

AMEREX CASE STUDY

Efficiency Revealed // Lighting the way to ESG results

SITUATION

Amerex is a leading manufacturer of hand portable and wheeled fire extinguishers. The introduction of state-of-the-art gas detection systems along with pre-engineered fire suppression systems for vehicles, commercial cooking operations, and paint spray booths, has earned Amerex a reputation for innovative thinking across the fire protection industry.

The Amerex plant in Trussville, AL, utilizes approximately 2,000 machines to produce over 17,000 fire extinguishers per day. Even with Alabama's low energy rates, the 350,000 square foot facility was spending \$154,000 annually for lighting electricity and \$180,000 annually on compressed air energy.

As a subsidiary of McWane Inc., Amerex was challenged to do their part to help McWane deliver on its mission to significantly reduce energy consumption by deploying smarter, more sustainable methods of manufacturing.

The goal: a 20% reduction in total energy consumption.

"There is no single action that will allow us to achieve our environmental goals, instead we see a path to sustainability paved with hundreds of innovations that allow us to work safer, smarter and more energy efficiently."

ROD REISNER

AVP, Director of Innovation & IoT Programs



THE BRIEF

“Help us see what we can’t see right now - shine light on smarter ways to reduce energy consumption.”

MARK BAILEY // Manufacturing Technologies Manager

SOLUTION

To illuminate waste, Amerex started with lighting. Converting the existing lighting system to LED was a source for immediate energy savings and good return on investment. Fitting off-the-shelf LEDs from a leading manufacturer with Synapse's SimplySnap wireless controls added several key benefits:

1. Utilizing SimplySnap Smart Lighting Controls in place, they were able to create schedules, take advantage of daylight harvesting, task tune lighting to both enhance the safety and performance of the space, while also driving energy cost down even further.

2. Once installed, the SimplySnap Smart lighting solution did far more than control lights. The collection of sensors, controls, and gateways creates a wireless mesh network that enables communication and information gathering from other Synapse wireless products. Starting with lighting Amerex gained the framework for integrating other equipment and energy sensors into a simple, fully-integrated energy management system. This is more than a value-added gift with purchase. Through this simple lighting install, Amerex acquired the potential to view energy consumption, and other types of sensors used to monitor machine state and health

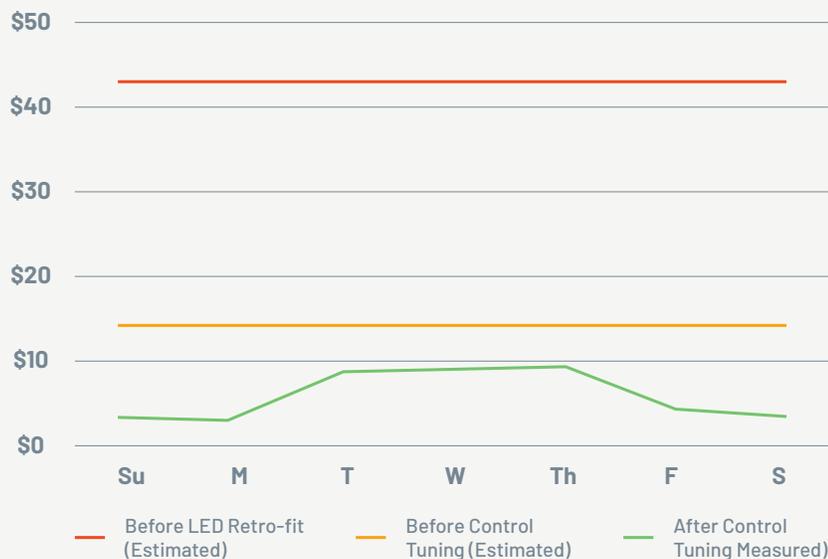
holistically. When integrated with SimplySnap Energy Insights, their team could now clearly see energy use and cost by zone, department, time, production process, or even focus in on singular pieces of equipment.

3. On top of this freshly deployed mesh network, Amerex added the SimplySnap Energy Insights platform. With the network in place, they could add very inexpensive Circuit Transducers (CTs) to virtually any piece of equipment in the plant and begin measuring its behavior.

Synapse quickly demonstrated that lighting could illuminate so much more.

As a proof of performance test, they started with their compressed air system. Compressed air is often referred to as the fourth utility, because it consumes so much energy and drives so much of the equipment involved in the manufacturing process. In fact, the first piece of data delivered was how much Amerex was spending on compressed air. Previously, that number was buried in the total electrical bill. With Energy Insights they were able to isolate that cost, monitor it and measure it, so it could be effectively managed.

