Warehouse Before – 21-foot candles at 12 feet using 400-watt metal halides

Warehouse After – 30-foot candles at 12 feet using only 90 watts with triple Obi Light Bars

For Large Poultry Further Processing Facility, New SONARAY™ Obi Triple Light Bar is the Perfect Recipe for Savings

Each engineering team in this 21,000-employee, $6.5 billion revenue, privately held poultry company is challenged by the corporate leadership to annually find at least one way to significantly cut energy usage. The company has been in business for nearly a century and holds true to some very important values and philosophy on product quality and safety. Just as important to its core philosophy of providing safe, high-quality, U.S. grown family farm organic poultry to its customers around the globe, is sustainability. This means that the company, and its employees and leadership are constantly looking for ways to not only improve their products, safety, and work environment while making a fair profit, but also looking for ways to reduce costs, time-to-market, and dependency on vital natural resources that will certainly impact the generations to come in the next century.

For one of its Mid-Atlantic based further processing facilities, this meant looking at LED lighting as a possible alternative to traditional HID high bay lighting.

Lighting in a "further processing" facility comes always with a unique set of challenges that aren't always present in many settings. To understand these challenges, it is probably helpful to understand exactly what a "further processed" product really is and how important safety regulations are in facilities that process the foods we eat. In the United States, the USDA, or U.S.

Department of Agriculture sets and stringently monitors food safety and the environments where our food is prepared. This means that safety is at the forefront of everything (and we mean everything) that a "further processing" plant does. The USDA's Food Safety and Inspection Service (FSIS) defines "further processing" in its code of regulations as "smoking, cooking, canning, curing, refining, or rendering in an official establishment of product previously prepared in official establishments." And just as this statement itself may seem a little complicated, the regulations and restrictions around this type of facility are very complex and strict. After all, one slightly tainted product of any kind for any reason can cost a facility hundreds of thousands of dollars in real cost and even more in public relations. So, to say again, safety is THE issue when looking at lighting in a food processing facility. If you can't meet that requirement, you go no further in your effort to be successful.

This facility had primarily been using traditional types of lighting – mainly 400-watt HID High Bay lights, which pulled 462-watts per fixture. And, to begin, they wanted to look at replacing these fixtures in their freezer, cooler, loft, warehouse, rub room, and various hallway locations. So, to start, they had 141 fixtures that were candidates for replacement as a first phase.

In addition to wanting to save energy, safety was a major concern for the Facilities Maintenance Engineer and his team in this plant. Recently, a nearby competing poultry facility had experienced a fire in their building caused by an old lighting fixture melting and dropping down onto the wax boxes that hold the pallets for processed chicken. That fire cost the facility $140,000 in damages and lost production time. This got the attention of the team and so the concept of looking at new lighting took on a different angle. Plus, the older lights were not only just not energy efficient, but their color temperature left something to be desired. What this engineering team and leaders at the plant had found was that a 5000K color temperature provided better lighting, made employees more attentive, more comfortable, and ultimately provided a safer environment for both the workers and the consumers. SONARAY™ came into the picture with a custom answer for this customer, but not before there was some real collaboration and teamwork.

SONARAY™ Obi Light Bars are available in an NSF-certified version, but of course there were other elements that had to be considered and worked on to go beyond USDA regulations and meet the very specific needs for the facility team. The customer wanted motion sensing, had a stringent form factor in mind, needed some specific fixture enhancements to meet all regulations, and of course cost and delivery would be vital to the project. You see, for most processing plants there is a very slim window for installation since the plants operate almost 365 days per year, 24-hours a day, 7-days a week with only a few dates slated for plant shutdown. The SONARAY™ sales and engineering team went to work closely with the facility and the engineering team there to make sure that all the safety and functional parameters for lighting were met. This project that had started as finding a viable replacement for the existing lighting at this facility had turned into a project that could lead to finding a custom designed luminaire that would not only check all the boxes but lead to a fixture that could essentially change the way food processing companies might generally look at light. After all, not only this industry

leader but anyone else in food processing basically have the same issues when it comes to lighting.

The new fixture would be placed in various areas of the facility, most of which were at a height of 12 feet. The previous fixture had averaged 21-foot candles of light at this height, but the new SONARAY™ fixtures produced 30-foot candles of light at the same height, resulting in an increase of almost 43% in light output over the older fixtures. Further, the fixture was the 5000K color that would provide just the right amount of clear, natural light in the optimum color temperature. And, motion sensing was among the other additions. The facility had been burning lighting 24-hours a day, but the motion sensing would allow the building to maintain safe levels of light when someone was in the area, but simply turn off the light when it wasn't needed. This allowed the facility to reduce its true "on" time in many areas down to around 16-hours per day.

