Project Profile
DUKE ENERGY
Gibson Plant

Before

After

Lighting upgrade underway in specific areas of the plant
Saving energy and providing an even safer work environment!
Duke Energy makes life better for millions of people every day by providing electric and gas services in a sustainable way – affordable, reliable and clean. Duke is the largest electric power holding company in the United States, supplying and delivering energy to approximately 7.2 million U.S. customers. The Gibson Plant is the largest coal fired plant in the US and has a 3.145 megawatt capacity.

Facility Type:
Industrial

Square Footage:
300,000 SF

Products:
LED lighting technology; T5HO lighting for hazardous locations

Savings:
$ 68,688 annually

Situation
The existing lighting in the plant was high pressure sodium HID technology which output yellow light, was slow to start or re-strike when hot and required new bulbs every 15,000-30,000 hours of operation. With a strong focus on employee safety, Duke was looking for an improved working environment, lower maintenance costs and the possibility of energy savings associated with a lighting upgrade.

Solution
A 300,000 square foot area of the facility was audited as a prelude to a new lighting design. The area was a high temperature environment (ambient up to 55c for some areas), with damp & wet locations and high amounts of coal dust in the air. As a result, the solution required fixtures with ratings for wet locations and various Classes of "Hazardous location" ratings. Due to the difficulty in reaching many of the lighting areas, the new LED fixtures have an unprecedented 10 year warranty, thus eliminating the ongoing maintenance / servicing costs of the existing lighting system.
Both the design/audit and implementation phases were conducted by Eco Engineering.

Results
Improved lighting and safety conditions were achieved on multiple fronts. The optimized, engineering design provided for more light in some areas using fewer fixtures. The fluorescent fixtures have 2 lamps while the LED fixtures have multiple "drivers" or power sources - thus ensuring that even the rarest failure will still produce light – a safety aspect that the old fixtures did not have. The new fixtures are not only brighter but also output "white" light which provides much better visibility and improved safety conditions. The new lights are "instant on" and do not have the 20-40 min "hot re-strike" delay inherent in the older technology. Finally, significant energy savings are projected due to new technology.

- Annual Consumption Savings
  Projected at 623,816 kWh per year
- Reduced Energy Expenses
  Projected at $63,385 per year
- Environmental Impact
  Reduced energy consumption will prevent the emission of 957,574 lbs of carbon dioxide annually or prevent the emission of 3,392 lbs of sulfur dioxide annually which are equivalent to planting 128 acres of trees in a single year.

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