

# Highlighting Lighting



*DP World Vancouver deployed 14 of Phoenix's 300W Modcom Hi-LED floodlights*

## **Terminal lighting continues to be a hot topic as World Port Development reports...**

Over the years, we have seen a shift from the use of high-pressure sodium (HPS) light technology for terminal lighting to an increase in the use of LED light technology including the installation of LED lights on cargo handling equipment. Benefits of LED lights are obvious compared to HPS lights; energy savings, fast return on investment, brighter white light which contributes to safety - the list goes on. Although LED lights were often used as a replacement product of HPS lights, nowadays we see that new projects are specified with the use of LED in mind.

### **Canada**

Canada's Port Metro Vancouver is one of the fastest growing container ports in North America. Container cargo is expected to double in the next 10 years from the 2.9 million TEU they handled in 2014. DP World Vancouver is one of two container terminals located in the inner harbour of downtown Vancouver, and is a key gateway port for the Trans-Pacific Trades between Asia and the Pacific North West. In addition to serving the local market for British Columbia, DP World Vancouver provides direct daily intermodal

rail connection to the important markets of Eastern Canada and the US Mid West, covered by both Canadian Pacific (CP) and Canada National (CN) railways (see our Canadian Port Survey in the April issue). Since 2006, DP World Vancouver has been growing and expanding its operations. Historically the terminal used high-pressure sodium (HPS) technology for its equipment lights. The HPS fixtures required frequent maintenance for lamp and ballast replacements. The HPS fixtures also require a warm-up time of up to 20 minutes before light output reaches full intensity. This led to operators leaving the fixtures on 24 hours per day to avoid this operational delay. In 2012, DP World Vancouver started exploring other options for its mobile equipment lighting. In the fall of 2012, DP World Vancouver deployed 14 of Phoenix's 300W Modcom Hi-LED floodlights on its quay crane trolleys. The superior quality was instantly realised in the light output over the vessel and in the hold. The reduction in maintenance requirements and energy consumption were recognised soon after. After the initial success with LED floodlighting, several other fixture types were then deployed for trials (walkway lighting, area work lighting, and portable lighting). In a short time, the advantages of LED technology became more apparent. In the

spring of 2014, an RTG was fully retrofitted with LED lighting (including 15 of Phoenix's 150W EcoMod LED floodlights and 42 of Phoenix's 17W PCWL LED walkway fixtures). This resulted in a 3% reduction in fuel consumption. Later that year, DP World Vancouver deployed a retrofit of its portal beam lighting on three quay cranes, using the same Phoenix LED fixtures. Operators continued to push for additional RTG retrofits. RTGs with LED lighting were strongly preferred due to better illumination which creates a safer more productive working environment. In response to this feedback, a second RTG was retrofitted with Phoenix LED floodlights.

### **LED light benefits**

Since the switch to LED, DP World Vancouver has experienced increased and improved light output. Operators prefer the crisper white light that the LED fixtures provide because it creates a safer, more productive work environment. Instant-on functionality allows operators to turn the lights off when they are not required. The terminal has seen reduced energy consumption - both electrical on its quay cranes and diesel on its RTGs. It has also experienced no lighting-related outages on its cranes with LED fixtures. In addition, maintenance costs have been substantially reduced. No



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light sources have required replacement since the original installation of LED fixtures in 2012. This has reduced costs, decreased unplanned downtime and increased safety.

### The future

DP World Vancouver is in the process of ordering a new quay crane. It is scheduled for delivery in 2016 and will be fully equipped with Phoenix LED lighting. This decision was further supported by an incentive from the local power company. Over the next few years, DP World Vancouver will continue to retrofit their quay cranes and RTGs with LED fixtures. Operators and terminal management look forward to the benefits of a safer well lit working environment, reduced operating costs and higher equipment efficiency.

### Indonesia

In Indonesia the new state-of-the-art offshore container terminal PT Terminal Teluk Lamong, just off the coast and next to neighbouring and much congested Surabaya port, East Java, was recently inaugurated by the President of Indonesia and a group of distinguished officials. It was an historic moment for Indonesia, an important milestone in the country's transport development programme that is improving the movement of goods through its vast waterways. The newly Lamong Bay Terminal is the jewel in

the crown of Indonesian state-owned terminal operator PT Pelabuhan Indonesia III (Persero), “Pelindo III.” Its automated container handling system, provided by Konecranes, consists of 20 Automated Stacking Cranes (ASCs), Remote Operating Stations (ROSs), and associated container yard infrastructure. Konecranes also provided 10 Ship-to-Shore (STS) cranes and 5 straddle carriers. Lamong Bay Terminal's automated container handling system incorporates a host of technological improvements including stronger redundancy throughout the design, and an improved Remote Operating Station (ROS) and Graphical User Interface (GUI). Konecranes' unique Active Load Control technology was extended with an advanced machine vision system which detects containers and container profiles with great precision. As the container approaches the target, the container profile becomes more accurate. The effects of dust, fog etc. are minimised. The system senses neighbouring container stacks from the point of view of the load, and performs canyon driving. The automated container handling process becomes more precise and predictable. Lamong Bay Terminal's automated container handling system is designed and built by Konecranes across all of its constituent parts: from the Active Load Control system of the ASCs that eliminates container sway, to the automation

technology and software, and up to the GUI of the Remote Operating Stations.

### Terminal lights

The first phase of this new container terminal was equipped with a new LED lighting solution developed by Italy-based ewo. The project comprised of a total of 72 LED floodlights and promises to significantly reduce the cost of electricity and maintenance. Total terminal area was around 110,000sqm with the lights mounted on poles each with a height of 35m. The pole configuration is simple: 11 x F32\_LP32 each consuming 500W@450mA. According to ewo the energy savings compared to a more traditional 1000W - high-pressure sodium lights (HPS) is around 55% (approximately 43,2kW). This reflects in around 108.864kg CO<sub>2</sub>/per year of CO<sub>2</sub> savings. Back in 2013 Pelindo III approached ewo after they successfully finished their terminal lighting project in Venice, Italy. According to the company the Indonesian port authority was quite keen to work with ewo on this new project due to their experience and reliable solutions. But their biggest challenge for this project to overcome was the hot and humid climate (up to 95% humidity). The technology's modular nature and wide range of configuration options enabled ewo to create tailor-made solutions that are optimally suited to each project and in 2014 they were awarded the contract. 