

# Cornerstone for Effective Energy Management

Smart Submeters >

## Today's energy landscape is rapidly evolving.

Facility professionals must manage building energy performance, ensure energy reliability and quality. New regulatory requirements have emerged, from building energy codes to building energy reporting and disclosure requirements. The cost of electricity is rising with utility demand charges creating uncertainty about monthly energy costs.

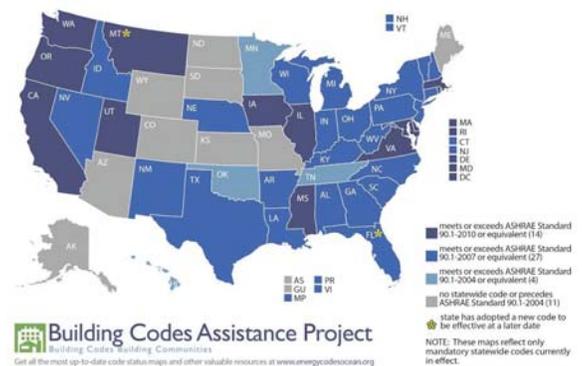
Establishing a solid foundation for successful energy management starts with effective measurement. Cyber Switching's CS-400 Smart Submeter Solutions offer feature-rich yet economical solutions to establish this foundation and build a robust energy management program.

### DRIVERS FOR ENERGY MANAGEMENT

#### Mandating Energy Efficiency, Demand Response and Usage Reporting

U.S. buildings consume nearly 75% of all electrical energy produced annually. While building energy codes have been evolving for several years, mandating energy efficient operation of building systems such as mechanical and lighting systems, these are increasing in stringency. New provisions requiring metering/monitoring of electrical loads have been included in building energy codes, such as ASHRAE 90.1-2010 and 90.1-2013, and California Title 24-2013. Effective July 1, 2014, Title 24 mandates very stringent metering requirements, with provisions requiring the separate monitoring and reporting of HVAC, lighting, and plug loads. Sustainable rating systems, such as LEED v4, also incorporate similar requirements. Codes and sustainable rating systems are also beginning to mandate demand response, which requires organizations to shed electrical loads when signalled by their utility provider.

### Commercial State Energy Code Status AS OF OCTOBER 1, 2014



This map shows the rapid adoption of building energy codes across the United States. The darkest blue states have adopted codes that may include mandatory metering and reporting provisions. Source: BCAP

Additional regulations, requiring building energy reporting and disclosure regulations are emerging as well. To date, nine cities and two states have implemented disclosure mandates.

#### Rising Electricity Costs and Demand Charges

Electricity costs are rising, due to older generation sources such as coal and nuclear power plants retiring. The higher cost of renewable sources—wind and solar—contribute to this trend. Utility demand charges offer one way for energy providers to pass some of their costs on to commercial and

industrial customers. Demand charges, which can be up to 15% of an organization's electric bill, are assessed based on the customer's peak usage during a given month. Since the adoption of smart meters by utilities, capturing the peak demand can be done at a very granular level—at a time increment much briefer than a day, which was historically how peak demand was captured. As a result, the demand charge can be assessed for an entire month for a peak demand that the customer may have experienced for only a short time, possibly even as short as an hour or less.

## BUILDING AN EFFECTIVE ENERGY MANAGEMENT PROGRAM

Implementing effective measuring or monitoring equipment is the first step toward taking charge of energy consumption and optimizing energy performance. Depending upon the size and scope of the facility, metering solutions can vary from simple stand-alone devices that provide utility-grade usage data to sophisticated networked monitoring that analyzes and trends usage data for a variety of operational needs.

Cyber Switching's CS-400 Smart Submetering Solutions offers a robust distributed submetering platform capable of remotely and securely monitoring and controlling the energy usage on any connected outlet. Components are easy to install, and easily scalable for future expansion. Designed for ease of use as well, the advanced system provides a feature-rich, web-based user dashboard that analyzes and reports on energy usage in real time.

Compliant with new regulatory requirements, the Cyber Switching solutions also offer organizations the ability to pursue other energy management goals. These can include

participation in energy-saving demand response programs that may be available from utility energy providers, or robust power quality assurance programs for facilities operating highly sensitive equipment. Perhaps the goal is simply to become more aggressive at reducing utility demand charges. With the advanced CS-400 system, customers can swiftly identify the short duration peak usage that can trigger a demand charge and take action to level out that usage by switching loads off.

What's more, organizations can scale their metering efforts as needed, simply by installing additional CS-400 submeter modules and hubs to provide monitoring of additional circuits and loads as an enterprise expands.

