

Case Study Willows Swim Club

Case Study - Willows Swim Club

Estimating Electric Utility Costs

Willows Swim Club is a private, member-owned swimming and recreational facility located in central New Jersey.

The swim club provides kitchen space to a local restaurant to operate a food concession. Being offered as a service to its membership, there is presently no charge for rent or utilities. However, given the current economic climate, the swim club is considering charging the concession operator next season to be reimbursed for the utility costs incurred operating the concession area.

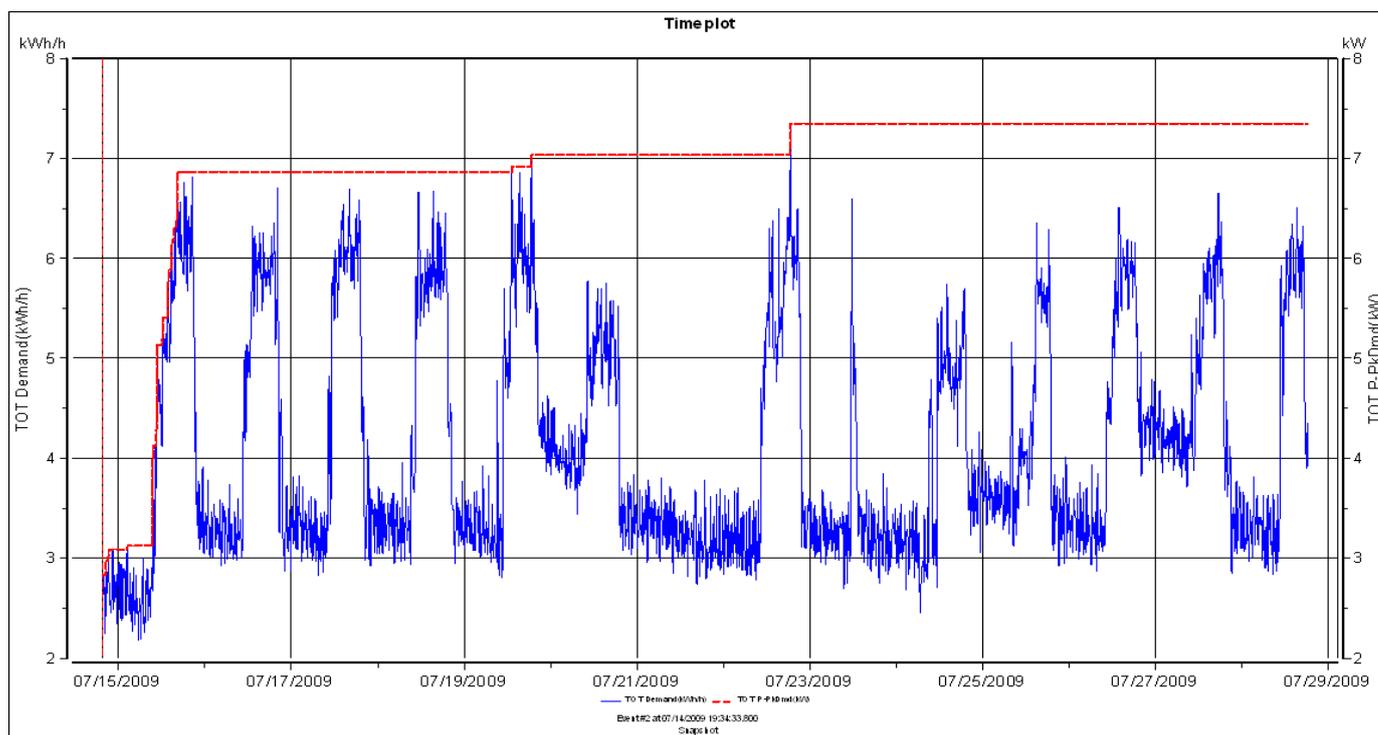
The swim club is seasonal business operating during the summer months from Memorial Day to Labor Day each year. The concession operates 7 days a week from about 11am to 7pm each day. Being outdoors, the facility (and concession) may close or limit operating hours due to rain or cool temperatures.

The concession area electrical loads are primarily comprised of cyclical loads such as refrigerators, freezers and room air conditioners but constant loads such as overhead lighting exist.



