The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
2012

STATUS:
Laureate

Organization:
Western Kentucky University

Organization URL:
www.wku.edu

Project Name:
WKYU PBS LED Studio Lighting Project

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

This project was designed to reduce the university's carbon footprint; to utilize modern, green technologies; to reduce operational costs; to increase operational safety; and to provide learning opportunities for our students. The metric used to measure the project's success was reduction in electrical consumption, as measured in kilowatts per hour.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

Western Kentucky University is home to the university's public television station, WKYU PBS. An extremely innovative opportunity presented itself with the lighting system in our television production studio, Studio One. The lighting system provides the required lighting to produce television programs in the studio environment. This consists of the lighting control technology, the electrical system, or "grid," and the lighting instruments themselves. The existing lighting system in Studio One was original equipment that was purchased and installed when the studio was built in 1969. The lighting system had an estimated life span of 25 years, meaning it would have been a candidate for replacement in 1994. Rather than replace the existing lighting system with traditional technology solutions, we investigated and pioneered the use of LED lighting and iPad control systems. We engaged our business partners very early in this process to help us identify

how this cutting-edge technology could be deployed. We had to, in several cases, test prototype models of technology that were not available on the open market. Our technical challenges derived from the fact we were literally breaking ground with this new technology and there were no models for guidance. The new LED lighting system has yielded a 97% reduction in our electricity consumption; additionally, LED bulbs last for 30-35 years, compared to the old bulbs, which lasted about 18 months. The new system is much more flexible/adaptable, allowing for not only a much more environmentally friendly lighting system, but also much more ease of control. The lights can be individually controlled for intensity and color with a simple tap on the screen of an iPad. This was the first totally LED studio at any public television station in the world.

Please list the specific humanitarian benefits the project has yielded so far.

This project has yielded a number of humanitarian benefits, including: 1) 97% reduction in lighting energy consumption, from 62,860 KWH to 1,826 KWH. 2) Since the LED lights produce very little heat, studio cooling requirements have been reduced by 75%, further reducing our energy consumption. 3) This system is much safer to operate and maintain. LED lights are low-voltage, which greatly reduces the chance of accidental electrocution. Also, burns resulting from bulb explosions or direct contact are eliminated, since there are no more bulbs. Additionally, these instruments weigh considerably less than their original counterparts. Potential injuries from moving lights or falling lights are greatly reduced. Finally, because the patching and dimming is controlled via our network, there is no more contact with high-voltage wires to create potential arcs or electrocution hazards. 4) Our LED lights contain no mercury. 5) Students learning about the industry are being taught about how to use these environmentally friendly lights. Their education will result in broader industry acceptance and will eventually help to phase out inefficient lighting.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

This project has greatly benefited Western Kentucky University. The immediate benefits include: utilization of green technology; cost savings; energy savings; lower raw material usage; and lower maintenance costs. David Brinkley, Senior Producer/Director for WKYU PBS, commented: "We are leading the charge for energy efficiency in television production. Our studio is the only one of its kind at any university campus in the world. It serves as a model for the future generation of media professionals who are educated here. Students at WKU now have the opportunity to use and study lights that were prototypes just a few months ago. WKYU PBS is on the cutting edge of this emerging technology, and we plan to showcase this studio model to all facets of the television industry." WKYU's LED studio has been recognized by the WKU Campus community and added to the sustainability tour. We also received a 2011 Emmy award in Technical Achievement from the NATAS Ohio Valley Chapter. And the National Educational Telecommunications Association honored WKYU with the Enterprise and Innovation Award for 2011. According to NETA: "WKYU PBS and Western Kentucky University embody the reason for the award. Faced with an all too familiar problems these days of a tight budget, and conscious of long-term capital expenditure needs, theirs is an innovation based on necessity. The judges were deeply impressed with WKYU's willingness to rethink, adapt, and problem solve to provide a state-of-the-art solution."