



Editor's Note: *The New York Times* carried a story on Jan. 8 headlined, "Taking Control of Electric Bill, Hour by Hour." It reported, "Consumers who cut back on power use at peak times can do more than just avoid high prices. They can make money, as people in the building on Central Park West learned last summer. "Peter Funk Jr., an energy partner at the law firm Duane Morris who lives in the 48-unit co-op, persuaded his neighbors three years ago to install a single meter to the Consolidated Edison system and then to operate their own internal metering system. That made the building big enough to qualify for hour-by-hour pricing." The article continues, "The residents save more than just the money on power not used during peak periods, when pricing has been as high as almost 50 cents a kilowatt-hour. During the blackout in July, when parts of Queens were without electricity for up to nine days, the building cut demand as much as 42 percent and sold the unused capacity for about \$3,000. That money helps the building offer a valuable benefit: On most weekend mornings, electricity for residents is free." EnergyBiz contacted Peter Funk to get the inside story on the innovative project. His article, co-authored with colleague Matthew E. Ross, follows.



Co-Op Gets Creative

By Peter V.K. Funk Jr. and Matthew E. Ross

ENERGY IS SIGNIFICANTLY more expensive during peak daytime and evening periods than non-peak morning and nighttime periods. Time differentiated energy pricing allows customers to arbitrage their energy usage based on when it is used. Such pricing became national policy courtesy of the energy act of 2005. The ability of energy end-users to take full advantage of the pricing by regulating their time of use of such energy has been made possible by the development of smart meters.

The energy act requires all utilities to offer time differentiated pricing to its customers. New York state has had such a requirement in place for several years.

Implementing the special pricing and curtailment in a multifamily residential building makes sense, as residential users generally possess greater elasticity of demand than commercial and industrial customers. Since residential users cannot be compelled to shift demand patterns, they must be economically stimulated to do so by effective communication of appropriate price signals. Time differentiated prices for many goods and services pervade our society, such as happy hours, one-day sales, time-based telephone rates and increased rush hour fares. These rates are based on commercial experience that the special prices motivate customer behavior.

Shaping customer behavior with special rates to reduce peak demand can alleviate problems faced by the electric industry and its customers. A significant number of power plants are needed only a relatively few hours each year. Paying for these "peaking" plants to be available and building new plants imposes significant economic and environmental burdens. Increased peak demand raises hourly prices since electricity prices on the day-ahead markets conducted by Independent System Operators are based on the highest accepted bid for each hour. Worse, our energy and national security suffers from the necessity to import fossil fuels needed to operate inefficient peaking plants.

In contrast to the substantial cost and burdens of meeting peak demand on the supply side, implementing time differentiated pricing in the form of real-time pricing typically requires only the installation of smart meters, related equipment and communications links with the local utility, involving relatively little capital expense and relying upon customer response to price signals to make it work.

Real-time pricing affords customers the opportunity to lower their utility rates by providing price signals that more closely reflect the actual cost of electricity than traditional fixed pricing that provides no reason to reduce expensive peak consumption. Peak load reductions also provide economic leverage to customers. It has been calculated that shifting as little as 1 percent of demand to off-peak hours could save 10 percent in



▲ Lewis Kwit, Peter Funk Jr., his wife Ellen, president of the co-op board at 322 Central Park West, and Vasek Juncaj, the superintendent of the building, all pioneered a strategy to cut residents' power bills.

energy costs in light of the market-clearing mechanism used by the day-ahead wholesale energy markets.

Although Consolidated Edison had an existing tariff that permitted customers with peak loads greater than 100 kilowatts to purchase electricity at real-time pricing rates, as of 2001 not a single customer had taken power under those rates.

At the time, I was president of a 48-unit cooperative multi-family apartment building in Manhattan. I joined with Lewis Kwit, the president of Energy Investment Systems, and several others who were concerned that there were no existing projects in multi-family buildings designed to show the effects of real-time pricing and curtailment to support its use as an electric system resource. The building had a peak demand of over 100 kilowatts, was sub-metered and took power under a ConEd "redistribution" rate that permitted customers to convert to real time pricing. Therefore, the building was ideal for a demonstration project.

The building contracted with EIS to act as consultant and contractor. As an initial step, we arranged for ConEd to install an advanced master meter to gather and analyze data to determine whether the building's actual load curves would justify the use of real-time prices. The study demonstrated that it would be feasible.

New York state provided financial incentives for the installation of smart meters and other energy-management devices and provided funding for EIS to manage and study this project. EIS then arranged to retrofit its

existing building sub-meters with a Converge system that included remote monitoring units which converted existing meters to smart meters, install a data concentrator unit, and establish data phone line connections with ConEd. With those measures in place, the building, commencing October 2006, elected to be the first customer to take service at ConEd's Rider M voluntary real-time pricing tariff.

Since hourly changing rates that varied daily would confuse residents, EIS worked with Gulf Power to develop an internal time-of-use rate comprised of three daily rate blocks – high, medium and low – based upon NYISO day-ahead market patterns, conventional demand charges and each resident's load profile. In order to send meaningful price signals to residents, this simplified three-tiered rate structure reflected the general patterns of the NYISO markets, while integrating other utility charges included in Rider M. This means that each resident is charged on the basis of both electric usage and demand in each rate block. As a submetered cooperative with a master meter, the cooperative has ratemaking authority over its residents.

Since commencing this project, the building has reduced electric costs and amortized its cost of the installed equipment. Importantly, the project has also focused the residents on energy conservation, which resulted in steps such as a common area lighting retrofit project and individual residents replacing inefficient equipment such as air conditioners with energy-saving equipment.

The building also earns money by participating in a NYISO electric demand curtailment program. It is treated like a small power plant on standby. As part of this curtailment program, the building agreed to reduce consumption to a pre-agreed level upon notice. NYISO pays the building during peak months for its pledge to reduce consumption, typically for several hours, when called upon to do so.

The NYISO gives a one-day notice for curtailment events; the building then confirms its ability to reduce and thereafter receives notification as to the specified curtailment hours. EIS is the building's curtailment manager, handling all matters and communications with the NYISO and providing notice to the building's management and staff. Curtailment in common areas takes place pursuant to plan. Individual resident curtailment occurs on a voluntary basis. The building posts fliers in common areas and uses word-of-mouth communications and plans to implement a Web site in the future to provide information.

The project has proven that voluntary demand reduction is a robust means of addressing peak demand, particularly during emergencies.

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Florida Forges Energy Initiative



By John N. O'Brien

FLORIDA IS GROWING so rapidly that, according to the census bureau, it is projected to edge past New York state in population by 2011, becoming the nation's third most populous state behind California and Texas. As a result, Florida is actively positioning itself in the evolving and complex requirements of establishing a comprehensive statewide energy strategy. Using a series of steps, Florida's leaders have thoughtfully designed a process to craft a statewide plan and create the necessary road map for a reliable, efficient, affordable and diverse energy marketplace.

Starting back in November 2005, then Gov. Jeb Bush signed an executive order to develop a comprehensive statewide energy plan. The state of Florida, through the state's Department of Environmental Protection brought together energy experts and business, industry and environmental