One (1) 3 HP water pump for the Mushroom Pool	Hayward Super Pump K56PSN03	Electricity	Mushroom Pool	30%
Pumps	One (1) 2 HP water pump for the Baby Pool	A O Smith CAT 733	Electricity	Baby Pool	90%
Pumps	One (1) 10 HP water pump for the Diving Pool	A O Smith Century 07-360339-01-03	Electricity	Diving Pool	30%
Pumps	One (1) pump for Medium Pool	Could not read equipment tag	Electricity	Medium Pool	30%
Pumps	One (1) pump for Main Pool	A O Smith CAT M33	Electricity	Main Pool	30%
Domestic Hot Water	One (1) A O Smith Electric Water Heater, using approximately 5074 kWh/year	A O Smith	Electric	All Areas	80%
Lighting	See Appendix A for lighting details	-	-	-	-

Note:

The remaining useful life of a system (in %) is an estimate based on the system date of built and existing conditions derived from visual inspection.

4. ENERGY CONSERVATION MEASURES

Summary table

ECM#	Description
1	Upgrade existing lighting including daylight sensors
2	Retro commissioning of existing pump system

ECM#1: Upgrade existing lighting including daylight sensors

Description:

The Pool building contains a mixture of different types of lighting. SWA recommends upgrading each T12 fluorescent fixture with magnetic ballasts to a T8 fluorescent fixture with electronic ballasts. SWA also recommends upgrading fluorescent exit signs to LED exit signs. Exit signs are operated 24 hours per day, 365 days per year and therefore yield a high potential for electric savings. The exterior lighting currently consists of 75W flood lights. SWA recommends upgrading these flood lights to 32W reflective CFL bulbs that have the same or better light quality but use much less energy. The Pool building is a seasonal use building that is used during warmer months. Much of the wall area of the locker rooms consists of slanted vents in order to allow fresh air into the building. On the day of the energy audit, SWA observed high lighting levels on a typical cloudy day. SWA recommends installing a daylight sensor in each of the locker rooms that would allow the general locker room lighting to turn off automatically when daylight allowed to enter the room provided sufficient light.

Installation cost:

Estimated installed cost: \$6,290

Source of cost estimate: *RS Means*

Economics:

1st year energy and cost savings						Simple Payback (SPP)	Life of Meas. (LoM)	Lifetime Cost Savings	Return on Invest (ROI)	
Electricity Savings		Fuel Savings		Cost Savings						
Consumption	Demand	Natural Gas								
3,886	kWh	0	kW	0	Therms	\$602	10.44	20	\$8,798	1.99%

Assumptions: SWA calculated the savings for this measure using measurements taken the day of the field visit and using the billing analysis. SWA estimated electrical cost savings based on \$0.155/kWh in order to be conservative. The average aggregated rate of \$.30/kWh is artificially inflated and would also inflate cost savings.

Rebates/financial incentives:

NJ Clean Energy – SmartStart Building Program – Incentive for T-5 and T-8 lamps with electronic ballast in existing facilities (\$10 - \$30 per fixture, depending on quantity of lamps)

Maximum incentive amount is \$840

NJ Clean Energy – SmartStart Building Program – Incentive for LED Exit signs (\$10/\$20 per fixture)

Maximum incentive amount is \$40

NJ Clean Energy – SmartStart Building Program – Incentive for Daylight dimmers (\$25 per fixture controlled)

Maximum Incentive Amount is \$300 (assuming half of the locker room fixtures can be dimmed with day lighting)

Options for funding ECM:

This project may benefit from enrolling in NJ SmartStart program with Technical Assistance to offset a portion of the cost of implementation.

