



Metzeler: An Automotive Door Seal Maker Implements IAC Recommendations for Energy Dollar Savings

ASSESSMENT DATE: JANUARY 7, 2003

BENEFITS:

- 60% of recommendations implemented
- Recommendations identified over \$250K in total energy savings
- Overall simple payback will be seen in 1 year
- Savings to currently accrue at plant are over \$82K

APPLICATIONS:

"The Assessment was conducted in a very professional manner. The study gave us a tick list of opportunities for which we could develop an Energy Efficiency Strategy. In this age of higher energy cost, we cannot afford to miss any opportunity to be more competitive. We do not have the technical talent on staff needed to do the kind of work that was done. This was a team effort; when we win, Oklahoma wins. By increasing competitiveness, we increase our opportunity to take on additional future business."
-Doug Loftis, Metzeler

Summary

Metzeler Automobile Profile Systems is a leading manufacture of door seals. Its customers include General Motors and DaimlerChrysler. The Oklahoma State University Industrial Assessment Center (funded through the U.S. DoE) in conjunction with the Applications Engineering Program (funded through the Oklahoma Alliance for Manufacturing Excellence) worked with Metzeler to reduce its energy consumption and increase its productivity in its Frederick, Oklahoma plant. Results included a \$250K annual savings in energy and a \$240K annual savings/revenue enhancement associated with plant productivity.

Company Background

Metzeler Corp. is a manufacturer of automotive door seals. They produce high quality door seals for General Motors and Chrysler. Rubber is mixed to make a final compound which is then shaped in the batch mill to required width and thickness. The material then is extruded through metal dies and a metal frame is added. The extruded product (seal) is then cured in natural gas fired curing ovens and the final part is cut or rolled.

Metzeler is very important to the local community and has a great deal of local support. They have an outstanding relationship with their employees and they are ISO 14001 Certified. Metzeler cares about their energy consumption and the environment in general.

Assessment Approach

The IAC assessment occurred in 2003. A team of students and faculty from Oklahoma State University conducted an Industrial Assessment funded through the DoE Industrial Assessment Center program. The team leader was Dr. Wayne Turner, Assistant Director of the IAC and a Regents Professor of Industrial Engineering and Management at OSU. Team members were Wisit Kumphai, Haiyan Zhao, and Joo Ching Yong. The first two are PhD candidates and the third an MS candidate at OSU. Mr. Jim Frisen served as the Applications Engineer in conjunction with the assessment. The assessment was quite successful and led to a relationship that continues today between the center and the plant.



Notable Observations

Metzeler management was pleased with the assessment. Mr. Jim Frisen, an OSU Applications Engineer is currently working with the plant on implementation. This study identified approximately \$500K in savings involving energy and productivity improvement.

Metzeler spent considerable energy and dollars to chill water that is used to cool the product and process. One of the recommendations was to convert the cooling tower and chiller to a “wet side economizer” where the cooling tower alone could cool the process many hours in the year. A variable frequency drive was also installed on the air side of the cooling tower.

The plant also had a large peak demand. Plant and IAC personnel identified several processes that could be “limited” as appropriate to reduce this peak demand. This alone saved approximately \$25K per year.

A total of 17 recommendations were made identifying energy and productivity savings of approximately \$500K per year. The average payback for all the recommendations was 1.5 years.

Results

Table 1 shows the annual cost savings that the Metzeler facility achieved by implementing 6 energy conservation opportunities identified in the assessment by the IAC team. Based on these results, the facility reduced energy usage by nearly 1.75 million kWh each year with total savings of \$82K yielding an overall simple payback of 1 year.

Projects Identified

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

Table 1. Opportunities at Metzeler’s Frederick, OK Facility				
Recommended Action	Annual Resource Savings	Annual Cost Savings (\$)	Implementation Cost (\$)	Payback (months)
<i>Compressed Air Systems</i>				
Lower Compressed Air Differential and Upgrade Compressed Air Controls	1,200,118 KWH/yr 1,644 KW-mo/yr	\$51,704	\$45,000	10
Implement Regular Maintenance Program to Eliminate Air Leaks	95,580 KWH/yr 131 KW-mo/yr	\$2,978	\$367	2
<i>Space Conditioning</i>				
Lower the Set Point on the External Air Makeup Heating Unit	2,268 MMBTU/yr	\$11,031	\$0	0
<i>Motors</i>				
Install Variable Frequency Drive on 40hp Cooling Tower Motor	166,120 KWH/yr	\$5,150	\$5,273	12
<i>Lighting</i>				
Replace T-12 Fluorescent Lighting with T-8 Fluorescent Light	81,967 KWH/yr 209 KW-mo/yr	\$5,609	\$30,876	66
Install Occupancy Sensors in Office Areas	202,272 KWH/yr	\$6,270	\$2,004	4
Totals	1,746,057 KWH/yr 1,984 KW-mo/yr 2,268 MMBTU/yr	\$82,742	\$83,520	12

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