

HOSPITALITY

ENERGY MANAGEMENT SOLUTION PROGRAM

Energy Audits
Retro-commissioning
Benchmarking

Servidyne Enables \$11 Million in Energy Reduction at One of the World's Largest Luxury Hotel Chains

Servidyne has a long and successful history serving the needs of the hospitality market. One of its longest customer relationships is with one of the world's largest and most well-known luxury hotel brands. Once based in Atlanta where the relationship began over 20 years ago, this luxury brand is now headquartered in Chevy Chase, Md. Over the years, Servidyne has enabled a number of energy savings solutions for the chain—keeping the relationship strong and continually revitalizing the hotel chain's commitment to responsible energy management.

The relationship began with a proprietary and unique Computerized Maintenance Management System (CMMS) called iTendant®. Servidyne also implemented benchmarking and utility monitoring projects in the hotel's facilities in 18 different countries throughout Asia, Europe, and North and South America. In its latest achievement on behalf of the luxury brand, Servidyne was asked to organize and implement a three-year Energy Management Solution Program designed to reduce energy consumption through thoughtfully applied engineering services.

The 3-Year Energy Management Challenge

At the hotel brand's corporate level, Servidyne

worked with the executive management committee to develop financial goals and the scope for the Energy Management Solution Program. When the program was ready to be rolled-out at the hotel brand's properties, Servidyne partnered with each property's management team to complete the work. Properties who participated in the program received comprehensive assistance from Servidyne in managing, troubleshooting and, ultimately, reducing their overall energy consumption. Servidyne's focus has always been existing buildings, and so this engagement with a luxury hotelier was ideally suited to its capabilities.

The Energy Management Solution Program was kicked off by establishing an energy reduction goal of three percent per program year, or nine percent of the total usage over the program's 3 year term. Using energy auditing and retro-commissioning tools, each engineer produced an initial snapshot of the property's performance with which to benchmark progress. Then each property received a road map with exact specifications on how to achieve the year-over-year three percent reduction goal.

Using the road map, each property executed the recommended energy reduction activities and Servidyne reported the properties' monthly energy consumption. Values reported were ranked and score-



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cards created to chart the Energy Management Solutions Program's advancement at each property. The scorecards included a year-over-year performance report, an analysis of progress toward the annual three percent goal, and a Servidyne Energy-Check® report.

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Conduct Assessments

- Comprehensive baseline building energy audit (for new hotels)
- Re-visit for continuous commissioning opportunities (existing hotels)
- Identification / analysis of new energy savings opportunities
- Update previous energy initiatives based on current operation and rates
- Sustainability Assessment

Develop Strategic & Annual Operating Plan

- Establish energy goals and objectives
- Provide 10-year capital improvement plan
- ROI documentation for capital expenditure budget
- Heat, light & power (HL&P) annual budget preparation
- Multi-use allocation

Implement Improvements

- Assist with obtaining implementation quotes
- Review and support in developing project scopes
- Evaluation of potential utility rebates

Measure Results

- Continuous energy performance reporting, including energy & water usage trending
- Energy benchmarking and Energy Usage Targets (EnergyCheck)

Maintain Performance

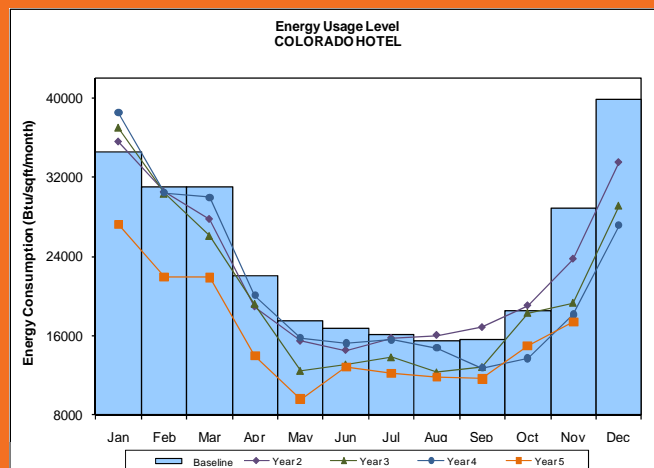
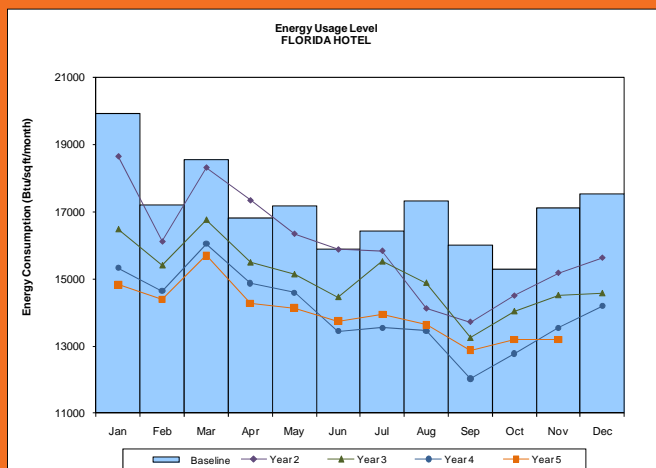
- Regular conference calls to review energy initiatives
- Review monthly EnergyCheck reports and follow up as needed
- Adjust energy baselines & usage due to changes in equipment / operation
- Help desk for HVAC & energy support

Auditing and Retro-Commissioning

The company's energy audits and other services, performed by professional engineers, were technically based evaluations of the energy-using systems and provided financial energy savings opportunities for each of the 32 hotels surveyed. Each property was assigned a dedicated Servidyne engineer who visited the site on a regular basis, performing energy audits and retro-commissioning services among other tasks over the three year program. During this process, specific opportunities to reduce energy consumption were married with financial, operational and capital opportunities.