WAREHOUSE LIGHTING ENERGY COSTS



"The lighting install paid for itself in direct cost reductions, but the big win was the mesh network. In essence, if we could shine a literal light on it, we now had the ability to collect data from it. In a matter of months, we turned energy wasting lights into the backbone of a state-of-the-art smart manufacturing plant."

PAUL WOODS
Chief Solutions Officer - Synapse

Over 2,000 pieces of equipment at Amerex are powered by compressed air each day. That adds up to a total cost of \$180,000 a year.

Further, they discovered that the maintenance and production teams suffered through transient drops in pressure that would slow, or even halt production. The consequences to production, inventory management, and indirect labor cost were unmeasurable and therefore, unmanageable.

The standard “fix” for transient pressure losses was the same as it is for most manufacturers – add another (very expensive) compressor.

The Amerex team chose a different course. Instead of spending money to add more capacity and burn more energy, they looked to SimplySnap Energy Insights for smarter ways to manage the system they already had.

Synapse deployed CTs to the plant’s existing compressors, at the trunk and at each consumption point. Through the lighting mesh network, the SimplySnap software was able to measure and communicate sensor data for both airflow and energy use. This data enables Amerex to monitor flow by department, correlate flow and energy consumption into dollars and cents based on the rate schedule for the plant,

and provide the facilities management team with the intel they needed to manage air flow more effectively. They could manage airflow by department to zero in on hidden leaks, and they could manage airflow by time – matching capacity demand to production schedules.

With this knowledge Amerex was able to pick a smarter path:

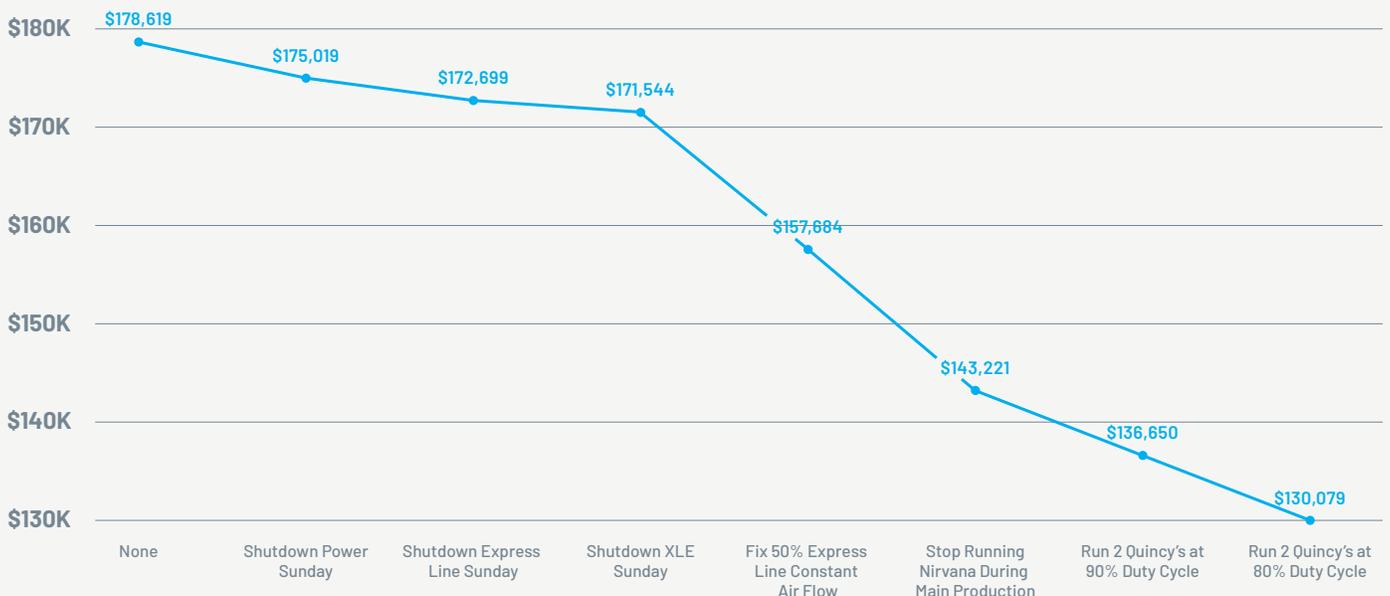
They found they did not need to purchase an extra compressor, which removed a significant capital investment as well as an on-going source of wasteful energy consumption.

