



Warehouse cuts energy use in half with Keystone

Money-saving incentives spur upgrade to LED fixtures with controls

The Challenge:

McDonald Associates, an independent lighting industry rep serving Chicagoland and northern Indiana, has been in business since 1986. In 2019, the firm opened a 39,000-square-foot warehouse in Elk Grove Village, Illinois.

The warehouse met all its needs, but had one major issue: high energy costs.

"Our energy bills were so high—\$1,000 a month," said Patrick McDonald, Principal and Outside Sales Representative for the company. "A big reason was the lighting in our warehouse. We knew it needed to be upgraded."

Working with GreenBee Energy Efficiency, an energy consultant based in the nearby Chicago suburb of Lisle, McDonald determined that it could cut energy usage in half—from about 88,800 kWh/year to 45,500 kWh/year—while qualifying for almost \$30,000 in incentives, making the bottom-line cost of the upgrade less than \$2,000. At an estimated annual cost savings of about \$3,500, the project would pay for itself in just six months, while continuing to save money for years to come.

Keystone is one of the lighting firms on McDonald's line card. But, said Patrick McDonald, using the company's fixtures and controls was a logical choice, having experienced the benefits of Keystone products.

"I've used Keystone products with jobs I've worked on, and I've always received great feedback from customers and end users," he said.

PRODUCTS USED:

High Bays with SmartLoop Sensor

KT-HBLED155-2F-850-VDIM-P-G2

KTSL-FC3-12V-PKO-PIR



The Solution:

The first step in upgrading was an assessment report from Commonwealth Edison (ComEd), the local electric utility. GreenBee had to determine how many fixtures would be required to replace the 178 six-lamp T8 fluorescent high bay fixtures to provide an equivalent amount of light. The energy consultant was familiar with many Keystone products, but Brad Esposito, GreenBee's president, said the firm found Keystone helpful in the planning as well. "We asked Keystone for a photometric study to determine what type of light levels we can achieve, targeting a specific amount of foot-candles and how many fixtures we needed to fulfill that target," said Esposito. "They came up with a plan that would reduce the number of fixtures from 178 down to about 60—a significant drop in fixtures."

"There's no additional wiring. Once the Bluetooth locks in, you're pretty much ready to run from there," Esposito said. "It really doesn't get any easier than that."

The six-lamp fixtures were replaced by Keystone 155W LED high bays, a fixture that offers an equivalent light output with the higher efficiency and reduced maintenance needs of LED.

Reducing the number of fixtures increased the incentives from ComEd, Esposito said. Adding controls, which can further limit wattage by turning lights off when they're not needed, offered even more incentives.

"Not only were we reducing wattage, but by reducing fixture amounts we were able to capture utility wattage reduction incentives," he explained. "Then, because the fixtures were rated at 155 watts, there was an added incentive to the client to add wattage control, so we picked up another massive amount of utility incentive dollars to incorporate those. When all was said and done, it was a huge savings to the client."

McDonald used Keystone SmartLoop wireless control to network the lighting. The previous arrangement used simple sensors; SmartLoop adds the ease of Bluetooth and the ability to commission and adjust via the SmartLoop app on a smartphone.



The warehouse replaced 178 six-lamp T8 fluorescent high bay fixtures with fewer than 60 Keystone 155W LED high bays, saving energy and providing more efficient lighting.

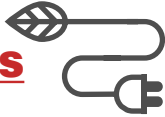
"If you had an issue with the old sensors you had to get a forklift to change it," said McDonald. "Now it's all Bluetooth connected, so I can control the warehouse all from my phone right now if I wanted to."

Installation of the new fixtures was easy, and given McDonald's expertise with Keystone, GreenBee allowed the rep agency to take the lead on commissioning and programming. But Esposito has used SmartLoop with other projects, and praises the system's simplicity.

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The Result:

Energy Savings



The warehouse practically **cut its energy usage in half.** The old lighting used 88,784 kWh annually. After the upgrade, **that number went down to 45,501 kWh.**

Financial Benefit



Thanks to **energy-saving** fixtures and use of sensing, McDonald qualified for almost **\$30,000** in incentives and bonuses. **Final project cost: just \$1,779.90.**

Environmental Impact



ComEd estimates that the project resulted in an **annual reduction of 21 metric tons of CO₂**, the equivalent of taking 5 cars off the road.

McDonald gives the process high marks.

"It was no problem in getting everything wired up. There were no issues. It was very, very smooth," he said.

Esposito notes that, between LED fixture efficiency and SmartLoop control, the upgraded system provides a range of long-term benefits to McDonald.

"It was a massive savings to the client," he said. "They now have full control over how the fixtures operate, from zoning to high-end trimming to motion sensing. Add in the rebates and incentives, and it's a big win."

He admires the simplicity of SmartLoop and the reliability of Keystone products.

"That's definitely a plus versus some of traditional lighting controls that we've worked with in the past," he said. "We've worked with a lot of different manufacturers. And Keystone has been rock solid."

By using the benefits of Keystone reliability and efficiency, the result of the lighting upgrade was exactly what he had in mind.

"We wanted to use this as a showcase," said McDonald. "It's a successful way of showing what Keystone can do."