

A Lighting Conversion Case Study

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The FPL Administration Building Naples, Florida

“Part of FPL’s commitment to conservation was to get our own house in order; we also wanted to show our customers examples of the conversions we are promoting through our incentive program.”

Facility Description:

The Florida Power and Light Administration Building in Naples, Florida is a two story building which houses 250 fluorescent light fixtures.

Although the majority of the fixtures are 4-lamp (2x4), there are also some 3-lamp fixtures as well as 2-lampers — both 2x2 and 2x4 configurations. All of these fixtures contained standard fluorescent lamps (full wattage and reduced wattage) as well as standard ballasts.

This building is the nerve center for FPL’s operations in Collier County and the lights are typically operated about 70 hours a week.

Some of the fixtures provide the overhead light for individual, enclosed office cubicles around the perimeter of the interior space but the majority provide general lighting for the open-plan work space.

Goals:

Florida Power and Light had recently gained approval from the Florida Utility Commission to launch a commercial/industrial lighting program, a demand-side management program designed to encourage the commercial/industrial segment to reduce Kilowatt consumption during peak demand periods. The highest level of incentive dollars would be available to those conversions which result in a maximal and permanent reduction in KW demand. *In addition, the conversion should represent an upgrade in performance quality.*

FPL noted that few of the new lighting technologies, supported by their rebate program, were currently in use in local facilities. Accordingly, FPL sought to provide a showplace or demo-facility for the new technologies and, in the process, measurably and significantly lower the KWD of their facility and noticeably upgrade the quality of their lighting.

Solutions:

FPL scheduled different types of retrofit which would qualify for the highest level of rebate. These included the use of T-8 lamping, electronic ballasts and, in some cases, optimal reflectorization. All exit signs were converted from incandescent bulbs to compact fluorescents and occupancy sensors were installed in the perimeter office spaces (infra-red) and the restrooms (ultrasonic).

Results:

Three and four lamp ballasts were used throughout and fixtures containing only 2 lamps were tandem-wired with four lamp ballasts. The system which formerly required 384 standard ballasts had been reduced to 192 electronic ballasts. The substitution of more efficient lamps and ballasts, as well as the de-lamping allowed by reflectorization, resulted in eliminating 15.5 KW of demand from the FPL building. Were FPL to rebate themselves, this conversion would result in a 1.67 year payback of the investment.

Components:

Osram, Sylvania and *Philips* T-8 lamps were all used in this conversion. All are tri-phosphored and provide improved levels of CRI as well as much higher lumen

per watt output when compared to the lamps they replaced. Electronic ballasts were from *Osram* and met or exceeded the FPL standards for THD (total harmonic distortion) as well as PF (power factor). The combination of electronic ballasts and T-8 lamps resulted in lowering fixture input watts 30% to 60%. The reflector kits were custom fabricated from *Alcoa* “Everbrite” lighting sheet by *Reflect-A-Light Corp.* The fixtures utilizing reflectors required half the number of lamps formerly used.

Environmental:

This project eliminates the burning of over 48 tons of coal or 223 barrels of oil annually, thereby eliminating the emission of over 262,660 pounds of carbon dioxide into the atmosphere.

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