UC Irvine Earns $2.2 Million in Energy-Saving Incentives in Six Months

The University of California, Irvine (UCI), founded in 1965, is one of the 10 general campuses of the University of California. A major research university that is home to three Nobel Prize-winning researchers, UCI serves nearly 28,000 students, 1,100 faculty members and 9,000 staff. The university is also noted for its graduate and undergraduate programs and a growing number of professional schools, including new public health, pharmaceutical sciences and nursing science programs, as well as a new School of Law that welcomed its first students in fall 2009.

Client Objectives
UCI is committed to implementing climate action plans as a leading member of the American College & University Presidents Climate Commitment effort. In addition to its long-term goals for creating an energy-efficient campus, UCI is able to earn rebates by reducing energy use through a unique incentive program the State of California has with several investor-owned utility companies. The university developed a 2009 Strategic Energy Plan (SEP) to meet its energy efficiency goals for the rebate program as well as its overall climate action plan. UCI sought a partner to complete the SEP by the end of December 2009, the deadline for completing work eligible for the rebate. Originally slated to begin in January, the project was not kicked off until June 2009. To earn the rebates, however, paperwork detailing the improvement measures and savings had to be reported early in the process and all the work had to be completed by December 31.

Siemens Solutions
The RFP was based on an audit conducted by another company, including due diligence, measurements, project scopes and projected savings. The university was looking for a partner that could guarantee the proposed savings and still meet the deadline for the rebates. The RFP covered 4.4 million square feet. It called for savings of $1.23 million per year, a reduction of 10,420,599 kWh per year, and a reduction of 174,275 therms per year in order to earn incentives of more than $2 million from the investor-owned utilities.

The UCI team turned to Siemens for a new method to get the projects done in such a short timeframe without the need to add university staff. The Siemens team took an innovative approach, proposing a design/build process that allowed maximum flexibility to meet the tight schedule. In addition, the December 31 deadline required extra diligence in the proposal process to identify and implement measures that would meet or exceed UCI’s targets.

The project included 50 buildings, many of which have sensitive research labs and vivariums that need to be operational 24/7. Due to the major research programs underway across the UCI campus, electrical breaks for construction are not possible. To meet the needs of the research environment and the firm incentive program deadline of December 31, Siemens developed a multi-track project that was managed to strict construction dates.
Given the six-month timeframe for completion of the project, Siemens worked closely with UCI energy and utilities project manager Matt Gudorf and his team to make sure the deadlines were met. Each week, Siemens met with the project managers on Monday and the construction team on Tuesday to keep the multi-track process on schedule. The solution included:

- Retrofit of all existing fluorescent lamp and ballast from 32W T-8 to more efficient fourth generation 25W T-8 lamps and electronic ballasts
- Retrofit of high-bay metal halide to T-5 fluorescent lighting
- Replacement of parking garage metal halide fixtures with bi-level induction fixtures
- Installation of motion sensors
- Zone DDC upgrades
- Control systems optimization
- Lab exhaust stack discharge velocity reduction
- Reduced air changes in vivariums
- Installation of variable frequency drives for hot water pumps
- Retrofit of constant air volume air handling units to variable air volume

**Client Results**

Despite the short timeframe, UC Irvine surpassed its targeted savings of $1,230,097 per year, achieving actual savings of $1,244,079 per year. “We accomplished a project that should have taken 18 months in 6 months. I don’t know if anyone else has done that,” said Paul Howland, executive director of maintenance & operations for UCI. The “flexibility of the design/building project” was essential to UCI’s success and “the team really shined,” Howland added.

**UCI results included:**

- Projected savings of
  - $1,230,097 per year
  - 10,420,599 kWh per year
  - 174,257 therms per year
- Greenhouse gas reduction of
  - 773,530 pounds of carbon dioxide per year

- Actual savings of
  - $1,244,079 per year
  - 10,463,992 kWh per year
  - 204,314 therms per year
- Total incentives of
  - $2,187,358