



For world leader in fittings, valves, and flow control products, SONARAY™ proves to be an exceptional fit.

Over \$170,000 annually in operating costs; that's what one of the world's largest and most respected manufacturers of copper fittings was paying *just in their energy lighting bill at one facility*. "Most people just have no idea how much of their energy bill is going to lighting," says Robert Seward, National Sales Manager for SONARAY™ LED Lighting.

The company, with average production rates of between 110 and 120 hours per week, was looking to enhance lighting and bring areas of the plant that were below 20 foot-candles of light up to an average of 25 foot-candles. It should be noted that safety is a REAL priority in this company. Since there are many areas of complex manufacturing involving high temperature environments and machinery, it is of extreme importance that lighting and safety go hand-in-hand. Some companies like to say they make things safe, but this company puts extreme emphasis on safety for every single employee. This was evident to SONARAY™ from the very outset of the project. As such, it was important to select lighting that fit well with the "safety first" culture of the facility.

Having been through an energy audit, the company understood that LED lighting would help create a facility that was safer, better for the environment, and would aid in cost savings for the company, but

executives were still surprised with how the investment in SONARAY™ fixtures exceeded their expectations.

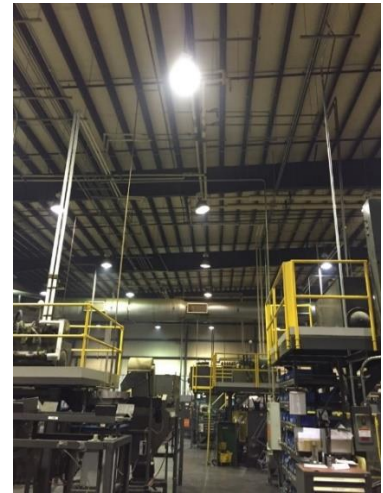
SONARAY™ was in competition with four other LED lighting brands for this re-lamping and the re-lamping itself covered virtually the entire facility with both inside and outside lighting.

For inside lighting alone the company was using more than 2.7 million kilowatt hours annually, which accounted for the bulk of their lighting costs. Most of those lights were of the 400-watt HID (high intensity discharge) variety. And, most of those lights hung directly in the production area as shown in the picture on the right.

The lights were relatively old and generally had been replaced on an “as needed” basis routinely. In general, the factory had foot-candle readings from 15 to 25, but certainly select areas were very dark and the 15-foot candle reading did not provide nearly enough light to optimize conditions for the company.



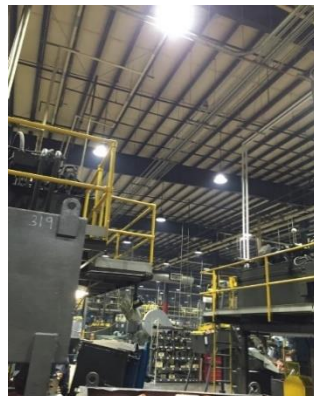
For the production areas that had the 400-watt HID fixtures at a height of 18 feet, SONARAY™ recommended using 150-watt Ice Breaker High Bays, shown on the left, in the applications. The 150-watt Ice Breaker uses less than 40% of the wattage of the incumbent light and provided the company with 30+ foot-candles of output in all production areas. In all, 390 150-watt Ice Breaker High Bay luminaires were used in the production area.



In one other production area with the need for very precise lighting, and also at a higher ceiling height (approximately 23 feet), the 200-watt Ice Breaker High Bay was utilized and again yielded exceptional output and approximately 30 foot-candles of light. 109 of these units were used.

There were also 62 of the 1000-watt HID fixtures replaced in various locations, mainly in production areas of the facility. For these areas, SONARAY™ utilized 250-watt high bay luminaires. In these applications, wattage of the new high bays was 25% of the wattage use of the older HID fixtures.

Various pictures of the production floor, including well illuminated test and monitoring equipment that is critical for optimal quality and production appear below.



