

Bayer Healthcare: Lighting Upgrade and Installation of Occupancy Sensors



Photo of Building 62 after the Lighting Retrofit.

The Bayer Healthcare facility located in Berkeley, California is comprised of more than sixty buildings. Included in these buildings are utility rooms B18, B62, B59, B63 and B82 that house mechanical equipment. Occupancy within the utility rooms is scarce and limited to periodic inspection and maintenance. Despite the limited amount of time that personnel spend in the utility rooms, all but five of the high bay metal halide lighting fixtures operate on a continuous, year-round basis.

LMA energy engineers conducted an audit of the aforementioned utility rooms and reached the conclusion that substantial savings can be achieved by retrofitting the metal halide fixtures with more efficient T-8 linear fluorescent units. Furthermore, motion sensors were installed to minimize wasted energy when the rooms were unoccupied. *Continued on reverse...*

Goals: Decrease the energy required to light utility rooms and minimize sources of “wasted” energy

Strategies: Replace existing lighting with T-8 Lamps and install occupancy sensors

Benefits:

- Annual power savings of 219,758 kWh
- Reduction in CO₂ emissions of 115,153 lbs/year
- Less frequent lamp replacement
- Improved light quality and uniformity

Equipment Installed:

- (118) T-8 Lamps/fixtures
- Occupancy sensors

Financial Analysis:

- LM incentive of \$19,778
- Simple payback with incentive is 2.4 years
- Annual power cost savings of \$24,173
- Total Project Cost w/o incentive: \$72,078

Additional benefits of the upgraded lighting system include: 1. less frequent replacement of the lamps due to the decreased daily hours of operation; 2. shorter start-up times; and 3. a higher quality of uniform lighting.

This project saves energy by two means. First, the T-8 lamps require less energy than their metal halide counterparts, resulting in a substantially less wattage draw during peak demand (mid-day). Secondly, the occupancy sensors dramatically reduce the hours of operation of the lights, which is unequivocally related to a decrease in energy consumption. Because these rooms are only infrequently occupied, we were able to achieve a total energy reduction of 75 percent!

The project yields a reduction in annual electricity usage by 219,758 kWh, which equates to a savings of \$24,174. Furthermore, taking the monetary incentive provided by LMA into account, the period of return is only 2.4 years.

Project Team:

- Pacific Gas and Electric Company
- Lockheed Martin Aspen Systems Heavy Industry Program
- T. Marshall Associates

For Further Information About Our Services, Contact:

Phone: (415) 402-0406

Fax: (415) 402-0613

Or visit our website:
www.lma-pge.com

It is our objective to assist PG&E heavy industry customers in:

- Improving their competitive position
- Identifying process-focused energy improvements and other opportunities (e.g. demand response)
- Facilitating electricity and natural-gas energy efficiency equipment and demand reduction upgrades
- Reducing operating costs per unit of product
- Improving product quality and production rate
- Reducing waste, pollutants, and Green House Gas emissions

Remember that increased production efficiency = lower production costs = increased profits

The Heavy Industry Efficiency Program is managed and facilitated by Lockheed Martin Aspen Systems (LMA), and is funded by California utility ratepayers, under the auspices of the California Public Utilities Commission. The program objective is to identify and facilitate the implementation of major process-orientated and other energy-efficiency upgrades for PG&E's heavy industry customers. Customers that install energy efficient systems receive incentives based on the annual kWh or therm saving achieved.

Lockheed Martin Aspen Systems Corp.
311 California Street, Suite 430
San Francisco, CA 94104