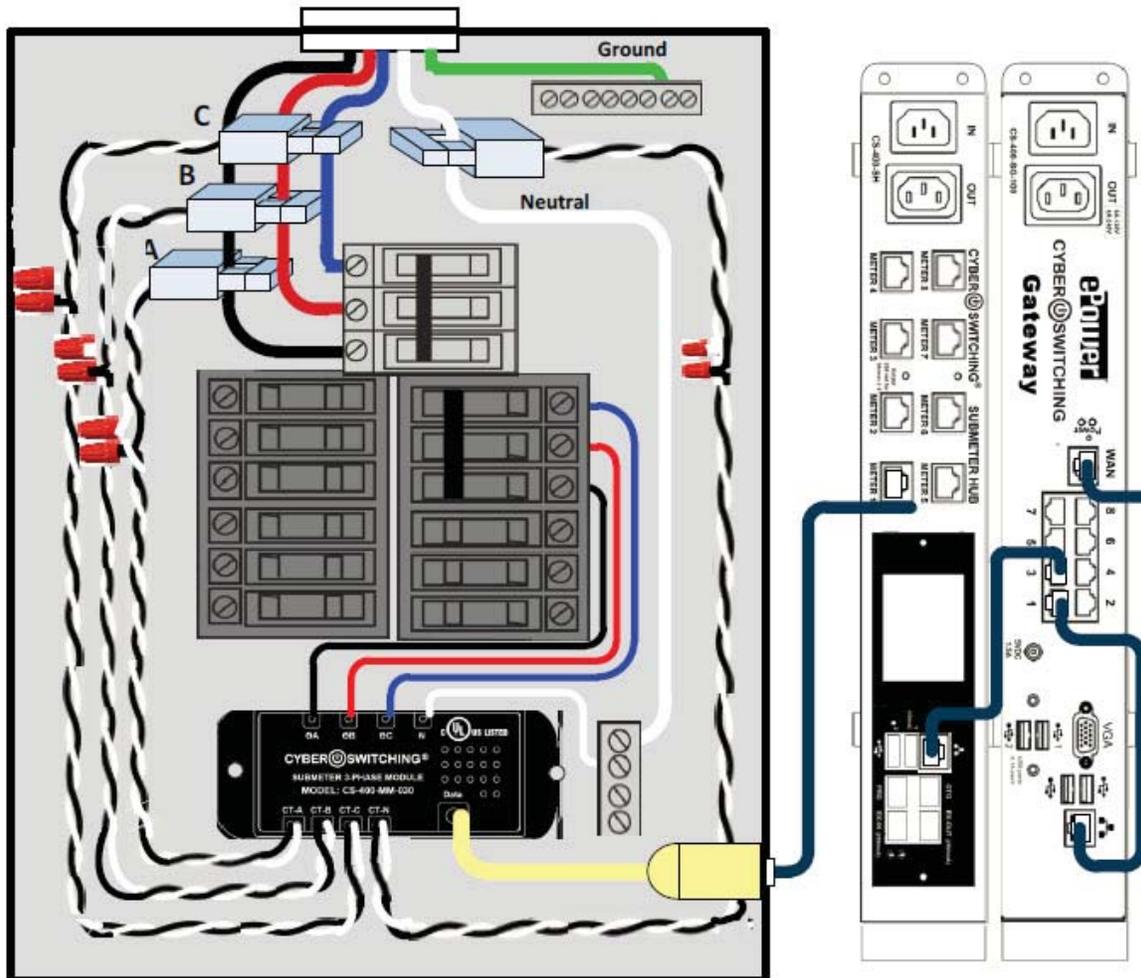
There's no need to compromise security for robust metering capabilities. Connecting electrical loads to an IT network can create a range of security issues and cyber threats. Cyber Switching has built its out of band secure network from the ground up using encrypted SNMP technology to satisfy current and future security requirements.

### Solution Highlights

#### Compatible with all types of 3-phase service

- Utility grade performance reliability
- Calibrated for meter accuracy to better than 0.2%
- Compliant with ASHRAE 90.1-2010, 90.1-2013, and California Title 24-2013 requirements
- High speed digital interface enables wave form logging for more precise power analytics
- Encrypted out of band network for highly secure data transmission
- Easy installation; requires no conduit or primary side wiring outside the subpanel

## CYBER SWITCHING SMART SUBMETERING SYSTEM ARCHITECTURE



### About Cyber Switching

Headquartered in Silicon Valley, Cyber Switching began pioneering power distribution technologies in 1994. Fueled by an entrepreneurial leadership team and dedicated staff, the company continues to engineer innovative and technically advanced solutions for the rapidly evolving power and energy challenges faced by enterprises of all sizes.