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings>

ECM#2: Retro commissioning of existing pump system

Description:

Currently the Pool building houses an electric DHW heater as well as 5 total pumps for all of the pools. The electric DHW heater is newer and is not in need of upgrading at this time. The A O Smith pump dedicated to the baby pool was replaced last year but the rest of the pumps are older and have varying sizes and efficiencies. Since the Pool building is operated seasonally, it is not cost-effective to replace the pumps at this point in time. SWA recommends having the pump system retro commissioned for efficiency. Since the pumps are various ages and are not cost-effective to upgrade at this time, a retro commissioning agent can help determine a maintenance schedule to extend the life of the pumps but also help implement a capital improvement plan that replaces pump motors as they lose efficiency in the most cost-effective way possible. Retro commissioning can also include a detailed plan for preventative maintenance to reduce future maintenance costs. The Holmdel Pool building can enter into the New Jersey Office of Clean Energy’s SmartStart building program if they decide to go ahead with motor replacement in the future in order to reduce the implemental cost of replacing the motor.

Installation cost:

Estimated installed cost: \$2,042

Source of cost estimate: *RS Means*

Economics:

1st year energy and cost savings						Simple Payback (SPP)	Life of Meas. (LoM)	Lifetime Cost Savings	Return on Invest (ROI)	
Electricity Savings			Fuel Savings		Cost Savings					
Consumption	Demand		Natural Gas							
3,140	kWh	0	kW	0	Therms	\$487	4.20	10	\$4,110	10.13%

Assumptions: SWA calculated the savings for this measure using measurements taken the day of the field visit and using the billing analysis. Lighting electrical consumption was subtracted from total electrical consumption to determine the amount of electricity dedicated to pump use. SWA assumes that undergoing retro commissioning can save the Pool building approximately 5% electrical savings. SWA has also estimated electrical cost savings based on \$0.155/kWh in order to be conservative. The average aggregated rate of \$.30/kWh is artificially inflated and would also inflate cost savings.

Rebates/financial incentives:

There are currently no incentives available for this measure at this time.

Options for funding ECM:

This project may benefit from enrolling in NJ SmartStart program with Technical Assistance to offset a portion of the cost of implementation.

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings>

RENEWABLE AND DISTRIBUTED ENERGY MEASURES

4.1. Existing systems

There are currently no existing renewable energy systems.

4.2. Solar Photovoltaic

Solar Photovoltaic (PV) technology is not cost effective for this project since the electric demand within the building is small and the maximum sized solar array for the roof area would not generate enough electricity to become cost effective. Available roof area for this project prohibits photovoltaic panels from becoming cost-effective.

4.3. Solar Thermal Collectors

Solar thermal collectors are not cost effective for this project and would not be recommended due to the low amount of domestic hot water use throughout the building.

4.4. Combined Heat and Power

CHP is not applicable for this building because of the current HVAC configuration.

4.5. Geothermal

Geothermal is not applicable for this building because it would not be cost effective to change to a geothermal system.

