



Illuminating the benefits of port lighting

Photo courtesy of Aeon Lighting Technology Inc

Since the introduction of LED lights (Light Emitting Diode) to the ports industry, to replace traditional high-pressure sodium lights (HPS), there has been an influx of companies offering various LED lights. Sheila Moloney reports...

At World Port Development we are in favour of anything that reduces impact on the environment and are happy to report that the majority of lighting companies serving the port industry are offering a first-class product with obvious environmental benefits. Having written several articles on terminal lighting it is a simple fact that the old-fashioned HPS lights require frequent maintenance for lamp and ballast replacements and that the energy costs are so much higher compared to the use of LED lights. Some even claim that by switching to LED you can achieve a return on your investments within 12 months. HPS lights need a 'warm-up time' of around 20 minutes before its light output reaches full intensity while LED lights provide you with full light intensity as soon as they are switched on. Perhaps this explains the reason why so many operators leave their HPS

lights on 24 hours a day - seven days a week! In addition, LED lights provide a white bright light, compared to the 'orange' glow of HPS lights, which both manufacturers and operators agree will give a much safer environment to work in. All-in-all the main drive is energy savings and there is an obvious move from manufacturers to provide their potential customers with the right lights. At PSA Antwerp in Belgium, they are currently testing Phoenix LED lights which are installed on one of their cranes. Although this is still in a test phase, Christian Reinhold, Project Manager Crane Engineering at PSA Antwerp, explains that they are considering both LED and LEP lights. Although information on both of these lights are available from manufacturers it is still difficult to obtain independent research. "The information is changing quickly, so it's difficult to make up one's mind," said Reinhold.

Phoenix Terminal Solutions

Just as LED technology has become the standard for terminal equipment, LEP fixtures have proven to be ideal for high mast yard lighting. In response to the demand of the industry it might be no surprise that Phoenix Products

Company Inc, offering durable lighting solutions for container and bulk handling equipment, joined forces with Bright Light Systems to offer premium Light Emitting Plasma (LEP) fixtures. To cater for the industry's first and only global sales agency exclusively serving container, intermodal and bulk terminals, Phoenix has introduced a new company - Phoenix Terminal Solutions. The two lighting companies share similar ideals and objectives. "We are pleased to be working with our new partners at Phoenix Terminal Solutions," said Brad Lurie, President and CEO of Bright Light Systems. "Our experience and success with LEP high-mast lighting in port and bulk terminal applications is a perfect fit. Together we can offer customers enhanced lighting choices and the latest technology. Both BLS and Phoenix Lighting have demonstrated a track record of quality and innovation. Our combined strength will address market demands and be beneficial for all parties." The new company represents a select number of trusted brands that all share a common goal - offering modern technologies that deliver safety, as well as operational and environmental benefits to terminals. Phoenix Terminal Solutions has teamed up with LASE - a leading supplier

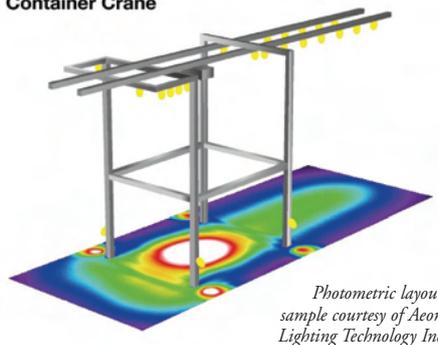


Photo courtesy of Aeon Lighting Technology Inc

for laser measurement systems. "We are gladly looking forward to our new partnership with Phoenix Terminal Solutions. LASE strengthens its presence by this partnership in the North and Central American regions. Phoenix stands for quality as well as high-value products and services, which also reflects the philosophy of LASE," said Lars Ambrosy, CEO of the Germany-based manufacturer. Phoenix Terminal Solutions aims to build on the recent LASE bulk terminal successes with heap volume measurement systems and automated solutions for wagon car tipplers. Terminals worldwide should expect to feel immediate benefits of this company. "Terminal Investment Limited (TIL) is very happy to learn that Phoenix is now present in the yard lighting technology and has now become a complete container terminal lighting system supplier. Phoenix is TIL's preferred and

only LED supplier for our container handling equipment and can now offer complete solutions," said Marc Desmons, Manager of Engineering Services for Terminal Investment Limited (TIL).

Container Crane



Photometric layout sample courtesy of Aeon Lighting Technology Inc

0	62.5	125	187.5	250	312.5	375	437.5	500	lx
0	3.75	7.50	11.25	15.00	18.75	22.50	26.25	30.00	fc

LEP lights

Bright Light Systems recently completed a BLPI000 LEP High Mast Luminaire replacement project at the Port of Seattle. The Port is over 100 years old and is the 10th largest port in the United States. It creates nearly 200,000 jobs in the Seattle-Tacoma area and contributes USD17 billion to the local economy. Terminals 90/91 serve commercial workboats and 180 cruise ship departures each year for Carnival, Princess, and Royal Caribbean lines. The terminals are also home to the Northern Fishing Fleet. Work on the docks goes on 24/7, and the existing 180 high-mast High-Pressure Sodium (HPS) luminaires had reached their useful lifespan. HPS wasn't delivering the light coverage the Port needed to meet current standards and ensure optimum safety in a night time working environment. And there was a clear opportunity to save energy costs using a new lighting technology. With existing poles at 65 feet high, the Port of Seattle retrofitted high energy use 1000W HPS with Bright Light Systems 540W BLPI000 Light Emitting Plasma (LEP) luminaires. LEP luminaires provide increased colour recognition, are dimmable to 20%, and carry a lifetime rating of 50,000 hours. Energy costs for Terminals 90/91 are projected to be reduced by 50%. LEP luminaires are reliable, provide superior light distribution, and the crisp white light (5200K) enhances security cameras' image acuity and the ability to recognise faces. According to Bright Light Systems the projected annual kWh saved comes to 508,518 kWh, reflecting in a projected annual energy savings of USD40,681.00 (pay-back will be less than 4.8 years) and will save the environment in reduced CO₂ emissions of 351 metric tonnes.

