

# current



The variety of warehouse spaces at the Dole Fresh Vegetables facility in Marina, Calif., now enjoy improved lumen output, greater energy efficiency, and reduced maintenance.

IMAGE COURTESY OF CRESCENT ELECTRIC/DOLE

## Dole facility gets a fresh start

*Crescent Electric Supply taps a broad range of LED solutions to overhaul the lighting system at Dole Food warehouse.* **by Susan Bloom**

**Dole Food is the world's largest** producer and marketer of fresh fruit and vegetables, from bananas and pineapples to bagged salads, canned and frozen items, dried fruits, and squeezable fruit snacks. Among the 160-plus-year-old company's corporate philosophies is a dedication to the safety of its workers, its communities, and the environment—so it came as no surprise when Dole recently undertook an extensive lighting upgrade within California-based subsidiary Dole Fresh Vegetables to improve lighting quality, reduce energy consumption and costs, and enhance employee safety and security.

The upgrade targeted both interior and exterior areas of the Dole Fresh Vegetables facility in Marina, Calif., a 180,000-square-foot cold storage warehouse critical to preserving the freshness and quality of the more than 20 different types of fresh vegetables that Dole har-

vests, distributes, and brings to market.

The facility's outdated metal halide, high-pressure sodium, mercury vapor, and fluorescent lighting systems were resulting in excessive annual electricity usage of more than 13 million kWh at a cost of more than \$1.8 million.

"I was convinced that we could dramatically reduce lighting-related energy costs in a way that improved lighting quality, was good for the environment, and generated significant bottom-line savings for Dole," said Robbie Misner, cooler facilities manager.

Working with the California High Performance Lighting Program (CHPLP), Crescent Electric Supply, headquartered in East Dubuque, Ill., helped identify, source, and install a broad range of energy-efficient lamps, ballasts, and fixtures to maximize lighting quality and functionality at the facility while significantly reducing energy consumption and costs.

"Dole's Marina facility had a number of different functional areas, including warehouse, cold storage, parking lot, and office spaces, each of which required a specialized lighting solution," explained John Dorfi, Crescent's San Marcos, California-based energy solutions manager. Dorfi oversaw Dole's upgrade along with Damion Remsberg, an account manager for Crescent. Among the solutions tapped were a broad range of LEDs from Digital Lumens ([digitallumens.com](http://digitallumens.com)).

"In cold storage, maintenance areas, and outdoor applications where old, high-wattage 1,000W and 400W metal halide fixtures operated like miniature heaters, suffered from lumen depreciation, and created excessive maintenance concerns, we were able to use high-lumen LED solutions that consume at least 70% less energy and last 25,000 to 50,000 hours," Remsberg noted—a benefit to this busy facility, which operates around the clock for most of the year.

"Using Digital Lumens's intelligent technology, we were also able to utilize daylight harvesting, commission specific lighting levels in each aisle from shipping to receiving, and program in timeouts so that fixtures would only be on when occupants were present," he continued. "These are all strategies that boosted the 70% energy savings to as much as 95% at times."

Experts in the broad range of high-efficiency lighting technologies available in today's marketplace, Dorfi and Remsberg recommended a variety of other solutions for specific spaces in and around the Dole facility.

"We replaced outdated 400W metal halide cobrahead fixtures located above bay doors where trucks dock with 200W induction lighting technology from Envirotech to reduce energy by 50%," explained Dorfi. "We also upgraded older 2x4 and 2x2 T8 fluorescent troffers in the warehouse, offices, restrooms, and the truckers' lounge area and over the conveyor belts with new-generation T8 and T5 fluorescent technology from Lithonia Lighting [[lithonia.com](http://lithonia.com)] to reduce energy by 25% to 70%.

"Old T8 pole lights in parking lot applications were upgraded using Cooper Quad Cast LED fixtures to reduce energy by 50%," he continued. "We converted old 1500W, probe-start, stadium-type fixtures over washing stations outside of the main warehouse to new, 1,000W pulse-start technology to provide brighter lighting and attractive energy savings."

#### FIRST-RATE RESULTS

With product and labor costs for the comprehensive lighting upgrade totaling \$375,000, Crescent Electric assisted Dole in securing a roughly \$130,000 rebate from utility PG&E. Combined with over \$170,000 in annual energy cost savings generated by the upgrade, Dole enjoyed a payback period on its investment of less than 18 months.

