Attaining LEED for existing buildings - Continuous energy oversight services can lead to higher scores for existing and new buildings - Timothy Angerame

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Timothy Angerame, Utilivisor

Real estate developers and building owners in the U.S. recognize the economic value and competitive marketing advantage of green buildings. In addition to 2,301 average annual registrations for its LEED New Construction (NC) rating system, for example, the U.S. Green Building Council (USGBC) receives 917 average annual registrations for its LEED Existing Buildings: Operations and Maintenance (EB O&M) rating system.

In 2016 alone there have been more than 2,600 registrations for the EB O&M rating system and more than 5,200 registrations for projects seeking certification using the NC rating system. While green guidelines, benchmarks, and awards make for great blueprints, even high-performance buildings may perform well below their initial rating without continuous fine-tuning of mechanical systems — especially complex air distribution systems and chiller plants. This is equally if not more true of conventionally designed buildings and systems.

Effective operational monitoring and analysis are critically important to maintaining the holistic efficiency and sustainability of any building over the long term; however, both building management systems and building operators typically lack the full range of capabilities, tools, and time required to perform these functions.

A web-based monitoring service can be an effective tool for the analysis of large air distribution, chiller plants, and district cooling systems. Built on open standards, they offer networked solutions that collect and format data in real time and defined timeframe increments, transmit the data to a remote operations center staffed by energy analysts and engineers, and deliver system oversight via web-based alerts, alarms, and written recommendations. Based on the interaction between the energy analysts and engineers and the facility operations team, building operators and managers can accurately track holistic building system performance and costs, and remedy any malfunction in order to optimize energy efficiency in hours — not weeks or months later.

Boosting a LEED “Existing Buildings” Score

The efficiency gained through a continuous energy oversight service can also contribute to a higher LEED EB O&M score. Fountain Place, designed by Pei Cobb Freed and Partners, an architectural icon in the Dallas skyline, is just one example. The 60-story, 1.3 million s/f office tower was awarded LEED Silver EB O&M certification in 2012 and was re-certified as LEED Gold for the same category in 2013.

The building's LEED features include: Light motion sensors and a thermal chilled water storage system. A 24/7 continuous energy oversight service helped attain the points necessary to achieve the LEED Gold EB O&M certification. Through this continuous energy monitoring and analysis, a number of Energy Conservation Measures were identified and implemented to improve the efficiency of the building and to reduce operational costs. These measures include: Opening all chilled water and condenser water isolation and balancing valves to reduce overall systems head and total pumping energy; lowering secondary chilled water differential pressures and flows; staging of 13 cooling tower cells to use only what was necessary for online chiller condenser water requirements; staging the seven heat exchangers based upon load and flow; identifying the optimum condenser water temperature for the specific chillers; and monitoring the air handler chilled water coils, return chilled water temperature and valve position to identify defective or poor control flow. With a total of two prerequisites and 24 total points available, energy metering and monitoring solutions are critical to the energy and atmosphere portion of the LEED EB O&M certification.

Continuous energy oversight solutions can not only help attain LEED certification, they also can reduce operational costs through increased energy efficiency throughout the life of the building. Solutions can take a building past the LEED baseline and into sustainable daily building operations — and that's real sustainability.

Timothy Angerame is the chief operating officer at UtiliVisor, New York, N.Y.