

ELECTRICAL SUBMETERING SYSTEMS: TAKING THE LOAD OFF OF MULTI-TENANT PROPERTY OWNERS

In an era of rising costs, savvy property owners everywhere are seeking new ways to control operating expenses and improve their bottom-line performance. With energy costs increasingly on the rise, electricity is one of the single largest categories of variable expenses for business owners. For multi-tenant property owners where usage for an entire complex is measured by a single electric meter, managing electrical expenses can be especially challenging. Moreover, having to divvy up a single bill among tenants who use electricity differently creates administrative overhead and puts property owners at risk of non-recovery of expenses.

Accounting for Electric Usage in Multi-tenant Properties

There are three fundamental ways to measure and bill for electric usage in multi-tenant properties: master-metering, direct-metering and sub-metering. In a master-metered building, the utility company supplies electricity to the entire facility through a single utility-owned meter. Individual tenant spaces are not metered and the electricity used by each tenant cannot be determined or used as a basis for billing. Property owners apportion the complex's monthly bill to

individual tenants based on an allocation formula often tied to the square footage of the tenant space. This method does not account for the types of loads being used or the timed intervals of use (during peak or off-peak kWh timeframes) and does not reward energy-conscious behavior.

By contrast, in a direct-metered building, electricity is supplied to each unit through a utility-owned meter and tenants are billed directly by the utility company based on their actual usage. Tenants are aware of their monthly usage and reap the benefits of their energy-conscious behavior where it counts most—in their wallets.

A third way of accounting for electric usage in multi-tenant properties is through submetering. In a submetered complex, electrical usage is measured through a utility-owned master meter and electrical use in each unit is measured by building-owned meters. Tenants are billed based on their actual usage and the property owner can monitor usage in common areas for potential energy savings.

S



Bearing the Load of Master-Metered Buildings

In addition to the administrative overhead of having to apportion the complex's electric bill to individual tenants each month, master-metered complexes also place property owners in jeopardy of non-payment charges by tenants. Prospective tenants seeking to lease or rent commercial or residential space may not like the idea of paying for more or less electricity than they actually use, which can make the property less marketable. Yet another drawback for property owners of master-metered buildings is the inability to effectively budget or forecast monthly electrical expenses because they have no control over tenant's usage.

Measuring Makes Managing Energy Use Possible

Conventional wisdom suggests that you can't manage what you can't measure. Where individual units aren't direct-metered, submetering is the next best approach for achieving business owners' energy management initiatives and improving bottom-line performance. Fortunately,

today's advanced technology makes the cost of sub-metering substantially more affordable than in past years. With the advent of wireless systems, business owners can save significant time and labor costs in retrofitting their facilities with submetering technology as installers can avoid drilling through walls and installing new wiring. Advanced hardware and software systems and the widespread use of the Internet have also made submetering a highly cost-effective technology for property owners seeking to manage their ever-growing energy costs.

The Benefits of Submetering

Submetering systems transfer responsibility for electrical usage from property owners to tenants. They also provide up-to-the-minute data and analytics which can translate into significant savings for property owners. When compared against dated usage reports supplied by the utility company in monthly bills, these systems provide a distinct advantage: They offer highly visible, real time usage data in 15 minute time intervals for specific locations, enabling property owners to see exactly where and when energy

➤ *continued on page 63*

is being used. This means better control of usage in both tenant occupied spaces and common areas, providing savings from 15-20 percent, according to a case study from the New York State Energy Research and Development Authority (NYSERDA). Whether installed in commercial or residential environments, new or existing facilities, the technology can be readily harnessed: Submeters are easy to specify and install. They provide myriad benefits for both owners and tenants and can help achieve green building initiatives, including LEED Certification and compliance with renewable energy project standards.

Advantages for Property Owners:

- Enables rate increases to be passed on immediately, reducing operating risk
- Encourages energy conservation by tenants
- Provides opportunities to take advantage of more favorable rates
- Maximizes cost control and improves cash flow
- Increases property value and income

Advantages for Tenants:

- Pay only for electricity used
- Establishes confidence in fair and equitable policies
- Generates immediate savings from conservation

Leviton and Needham Electric Supply Team Up on Submetering Installation at Sprawling Office Park Complex

A recent installation of a Leviton submetering system at the 250,000 square foot Chapel Bridge Park Office Complex just outside of Boston demonstrates the value of submetering for both property owners and tenants. Leviton and IMARK Group member Needham Electric Supply (Canton, Massachusetts) worked closely on the sale and installation of a comprehensive wireless system to Aslan Electric and supported the installation as the project continued to grow in scope and magnitude.

