

Retro-Commissioning Project Yields 88% Energy Savings For City Of Santa Ana

PROJECT OVERVIEW

The challenging project required lighting industry expertise from SBT Alliance to ensure maximized energy savings and employee comfort while retrofitting antiquated and sometimes inoperable fixtures and controls.

When the City of Santa Ana, Calif. took a close look at its energy consumption, city leaders realized they could be doing better. While upgrading its Daintree advanced lighting system's capabilities to work with an intelligent shade they were installing, they discovered so much more could be done to save energy and tax-payer funds. In fact, energy and control system audits performed by SBT Alliance uncovered a potential 88 percent reduction in energy from lighting and a possible decrease of more than 55,000kWh annually from its HVAC systems.

City administrators were thrilled at the potential savings but had some legitimate concerns about how this retro-commissioning project would come to fruition, given the condition of the current controls and fixture designs. This municipal project also presented additional challenges that only an experienced lighting-systems and IoT expert, like SBT Alliance and its industry partners, could overcome.

MANY CHALLENGES

Not only could most of the building's original fixtures not be removed or modified, but there were more than half a dozen different fixture types or retrofit solutions developed for the various building floors and locations. In addition, the multiple locations housed numerous sensitive areas that could not be disrupted as required by typical construction activities.

But something had to be done. SBT Alliance's comprehensive control system audit revealed that half of the wireless area controllers, which provide a communication link to the cloud for the networked lighting system, were offline. That caused those fixtures to be on 24/7 at 100 percent brightness. The control system audit also showed that about 150 wireless sensors throughout the buildings had been inoperable for well over a year, which led to areas being lit 24/7 that were only intended to be lit when occupied. SBT Alliance would be able to generate at least a 90 percent reduction in kWh used by installing new LED lighting technologies, task tuning the new LEDs to 15W-20W output, adding occupancy sensors in all private offices, and using daylight harvesting with shade control. Those possibilities completely justified a fresh look at the potential project from the city's perspective.

"We worked with more than ten different components and products suppliers from five different countries. Our businesses, Integrated Advanced Controls, and Direct Discount Lighting, always work one step ahead of the installation team, ensuring timely delivery of the solutions in the correct sequence, and high-quality custom solutions."

Benjamin Buchanan, SBT Alliance CEO

A COST-EFFECTIVE CUSTOM SOLUTION

Creative project engineering was required to achieve and exceed the city's requirements. SBT Alliance partnered with its industry partner, consulting firm TRC Solutions, to work the full lighting project into the grant budget awarded by the California Energy Commission, thanks to a very cost-effective design.

"These are the types of challenges that not only are we accustomed to, but that we love to take on," says SBT Alliance Vice President of Marketing Kevin Martin. "Being able to put our expertise to use to create such significant energy savings is not only exciting for us, but it's also beneficial to our customers, the people who work in the buildings, the environment, and in this case, the tax-payers of Santa Ana."

The city buildings had extremely old and worn fixtures that were difficult to retrofit due to their design—and, there were also three times as many of them as necessary. The city's existing Daintree system could be leveraged – once recommissioned – to control the retrofitted fixtures, minimizing the control material impact. SBT Alliance connected with its industry partners to design a state-of-the-art beaded acrylic lens solution with 90% transmittance but strong lamp-shielding characteristics.

The finished product would look like a new state-of-the-art LED recessed fixture grid, glowing in even white, with sensors mounted to the fixture. Justifying this approach was the final wattage, which was down about 20W in offices and hallways, while simultaneously increasing light levels by 30-50 percent in all areas.

"One of the SBT Alliance advantages is our relationships with partners worldwide," says SBT Alliance CEO, Benjamin Buchanan. "We worked with more than ten different components and products suppliers from five different countries. Our businesses, Integrated Advanced Controls, and Direct Discount Lighting, always work one step ahead of the installation team, ensuring timely delivery of the solutions in the correct sequence, and high-quality custom solutions."

City leaders no longer have to worry about their energy efficiency creeping back down thanks to SBT Alliance's ongoing system support offering, which ensures the system remains optimized, fully functional and up to date, with no extra effort required from the city.



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Kevin Martin, SBT Alliance Vice President of Marketing

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