

# Lockheed Martin Energy

## Heavy Industry Energy Efficiency Program

LOCKHEED MARTIN

100

YEARS OF  
ACCELERATING  
TOMORROW

### **Goals:**

Identify and quantify cost-effective energy savings

### **Strategies:**

Reduce the production hours of the less efficient furnace by automating the more efficient production system

### **Benefits:**

#### Energy Savings:

- ◆ 537,673 kWh

#### **Equipment Installed:**

- ◆ Automated Glass Seaming System

#### **Financial Analysis:**

- ◆ Annual Cost Savings: \$77,963
- ◆ Net Project Cost: \$77,732
- ◆ Project Incentive: \$43,014
- ◆ Simple Payback: 1.00 year

## *Automatic Glass Seaming System Installation*

The plant evaluated in this project runs a window glass tempering operation that operates twenty four hours a day, five days a week, fifty-two weeks a year. The plant has two furnaces: the main CBHF furnace is newer and has variable frequency drives (VFDs), cooling fans, and an advanced control system; the second furnace is an older and less



efficient Mroczek furnace, only used when demand increases. Lockheed Martin Energy's Heavy Industry Energy Efficiency Program (HIEEP) performed a site audit to identify potential energy savings, and found opportunities through automating the glass seaming operation.

The first Energy Efficiency Measure (EEM) was designed to remove production bottlenecks through automating the operation on the more efficient furnace. The energy audit noted that the manual glass seaming operation was restricting the CBHF furnace from producing as much tempered glass as it allowed for. Most of the glass seamed at this plant was in square and rectangular shapes, which was most suitable for the automation process. With an automated glass seaming operation for the square and rectangular pieces of glass, the rejected glass product was reduced by about 2%. With the reduction in rejected glass and the increase in production, the overall production of the CBHF furnace increased by 18%. This allowed for the CBHF furnace to run more of the plant's production, reducing the hours of operation of the Mroczek furnace. Lockheed Martin Energy engineers adhered to IPMVP Option C to verify the energy savings for the project.

WE NEVER FORGET WHO WE'RE WORKING FOR



Continue on reverse...

<p><b>Project Team:</b></p> <ul style="list-style-type: none"> <li>◆ Pacific Gas &amp; Electric</li> <li>◆ Lockheed Martin Energy Heavy Industry Energy Efficiency Program</li> </ul>	<p>Prior to the installation of this Energy Efficiency Measure, the Mroczek furnace was producing an average of 26% of the plant's glass production. This 18% increase in the CBHF furnace production reduced the Mroczek furnace production to 12.7% of the plant's total production, reducing the operating hours of the Mroczek furnace by 51.2%. This measure saved 537,673 kWh of energy. The project cost was \$120,746, and the incentive was \$43,014, resulting in a net cost of \$77,732. The energy cost savings were \$77,963, allowing for a simple payback period of 1 year.</p>
 <p><b>FOR FURTHER INFORMATION ABOUT OUR SERVICES, CONTACT:</b>  <b>Phone:(415) 402-0406</b>  <b>Fax:(415) 402-0613</b>  <b>Or visit our website:</b>  <b>Www.lmsi-pge.com</b></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 (LME), 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.