

Lockheed Martin Energy

Heavy Industry Energy Efficiency Program

LOCKHEED MARTIN

100

YEARS OF
ACCELERATING
TOMORROW

Goals:

Identify and quantify cost-effective energy savings

Strategies:

Metal halide lighting fixtures were replaced with LEDs and relocated to better suit the needs of the facility and reduce the quantity of fixtures

Benefits:

Energy Savings:

- ◆ 442,888 kWh/year
- ◆ 71.04 kW_{peak}

Equipment Installed:

- ◆ 162.6-watt LED high bay fixtures

Financial Analysis:

- ◆ Annual Cost Savings: \$38,974
- ◆ Net Project Cost: \$186,765
- ◆ Project Incentive: \$42,535
- ◆ Simple Payback: 4.79 years

Stamping High Bay Lighting Retrofit



The facility evaluated in this project produces electric automobiles and powertrain components. The site is anchored by the Main Assembly Building, a two-story, three-million square-foot, steel-framed structure, and several other buildings that house various departments. These departments include Stamping,

Plastics, Casting, Paint, Utilities, and ancillary support buildings. Some shops, such as Casting and Utilities, operate on a continuous basis, 8,760 hours per year. Most others run two shifts per day, five days per week. Lockheed Martin Energy's Heavy Industry Energy Efficiency Program (HIEEP) performed a site audit to identify potential energy savings, and found opportunities through replacing the lighting in the Stamping Shop.

The first Energy Efficiency Measure (EEM-1) was Phase I of the replacement of the metal halide fixtures with 162.6-watt LED high bay fixtures. A total of 237 ceiling-mounted fixtures were replaced out of the initial 396 fixtures. Some fixtures were relocated to better suit the equipment layout. A total of 17 new fixtures were added to the retrofit areas. All of the pre-retrofit fixtures were 400 watts. The replacement fixture installed was the HB2011-03-50-3/40-20 by Cool Lumens. The second Energy Efficiency Measure (EEM-2) installed advanced lighting controls to the Stamping Shop high bay lights. The third Energy Efficiency Measure installed seventeen fixtures in Stamping and sixteen in HPDC. The HB2011-03-50-3/40-20 fixtures by Cool Lumens were used for this measure. Lockheed Martin Engineers adhered to IPMVP Option C to verify the energy savings for the project.

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<p>Project Team:</p> <ul style="list-style-type: none"> ◆ Pacific Gas & Electric ◆ Lockheed Martin Energy Heavy Industry Energy Efficiency Program 	<p>The EEM-1 lighting efficiency cost savings were \$36,890 per year. The project costs totaled to \$215,452, and the measure was eligible for an incentive of \$40,261, based off the unit incentive rates of \$0.08 per kWh and \$150 per peak kW. This lowered the capital cost to \$175,191. The EEM-3 cost savings were calculated to be \$2,084 per year. The actual measure costs totaled to \$13,572, and the incentive was \$2,274, lowering the capital cost to \$11,298. EEM-2 cost savings were not included in Phase I.</p> <p>The total cost of this project was \$229,024. This project was eligible for an incentive of \$42,535, which lowered the total cost to \$186,765. The cost savings per year totaled to \$38,974, resulting in a simple pay-back period of 4.79 years.</p>
 <p>FOR FURTHER INFORMATION ABOUT OUR SERVICES, CONTACT: Phone:(415) 402-0406 Fax:(415) 402-0613 Or visit our website: Www.lmsi-pge.com</p>	

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 Energy, 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 efficiency systems receive incentives based on the annual kWh or therm saving achieved.