

## SLW Automotive Works with IAC to Capture Savings & Reduce Costs

For 38 years, SLW Automotive has been manufacturing high quality engine oil pumps, transmission oil pumps, transfer case pumps, and mechanical air pumps for truck and carmakers such as Ford, GM, Audi, and Nissan (<http://www.slwauto.com/>).

These days, most of the production is centered in a 250,000 square-foot plant in Sallisaw, Oklahoma, and when the time came to consider energy-efficiency opportunities and options, the plant contacted the Industrial Assessment Center at Oklahoma State University (OSU) and asked for an assessment.

### Testing Skylights in the Production Area

SLW's facility team has installed two skylights over the production floor to evaluate their performance and employees' response. If this test is successful, it could lead to the installation of automatic daylight-sensing controls for the production area's high-bay fixtures. This could be integrated with the new fluorescent thread-in retrofit units, as long as dimmers are not employed.



This recent SLW photo shows a destratification fan, test skylight, and new 180-watt fluorescent twin-spiral thread-in lamps that replace 400-watt probe-start metal halide.

### Summary

Under the supervision of Dr. William Kolarik, the OSU Industrial Assessment team visited the site in April 2011 and identified ten opportunities that were crafted into the recommendations listed in Table 1. SLW's management, engineering, and facility staff responded positively to the assessment report and implemented AR's as shown in the table. SLW staff are pleased with the results, which include energy cost savings of over \$46,000 per year. Previous to the assessment, SLW's total cost of electricity and natural gas approached \$790,000 per year.

### Testing Thread-In Fluorescent Lamps to Replace 400-watt Probe-Start Metal Halide

Before requesting the IAC assessment, SLW's facility staff had already begun to move forward with an energy-saving initiative in the production area lighting. Approximately seventy percent of the old 400-watt metal

halide probe-start high-bay fixtures (35' mounting height) have been retrofitted with 180-watt fluorescent twin-spiral thread-in lamps (model EG-200) manufactured by Energetic Lighting of Chino, California (<http://www.energeticlighting.com/Home.aspx>). These units can be directly threaded into existing 277-volt mogul-base, open fixtures without removing the old magnetic

### Keeping a Closer Eye on Energy System Performance

The IAC assessment also inspired SLW to enhance its awareness of power quality and intensify its monitoring of energy use across this complex facility. For example, the company purchased a \$5,000 Dranetz power quality analyzer (model DBPV500) to measure power factor and harmonic distortion on all inductive loads (<http://dranetz.com/>).

ballasts or rewiring the fixtures. SLW staff are carefully monitoring the performance of these units before proceeding to retrofit the remaining 100 fixtures. So far, SLW staff have been very pleased with these lamps, and the first units have been operating for about one year (approximately 4,400 hours).

**Implementation Highlights**

The majority of clients who receive assessments will subsequently improve their compressed air system maintenance, but SLW took further steps by relocating the compressor room so that outside air could be dampered in when ambient temperatures are favorable. Moreover, SLW installed a variable speed air compressor to optimize system efficiency.

SLW facility staff responded further by installing three large destratification fans in the production area to reduce heating costs and improve employee comfort (<http://www.bigassfans.com/>). SLW has noticed a reduction in

natural gas usage as a result of this installation.

Also, SLW has installed occupancy sensors to control lighting in the cafeteria, break room, and offices. In addition, facility staff have installed switches to control office lighting circuits that originally had no controls beyond the breaker panel.

Since the production area is air conditioned, SLW has moved to improve efficiency in this end use, also. Specifically, five automatic misting units were installed to spray water onto the condensers of the two mini-chillers that cool the shop. These units cycle with the condenser fans, and SLW is watching closely to monitor any scale buildup on heat exchange surfaces, though the local municipal water is relatively soft.

The offices in the administration area did not escape staff attention, either. After testing two locations, taking footcandle readings, and interviewing affected employees, SLW has removed one half of the F34T12 lamps from

the four-lamp grid troffers in the office areas, except locations where higher levels of illumination are needed. Employee feedback has been positive, and the remaining T12's will soon be replaced with F32T8 lamps and programmed-rapid-start electronic ballasts.

Finally, plant staff have replaced approximately eighty percent of the old incandescent EXIT signs with new LED units.

SLW has plans to implement additional IAC recommendations, when budgets allow. For example, the company is considering the installation of VFD's on air handlers and coolant circulation pumps.

Larry Thomason, SLW's plant engineer, concisely summed up this company's energy efficiency strategy when he noted, "Overall, SLW management staff are committed to saving energy and controlling costs consistent with maintaining product quality, facility safety, and employee comfort."

**Implemented Recommendations**

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Replace Compressor	540,729 kWh	\$34,390	\$92,072	2.7 years
Air Leak Maintenance Program	28,890 kWh	\$1,843	\$750	0.4 years
Occupancy Sensors	99,423 kWh	\$6,323	\$26,111	4.1 years
Install Destratification Fan	361 MMBtu	\$2,925	\$14,300	4.9 years
Thermostat Setbacks	99 MMBtu	\$801	\$353	0.4 years
<b>Total</b>	669,042 kWh 460 MMBtu	\$46,282	\$133,586	2.9 years