

The low cost of high efficiency

Selecting submetering solutions for energy-saving strategies. **by Stephen Whitaker**

For facility managers, it's no secret that energy efficiency is an effective way to reduce costs. What has proven elusive, however, is a way to determine and document the value of power-saving measures to create a cost-saving energy consumption strategy. Utility meters simply don't meet this need. They are used mainly for billing purposes, usually on a monthly basis for the entire building. What facility managers require is detailed information about electric power consumption within the building, categorized by location, function, and time. Submeters can provide this information. Submetering data can help the facility to take better advantage of rate structures by identifying the facility's patterns of power usage, by distributing power use more intelligently over the course of a day, and by limiting loads at expensive peak hours. And the permanent presence of the submeter allows for continuous commissioning and cost-saving verification.

When recommending a submetering solution, keep in mind that facility managers are most interested in meters that will help them quickly and accurately identify and change wasteful usage and eliminate unnecessary costs. A submeter that reports true RMS power and energy at frequent intervals is essential, because in most cases it is true RMS energy consumption for which the utility company bills. Measuring at frequent intervals,

along with trend logging, can help the manager to quickly determine, for example, which power-consuming activities might need to be shifted to a different time of day to achieve a better billing rate. In businesses with considerable electric power consumption, payback times for the submetering solution can be less than a year.

Additional features to keep in mind when recommending a submetering

solution to a customer include:

- **Accurate allocation of electric power costs.** Take, for example, shopping malls where different areas use power very differently—and there is a distinct advantage to billing tenants individually. It's important that the meter makes this process as seamless as possible, allowing precise usage information to be quickly reported back to the facility manager, who then can bill for power by actual use rather than by square footage.

- **Support of common protocols in the building automation** (e.g., BACnet, LonWorks, Modbus, etc.). Meter measurements need to be easily accessed by third-party systems that manage data storage, billing, and collection. The data is the basic element that makes the invisible visible for purposes of energy management or tenant billing, whether in an office building or an RV park.

- **The ability to accommodate future growth.** While the initial requirement may be for a single meter for the electrical service entrance, the metering system may eventually require a distributed network of meters—supporting different voltages and currents—communicating over a standard network. Selecting a metering product family that supports a wide range of metering requirements will pay dividends in the long run. Additionally, the familiarity created by using a common metering platform will reduce installation, commissioning, and maintenance costs.

- **A reputable manufacturer.** Seek out a company with a long history, experience across multiple applications, and the expertise to integrate a new metering system into an existing automation system. Other considerations include a good warranty and a high level of customer support. ■

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