



FOREST PRODUCTS

Best Practices Technical Case Study

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OFFICE OF INDUSTRIAL TECHNOLOGIES

ENERGY EFFICIENCY AND RENEWABLE ENERGY, U.S. DEPARTMENT OF ENERGY

BENEFITS

- Annual energy savings of almost 2 million kilowatt-hours (kWh) and almost \$65,000
- Increased lighting in mill operating area
- Decreased energy use
- Decreased maintenance costs
- Increased safety

APPLICATIONS

Proper lighting is a must for any production environment. By upgrading older light fixtures, industries can save money on energy and maintenance costs, as well as increase safety and employee well being.

Upgraded Lighting System Leads to Energy and Cost Savings at Augusta Newsprint Company

Summary

New metal halide light fixtures have replaced the 1960s-era mercury vapor light fixtures at Augusta Newsprint Company's facility in Augusta, Georgia. The results have included increased lighting levels, decreased maintenance costs, and reduced energy demand. Annual energy savings total nearly \$65,000; with a total installed cost of \$100,000, the project will pay for itself in 1.5 years.

Plant Overview

The Augusta Newsprint Mill in Augusta, Georgia, is part of a joint partnership between Abitibi-Consolidated and the Woodbridge Company, Ltd. The mill produces up to 440,000 metric tons (MT) of standard newsprint each year from southern pine and recycled newspaper and magazines. The mill has 2 paper machines and employs 380 workers.

Abitibi-Consolidated is a global leader in newsprint and uncoated groundwood papers with ownership interests in 27 paper mills in Canada, the United States, the United Kingdom, and Asia (including its 50 percent interest in Pan Asia Paper Company). The company also has ownership interest in 22 sawmills, 2 remanufacturing facilities, and a market pulp mill. Abitibi-Consolidated supplies products in nearly 100 countries and employs approximately 18,000 people.

Project Overview

Mercury vapor lighting was commonly used in the 1960s in industrial settings like the Augusta Newsprint paper mill. The original 313 fixtures installed in the paper mill were designed to supply the operating area with 70 foot-candles (ft-c) across the work area. However, mercury vapor lighting degrades linearly over time, giving the false impression that the light is providing the intended illumination even when the bulb is near failure. Current measurements taken in various parts of the operating area showed that the fixtures had degraded to between 10 and 40 ft-c. Modern design standards dictate that lighting in a paper mill operating area should be at least 85 ft-c. Plans were made to replace the existing mercury vapor fixtures with metal halide fixtures that would supply the required lighting levels.

Project Implementation

The 313 mercury vapor high-bay fixtures in the paper mill were replaced with 92 of the new 1,000-watt (W) metal halide high-bay fixtures in a predetermined grid pattern (see photo next page). The overall lighting is now measured at approximately



100 ft-c in the operating area. An added advantage of using metal halide bulbs is that they do not linearly degrade over time.

NEW 1,000-WATT METAL HALIDE HIGH-BAY FIXTURES



Results

By reducing the number of light fixtures in its paper mill operating area, Augusta Newsprint is saving 1.94 million kilowatt-hours (kWh) per year, which translates into approximately \$65,000 per year in energy savings. Maintenance costs have also been reduced. More importantly, better lighting will mean fewer accidents in the operating area.

The total installed cost of this project was approximately \$100,000. The project will pay for itself in 1.5 years.

INDUSTRY OF THE FUTURE—FOREST PRODUCTS AND AGENDA 2020

In November 1994, DOE's Secretary of Energy and the Chairman of the American Forest and Paper Association signed a compact, establishing a research partnership involving the forest products industry and DOE. A key feature of this partnership was a strategic technology plan—**Agenda 2020: A Technology Vision and Research Agenda for America's Forest, Wood, and Paper Industry**. Agenda 2020 includes goals for the research partnership and a plan to address the industry's needs in six critical areas:

- Energy performance
- Environmental performance
- Capital effectiveness
- Recycling
- Sensors and controls
- Sustainable forestry

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BestPractices is part of the Office of Industrial Technologies' (OIT's) Industries of the Future strategy, which helps the country's most energy-intensive industries improve their competitiveness. BestPractices brings together the best-available and emerging technologies and practices to help companies begin improving energy efficiency, environmental performance, and productivity right now.

BestPractices emphasizes plant systems, where significant efficiency improvements and savings can be achieved. Industry gains easy access to near-term and long-term solutions for improving the performance of motor, steam, compressed air, and process heating systems. In addition, the Industrial Assessment Centers provide comprehensive industrial energy evaluations to small- and medium-size manufacturers.

PROJECT PARTNERS

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