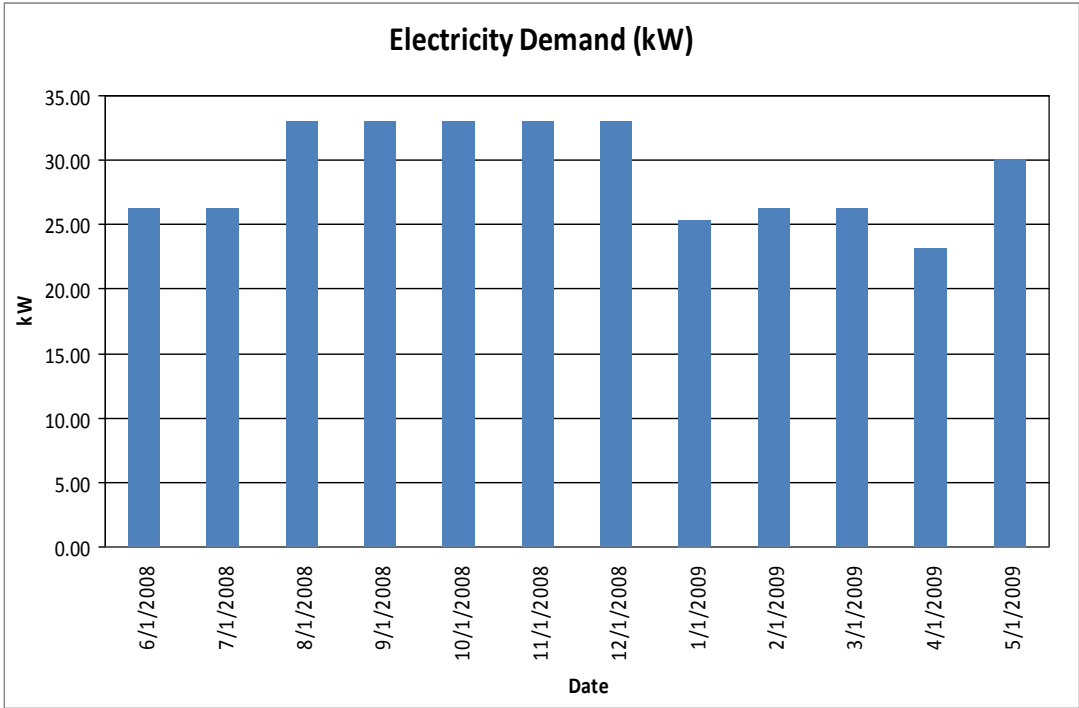
4.6. Wind

Wind power production is not appropriate for this location, because required land is not available for the wind turbine. Also available wind energy resource is very low.

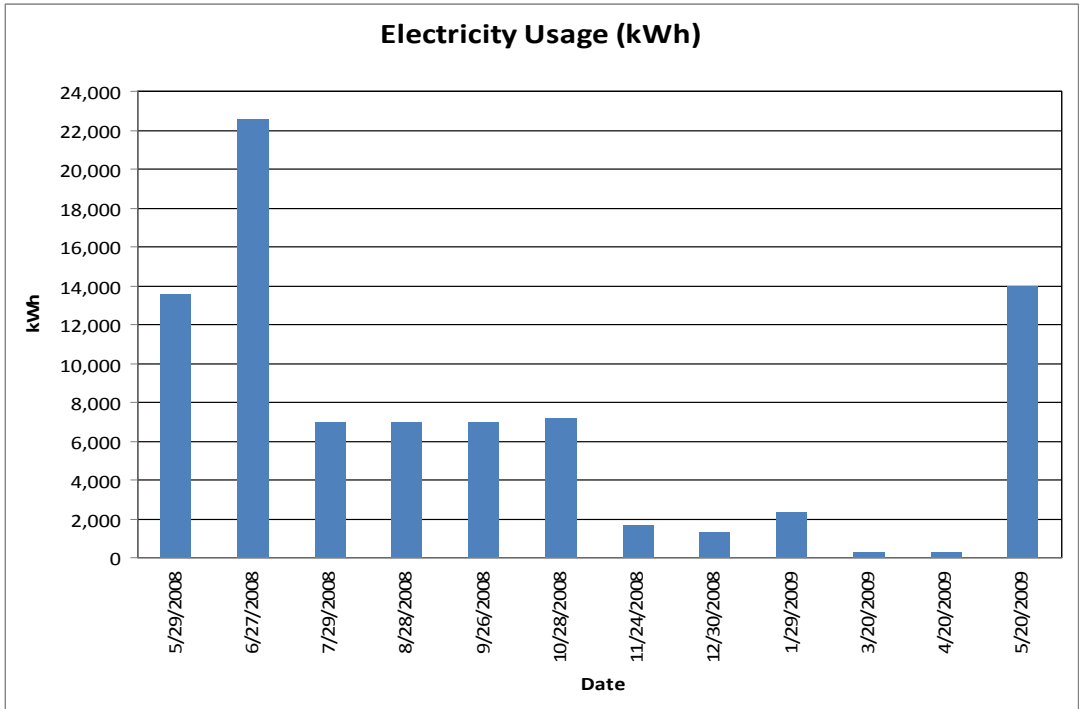
5. ENERGY PURCHASING AND PROCUREMENT STRATEGIES