MAVOWATT 20 from Gossen Metrawatt was used for a 2 week energy survey from July 14, 2009 to July 28, 2009. The device was connected to the dedicated 120V split phase sub panel feeding the concession area. Two model TR2550, 100A CT's were used for current measurements.

Demand profile and Peak Demand shown in DranView



- Peak demand measured during the period was 7.353 KW.
- Total electricity consumed was 1375.6 KWh
- The survey ran for 13.95 days with an average consumption of about 98.5 KWh per day

Electricity Cost Estimation

PSE&G is the utility. New Jersey is deregulated. GLP rate structure.

Even though the swim club is a comparatively small consumer of electricity, the utility bill is more complex than a residential bill. The resultant utility bill demonstrates the complexity of billing in a deregulated energy environment and also the importance of understanding your electrical usage in order to manage and reduce your utility costs:

Delivery:

- Service charge: \$4.27
- Distribution charges:
 - Annual Demand @ \$3.9202/KW
 - Summer Demand @ \$7.2755/KW
 - KWh charges @ \$0.0145/KWh
- Societal Benefits (recovery of costs incurred achieving government policy)
 - @ \$0.0075/KWh
- Securitization Transition (bond finance charges)
 - @ \$0.0104/KWh

Supply:

- BGS Capacity (generation & transmission)
 - This is a complex calculation that represents the customer's share of the overall peak load assigned to the utilities transmission zone.
- BGS Energy (tiered usage per KWh)
 - @ \$0.1089/KWh (first tier <9755 KWh)

Being such a complex rate structure with many billing factors, it can be difficult to relate some of these costs to actual usage by the concession.

Since the objective is to estimate worst case utility costs, a fair method was found with the following assumptions taken into account:

- The operation of the swim club during the two-week survey was deemed typical and represented an average two-week period during peak summer months.
- Actual usage results will be used in the estimated charges opposed to determining a percentage of the concession usage vs. the overall bill.
- Service charge will be 100% paid by the owner.
- BGS capacity charge will be ignored since there is no fair (easy) way to determine the concession's portion of these charges. The owner will bear this charge.
- The various KW Demand and KWh Energy utility charges can be consolidated into one charge for KW and KWh portions of the estimate:
 - Consolidated KW Demand charge is: \$11.1957
 - Consolidated KWh Energy charge is: \$0.1413

DranView Energy Audit Report

Measured from 07/14/2009 11:12:09.0 to 07/29/2009 02:37:01.0 BILLING DAY OF MONTH: 1				
DEMAND and ENERGY REPORT				
DEMAND				
	ON-PEAK (kW)	PARTIAL-PEAK (kW)	OFF-PEAK (kW)	MIN PF
Jul (*)	0.0	0.0	7.4	0.580
Max values	0.0	0.0	7.4	0.580
ENERGY CONSUMPTION				
	ON-PEAK (kWh)	PARTIAL-PEAK (kWh)	OFF-PEAK (kWh)	CARBON FOOTPRINT (lb CO2)
Jul (*)	0.0	0.0	1375.6	720.8
Total values	0.0	0.0	1375.6	720.8
(*) Indicates partial month.				
Time of Use Billing				
Site: Willows Concession final Measured from 07/14/2009 11:12:09.0 to 07/29/2009 02:37:01.0 BILLING DAY OF MONTH: 1				
TIME OF USE COSTS				
DEMAND				
	ON-PEAK (\$)	PARTIAL-PEAK (\$)	OFF-PEAK (\$)	
Jul (*)	0.0	0.0	82.3	
ENERGY CONSUMPTION				
	ON-PEAK (\$)	PARTIAL-PEAK (\$)	OFF-PEAK (\$)	
Jul (*)	0.0	0.0	194.4	
Total values	0.0	0.0	194.4	
(*) Indicates partial month.				

When adding the Demand and Energy charges above, the total Demand and Energy charge for this 14 day period is estimated at \$276.70 or about \$471 when extrapolated to one month. Demand charge is not extrapolated being billed as peak demand.

This is the reference swim club management was looking for and will be used as the basis for determining fair charges for next season.

Sineax A230, A220, A210 is being considered as a permanent monitoring solution to continuously meter usage to determine actual usage on an ongoing basis.



GMC-I Messtechnik GmbH
Südwestpark 15
90449 Nürnberg, Germany
Phone: +49 911 8602-111
Fax: +49 911 8602-777
e-mail: info@gossenmetrawatt.com
www.gossenmetrawatt.com