

PROFILE: GUARDIAN LIMA, LLC

ETHANOL PLANT IS ENERGIZED BY SAVINGS

The ethanol industry is a growing force in the United States' energy landscape as the country strives to reduce its dependence on foreign oil and lower greenhouse gas emissions. Ethanol blends are powering more cars and motor vehicles than ever before, and ethanol plants that produce this renewable biofuel are energizing an increasing number of rural communities, including Lima, Ohio.

Guardian Lima, LLC, is a leading ethanol production facility, located in America's heartland. Each year, it produces approximately 54 million gallons of fuel-grade ethanol and 165,000 tons of dried distillers grain, consuming around 19 million bushels of corn in the process. Like other forward-thinking ethanol operations, Guardian Lima continually seeks to operate more efficiently and produce more ethanol using fewer resources.

Ethanol production is an energy-intensive, 24-hour operation. Reducing the amount of electricity used to produce each gallon of ethanol is a major focus. Company officials recently turned to their electric utility, AEP Ohio, and Energy Management Solutions (EMS), Inc., to evaluate the facility and provide energy- and

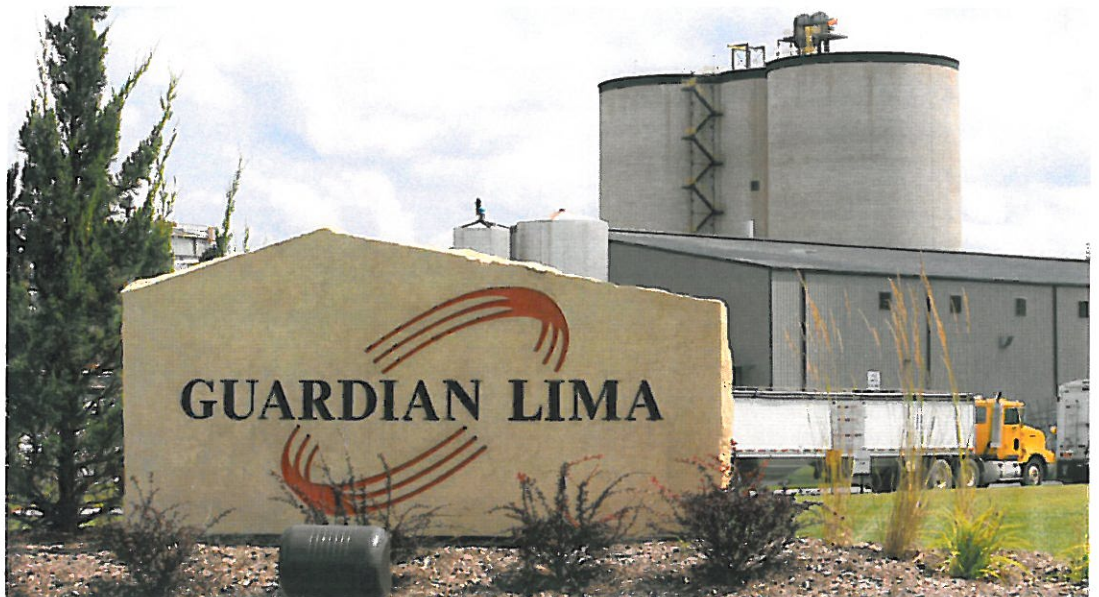
cost-saving strategies. EMS is a "Diamond Solution Provider" for AEP Ohio and works directly with many of the utility's largest industrial customers to identify energy conservation projects, calculate potential energy savings, and maximize available rebates and incentives.

"Because of the success Guardian has had with this program, the company is moving forward with additional process improvements to achieve greater efficiency and further reduction in our carbon footprint!"

Tracy Olson, Guardian Lima

EMS personnel collaborated with experts at AEP Ohio and Guardian Lima to assess plant operations, develop a list of recommendations, and quantify potential savings. They helped the ethanol plant secure \$651,000 in rebates from AEP Ohio's Custom and Self Direct incentive programs to implement energy-saving measures in eight sections of the plant, achieving an "interactive effect" that improved overall output and saved money at the same time.

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The modifications will save Guardian Lima more than 5 million kWh per year for an annual energy savings of \$300,000. A total of 16 projects were completed in 2013 without major disruptions in production.



Gary Swanson of EMS and Vince Jolly of Guardian Lima discuss ways to reduce energy costs at the ethanol plant.

Industry
Ethanol Production

Building Type
Plant & Offices

Program Types
Custom Incentive Program
Self-Direct Program

Measures Implemented
Production Process
Improvements

Total Project Cost
\$2,201,990

**Projected Annual
Energy Savings**
14,844,171 kWh

Payback Period
Without Incentives: 2.2 years
With Incentives: 1.6 years

"Downtime is never really an option in the ethanol industry, so the ideal situation was to bring in new equipment while the old was still operating," said Gary Swanson, president, EMS. "These projects were completed in a way that allowed Guardian Lima to achieve record production in 2013, producing 12 percent more ethanol than the plant had ever done in the past."

Process improvements were just the beginning. EMS staff also identified other solutions that could save Guardian Lima more than \$2,000,000 per year in energy costs. These included:

- Gathering quotes and finding more competitive electricity available in the market, saving 27% in energy costs;
- Reviewing options and helping Guardian Lima select a demand response company that will save more than \$200,000 per year by controlling demand and offsetting the higher cost of capacity charges from PJM Interconnection, a regional transmission organization that controls the movement of wholesale electricity in Ohio and several other states;
- Enrolling the ethanol plant in a voluntary program that allows it to control load during high energy cost days and receive market energy rates in return, saving up to \$120,000 on each of these days; and
- Identifying a new rate that could save the company \$300,000 per year in electric energy.

"Our job is to look at all of these options for customers," Swanson said. "We bring options and energy cost saving opportunities to increase their bottom lines."

Guardian Lima officials are committed to staying ahead in the ethanol production business. They realize that energy conservation measures pay for themselves over time and continually look for ways to reduce energy consumption and production costs. EMS and AEP Ohio are part of their team, providing valuable incentives and insights to fuel a stronger, brighter future.