5.1. Load profiles

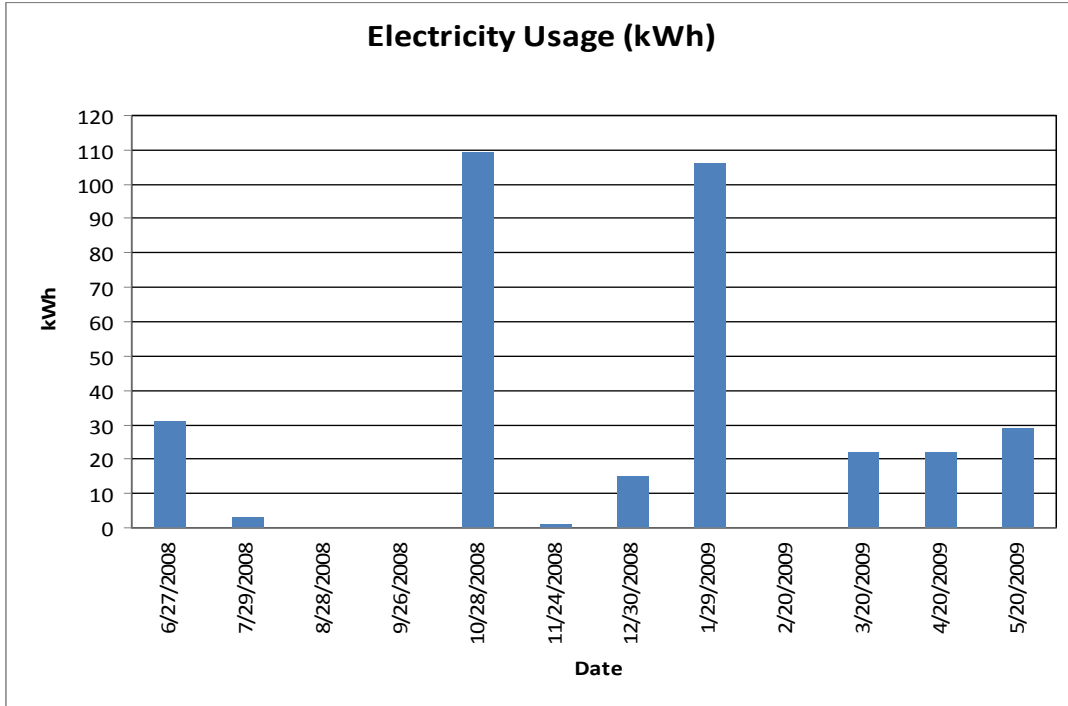
The average electrical peak demand for the previous year was 39 kW and the maximum peak demand was 52.1 kW. The electric demand and electric usage profiles for this project are presented in the following charts. The first chart shows demand for the main electric meter and the last two charts show electric usage for their respective meters. The auxiliary meter does not use any demand.



Electrical Demand for Main Electric Meter



Electricity Usage for Main Electric Meter



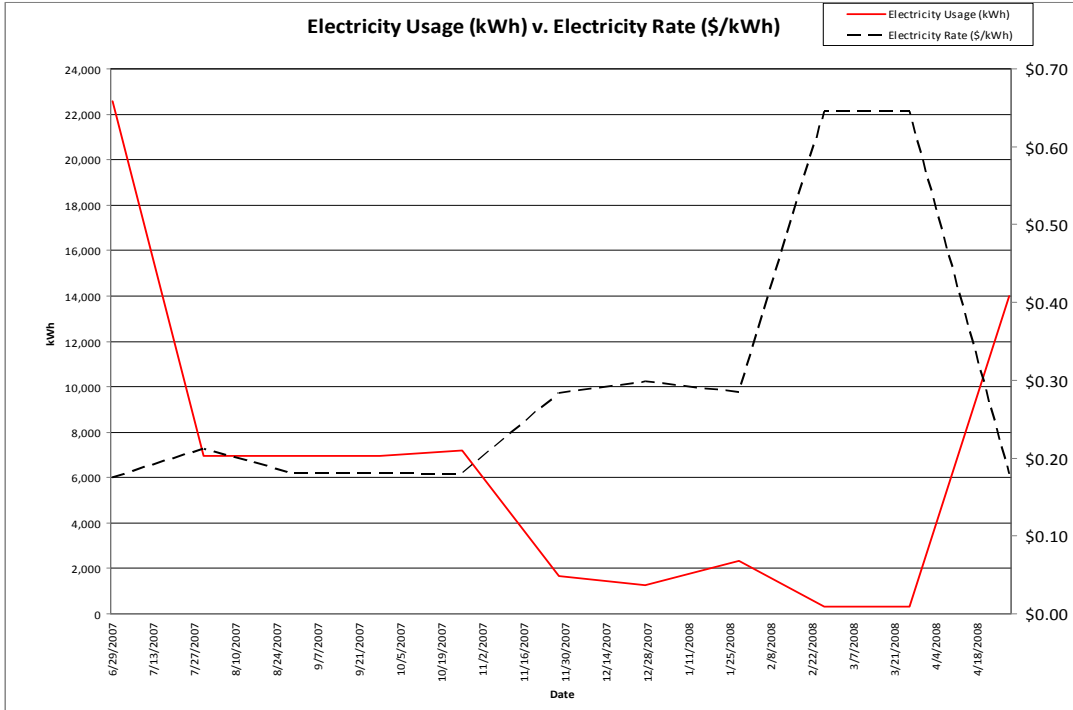
Electricity Usage for auxiliary electric meter