In addition to the production area, various other parts of the factory including compressor rooms, exterior offices, mezzanines, bathrooms, and waste treatment offices, among others were re-lamped. In these areas, SONARAY™ replaced a good number of T12 fixtures with our 44-watt Matrix Light Bars. The Light Bar is a versatile and flexible fixture, capable of being configured in a spring loaded bracketing system so that 1-5 light bars can be contained within the apparatus. For this application, individual light bars were used since they were essentially being used as a T12 or 2x4 tube replacement.



There were also a number of 150-watt SONARAY™ flood lights used on the exterior areas on the buildings, replacing 400-watt HID wall packs. Again, the lumen output of the SONARAY™ fixtures gave the company a safe and clear view of their outside parking areas and the building. The company reported that with the old lighting the company's security cameras could not identify colors on automobiles in the parking lot, but after the installation of the SONARAY™ fixtures, the exceptional output and elevated CRI (Color Rendering Index) of the new luminaires made it possible to see not only the cars, but their color as well. This obviously enhances security for the company and makes identification and movement outside easier to detect.

In all, the facility replaced more than 700 total fixtures, and in general the company has seen almost a 20% increase in foot-candle readings in most areas of the facility with only slight exception. Various other photos of the installation, mainly in the highest hour volume production area appear below.



In all, the company was able to cut energy usage annually from 2.8 million kilowatt hours (kWh) to well under 1 million kWh per year using SONARAY™. This represents roughly a 68% decrease in kWh usage annually and translates into \$117,000 in savings per year in energy usage alone.

Since many of the fixtures used in the installation also have a rated lifetime of 70,000 hours, the company will continue to save for many years to come. In fact, even if the company burned lights 24 hours a day or 8,760 hours per year (24 x 365), the luminaires should see no noticeable decrease in original light output for at least 8 years. With this facility's operation schedule, the lighting should in all likelihood last much longer. This will result in energy savings and in other savings too because maintenance costs will be very limited. For example, there will not be the need to routinely have maintenance workers be on scissor lifts to switch out defective lights since there aren't likely to be many burned out lights.

The installation was handled by the company's electrical contractor so no data is available on the actual cost of installation. Obviously this would elongate the payback period. It should be noted, however, that the installation was based on time and material and went so fast that there was additional money left in the original earmarked budget. That money was spent on additional SONARAY™ lighting due to the company's overall satisfaction with SONARAY™ fixtures.

The following chart shows some of the savings metrics associated with this comprehensive installation.

Category	Original Lighting	SONARAY™ Luminaires
Total number of fixtures	722	722
Luminaire life time	Varies – generally low	Varies – generally very high – up to 70,000 hour rated life
Total kilowatt hours used annually	2,873,092	917,233
Annual cost of lighting energy spent - electricity	\$172,386	\$55,033
Total fixture cost – Re-Lamp	NA	\$222,786
Annual savings in electric cost	NA	\$117,353
Utility company rebate – one time	NA	\$108,818
Federal income tax credit – one time	NA	\$180,000
Years to Payback (lights only) with tax credit	NA	IMMEDIATE
Years to Payback (lights only) – energy saving and utility rebate	NA	< 1 Year

Finally, there was another piece to the case that put SONARAY™ in an advantageous position over others seeking to provide fixtures for the re-lamping. SONARAY™ was told point blank that the company was pleased with the service provided by SONARAY™. On one occasion there was a minor hiccup with the demo lighting provided in the initial testing of all parties lights. SONARAY™ found out about the issue in the morning, and had a solution by the afternoon. Executives in the company communicated to SONARAY™ that such responsiveness was a key factor in the selection of SONARAY™ over other manufacturers.

The company is currently evaluating other facilities for upgrade, while this facility considers the project an immense success based on overall cost savings, reaching the desired lighting levels, and providing what amounts to a safer, cleaner work environment for employees.

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