



Real-time energy monitoring delivers significant cost savings

Inexpensive, easy-to-implement technologies can reduce energy consumption and costs by 25% or more in commercial and multi-unit residential buildings.

Introduction

Operating a commercial or multi-unit residential building—or portfolio of buildings—is expensive. Margins are tight and because fixed costs are such a large part of the equation, there aren't many opportunities to reduce costs and improve profits. But one way that has become surprisingly cost-effective and easy-to-implement is better monitoring of energy, water, and gas consumption.

With a live data feed that is easily accessed and intuitively presented, building and facility managers can monitor and adjust building performance in real-time. They can improve fault and anomaly detection. They can influence tenant behavior and drive sustainability efforts. And they have the potential to reduce energy consumption and costs by 25% or more.

Environments that benefit from real-time energy monitoring:

Commercial buildings

Condominium and apartment complexes

Corporate and college campuses

K-12 school districts

Government facilities

Manufacturing plants

Disconnected systems, inaccessible data

Many building and campus environments have state-of-the-art building management, dynamic lighting, and sub-metering systems. But these systems are largely disconnected and the data they generate is typically buried within the system, utilized only for fact-checking or historical reporting purposes.

And those are the advanced facilities. Countless others, especially older buildings, still utilize old-fashioned meters that must be manually read.

With siloed systems and inaccessible data, most building and facility managers continue to rely on utility bills as the sole sources of information surrounding energy, water, and gas consumption. These bills don't provide a holistic or real-time view of building performance, preventing the building operator from reacting to events as they happen. They don't reveal longstanding faults or improper system calibration. And they don't show tenants and ownership how slight behavioral modifications can have a dramatic impact on a building's carbon footprint and operating costs.

New technologies, new possibilities

Building management systems (BMS) were designed to deliver better insight and control, but most of them are big, complex, and costly. They typically require specialized hardware, dedicated servers, electrical contracting, staff training, and long-term service agreements and can often cost \$100,000 or more. These heavy duty systems aren't viable for many building operators as they can take years to pay back the initial capital investment.

Fortunately, new technologies and possibilities are now attainable. The development and maturation of the Internet of Things (IoT)—which derives value from machine data—has dramatically reduced the price of sensor technologies, connectivity, storage, and processing.

Lightweight, low-cost IoT devices can now be clipped directly to an electrical panel or water and gas meters. They then can be easily connected to cloud-based platforms that handle data ingestion, integration, and processing. The result is a live data feed that facilitates real-time performance monitoring, data-driven adjustments, better fault detection, and ongoing optimization.

These IoT-based measurement and verification (M&V) technologies can act as a "light BMS" for buildings that don't have one for a fraction of the cost. They can even elevate the value of an existing BMS by capturing and integrating data from multiple systems to create a holistic view of consumption and performance. Bringing this data forward in an easy to read format motivates tenants and ownership to conserve.

Best of all, everything can be attained as part of a monthly subscription service—including leased hardware, connectivity, data processing, storage, and visualization. No capital investment, infrastructure improvement, or long-term service agreements are required.

Reducing costs, improving fault detection

The most obvious benefit of real-time energy, water, and gas monitoring is cost savings. Better, faster insight leads to better, faster decision making and action. By seeing what is happening and making adjustments in real-time, building operators can quickly reduce their energy consumption and costs.

After installing an M&V solution, one large facility learned that its heater and chiller were activating at the same time and running all night, essentially competing against one another. Because it was a longstanding issue, there were no spikes in the monthly utility bill and facility management had no idea they had a problem. After adjusting

both the heater and the chiller, the building's overall energy consumption dropped by a staggering 40% over night.

Real-time data also reveals hidden faults and anomalies.

After installing an IoT pulse sensor on his building's water meter, a facility manager was surprised to learn the water was running constantly – even when the building was empty. Because there was no physical evidence of a leak and no abnormalities on the water bill, the manager was completely unaware of the problem, which was due to a hidden leak. The simple and immediate knowledge of continuous water consumption led to a quick fix and significant cost and resource savings.



From energy accounting to measurement and verification

Does the power bill look like it should? This traditional method of energy accounting relies solely on reports that are based on averages.

Reports are history, of course, and averages hide outliers. If there is a longstanding fault, system conflict, or misuse of resources, there's no way to know.

That's why low-cost measurement and verification (M&V) technologies are becoming so popular in commercial and multi-unit residential buildings.

With a focus on real-time insight and control, M&V solutions provide a holistic view of system and building performance. They show cause and effect, helping correlate events and detect anomalies. And they validate ongoing sustainability improvements.

To learn how your building can benefit from the latest M&V solutions, contact Buddy at sales@buddy.com

Increasing sustainability, changing tenant behavior

Many buildings have sustainability mandates. Whether it is to attain LEED certification or create differentiation to attract and retain tenants, building operators are often called upon to demonstrate resource efficiency and validate sustainability improvements.

One of the greatest benefits of IoT-based M&V solutions is the ability to bring the data forward and use it to positively influence the habits of building occupants. After all, monitoring and adjusting systems is relatively easy, but

changing human behavior—especially as it relates to tenants—is much harder.

Simply by presenting the information to those that can immediately take action, showing a live data feed and sustainability score in a building lobby effectively reduces energy consumption by 3-6%.

Real-time performance monitoring stimulates awareness and behavioral changes—both conscious and unconscious. It allows building occupants to be aware of and participate in a building's sustainability improvements. And these opportunities extend beyond electrical, water, and gas consumption.

Additional data sources can be captured—including weather, volume of waste and recycled materials, commuter hours, and building occupancy—to provide a holistic view of a building's performance and sustainability. A baseline carbon emission score can be established, everyone can get involved, have a perceptible impact, and continuous improvement can be showcased.

Summary

Energy and cost reduction opportunities in commercial, multi-unit residential, and other building or campus environments have never been more cost-effective or attainable.

With lightweight IoT sensors that clip directly to existing building systems and cloud-based platforms that handle data processing, storage, and visualization, M&V solutions can be up and running in a matter of days. And because they are delivered as part of a monthly subscription service, capital investments, infrastructure improvements, and service contracts aren't required.

Real-time energy, water, and gas monitoring improves systems management, tenant behavior, and building sustainability—all of which can reduce energy consumption and costs by 25% or more. As a result, ROI is fast and predictable and the impact on profits is clear.

For a personal assessment of your building's potential energy and cost savings, contact Buddy at sales@buddy.com



Level 2, 333 King William Street
Adelaide SA 5000

1418 3rd Avenue Suite 300
Seattle, WA 98101, USA

+1 (206) 745-9077
info@buddy.com