5.2. Tariff analysis

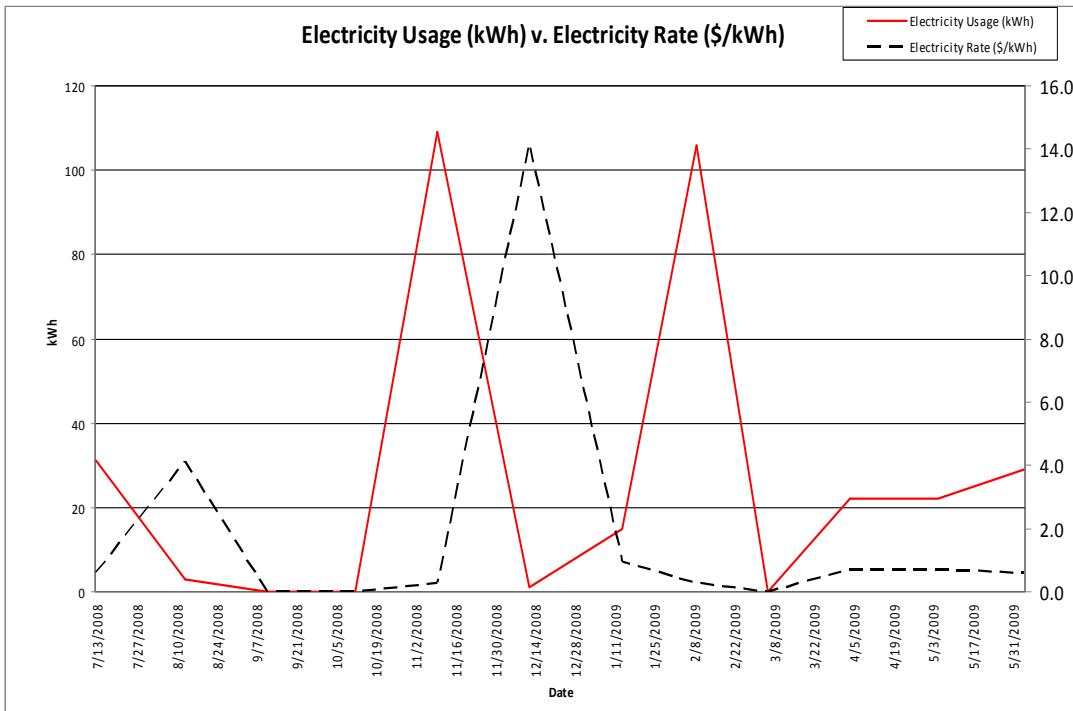
Currently, electricity is provided to the Pool building through two electric meters; a main electric meter for general electric use and an auxiliary meter for exterior lights only. Electricity for the main meter is purchased from JCP&L at a general service rate. The general service rate for electricity charges a market-rate price based on usage and the Pool building billing does not breakdown demand costs. Demand prices are reflected in the utility bills and can be verified by observing the price fluctuations throughout the year. Electricity for the auxiliary meter is purchased from JCP&L at a general service rate but does not include demand charges since the usage is minimal.