“Aslan Electric asked me to quote on the project and I reached out to Leviton’s local sales rep who worked closely with me in providing my customer with a competitive bid, winning the business and ensuring a successful installation,” said Steve Mitchell, sales representative for Needham Electric Supply. The project, which started out as a hard wired installation, was soon reconfigured as a wireless installation. “This was a project that kept getting bigger and bigger,”

Mitchell adds. “Leviton provided the on-the-fly training we needed and was very hands-on during joint sales calls and post installation support, helping us to meet our contractor client’s and his end-user client’s needs.”

In speaking of Leviton’s value-add as business partner, Needham Electric’s director of marketing and advertising, Joy Russo, said “Leviton has always been a strong business partner. They have continually developed innovative products and supported our associates with comprehensive education and training for our shared success.”



Photos of the Boston-area Chapel Bridge Park Office Complex. Leviton and Needham Electric Supply worked closely on the sale and installation of a comprehensive wireless system.



The Situation:

The Chapel Bridge Office Park consists of a sprawling mix of Civil War era and newer buildings that attract tenants with office spaces that boast tall ceilings, abundant natural light, ample parking and close proximity to public transportation and the Massachusetts Turnpike. Each month, property owner, Chapel Bridge Park Associates (CBPA), underwent a labor-intensive process to allot a portion of its electric bill to tenants based on an allocation ratio. Since tenants were unaware of how much electricity they were using and were paying for more or less than what they actually consumed, there was little incentive for them to conserve energy. Aslan Electric (Franklin, Massachusetts) was retained to implement submetering technology across the Complex’s four buildings and contacted Needham Electric Supply for the right system.

➤ continued on page 64



The Solution:

Aslan Electric installed 38 of Leviton's Series 2000 Meters for the Complex's 4-wire service areas and three Series 3000 Meters for the complex's larger amperage spaces fed with 3-wire service. Eight Leviton ModHopper Wireless Modbus/Pulse Transceivers, seven High-Density Pulse Modules and an Energy Monitoring Hub (EMH) completed the installation. The ModHopper transceivers send signals over a wireless mesh network that makes connecting Modbus and pulse devices simple and cost effective. The EMH receives meter data which it transmits to an Energy Manager that stores, manages and reports the data in real time over an advanced Web-based interface. This enables system users to monitor electric usage analytics, create robust reports and measure real-time efficiency gains.

"Leviton's wireless system provided a way around having to drill through the buildings' brick exterior and run the cable lines from the HD Pulse Module to the Energy Monitoring Hub," said Aslan Electric's Rob LaRosa. "At first I was concerned about the signal intensity given the wide expanse of the complex, but we tested the signal strength and it provided consistent, reliable performance across the network's entire span. The wireless products cut down on time and material requirements and they performed flawlessly," he added.

The Bottom Line:

The installation of the wireless meters enabled CBPA to achieve better energy management control and cost savings, as well as use a third-party biller to invoice participating tenants based on their actual electrical usage. "Today, tenants who opt to have their offices submetered are responsible for only the energy they use. We've been able to track all tenant-related energy usage and common-area and after-hours usage to recover these hard-to-allocate costs as well,"

said John Savino, property manager for CBPA. "The system not only saves money, but improves the marketability of our property. Since tenants are responsible for their own electric bills, we can offer more competitive rents, attract more prospective tenants and run a more sustainable business," he added.

Results of Submetering Technology for Chapel Bridge Park Associates:

- Redirects accountability for electrical usage from property owner to tenants
- Provides an equitable way to allocate electrical costs based on actual usage
- Reduces administrative overhead, enables efficient third-party billing, facilitates budgeting and management of electricity expenses
- Promotes energy-conscious behavior since tenants pay for electricity they actually use
- Provides real-time usage data and can automatically transmit it for instant viewing, real time reporting and analytics over Web interface
- Provides a convenient way to measure and monitor electricity usage, control costs, reduce carbon footprint and operate more profitably



Leviton's meters used in the Chapel Bridge Park Office Complex project.

For more information about submetering technology, please visit www.leviton.com.