They were able to match pressure capacity to demand, reducing wasted manhours and increasing output.

They were able to reduce energy waste associated with compressed air use.

For the cost of a handful of CTs Amerex was able to gain visibility quickly and easily into waste they did not know existed. Employing SimplySnap Energy Insights, they were able to turn that newfound visibility into meaningful process improvements.

ENERGY COSTS/YEAR VS IMPROVEMENT



RESULTS

In total, Amerex facilities managers were able to drive down energy use in some areas by a total of 50% doing more than their fair share to help their parent company, McWane, make significant progress toward its sustainability goals.

And, because SimplySnap is user friendly, and easy-to-use, and easy to scale, they have a reliable platform that can be optimized year after year for the life of the plant.

- ✓ **Compressed Air Energy Reductions:** Initial projects saved \$13,354/year with other identified reductions that will bring the total to just over \$48,000 per year in savings once all the projects are completed for the compressed air systems.
- ✓ **Lighting Energy Reductions:** With the LED retrofit and Synapse controls the cost for lighting the facility dropped from around \$154,000 per year down to \$35,000 for a total savings of \$119,000 per year.

TOTAL ENERGY COST BEFORE SYNAPSE

\$334,000/year

(\$154,000 lighting + \$180,000 compressed air)

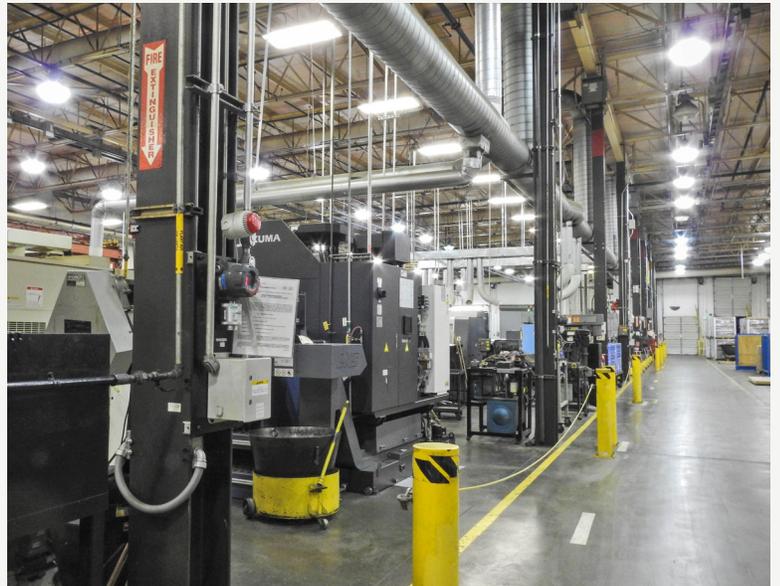
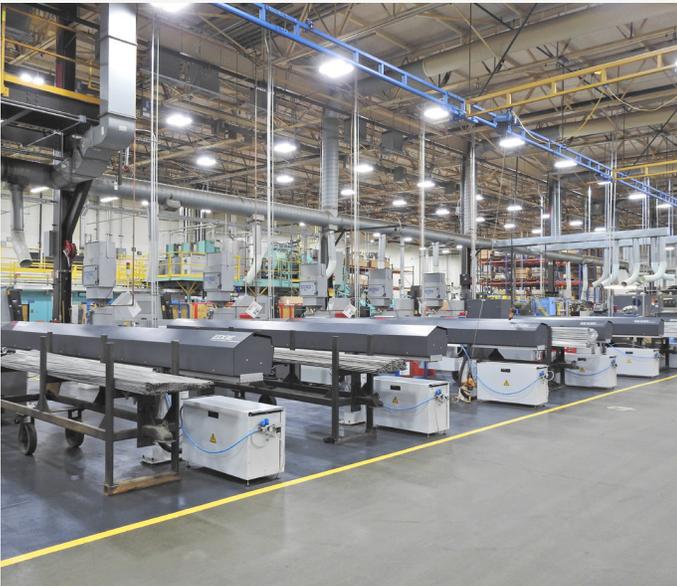
TOTAL ENERGY SAVINGS AFTER SYNAPSE

\$167,000/year

(\$119,000 lighting + \$48,000 compressed air)

TOTAL ENERGY REDUCTION

50%



INSIGHT

“You don’t know what you don’t know. And you can’t manage what you can’t measure. The lighting and air solutions are just a small part of the story. We now have a way to understand where to focus and measure our improvements.”

HARRISON BISHOP // President and CEO