5.3. Energy Procurement strategies

Electricity is received from the Pool electric meters directly from JCP&L and no ESCO is used. SWA analyzed the utility rate for electricity over the previous 12 months. Electric bill analysis shows large fluctuations in electric rates since the building is a seasonal building and usage changes drastically. SWA recommends that Pool building explore the opportunity of purchasing electricity from an ESCO in order to reduce electric rate fluctuation and ultimately reduce the annual cost of energy for the building. Appendix B contains a complete list of third party energy suppliers for JCP&L service.



Main Electric Meter – Rate vs. Usage



Auxiliary Electric Meter – Rate vs. Usage

The building would not be eligible for enrollment in a Demand Response Program because the minimum electric demand each month does not greatly exceed 50 kW, which is the typical threshold for considering this option.

6. METHOD OF ANALYSIS

6.1. Assumptions and tools

Energy modeling tool: eQUEST V3.6
Cost estimates: RS Means 2009 (Facilities Maintenance & Repair Cost Data)
RS Means 2009 (Building Construction Cost Data)
RS Means 2009 (Mechanical Cost Data)
Cost estimates also based on utility bill analysis and prior experience with similar projects

6.2. Disclaimer

This engineering audit was prepared using the most current and accurate fuel consumption data available for the site. The estimates that it projects are intended to help guide the owner toward best energy choices. The costs and savings are subject to fluctuations in weather, variations in quality of maintenance, changes in prices of fuel, materials, and labor, and other factors. Although we cannot guarantee savings or costs, we suggest that you use this report for economic analysis of the building and as a means to estimate future cash flow.

THE RECOMMENDATIONS PRESENTED IN THIS REPORT ARE BASED ON THE RESULTS OF ANALYSIS, INSPECTION, AND PERFORMANCE TESTING OF A SAMPLE OF COMPONENTS OF THE BUILDING SITE. ALTHOUGH CODE-RELATED ISSUES MAY BE NOTED, SWA STAFF HAVE NOT COMPLETED A COMPREHENSIVE EVALUATION FOR CODE-COMPLIANCE OR HEALTH AND SAFETY ISSUES. THE OWNER(S) AND MANAGER(S) OF THE BUILDING(S) CONTAINED IN THIS REPORT ARE REMINDED THAT ANY IMPROVEMENTS SUGGESTED IN THIS SCOPE OF WORK MUST BE PERFORMED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS THAT APPLY TO SAID WORK. PARTICULAR ATTENTION MUST BE PAID TO ANY WORK WHICH INVOLVES HEATING AND AIR MOVEMENT SYSTEMS, AND ANY WORK WHICH WILL INVOLVE THE DISTURBANCE OF PRODUCTS CONTAINING MOLD, ASBESTOS, OR LEAD.

Appendix A: Lighting study

Existing Lighting Conditions														
#	Building	Level/Floor	Location in Building	Fixture Type	Ballast Type	No. of Fixtures	No. of Lamps	Type of Lamp	Watts/Lamp	Hrs/Day	Energy Use (kWh/year)	Controls	Daylighting possible?	Total Power (Watts)
1	Pool Club	Main Area	Main Center Area	75W Flood	-	6	1	Flood	75	12	1,971	Switch	No	450
1	Pool Club	Main Area	Women's Locker Room	4' linear T12	magnetic	16	4	Fluorescent	40	12	3,287	Switch	Yes	2560
1	Pool Club	Main Area	Women's Locker Room	Fl. Exit Sign	-	2	1	Fluorescent	20	24	350	None	No	40
1	Pool Club	Main Area	Office/Lifeguard Room	4' linear T12	magnetic	2	4	Fluorescent	40	12	411	Switch	No	320
1	Pool Club	Main Area	Men's Locker Room	4' linear T12	magnetic	10	4	Fluorescent	40	12	2,054	Switch	Yes	1600
1	Pool Club	Main Area	Boiler closet in Men's Locker Room	17W CFL	-	1	1	CFL	17	2	4	Switch	No	17
1	Pool Club	Main Area	Men's Locker Room	LED Exit Sign	-	2	1	LED	5	24	26	None	No	10