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From an environmental perspective, the facility's upgrade is estimated to deliver reductions in CO<sub>2</sub> emissions of 714,280 lbs. annually, which is the equivalent of the removal of 64 cars from U.S. roads each year. And the higher quality and visibility of the lighting, combined with its ease of maintenance, have provided welcome benefits to employees and helped support Dole's corporate commitment to sustainability and operational excellence.

Following completion of the upgrade (with help from Temecula, California-based installer Energy Retrofit), "The lighting looks crisper and the color rendering is much more uniform and appealing," Remsberg confirmed. "Because the ceilings are as high as 53' in some spots, lamp maintenance was difficult, but now facility managers can manage the lighting remotely from

ground level and never have to touch a lighting fixture to change settings, which has given Dole managers much more control over this critical system."

Of the variety of energy-efficient solutions used in the upgrade, Dorfi and Remsberg were particularly impressed with the LED technology available.

"Their intelligence and control/programming capabilities enabled us to meet every challenge we faced and truly optimize energy savings and safety within the Dole facility. Based on their current lumen-per-watt performance and declining price points, LEDs deliver a highly attractive package of benefits and make economic and technological sense to consider," Dorfi said. "At Crescent Electric, we are committed to educating our customers and exposing them to exciting new energy-efficient technologies, and now is a

great time to get in on the LED market."

Misner and his employees are equally thrilled with the results of their beneficial upgrade. "By providing us with a remarkable level of flexibility and control over how lighting is used within our facility, our upgrade has completely changed how we think about lighting," Misner explained. "In hindsight, I'm amazed at how quickly we transitioned from always-on lighting to a highly efficient on-demand model where lighting is delivered only when needed to facilitate warehousing operations. The difference—in light quality, energy savings, and maintenance costs—is an improvement I never would have thought possible." ■

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## LED Update

### CA to base LED lamp rebate programs on quality specification

In 2012, the California Energy Commission (CEC) published the *Quality LED Lamp Specification*—a voluntary quality specification for LED replacement lamps intended to replace screwbase incandescent lamps in light fixtures. This includes certain omnidirectional and directional (spot and flood) lamps but excludes colored lamps, light strips and rope lights, linear pin-based lamps, and integrated light fixtures.

The rationale for the specification is very similar to that of Energy Star, which is based on lessons learned in the slow and inhibited market adoption of CFLs in the residential market. CFLs taught policy makers that just because a lamp produces sufficient light output, is cost effective, and is heavily promoted does not guarantee success with consumers. The CEC determined that consumers remain unhappy with CFLs largely due to poor color quality, limited dimming offerings, and unpredictable lamp life.

Research conducted by the California Lighting Technology Center (CLTC) also informed the CEC that current Energy Star criteria may not be ideally oriented to maximizing consumer acceptance. Although the specification is designed to work alongside similar Energy Star criteria and manufacturers can use the same test procedures to satisfy both, the California specification poses more stringent requirements in six areas: color temperature, color consistency, color rendering, dimmability, rated life/warranty, and light distribution.

For example, the *Quality LED Lamp Specification* requires

color temperature in either a warm 2700K or 3000K, while Energy Star allows color temperature up to a very cool 5000K. All replacement lamps must have a 90-plus CRI rating with an R9 (saturated reds) rating of more than 50. There is no efficacy requirement, enabling 90-plus CRI lamps to be offered at a lower cost. All lamps must be capable of continuous dimming, without flicker or noise, from 10% to 100% of full light output. Satisfying these and the other requirements, the CEC believes, will increase adoption among consumers, based on the CLTC's research.

The requirements have also been mandated as a threshold for residential product rebate programs. On Nov. 8, 2012, the California Public Utilities Commission issued decision 12-11-015, which requires utilities in the state to rebate only LED lamps that are compliant with the *Quality LED Lamp Specification*. A transition period of up to one year, during which noncompliant lamps could still be rebated, was allowed to give manufacturers time to make any necessary improvements to their products. This transition period was allowed based on the belief that while most products on the market today are very close to satisfying the specification, few actually do. At the latest, the new specification will begin impacting rebate programs in early 2014. ■

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