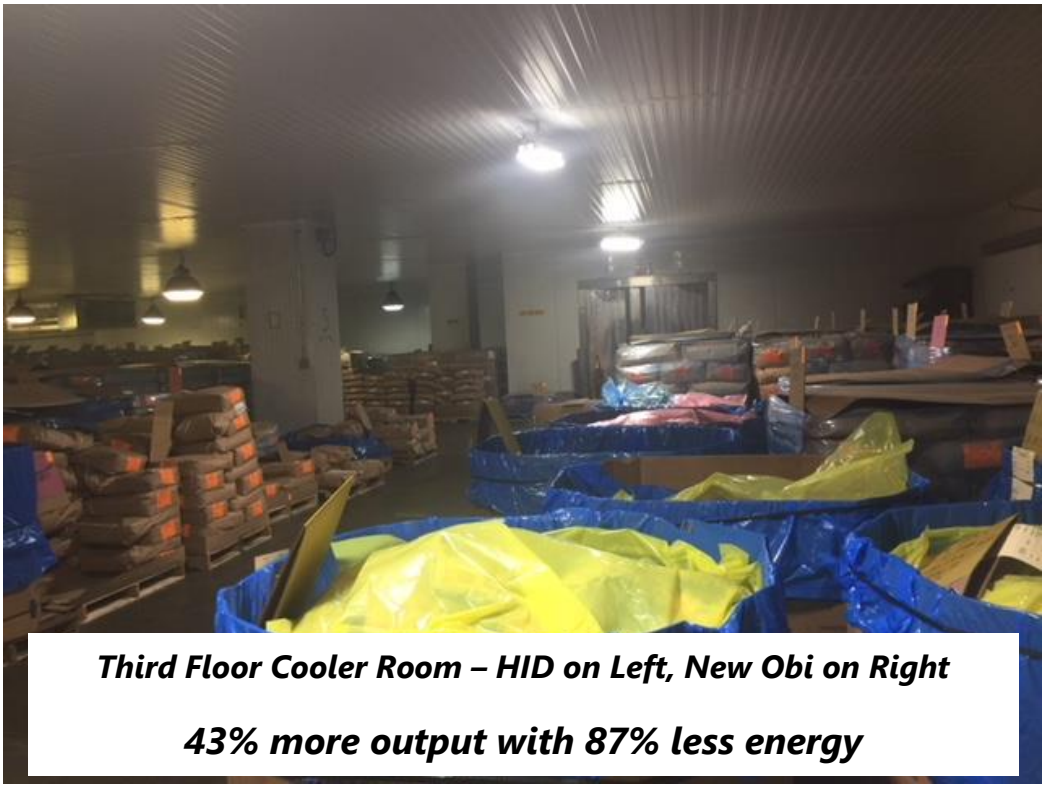
Triple Bar Obi Light Bar customized

The triple bar Obi also decreased the wattage per fixture from 462-watts on the old fixture down to 90-watts on the new fixture. By studying the kilowatt usage patterns and considering the wattage and motion detecting, along with the heat impact of the new fixture (Facility HVAC engineers found savings there too!) the triple bar Obi became a fixture that reduced the per fixture kilowatt usage from 4047 kWh/yr. to 520 kWh/yr. This results in an 87% decrease in kilowatt usage. This is not only something great for sustainability, but also for the bottom line because EACH fixture is projected to save the facility $282 per year.

Also factoring into this savings was an impressive rebate from the utility company serving this location. The 90-watt fixture was deemed to be eligible for rebate on the replacement. This sounds normal until you consider that this is the FIRST time this major utility company has approved such a rebate for a 90-watt fixture replacing a 400-watt fixture in this environment. The reason for this is that the lumen output of the 90-watt fixture far exceeded what the utility company typically has seen in much higher wattage replacement luminaires.

To follow is a photo showing the difference between the 400-watt HID and the new triple Obi Light Bar in a side-by-side comparison. It's interesting to see that foot candles have increased 43% while the actual energy consumption is down 87%. Obi Light Bars truly utilize the best in chip set technology and design to provide exceptional lumen output. It's important to compare fixtures because 90-watts does not always look the same if the fixture is not high quality and

designed to exacting specifications. Look at the photo below because you can really see the difference with Obi from SONARAY™.



Third Floor Cooler Room – HID on Left, New Obi on Right

43% more output with 87% less energy

Project Metric Summary

Category	Original	Replacement
Fixture Quantity	**141**	**141**
Type of Fixture	**400-watt HID**	**Triple 30-watt Obi Light Bar**
Total Watts per Fixture	**462**	**90**
Kilowatts used per Fixture yearly	**4047**	**520**
Total annual Kilowatts used	**570,627**	**73,320**
% Reduction in kW usage	**NA**	**87**
Annual $ savings per fixture	**NA**	**$282**
Annual $ savings total	**NA**	**$39,762**
Utility Rebate $	**NA**	**$27,072**
Project Cost (includes install)	**NA**	**$68,533**
ROI (payback time in years)	**NA**	**.98 years - < 1 year**

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