Total Cost

$5,138,000

LIPA Rebate

$74,200

National Grid Rebate

$143,000

Annual Electric Savings

1,579,837 kWh

Annual Gas Savings

225,560-therms

Centrifugal Chiller

24-KW PV System Array

Condensing Boilers

Bergen Point Waste Water Treatment Plant

CASE SUMMARY

Suffolk County Sewer District no. 3 is located at Bergen Point in the Town of Babylon, on the South Shore of Long Island. It serves a 57-square-mile area and it treats 30.5 million gallon of wastewater per day (MGD). The plant was constructed in the 1970s and includes a pump and screen building, primary settling tanks, aeration tanks, a sludge processing building, belt filter press and two multiple hearth incinerators.

Auxiliary facilities consist of an administration and maintenance building, two emergency generators, two steam generating boilers, and a fuel storage facility totaling 291,302 square feet of building space. The plant also has a number of odor control systems and energy efficiency solutions.

ENERGY RETROFIT

The energy efficiency modifications at Bergen Point include the HVAC system and lighting. All the existing 34-watt and 40-watt T12 lamps were replaced with 28-watt super saver T8 lamps; all magnetic ballasts were replaced with high efficiency electronic ballast to further increase lamp efficiency as well as to reduce operational cost and maintenance.

A 325-ton single stage indirect steam absorber was replaced with a 250-ton electric water cooled centrifugal chiller with Variable Frequency Drives (VFD) in order to achieve a greater efficiency.

A 24-KW Photovoltaic (PV) system was put in place to reduce the electric consumption from the grid, especially during peak hours. Premium efficiency motors replaced the existing standard efficiency motors that drive the pumps. The inefficient 30 million Btu high pressure steam boiler was replaced with five 3.0 million Btu condensing boilers that are 98% efficient. The 100-KW electric water heater was replaced with high efficiency condensing water heater for domestic hot water. The old Building Management System (BMS) was upgraded with state of the art Johnson Controls MetaSys BMS that allows for the implementation of fully detailed schedules and offsite monitoring.

RESULT

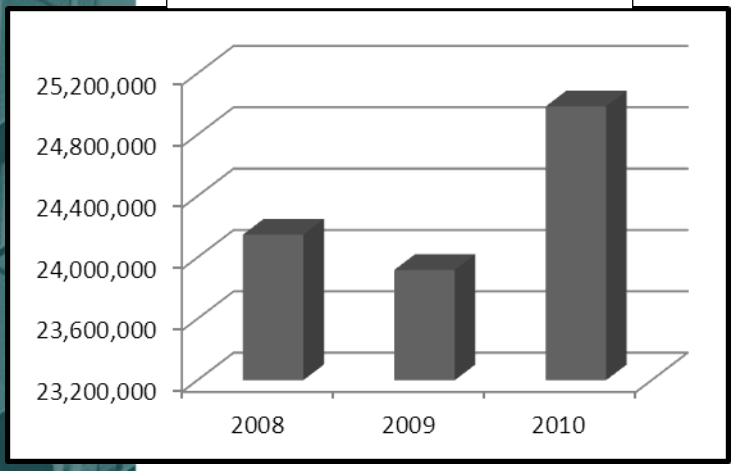
Using the utility bill records from 2008 as the base year and comparing it with the latest 2010 records it shows that the total savings were $697,573, or 15%, in 2010. Bergen Point reduced its gas consumption by 225,560 Therms, approximately 35%. An estimated 1,579,837 KWh was saved in electricity, about 6.5%. This project showed substantial reductions in gas and electricity, and the cost associated with them; due to these savings in gas and electricity, Bergen Point was able to reduce its CO_2 emissions by 2,138 tons, or 13%.

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS

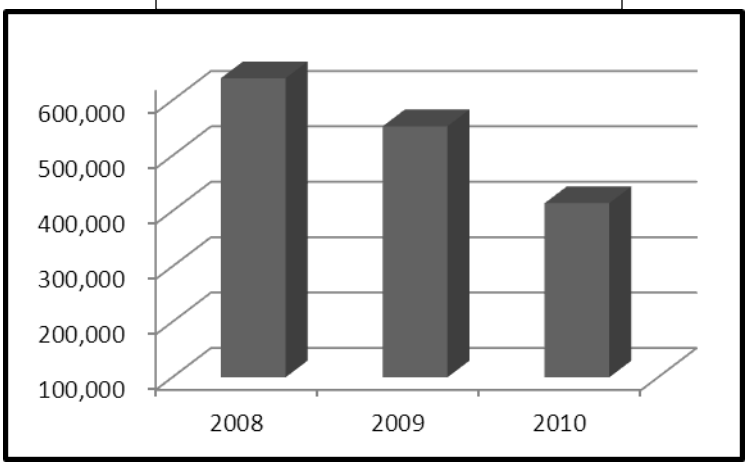
335 Yaphank Ave.

Yaphank NY, 11980

Annual Electric Consumption (KWh)



Annual Gas Consumption (Therms)



Year	KWh	Cost
2008	24,148,800	$3,715,254
2009	23,918,400	$3,688,616
2010	24,984,000	$3,743,262

Year	Therms	Cost
2008	639,940	$905,000
2009	553,293	$689,735
2010	414,380	$475,999

Savings in 2010		
Savings	**Amount**	**Percentage**
Electric	1,579,837 KWh	6.5%
Gas	225,560 Therms	35%
Cost	$697,573	15%
CO_2	2,138 Tons	13%

*All the calculations use 2008 as the base year
Emissions calculations were done using
<www.abraxasenergy.com/emissions>

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS
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Project Manager, Javed Ashraf, C.E.M., P.E. (631) 852-4229