

Pacific Palms Resort

City of Industry, California

December 2014

Upgrades to equipment and controls result in first-year savings of more than \$545,000, rebates totaling \$500,000.

Challenge

Much of the HVAC equipment serving the Pacific Palms Resort's thirty-five year old convention center was original to the facility. The antiquated HVAC and pneumatic controls had become extremely inefficient, resulting in high energy usage and comfort issues throughout the building. The resort sought to implement upgrades to reduce energy and operational costs and to take advantage of rebates from local utility companies, as well as to better align with its energy sustainability program and the requirements of groups holding events at the resort.

Solution

Pacific Palms Resort partnered with Trane to conduct a complete evaluation of the resort. Equipped with the broad portfolio of Trane Intelligent Services energy solutions, the team started with a Trane Energy Assessment, including an in-depth Energy Optics analysis of more than 200 points of data to identify, validate and prioritize energy conservation measures (ECMs). Energy Optics provides a low-cost, rapid method of analyzing building performance using "smart" meters and weather data to focus on energy use patterns and behaviors. Pacific Palms Resort moved forward with upgrades that encompassed equipment, controls, energy management, lighting and services.

Increasing efficiency and reliability

A 500-ton CenTraVac[®] centrifugal chiller, equipped with a variable speed drive to lower energy use, replaced one of the



Located on a glorious hilltop near the San Gabriel Valley Mountains, the 650-acre Pacific Palms Resort caters to both business and leisure travelers, with 292 guest rooms and two championship golf courses.

resort's 320-ton chillers. The most reliable and quiet chiller in the industry, CenTraVac ensures a comfortable environment for resort guests. With high efficiency and low emissions, the chiller is an effective solution to answer the resort's energy saving and sustainability goals. Chiller plant operations are further optimized with new chilled water and condenser water pumps with variable speed drives, and chiller sequencing strategies. The resort's old steam boilers and leaking heat exchangers were also removed and replaced with four new modular, hot water boilers to increase efficiency.

Reducing costs through operational efficiencies

A thermal energy storage system shifts demand out of peak periods of the day. A Trane screw chiller operates at night, when energy is less expensive, to charge sixteen CALMAC IceBank® energy storage tanks installed outside the central plant. The tanks discharge during the day to provide cooling in parallel with the centrifugal chiller, helping to keep chiller use to a minimum.

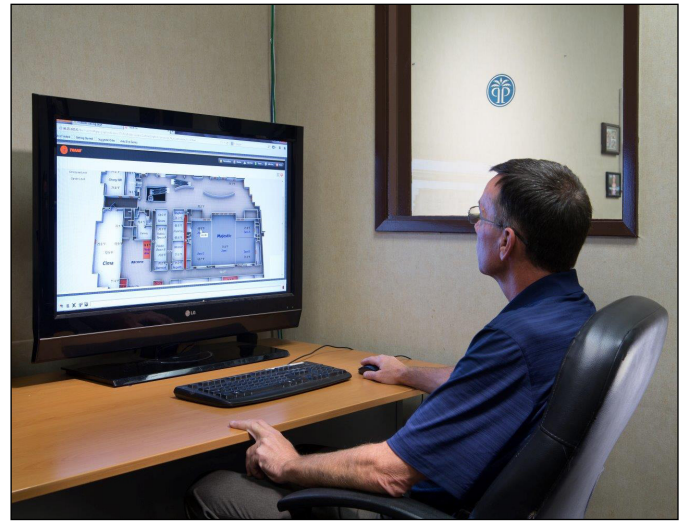
Economizer dampers on the air handlers maximize use of outside air during mild conditions. During peak cooling times, the dampers are closed to the minimum set point. Trane® Tracer® unit controllers are programmed to adjust air flow and temperature, helping to improve the indoor environment, reduce energy use and streamline operations.

Trane Energy Performance provides a dashboard to review key data points, facilitate analysis, and help Pacific Palms Resort develop energy strategies to control costs. Additionally, Trane Building Performance is used to monitor the systems to achieve targeted energy savings.

Using mobile and wireless technologies

A Trane® Tracer® SC building automation system (BAS) ensures all equipment is optimized for maximum savings. Building operators can access their BAS, from any PC on the web or mobile device, to monitor equipment, make set point changes and manage alarms.

Trane Air-Fi® eliminates the need for communication wires between the system controller, unit controllers and zone sensors, making installation easier. Air-Fi has a self-repairing, redundant mesh technology that maintains communication, rerouting signals around obstructions.



Using Tracer SC and Energy Performance, Pacific Palms Resort is able to efficiently manage system operations and effectively control energy costs.

Results

Pacific Palms Resort worked with Trane to initiate equipment and controls upgrades to ensure comfort, reduce energy use and lower operational costs. First-year energy savings was nearly \$342,900, with operational savings nearly \$203,000. Utility company rebates totaled approximately \$500,000. “The relationship we have with Trane is very important,” said Hee-Won Lim, Pacific Palms Resort, vice president and general manager. “It is not just a company who tries to sell us its systems. It is more a collaborative effort.”

“Only Trane offers the whole package,” said Mike Toth, Pacific Palms Resort, director of engineering. “I now have optimal comfort for guests at maximum energy efficiency for me, and my bills are going down.”

Lim added, “When I have a happy bottom line ... happy employees ... happy owners. What more can I ask for?”

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