



## Idaho Department of Environmental Quality Pollution Prevention Champion

ON Semiconductor

Pocatello, Idaho

2010

### Environmental Commitment

ON Semiconductor in Pocatello designs, manufactures, and markets high performance, innovative silicon solutions that enable its customers to quickly and cost effectively develop energy efficient electronics. ON Semiconductor is dedicated to providing a safe and healthful workplace and to preserving our environment for future generations.

### Pollution Prevention Success

ON Semiconductor is successfully preventing pollution in four key areas: energy efficiency; water conservation; waste reduction, reuse, and recycling; and operational improvements.

#### Energy Efficiency

According to the U.S. Department of Energy, motor-driven equipment accounts for 64% of the electricity consumed by U.S. industry. Within the nation's most energy-intensive industries, motor systems consume approximately 290 billion kWh per year. Variable frequency drives (VFDs) reduce electrical energy consumption by adjusting a motor's speed to match the required load. Many electric motors simply do not need to run at 100% capacity all the time; some examples are motors that power fans and pumps used in heating, ventilation, air conditioning, and process-pumping applications. To save energy, ON Semiconductor retrofitted 40 motors with VFDs throughout the facility.

ON Semiconductor also replaced 1,382 T12 ballast/lamp fixtures with T8 ballast/lamp fixtures and began using high-efficiency lamps in its production and facilities areas. According to the federal government's ENERGY STAR website, lighting can account for 20% to 50% of electricity consumption, depending on the type of business operated. This means that significant cost savings can be achieved with energy-efficiency improvements, and due to continually improving equipment, lighting usually provides the highest return-on-investment of major upgrades. T8 lamps offer improved efficiency, higher intensity, and potentially longer life due to reduced degradation in light output over time.

ON Semiconductor changed filter and heater systems in its manufacturing equipment to improve efficiencies, changed an old uninterruptible power supply to a high efficiency unit, and began idling facility systems during equipment idles, which is similar to using the power save mode on a computer.

As a result of these changes, ON Semiconductor has saved a total of \$52,769 and over 1 million kilowatt hours of electricity per year.

#### Water Conservation

To reduce water consumption, ON Semiconductor installed idle-flow valves on equipment that uses deionized water to reduce the flow when product is not running. The company also disconnected glove washing equipment at fabrication facility entrances because its research determined that washing employees' gloves before entering fabrication facilities did not significantly reduce particles during fabrication. (In other words, gloves are not a significant source of particles for the cleanroom environment used in fabrication.)

Additionally, ON Semiconductor reduced the irrigation frequency for the landscaping around its buildings. According to the U.S. Environmental Protection Agency, landscape irrigation wastes up to 1.5 billion gallons of water every day across the country.

## Waste Reduction, Reuse, and Recycling

ON Semiconductor implemented several projects to reduce, reuse, and recycle waste, including the following:

- Changed manufacturing processes to reduce the amount of gases and liquids consumed, including these steps:
  - extended bath life at sinks
  - reduced material deposition thicknesses
  - reduced gas and liquid etch times
  - optimized etch gas procedure
  - reduced cleaning frequencies
  - shortened clean times
  - ran combined lots
  - extended the length of dip tubes in drums to optimize chemical use
  - reduced sink-fill levels
  - shortened chemical dispense times
  - placed equipment in idle when not in use to prevent unnecessary chemical and water consumption
  - revised procedures to minimize gas purges during bottle changes
- Reclaimed slurries and acids for in-house reuse
- Redirected reverse osmosis reject water to other applications and recirculating used water for makeup in a deionized water system

As a result of these improvements, ON Semiconductor has saved \$149,474 and reduced its chemical use and the amount of hazardous waste generated.

## Operational Improvements

The most significant project executed was closing a wafer fabrication facility. Processes from the facility were redirected to a more efficient and modern fabrication operation, resulting in significant reductions in energy, water, and chemical consumption and saving \$2,000,000 per quarter.

## For More Information

For more information about ON Semiconductor, visit [www.onsemi.com/PowerSolutions/home.do](http://www.onsemi.com/PowerSolutions/home.do).

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