

# FREEWAVE TECHNOLOGIES

CASE STUDY  
COLORADO

## SMART TECHNOLOGY AND ENERGY SAVINGS THROUGH NETWORKED LIGHTING CONTROLS AND ENERGY SERVICES PLATFORM



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Kirk Byles,  
CEO of FreeWave

The primary reason most companies implement energy-saving measures is to lower their energy bills. But in the competitive world of information technology, there can be additional benefits such as employee satisfaction, comfort, and retention.

FreeWave Technologies, located in Boulder, Colorado, wanted to upgrade their lighting. They knew their old technology was inefficient, and they knew they could find a way to use less energy, lower their bills, and have a friendlier environmental impact. With companies like Google as a competitor, they’re always looking for ways to attract and retain talent.

They worked with ConnectIT Service, their Denver-based Energy Services Partner, to find a solution that could be accomplished with help from rebates through Xcel Energy’s Small Business Lighting program. But the project goals went beyond kilowatt hours – lighting and controls became a platform that could help deliver business solutions. The implementation exceeded their expectations.

### Cubes, windows and warehouse space

FreeWave’s IIoT Connectivity and EDGE Solutions have solved thousands of customers’ problems in government/defense, energy, agriculture, and municipalities – achieve reliable connectivity for data telemetry and command and control in some of the most challenging, remote and rugged environments in the world.

FreeWave headquarters occupies roughly 45,000 square feet of a 50,000 square foot building. The main single-story section houses the lobby, meeting rooms, cafeteria and manufacturing areas. Two-story sections on either end of the building consist of office spaces in the form of glass cubes.

The lighting throughout the building was a problem.

“The old fluorescent lights had begun to flicker and some of the old lighting was too bright for the offices,” explains Kirk Byles, CEO of FreeWave. “People had taken bulbs out and brought in desk or floor lamps for lighting that wasn’t as harsh. It was simply time to retrofit the entire building.”



### FINANCIAL SNAPSHOT

Project	Retrofit 420 fixtures to LEDs with lighting controls, powered through the Energy Services Platform
Xcel Energy Rebate	\$20,500
Estimated annual savings based on rebated equipment	\$11,500
Total annual kWh savings	92,100 kWh
Total annual kW savings	40 kW

Byles worked with ConnectIT Service on the retrofit and opted for their Energy Services Platform, Ubiquitee.

“This was our first energy-efficiency work, so we wanted to reduce our costs but also be as green as possible, since we’re part of the Boulder Green Initiatives project,” Byles says. “We realized that not only could we save money with better lighting technology, but with a system that would help us control the lights, too.”

They ultimately replaced 420 existing fluorescent fixtures with network connected LED lighting with sound masking technology. The technology includes wireless internet connected and color tunable LED lighting. They included occupancy sensors, temperature and day light sensors, employee smart phone lighting control, and an energy management system.

“Client engagements always start with an understanding of their business objectives,” Will Gentry of ConnectIT Service says. “We estimated that a network connected controls system could help them manage lighting use throughout the building, improving the employee experience and ultimately saving him an additional 50 percent on his bills.”

In fact, Gentry calculated \$20,000 in operational savings during the first year. An Xcel Energy rebate of more than \$20,000 helped offset the cost of the new equipment.

“The rebates made this an effective spend for us,” says Debbie Riegel, FreeWave Chief of Staff. “The process was easy as ConnectIT did most of the paperwork for us.”

### Brighter, better, smarter

The new lighting is perfect for a building with a variety of needs and hours. As a manufacturing facility, they have some people coming in at 4:00 a.m., while others stay late into the evening. The new energy services platform allows them to manage entire sections of the building, independently and remotely through lighting controls.

“Several of us in management can control the lights from our phones even if we’re not in the building,” Byles explains. “And now everyone can dim or brighten their lights in their individual offices, set them to automatically adjust to the sunlight coming in, or even adjust the color temperature. Everyone feels empowered and that makes them happy.”

“I walk by the founder’s office and he’s got Beethoven on and his lights are orange because that’s relaxing to him,” Gentry laughs. “It’s really allowed each employee to dial in their comfort level.”

The lighting and controls upgrade improved employee productivity and improved safety in production areas and stairwells due to increased light quality. The next step is connecting the controls system to their security system.

“We’re very happy we did this,” Byles says. “The overall atmosphere is 100 percent improved.”



For more information about Xcel Energy’s lighting and controls rebates, please visit the Small Business Lighting page at [xcelenergy.com](http://xcelenergy.com) or call a lighting efficiency advisor at 877.287.2250.

