

# Plant Services

Reprint from the September 2008 Issue

## Energy Costs Cut in South Carolina

**Eneref Institute examines a lighting retrofit in a West Marine distributing center in Watsonville, CA, enabling the company to not only reduce their energy bills by half but do so with fewer lamps.**

Since its inception in 1977, West Marine ([www.westmarine.com](http://www.westmarine.com)) of Watsonville, Calif., has become one of America's top retail and wholesale recreational boating products suppliers. When the metal halide lamps in its 476,000-sq.-ft. South Carolina distribution center reached the end of their useful life, the company sought a more energy-efficient lighting system.

Pat Murphy, vice president of logistics for West Marine, compared several options and determined that a system from Westinghouse Lighting Solutions ([www.westinghouse-ls.com](http://www.westinghouse-ls.com)) best met West Marine's specifications. The Westinghouse system uses a reflective aluminum technology called Miro, which reflects nearly all the light the fixture generates.

"When we looked at the application, the Miro reflectors made the most sense for us," Murphy says. West Marine also installed motion sensors to reduce power consumption in areas of limited work activity. According to Murphy, the system "reduced the monthly bill by about half. It's been consistent and worth a lot."

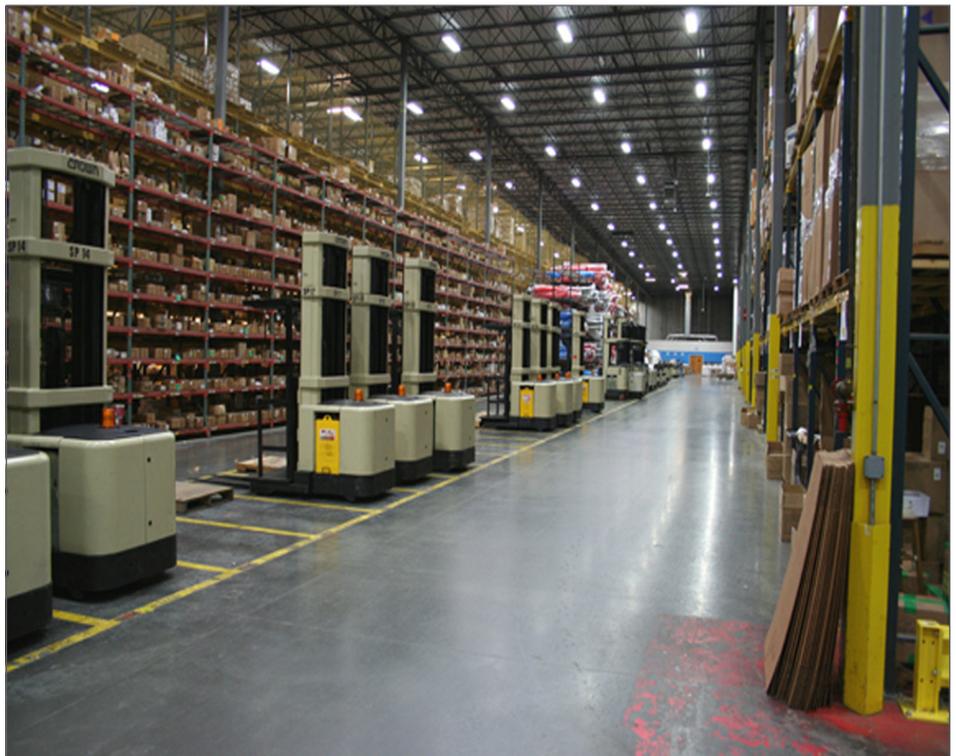
The new fixtures are more efficient

than those made with traditional anodized aluminum reflectors. "In fluorescent lighting, the right reflective material can improve the energy savings by as much as 25%," says Matthias Weigert, director of lighting technologies for Alanod Aluminum ([www.alanod.com](http://www.alanod.com)), the German company that manufactures Miro.

"By customizing the reflectors for West Marine's specific application and by leveraging the specular properties of the Miro material, we developed a system that will save West Marine \$1.5 million in energy costs during the next 10 years," says Jay Goodman, managing director, Westinghouse Lighting Solutions.

Specialized optic design has become a popular method for lighting designers to improve energy efficiency. Until Miro was introduced several years ago, anodized aluminum and white-painted aluminum were the most common reflector materials.

"Specularity makes Miro unique among reflective materials," Weigert



Specularity is key to achieving efficiencies as high as 95%.

says. Specularity is a material's ability to direct light exactly where the lighting designer points it. Older reflectors diffuse light, wasting it on walls and the ceiling where it's not needed. Especially for industrial facilities, lighting designers now look for materials that are nearly 100% reflective and highly specular to bounce light in the most efficient way possible.

Facilities that improve lighting efficiency are eligible for substantial tax rebates. According to the Eneref Group, using the right combination of lamp, reflector, optics and ballast can achieve 75% energy savings compared to older T12 or metal halide systems, making buildings eligible for the full Energy Policy Act of 2005 (EPA) tax credit.

The sum of these improvements allowed West Marine to realize a payback on its lighting investment in about one year. That translates to an annual energy savings of more than \$150,000. "It's a very nice contribution at the bottom

line of the company," Murphy says. "Everybody loves it."

The lighting system also conserves materials, using 4,000 fewer lamps than other systems Murphy reviewed. "The new Westinghouse improvement is a good business situation in that it is only enhanced by the fact that it's got great environmental payback associated with it," he adds.

The fluorescent lamps are compliant with Toxicity Characteristic Leaching Procedure (TCLP) requirements for classification as low-mercury. TCLP is an Environmental Protection Agency (EPA) test to determine whether a solid waste substance is hazardous for the purposes of disposal. If the concentration of toxic chemicals doesn't exceed maximum regulatory levels, the waste product is classified as TCLP-compliant.

The lighting system yields the equivalent of a 23% compounded annual

rate of return, and if energy costs go up as many expect them to, so will the savings. Further, any increase in West Marine's use of the facility also will raise the return. Murphy says, "If you use more kilowatt hours, it just gets more valuable." ●



This article is an excerpt of the future Eneref report which assesses the impediments to building zero-energy urban communities in the US. A companion film documentary, The Eneref Project, will seek to demonstrate to key decision-makers how zero-energy communities can be commercially viable.