Real Reasons for Optimizing Building Performance: An Owner’s Perspective

Retrocommissioning at Marriott International Inc. got started in an unusual way. During the 11th National Conference on Building Commissioning (NCBC) in 2003, Marriott’s Rancho Las Palmas Hotel in Palm Springs, California, was not only the conference’s host hotel, but the subject of a retrocommissioning investigation lead by conference participants. Investigation tasks were carried out by teams of conference attendees to identify cost-effective measures that could save energy and improve comfort levels at the hotel.

The results of the Las Palmas exercise were reported out on the final day of the Conference. Altogether, 27 findings were identified, with estimated total energy savings ranging from $52,000 to $90,000. Selected measures were implemented with incentives from the California Public Utility Commission’s Statewide Building Tune-up (BTU) Program.

With about 3,000 lodging properties worldwide, Marriott International looks to energy efficiency as a strategy for achieving significant financial savings across its portfolio. The Las Palmas exercise demonstrated that implementing retrocommissioning could deliver both cost savings for the company and comfort benefits for Marriott guests.

According to E. J. Hilts, Regional Director of Energy for Marriott in the Western US, “We had some really big savings - $150,000 in savings with less than $100,000 invested. The quick payback really opened some eyes that we should be doing retrocommissioning on a large scale in the West.” A follow-on pilot project at the Marriott Los Angeles Airport would further test whether saving energy though retrocommissioning could increase both hotel profitability and guest comfort.

Significant savings on multiple projects have helped retrocommissioning gain approval and buy-in from the
CFO and other executives. Hilts developed a metric that “worked backwards from the income statement to show the savings in terms of flow-through and room-nights” – hospitality terms used to measure profitability. For others considering retrocommissioning, Hilts recommends developing a similar financial metric that translates the potential savings into industry-specific units. This helps build the case for management support.

Hilts points out that retrocommissioning needs to engage employees from all areas of the company. “At the property level, you need buy-in from engineers so they don’t just think it’s a method for finding mistakes. The process has to be viewed as a positive by the engineers” in order to be successful.

The success of early projects piqued the interest of Marriott’s Engineering Team and inspired the development of the Marriott Retrocommissioning (MRC) Program. MRC is just one aspect of the company’s “Green Marriott” program – an initiative to lower greenhouse gas emissions by 2.2 million pounds, or 6.6% per guest room, by 2010. Although Marriott has investigated the use of renewable energy credits, or RECs, to offset its carbon emissions, it is one of many companies that have found that energy efficiency is a more direct – and cost-effective – way to increase sustainability. As Hilts says, “I want to do retrocommissioning before anything else. Why buy RECs before we’ve optimized the building? That’s the argument I’m using now,” and it has brought additional benefits beyond the financial savings.

For example, the program has helped the company be more competitive. Many people don’t know that Marriott is actually a property management group that works with many owner companies to operate its hotels. Hilts explains that, by retrocommissioning its facilities, “We can honestly tell our owners that we’re doing the best we can to optimize our buildings. Retrocommissioning does increase asset value, and it improves Marriott’s competitive advantage.”

The company is so dedicated to optimizing its buildings that it has started a continual commissioning program. This monitoring-based approach to commissioning ensures that problems are identified and addressed as they happen, rather than waiting for a formal retrocommissioning study. Though this requires a big investment, Hilts sees it as “a more prudent use of funds than spending it with a controls company that may only update software once a year.”

One of the best examples of this strategy is the San Diego Marriott Hotel & Marina. This property entered the San Diego Retrocommissioning Program, administered by San Diego Gas & Electric, in 2004. The project was completed in 2006. On a net investment (after incentives) of $195,304, the company earned annual savings of $272,500. (See project spotlight on front.)

However, the work didn’t stop there. The staff used the information garnered from their initial effort to demonstrate the need for reserve chiller capacity in the event of a chiller failure – an expensive failure at a high-end facility like the Marina. The project team used trend data to identify the real-time building load profile and optimize the performance specifications for the new chiller. The new machine significantly improved the part-load efficiency of their chilled water plant to reduce redundancy and increase reliability, all while achieving significant energy savings. While this type of capital investment is typically beyond the scope of a retrocommissioning project, Hilts estimates that this new equipment alone will generate annual savings of $141,262.

The bottom line for Hilts is that “a retrocommissioning study, if done right, will lead to low- and no-cost measures for reducing carbon. It’s a standard I use in all my buildings.”

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