

# Economy, Energy & Environment (E3) Pilot Project – OSRAM Sylvania

## The Need:

The OSRAM Sylvania St. Marys plant, which opened in 1906 as the Novelty Incandescent Lamp Company, is the country's oldest functioning light bulb manufacturing facility. As a leader in lighting solutions and specialty products that feature innovative design and energy saving technology, OSRAM Sylvania wanted to improve the energy efficiency and reduce the carbon footprint of their production operations, with an initial focus on the facility's compressed air system and waste cullet.



## The PennTAP Connection:

PennTAP received a grant from the US EPA and the PADEP for the delivery of an Economy, Energy and Environment (E3) pilot project in Pennsylvania. PennTAP partnered with The NWIRC, a regional service provider of the PA MEP IRC network, to recruit local manufacturers that wish to implement strategies designed to improve energy, environmental and economic efficiencies. PennTAP and NWIRC experts in lean, environmental and energy practices performed E3 activities to identify strategies for better efficiencies in energy usage and pollution prevention within the selected organization.

## The Project:

The PennTAP-NWIRC-Sylvania Senior Management team decided that the E3 pilot project would proceed according to the following two distinct sub-projects:

1. A cross-functional assessment team conducted a three-day lean manufacturing event to identify and assess opportunities to reduce energy consumption in the facility-wide compressed air system.
2. A three-day lean event was conducted by another team to further enhance the facility's existing procedures and systems to reduce, recover and reclaim waste cullet.

*"The support from Roger Price was very good. Roger taught us a few tricks on measuring compressed air losses and was a valuable member of the team."*

*Chris Sconzo  
Plant Manager  
OSRAM Sylvania – St. Marys*

### E3 Assessment Results

*2,250 MWh/yr electricity reductions potential  
\$230,000 savings potential*

## About the Company

OSRAM Sylvania  
835 Washington Road  
St. Marys, PA 15857  
814-834-1800  
www.sylvania.com  
Chris Sconzo, Plant Manager  
Harry Steel, Principal Engineer, Productivity  
Thru Six Sigma & Lean

County: Elk  
Employees: 300  
Industry: Lighting Products

## The Outcome:

### Compressed Air

A typical first step in the Lean Manufacturing Value Stream Mapping (VSM) process is to define the “current state” of the system. For the compressed air system, key elements of the current state are as follows:

#### Current State

- Cost of Compressed Air = \$350,000 per year
- 40% of compressed air is used in open pipe blow-offs with an estimated cost of \$140,000/year. These are used throughout the plant to position material for processing and product assembly.
- 27% of compressed air is being lost in leaks with an estimated cost of \$95,000/year.

The compressed air VSM team determined the following “future state” of compressed air savings that was believed achievable:

#### Future State

- \$70,000/year savings by reducing open pipe blow-offs from 40% to 20%
- \$60,000/year savings by reducing leaks from 27% to 10%
- \$130,000/year Total Savings

Subsequent measurements confirmed that reduction of compressed air consumption by sixty percent can be achieved when open pipe blow-offs are each equipped with Exair Air Nozzles. The plant has ~330 open pipe blow-offs used to move material. St. Marys will need to invest \$24,420 to achieve the expected reduction in compressed air cost of \$70,000/year, a payback of 4 months. Nozzles will be installed by machine attendants and mechanics. A standard list of materials will be developed so the installation will be consistent throughout the plant. The facility maintenance manager and facility project manager will monitor progress of installations. Furthermore, all future modifications of existing product lines and design/installation of new product lines or devices will require use of high efficiency air nozzles for minimizing use of compressed air. The facility has also implemented an aggressive compressed air leak identification and repair program.

### Waste Cullet

The primary objective is to reduce the quantity of cullet that is shipped to an external cullet management contractor, and to increase the quantity of cullet used by the Sylvania Wellsboro facility to produce glass bulbs. In order to produce glass bulbs Wellsboro requires high quality cullet that is not contaminated with metal. Lower quality cullet is acceptable to the Sylvania York facility where it is used to produce lamp bases.

The Waste Cullet assessment team identified numerous opportunities to further enhance the facility’s existing procedures and systems to reduce, recover and reclaim waste cullet. These include: inspect & fix mount pin blow-out; educate operator & take ownership plant wide; signage over cullet totes; set-up back-up plan for cullet transport to Wellsboro; short-term audit of cullet totes by supervisor; separate location of garbage & recyclables containers; save cullet from overloaded trailer versus throwing out; truck Scales; another cullet access direct to bin for bulb fallout; extra Hop trailer or contract another truck; low cost magnetic separator over cullet belt before detector; repaint and re-label cullet totes; inner magnet at cullet chute; drum separator at cullet dumper; #32 cullet & bulb delivery fall-out to York; Redesign Mount pin cleaner and possibly another MT blowout; silo for 32, 28, 26 and metal reject; mount detector after mount pin cleaner/fiber optic eyes; additional metal detector for gross metal. It is estimated that implementation will enhance cullet reclaim by 3,000 tons per year and yield an annual savings of \$100,000 with less than a two year payback.



#### **Roger L. Price, P.E.**

Sr. Technical Specialist  
Penn State Greater Allegheny  
4000 University Drive  
McKeesport, PA 15132  
P: 412-889-5821  
E: [rogerprice@psu.edu](mailto:rogerprice@psu.edu)