Aeon Lighting Technology Inc

As a pioneer of industrial LED lighting, Taiwanese high-power LED lighting company Aeon Lighting Technology Inc (ALT) offers a full range of industrial lighting products from indoors to outdoors. They are also the first LED lighting company to transfer the technological know-how of the server industry to LED lighting, featuring patented heat-sink design to create the highest standard in the industry, say Aeon. Its powerful performance and robust durability makes ALT ideal for extreme applications such as marine lighting, port & terminal lighting, explosion proof lighting, etc. According to ALT, their Lodestar Series Floodlight is in fact one of the brightest LED lights in the world, going up to an astonishing lumen output of 50,000 lm (485W). It is integrated with a patented

aerospace structural design and provides consistent light intensity and high performance even in extreme climates. ALTLED Floodlights can help the LED chip reach the highest efficiency due to its patented heat dissipation technology and high quality self-developed driver. By partnering with large LED manufacturers such as CREE and Osram, ALTLED Floodlights can continuously enhance its lumen output. As the best lighting solution to apply in port and terminal environment, ALTLED Floodlights are IP68 waterproof and anti-corrosion proof, and it also considers the wind resistance. There are aerodynamically engineered drilled holes to mitigate drag. Furthermore, the lamps are light weight for better safety, and easy installation. With high brightness, system stability, and total water-resistance, the floodlights are created to full-fill port and terminal's user demand. The company has had its major successes mainly in the Far East with LED installations on numerous container cranes in the port of



Photo courtesy of Aeon Lighting Technology Inc

Taipei and port of Yang Ming (both in Taiwan). At Taipei Port they installed 68 units 145W ALT LED floodlights on a container crane replacing 34 pieces 1000W HPS lights resulting in a 70% energy saving. The company also installed high-mast installations in several Chinese ports. Like any other LED manufacturer it has spread its wings and has installed LED lights on the container cranes at the SSA Long Beach Terminal in California, USA. 

Your LED Lighting Checklist



Before: (8) 400W High Pressure Sodium high mast fixtures 100' mounting height



After: (8) 120W High Power LED high mast fixtures 100' mounting height

LeeAnne Crane from US-based LED Experts LLC has provided us with a quick reference checklist before you make a decision on your LED lighting system.

LED (Light Emitting Diode) lighting technology has been the most innovative change in lighting for over 25 years. The technology continues to evolve at an astounding rate providing great opportunities to not only reduce energy and replacement costs, but to improve the overall lighting for your facility. The use of high power output LED's are required to produce the appropriate lighting levels and conditions for high wattage fixtures. Most terminals have "high mast" lighting which are typically 80 to 100 feet high with 6 to 8 light fixtures consuming over 1100 watts per fixture. The proper function of this lighting is critical to the safety, security and operation of your facility.

So, is LED lighting a viable option for your facility? The answer is yes, but you better do your homework first. In order to achieve a successful project, it is very important that you purchase the correct product for the application. I know what you are thinking, "How do I do that? I'm not a lighting expert!" That is the exact reason I am writing this article. I want to provide you a clear direction in making the decision to upgrade your lighting to LED.

- 1) Research the manufacturer's experience and success in the LED market. At this point in the technology, the manufacturer should be able to provide you with references (at least 3-5 that you may contact directly).
- 2) Request a photometric layout using the manufacturer's product. This is a computer generated lighting plan using automated lighting software that will show you the light readings of your facility after the application of LED. This service is usually provided for free from the manufacturer.

However, sometimes the factories manipulate the program to overstate the results. For this very reason, it is critical to follow through with steps 3 and 4.

- 3) Insist on a pre- and post-sample site evaluation. The manufacturer provides samples and performs a test section that will enable you to visually see the results. Once the section is chosen, foot-candle pre-readings should be taken at 10' increments underneath, between, in front of and behind the fixtures. After the samples are installed, post-readings should be taken in the same places as the pre-readings.
- 4) Evaluate the visual results as well as the pre- and post-readings. Are the actual readings within 10% of the photometric plan readings? How does the area look and feel? Are there areas that are bright and then light drops off drastically? Are there dark spots or shadows?
- 5) Review the manufacturer warranty. Most products have a minimum 5 year warranty for all components with some products offering 10 year warranties on the LED diodes themselves. Does the warranty cover repair or replacement? What happens if only part of the LED's stop working? Does the warranty cover any labour costs to replace the defective product? After all, one of the many benefits of LED is its long life providing substantial savings in maintenance cost, particularly 100' light poles!

You may want to look into hiring an outside professional to assist you in the process of deciding which product is best for your particular facility. 

LeeAnne Crane is a Lighting Specialist and Certified Lighting Consultant with over 29 years experience in the lighting industry. Since 2009 Crane has specialised in the LED market and completed numerous successful projects all over the country and abroad.

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