

# 8 ILLUMINATING LED LESSONS



COURTESY: PHOENIX LIGHTING

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**B**ack in 2011, LED lighting was seeing some of its first installations on ship-to-shore cranes. In the nine years since, the lighting industry has progressed significantly, and LED lighting has fundamentally changed the way we illuminate terminals. Throughout this evolution, both the lighting and the terminal industries have learned a lot. Here are eight of the biggest highlights:

## 1. All fixtures are not created equally.

While the components in every LED fixture are generally the same, product differentiation comes from design and integration. LED lights should incorporate components that increase performance and have optimized brackets, lenses and optics to ensure the most reliable and effective lights for port environments. If poorly made, even LEDs can incur additional maintenance and repair expenses. Plus, a well-constructed, ideally weighted fixture can mean a better EPA rating and easier installation for the port.

## 2. New lighting technology is virtually maintenance free.

LED has brought an entirely new mindset to ports when it comes to lighting container yards. Maintaining yard lighting was once a full-time job that cost the port thousands of dollars every year. Manufacturers would sell robust service contracts with their fixtures because the traditional lamps and ballasts would need to be replaced so often. Before upgrading their high pressure sodium (HPS) fixtures to LEDs, the Port of Savannah was spending nearly \$40,000 on maintenance annually. With a light source that now lasts many years, high mast light maintenance is a thing of the past. Lighting manufacturers are now challenged to set themselves apart through purpose-built construction and technological advances.

## 3. The benefits of LED go far beyond energy savings.

The improved efficiency and corresponding energy savings gain the most headlines for LED. However, no one sees a bigger benefit than the crane operator. The instant-on features along with shadow and glare reduction and better illumination of operations have changed the game. Nassau Container Port's previous 1000W metal halide lights did not provide adequate lighting levels or coverage to meet safety standards. Today, their new 500W LEDs provide bright, clear illumination at half the wattage.

## 4. The lighting industry has joined the technology race.

Industry authorities and manufacturers throughout the supply chain are putting more focus on research and LM80 data that will improve their lighting technology, therefore creating better optical control, less glare, color stability and lengthened product lives. An increasingly competitive playing field means that continuous improvement will always be the goal.

## 5. Power quality is a new factor for consideration.

Although the quality of the power supply was not a factor for traditional lights, it is critical to the performance of LED fixtures. Proactive conversations about harmonics and power variation at ports are crucial, as is understanding the installation environment. Terminals must understand the significant impact that power conditions have on LED technology before making a large investment.

## 6. Better light is better. Period.

From container yards to machine houses, reach stackers to ship-to-shore cranes

– no one would argue that LED lighting improves visibility. The different optic, color temperature and lumen output options all play a key role. Plus, when it comes to ROI, in many cases LEDs have a payback period of three years or less.

## 7. Less is more

When the port industry adopted the LED revolution, many thought that this was the pinnacle of lighting efficiency. But we are quickly learning that there are even more opportunities to save. That's where integrated control systems come in. By using controls to schedule their new LEDs, the Port of Freeport gained an additional 30% energy savings. This, in combination with their HPS to LED upgrade, led to a total 70% reduction in energy consumption, saving 1,593,970 kWh or nearly \$127,518.

Many individuals in the terminal industry didn't realize how much light was wasted until they were given the power to control it with timers, dimming and even occupancy sensors. A security camera can pick up a clear picture with only 10% of the light output from a high mast fixture. For areas without activity in a container yard, why use 100% of a fixture's output when 10% is plenty? Ports can save thousands by upgrading to LEDs and thousands more by using controls to further optimize their energy consumption.

## 8. There are always more lessons to be learned

Market conditions and industry guidance seem to change every day. You can't take your eye off the ball for a second!

The next nine years will bring even more lessons, and we can say for certain that those lessons will drive additional improvement and, ultimately, even better solutions for ports and terminals worldwide. ●