

The Energy Wolf is at the Door

By Wayne Robertson

Energy Awareness is coming back in style. In today's difficult economy, facility owners are looking for more ways to reduce operating costs, and energy is a good place to look. Why? Because a typical office building in Atlanta Georgia spends \$1.30-1.40 per square foot per year for electricity; gas adds 10-15¢ and water 5-10¢ per square foot to that figure. Utilities are the biggest single line item in the annual survey of operating expenses conducted by BOMA; greater than cleaning, maintenance or administration. Consequently, investments in energy efficiency are among the best an Owner can make.

“Electricity costs near 20-year highs” was the headline in USA Today in June. The story went on to say that retail electric prices may rise 4% this year nationwide. Here in South our electric rates are generally lower than the national averages and have been declining but some rates are starting to creep up; Georgia’s biggest electric utility has filed for a rate increase. Natural Gas prices too are at very high levels and likely to remain so, according Fed chairman Alan Greenspan. Rising energy costs mean energy conservation is coming back in fashion.

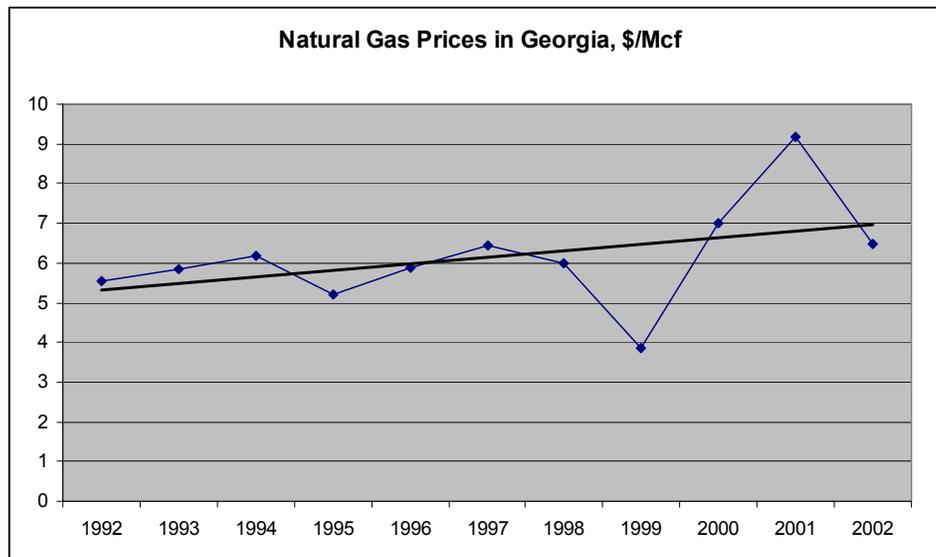


Figure 1

Investments in energy efficiency are among the best an Owner can make and now even more so. As *Energy User News* just said, “Conservation Always Reduces Cost...even in turbulent times.” There are two aspects to good energy management: managing energy consumption and managing energy prices. To get the biggest bang for your buck, you must integrate both into your project planning.

Understanding Electric Rates; Dull but Profitable

Typical electric rate tariffs may appear mysterious and impenetrable but a little effort to understand the rules can payoff with savings. Knowing how rates work help the Owner make better and more informed operational and facility investment decisions. For example, if your buildings are on a typical Power & Light tariff, which is commonly the case for office buildings, your costs are made up of two components: electric demand (kW) and electric consumption (kWh). The billing demand portion could make up half your bill and most of that could be set during just one thirty-minute period in the summer. Observe the chart below:

