United Energy Plus, LLC

A Lighting Conversion Case Study

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Manufacturers Industrial Group Lexington, Tennessee

"It is not often that you get a chance to improve a facility and reduce out of pocket expenses at the same time; all for no investment cost. The Tennessee Energy Loan Program was the key."

Description:

Manufacturers Industrial Group (MIG) makes parts and components for the US auto industry. The company has six plant locations in Lexington, Chattanooga, and Athens, TN. The site chosen for the first renovation was the 230,000 sq ft plant in Lexington, TN.

Goals:

MIG's primary goal with the lighting renovation was to reduce the plant's energy consumption, thereby improving the company's profitability.

An important secondary goal with management was to also improve the plant's light quality thereby improving the workplace environment for the company's 350 full time employees.

United Energy's survey of the plant ascertained that the facility contained 1,175 various type fixtures. Of these, (646) were HID and utilized 400W Metal Halide Lamps. They would be the center of attention. Of the remaining fixtures, (328) were 2x4 and (85) were 1x4. Both these type fixtures utilized F40T12ES lamps. In addition, the plant contained (98) 8' Strip fixtures utilizing F96T12ES lamps. There were (6) 2x2 fixtures, utilizing F40T12U lamps, and only (3) Incandescent 75W lamps. The (14) exit signs utilized (2) 20W-EXIT lamps.

All fixtures were to be evaluated and replaced with new components that would both reduce energy and improve light quality if possible.

In addition, because of the high volume of work the plant was experiencing and to avoid inconveniencing the work force, all of the renovation work had to be done off shift and at night.

Solutions:

The project was installed in less than 30 days. All of the HID fixtures (using 400W MH lamps) were replaced with 8' fixtures using (4) T-5 lamps).

Fixtures utilizing T-12 lamps were converted to electronic ballast and T-8 lamps.

The 75W Incandescent Lamps were converted to 27W Compact Fluorescents and the exit signs were replaced with new LED signs utilizing only 4 watts per fixture.

Components:

With the exception of the 1x4 fixtures, all fixtures utilizing T-12 lamps in the plant were completely rebuilt utilizing new electronic ballasts and reflectorized ballast covers.

The high Color Rendition Index (CRI) T-8 lamps used on the project were 5000 Kelvin to produce a higher contrast level.

UE's specification for this project was followed precisely. All hardware, including lamps, ballast, lamp sockets and end brackets were removed from the existing fixtures and replaced with all new components.

Overall light levels within the plant were dramatically improved by 30% to the delight of both employees and management.

Results:

The turnkey cost of the project was less than \$250,000. After incentive rebates from both TVA and the Federal Government for approximately 20% of the cost, the State of Tennessee agreed to finance the balance of the entire project through its special State Energy Loan Program with Pathway Lending.

Because the financial terms of the loan program were so attractive to the borrower, the monthly energy savings will pay off the entire loan balance in just three and a half years. This has allowed MIG to keep the rebate incentives without having to apply them to the project costs.

The bottom line is that today, MIG is enjoying all the advantages of their new lighting system, with no money out of pocket, while the energy savings pays off the total cost of the project in less than four years.

Environmental:

This project eliminates the annual emission of over 1,145,795 pounds of carbon dioxide (CO2) into the atmosphere along with over 8,096,952 pounds of sulfur dioxide and 1,986,045 pounds of Nitrous Oxide. This is a strong step toward supporting cleaner air.

As part of the "turnkey" installation, all removed lamps and ballasts were recycled.

Since 1998, United Energy, LLC has been a U.S. Department of Energy (DOE) "Approved Contractor."



Contact: Andre Gist Chief Executive Officer Manufacturers Industrial Group 659 Natchez Trace-Drive Lexington, TN 38351 Phone: 731-967-0001