



Cooper Cameron: An Oilfield Equipment Maker Implements All Recommendations

ASSESSMENT DATE: SEPTEMBER 7, 2001

BENEFITS:

- Identified potential annual energy cost savings of \$717K
- Recommendations saved approximately 46% of total energy costs
- Recommendations covered energy and waste for total savings of \$795,000
- 100% of Recommendations Implemented

APPLICATIONS:

"We performed this assessment when I was an undergraduate student. I was very impressed with the management and operation of this plant; and because of the IAC, I was able to complete my masters degree in Engineering and Technology Management. As I was finishing my degree, this was one of several companies I interviewed. I am very pleased that I received and accepted an offer with them."

- Carlos Castro, lead student on assessment, now employed by Cooper Cameron.

Summary

Through the Department of Energy's Industrial Assessment Center located at the University of Louisiana-Lafayette, Cooper Cameron, an oilfield equipment maker, was able to save a significant amount of money from reductions in energy and waste costs. Through recommended actions in scheduling changes, compressed air systems, lighting, and waste, Cooper Cameron was able to save approximately \$795K. All recommendations made by the assessment team were implemented at the facility.

Company Background

Cooper Cameron is a custom manufacturer of oil field machinery and equipment. The plant featured in this case study produces valves for oil fields. In the valve manufacturing process, raw materials are forged, freeze plugged, and honed. The valve is then assembled and welded together. Testing is performed on the valves, and then sent to painting and finishing. Upon completion, the valves are put on pallets and shipped. Annual utility bills for the 180,000 square foot facility totaled \$1.5 Million (1.6 % of total sales).

Assessment Approach

A team of faculty, staff and students from the University of Louisiana at Lafayette's Industrial Assessment Center performed an Industrial Assessment in the fall of 2001. The assessment was led by Center Director, Dr. Ted Kozman and Assistant Director, Dr. Thomas Davies, both Professors in the Department of Mechanical Engineering at University of Louisiana at Lafayette.

Notable Observations

The assessment team observed that the plant was spending a great deal of money on electricity since the production line is attached to computers. Therefore, the plant was unable to shut down without turning off the computers. The following recommendation resulted in savings of 35% of the company's utility bills:

Install a 480 to 120- volt transformer and run the new 120-volt lines throughout the production area to power only the computer portion of the machine. This will enable the 480- volt lines throughout the plant to be taken off line during off periods.

Management implemented this assessment recommendation within 2 months.



Chillers

The assessment team focused a great deal of attention on the plant's practice in air conditioning production areas. An opportunity was developed to reduce electrical demand charges by cycling chillers during the peak demand time, and by adding chilled water storage capacity.

Compressed Air Leaks

The team also found that the compressed air system was losing substantial air with small leaks throughout the plant. An aggressive program for preventative maintenance to find and fix the leaks was started and will save more than \$100,000 with an almost immediate payback.

Onsite Waste Treatment

In addition to energy savings recommendations, the team observed a significant amount of wood waste at the facility. The team proposed as a waste minimization measure the installation of an incinerator to reduce disposal costs. An interesting feature included in the incinerator was the injection of an evaporator to reduce waste water disposal fees.

Results

Table 1 shows the annual cost savings achieved at the Cooper Cameron facility from implementing the energy conservation opportunities identified during the assessment by the University of Louisiana at Lafayette Industrial Assessment Center team. Based on these results, the facility can reduce its electrical consumption by over 11 million kWh (115,000 MMBtu), subsequently reducing electrical demand by approximately 260 kW. These reductions will consequently reduce energy and waste costs by a total of \$795K.

Projects Identified

Opportunities for reducing energy consumption that were identified during the assessment are described in the following table:

Table 1. Opportunities at Cooper Cameron's Ville Platte Facility				
Recommended Action	Annual Resource Savings	Annual Cost Savings (\$)	Implementation Cost (\$)	Payback (months)
<i>Compressed Air Systems</i>				
Repair Leaks in the Compressed Air System	21,874 MMBtu/yr	\$126,949	\$31,740	3
<i>Scheduling</i>				
Turn Machines Off During Nights and Weekends	92,608 MMBtu/yr	\$537,467	\$121,200	3
Turn Off Chiller During Peak Demand Period	0 MMBtu/yr	\$45,864	\$112,325	29
<i>Waste</i>				
Purchase an Incinerator to Burn Waste	0 MMBtu/yr	\$77,374	\$92,279	14
<i>Lighting</i>				
Utilize Photo Sensor Lighting in Warehouse Area	622 MMBtu/yr	\$4,949	\$406	1
Utilize Photo Sensor Light Controls in Storage Area	301 MMBtu/yr	\$2,399	\$203	1
Totals	115,405 MMBtu/yr	\$795,002	\$358,153	6

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Industrial Assessment Center
University of Louisiana at Lafayette
Lafayette
P.O. Box 42972
Lafayette, LA 70504
Phone: (337) 482-5717
Fax: (337) 482-1235
tak1485@louisiana.edu

Center for Advanced Energy Systems
640 Bartholomew Road,
Piscataway, NJ 08854
Phone: 732-445-5540
Fax: 732-445-0730
<http://caes.rutgers.edu>

Industrial Technologies Clearing House
Phone: 800-862-2086
Fax: 360-586-8303
clearinghouse@ee.doe.gov

Industrial Technologies Program
Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington DC 20585-0121
<http://eere.energy.gov/industry/>

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