Servidyne supplemented the knowledge gained from the site visit by studying the historical utility bills and through careful interviews with the facility management team. The interviews provided valuable insight as to the many idiosyncrasies of the property's operations. The audit also took a hard look at operations and maintenance, an area that typically yields half or more of the total energy savings potential, much of it at low or no cost.

The audits analyzed energy data as well as operating sequences and parameters for potential efficiency gains. Each potential energy conservation measure (ECM) was then simulated in computer software to determine that measure's impact on current operations. Those ECMs were enumerated along with estimated project costs in a detailed, item by item manner. Each property then had a final report containing all of the information gathered, distilled and presented in a concise and readable action-oriented format. The energy audits found significant, quantifiable savings for each hotel: over the portfolio the energy savings averaged more than 27,000 Btu per square foot; dollar savings averaged more than a quarter million for each property; and



the payback per ECM averaged less than 3 years.

Implementing the Findings to Achieve Results

While energy audits are the right place to begin to identify and quantify the benefits of an energy management program, no savings occur until a property acts on the information. For example, at one property four areas for improvement were identified and implemented: a retrofit of the existing co-generation system; the installation of a modern energy management system (EMS), which is the network that automatically controls energy conversion and consumption assets and equipment; an upgrade to install more energy efficient motors; and the installation of a variable frequency drive or VFD.

The VFD tells the system's motor to slow down or speed up, depending on the varying need for cooling. Servidyne also engineered the energy management system that put digital controls in place to operate about 30 percent of the HVAC and heating equipment in the hotel, and dramatically increased the efficiency of the co-generation plant. In addition to providing the energy engineering expertise to design and quantify the value of the improvement projects, Servidyne provided the construction management and was responsible for onsite implementation of each project.

Tracking Progress

To track the program's progress, a report card was

needed. The Servidyne EnergyCheck report provided the properties with their raw, unadjusted energy use, and, for the hotel's executive team, a summary of energy use and utility costs for all of the 32 properties. As part of the EnergyCheck service, each property received a benchmark value calculated to give management a better indication of how well that facility performs. The profile takes into account the type of building(s), the existing HVAC systems in operation, operational parameters, occupancy, food covers, and hotel location. The result of this analysis is an energy consumption value that should be regarded as a baseline benchmark and not a goal. A property's Energy Index is then generated by comparing this consumption value against the property's actual energy consumption. Energy Index measurements were used throughout the program to track how well each facility was performing against a baseline benchmark.

As you can see in the charts above, the report is an excellent way to track ongoing progress over time.

Jim Davis, Vice President of Hospitality Solutions at Servidyne explains that really there were two objectives, "We measured how well they were able to close the gap between a baseline value and their new energy consumption, and how close they came to meeting or exceeding the three-percent goal every year. Both measurements help us better understand the range of energy usage and improvement opportunities at each facility. For example, two resorts—one in Florida and one in Denver—are

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going to have different energy consumption needs for heating and cooling. With different operating profiles, it would be unfair to measure them apples-to-oranges. By creating a unique benchmark value for each property it allows us to create a level field across a portfolio.”

Measuring Success

The Program has proven to be successful. More than 400 energy projects were undertaken during the program. The Servidyne program cost was \$2.1 million, and the total energy reduction versus base year was 13.2 percent, which translated into \$11 million in cost savings for the hotel brand.

Because of the successful financial results of the Energy Management Solutions Program, the hotel brand was also able to improve internal perceptions that efficiency doesn't require austerity measures for energy efficiency at its properties. Davis said, “Finance and Operation Divisions now have positive proof that changes can be made without endangering the luxury standards of its hotels, while still saving a significant amount of money every year. The programs also offered the brand a differentiating business model for their hotel ownership groups by providing strong ROI opportunities in a competitive capital market. The brand successfully positioned itself to compete and obtain capital dollars from its owners by providing a strong strategic approach to its energy opportunities. The paradigm shifted from regarding the use of energy costs as a required expense to looking at energy as a strategic investment. This approach represents a great opportunity for any large real estate organization.”



About Servidyne

Established in 1925, Servidyne, Inc. is headquartered in Atlanta, Georgia, and operates globally through its wholly-owned subsidiaries. The Company provides comprehensive energy efficiency and demand response solutions, sustainability programs, and other products and services that significantly enhance the operating and financial performance of existing buildings. Servidyne enables customers to cut energy consumption and realize immediate cost savings across their portfolios, while reducing greenhouse gas emissions and improving the comfort and satisfaction of their buildings' occupants. The Company serves a broad range of markets in the United States and internationally, including owners and operators of corporate, commercial office, hospitality, gaming, retail, light industrial, distribution, healthcare, government, multi-family and education facilities, as well as energy services companies and public and investor-owned utilities.