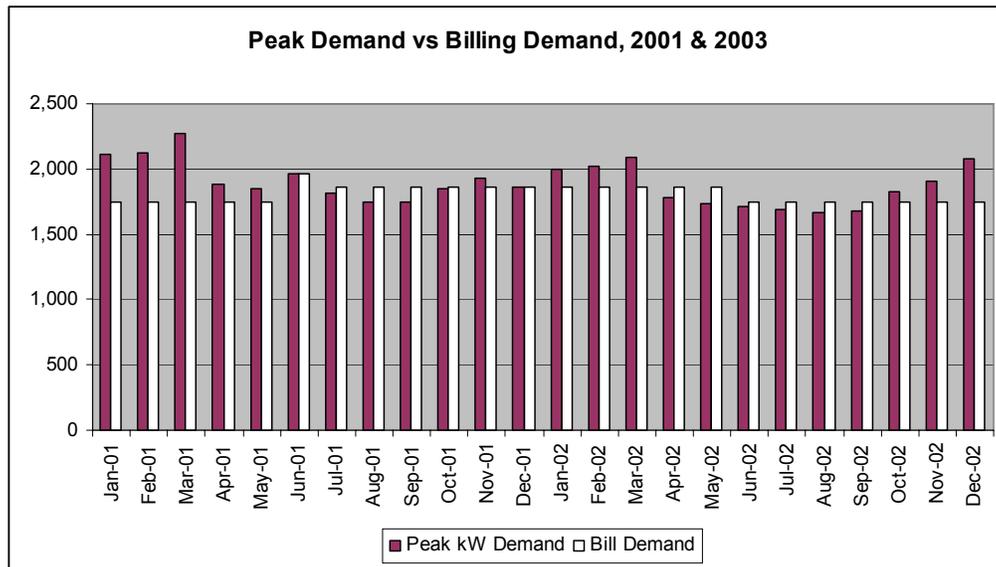


Figure 2

Even though the Peak Demand is highest in winter months, the Bill Demand (white bars) is lower. Bill Demand for the next 11 months was set in July 2001 as 95% of July's actual demand. This electric utility is a summer-peaking one that wants to discourage summer use (summer is June through September) of power while encouraging winter use through lower prices. This Owner's Energy Manager, Ms. Ima Lert, knows this so she won't spend futile efforts to reduce winter demand in hopes of reducing her overall bill.

ABC Bldg, Atlanta, GA

Account Contact: Reddy Kilowatt
Customer Primary Contact: Ima Lert

Electrical Use Summary

Account, Billing Information View
Display: Basic Information
Time Period: 24 Months
Account:
Rate: PLL

Month	Meter Read	Billing Days	Total kWh	Peak kW Demand	Electric Service Total	Average Cost
January '01	01/25/01	34	1,257,152	2,117	\$54,627	4.35¢
February '01	02/23/01	29	1,032,585	2,121	\$49,488	4.79¢
March '01	03/26/01	31	1,173,139	2,273	\$52,696	4.49¢
April '01	04/25/01	30	1,054,004	1,884	\$50,038	4.75¢
May '01	05/24/01	29	1,055,697	1,850	\$50,066	4.74¢
June '01	06/25/01	32	1,106,580	1,965	\$54,268	4.90¢
July '01	07/25/01	30	1,008,725	1,813	\$44,273	4.39¢
August '01	08/24/01	30	1,026,022	1,751	\$51,091	4.98¢
September '01	09/25/01	32	1,009,120	1,742	\$50,653	5.02¢
October '01	10/24/01	29	919,023	1,854	\$48,347	5.26¢
November '01	11/26/01	33	1,201,173	1,929	\$55,305	4.60¢
December '01	12/26/01	30	1,007,939	1,860	\$50,586	5.02¢
January '02	01/25/02	30	1,052,093	2,003	\$50,845	4.83¢
February '02	02/25/02	31	1,127,816	2,025	\$52,564	4.66¢
March '02	03/26/02	29	1,023,655	2,085	\$49,941	4.88¢
April '02	04/24/02	29	996,870	1,777	\$49,295	4.94¢
May '02	05/24/02	30	981,880	1,732	\$48,925	4.98¢
June '02	06/25/02	32	1,012,901	1,712	\$48,436	4.78¢
July '02	07/25/02	30	972,355	1,686	\$47,422	4.88¢
August '02	08/26/02	32	1,031,678	1,672	\$48,918	4.74¢
September '02	09/25/02	30	962,806	1,674	\$47,186	4.90¢
October '02	10/24/02	29	912,519	1,832	\$45,945	5.03¢
November '02	11/22/02	29	992,467	1,903	\$47,911	4.83¢
December '02	12/26/02	34	1,199,436	2,080	\$52,715	4.39¢
Total		734	25,117,635		\$1,201,541	
Peak		34	1,257,152	2,273	\$55,305	5.26¢
Average		31	1,046,568	1,889	\$50,064.21	4.78¢

Instead she will focus on summer demand and on reducing consumption all year-round. “Your mileage may vary” so analyze your own rate structures with the help of your Energy Manager and your electric utility rep to make sure your energy conservation efforts will be effective.

Average Costs versus Marginal Costs

A common mistake is to use average costs to compute the savings from proposed energy projects and not marginal or incremental costs. Observe the data from Ima Lert’s electric utility.

It contains average cost information – her average cost of electricity for this building is about \$4.8¢/kwh; however, the electric rate schedule is a “declining block” type which means the unit prices decline as the consumption increases. The *marginal cost* is the cost of the last kWh purchased; i.e., in the highest consumption category and is therefore the lowest priced electricity - about 2.5¢. This is the amount that would be saved from saving 1 kWh off the top so the marginal costs are the only numbers that should be used in energy-savings calculations.

A lighting salesman gives her a proposal which shows savings with a three year payback; he used average costs for his savings projections. Ima Lert knows the difference and pays no attention to average cost information. She recomputes the project payback to be 5.75 years and can now compare this project with competing projects on an equal basis.

What to Do?

Work closely with your electric utility rep to identify rate options, riders and alternatives that may benefit you. Certain plant-side changes, either operational or functional, could qualify you for a new and better rate tariff. Some utilities offer standby generator rates, peak shaving rates, economic development rates, jobs creation riders, not to mention rebates and incentives for investing in new technologies. Make an ally of your utility rep to help you find advantageous options.

Also work closely with your peers and/or your trade organization. Find out what others in your situation are doing. One company we know is in an industrial park and is asking its fellows to share information in hopes of getting better deals for all.

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