



PROVIDING PORTS WITH CUSTOMISED, COST-EFFICIENT LIGHTING SOLUTIONS

As ports look for ways to reduce operating costs, replacement of older lighting equipment can have a positive impact on the bottom line. Some ports operate their lighting over 4,000 hours a year, causing significant maintenance and energy costs. Musco's lighting systems combine lighting, structural, and electrical components to ensure a trouble-free operation and a cost-effective solution. Our lighting systems also offer dimming capabilities when the port is inactive, improved energy efficiency and a safer environment for workers by reducing glare.

EFFICIENT SYSTEM DESIGN

Energy efficiency is not fully dependent on a light source. With four decades of system design and expertise, Musco has increased the efficiency of the same basic 1500-watt metal halide lamp by nearly 40%. By understanding how a port is

designed and how it functions, this allows us to aim and operate fixtures where they are needed to ensure the design of the lighting complements the port operations, maximising energy consumption.

With the use of an LED light source, Musco has been able to further maximise energy efficiency. A facility that recently benefited from installing a customised Musco lighting solution is DP World's Jebel Ali Port Terminal 2. The prior lighting at the facility caused massive energy consumption, excessive spill light and glare, and expensive and time consuming maintenance. Our Green Generation Lighting® using an LED light source solved those concerns in the 480-acre terminal.

Musco's team of engineers designed the system to strategically light the sides of stacks and roadways, improving visibility for truck and lift operators and making loading and unloading at the terminal safer.

The system reduced energy consumption by 66% and will enable DP World to pay off its initial investment in less than four years, saving the facility US\$2.9 million dollars over the next 15 years. The project earned Musco the DP World 2014 Excellent Performer Award for excelling in customer service, price, quality, delivery, and after sales service.

EASY FACILITY MANAGEMENT

An important factor to consider when evaluating lighting is management of the system. Musco's Control-Link® system provides port operators the ability to remotely set schedules for exactly when the lighting is needed and provide dimming capabilities in areas of the port where full light levels are not required. Schedules can be set via a smart phone app, a 24/7 call center, and an easy-to-use web site.



REDUCES INSTALLATION COST

Most lighting equipment is mounted on poles using anchor bolts on a large concrete foundation. The installation of this equipment can be costly and time consuming. Musco uses galvanised steel poles that slip-fit over a pre-cast concrete base to provide an easier and more affordable installation. Columbia Ridge Landfill, located in north central Oregon, recently installed Musco's Light-Structure Green™ LED system. Originally the project was specified for 54 lighting poles mounted on large foundations that were 1.5 metres in diameter and 6.7 metres deep. That meant a massive amount of required concrete and additional access roads that would have to be built to transport heavy construction equipment.

Officials at the landfill looked to Musco to provide a solution. Musco's engineers quickly designed a custom lighting solution for the rail transfer station, using our Light-Structure Green LED system. The system reduced the number of poles and fixtures needed, while maintaining the same light levels. Utilising the system's precast concrete foundation, construction material costs were reduced by nearly \$400,000, the need for additional access roads was eliminated, and the installation process was cut by months.

10-YEAR 'TOUCH FREE' WARRANTY

Since port lighting is often used over 4,000 hours a year, maintenance can be costly and time consuming. Musco offers a comprehensive 10-year parts and labour warranty that guarantees light levels and

includes performance monitoring to ensure the lighting is ready to use. The warranty also includes routine maintenance and spot re-lamps.

When you combine efficient system design and controls with reduced maintenance and installation costs, the result is a lighting solution that ensures energy savings, improved lighting performance, and reliable customer service.

MAXIMISES ENERGY CONSUMPTION

DP World Vancouver required a new lighting solution to address several concerns with its existing high mast lighting infrastructure. Excessive on-site and off-site spill light and glare, high energy consumption, and high maintenance costs were all issues at the terminal. After conducting a thorough technical evaluation and on-site testing, DP World Vancouver determined Musco's Light-Structure Green LED system was the right choice to address those concerns.

Musco's team of engineers analysed the existing lighting system and realised that changing the "logic" of how the terminal is lit would conserve energy and enhance lighting efficiency. Instead of having the system light the entire terminal evenly, our system uses strategically aimed fixtures to light the terminal traffic areas. The remaining light is designed to provide additional lighting onto the containers.

The system features a whiter light that provides clear visibility on the roads by directing light onto the desired surface and not into the eyes of truck drivers. Not

only did it address the issue of on-site glare, it also eased concerns of off-site light pollution. Due to the terminal being located adjacent to downtown Vancouver, DP World Vancouver wanted to minimise light spillage into the surrounding community. The customised optic controls offered by the LED lighting solution ensured light was efficiently directed onto the designated areas.

Operating costs have been substantially reduced with a 55% reduction in energy consumption and the elimination of maintenance costs with Musco's 10-year parts and labour.

ABOUT THE ORGANISATION

Using LED and metal halide light sources, Musco delivers customised lighting solutions for sports and large-area venues around the world. Musco has invested more than 35 years researching and testing lighting technology, and the precise science of light control. The results are affordable, energy-efficient solutions that provide the highest quality of light, while minimising spill light and glare. Our trouble-free lighting systems carry an industry leading warranty complete from foundation to poletop.

ENQUIRIES

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