Proposed Lighting Conditions														
#	Building	Level/Floor	Location in Building	Fixture Type	Ballast Type	No. of Fixtures	No. of Lamps	Type of Lamp	Watts/L amp	Hrs/D ay	Energy Use (kWh/year)	Controls	Daylighting possible?	Total Power (Watts)
1	Pool Club	Main Area	Main Center Area	32W CFL	-	6	1	Refl. CFL	32	12	841	Switch	No	192
1	Pool Club	Main Area	Women's Locker Room	4' linear T8	electronic	16	4	Fluorescent	32	4	877	Switch	Yes	2048
1	Pool Club	Main Area	Women's Locker Room	LED Exit Sign	-	2	1	Fluorescent	5	24	88	None	No	10
1	Pool Club	Main Area	Office/Lifeguard Room	4' linear T8	electronic	2	4	Fluorescent	32	12	329	Switch	No	256
1	Pool Club	Main Area	Men's Locker Room	4' linear T8	electronic	10	4	Fluorescent	40	12	2,054	Switch	Yes	1600
1	Pool Club	Main Area	Boiler closet in Men's Locker Room	17W CFL	-	1	1	CFL	17	2	4	Switch	No	17
1	Pool Club	Main Area	Men's Locker Room	LED Exit Sign	-	2	1	LED	5	24	26	None	No	10

Existing Annual Electric Use (kWh/year)	8,103
Proposed Annual Electric Use (kWh/year)	4,218
Existing Annual Electric Cost (\$/year)	\$1,256
Proposed Annual Electric Cost (\$/year)	\$654
Estimated Savings (kWh/year)	3,886
Estimated Savings (\$/year)	\$602
Existing Lighting Power Density (W/sqft)	4.89
Proposed Lighting Power Density (W/sqft)	4.05

Appendix B: Third Party Energy Suppliers (ESCOs)

Third Party Electric Suppliers for JCPL Service Territory	Telephone & Web Site
Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 www.hess.com
BOC Energy Services, Inc. 575 Mountain Avenue Murray Hill, NJ 07974	(800) 247-2644 www.boc.com
Commerce Energy, Inc. 4400 Route 9 South, Suite 100 Freehold, NJ 07728	(800) 556-8457 www.commerceenergy.com
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(888) 635-0827 www.newenergy.com
Direct Energy Services, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(866) 547-2722 www.directenergy.com
FirstEnergy Solutions 300 Madison Avenue Morristown, NJ 07926	(800) 977-0500 www.fes.com
Glacial Energy of New Jersey, Inc. 207 LaRoche Avenue Harrington Park, NJ 07640	(877) 569-2841 www.glacialenergy.com
Integritys Energy Services, Inc. 99 Wood Ave, South, Suite 802 Iselin, NJ 08830	(877) 763-9977 www.integritysenergy.com
Liberty Power Holdings, LLC Park 80 West Plaza II, Suite 200 Saddle Brook, NJ 07663	(800) 363-7499 www.libertypowercorp.com
Pepco Energy Services, Inc. 112 Main St. Lebanon, NJ 08833	(800) 363-7499 www.pepco-services.com
PPL EnergyPlus, LLC 811 Church Road Cherry Hill, NJ 08002	(800) 281-2000 www.pplenergyplus.com
Sempra Energy Solutions 581 Main Street, 8th Floor Woodbridge, NJ 07095	(877) 273-6772 www.semprasolutions.com
South Jersey Energy Company One South Jersey Plaza, Route 54 Folsom, NJ 08037	(800) 756-3749 www.southjerseyenergy.com
Suez Energy Resources NA, Inc. 333 Thornall Street, 6th Floor Edison, NJ 08837	(888) 644-1014 www.suezenergyresources.com