

improvement needed to serve as a supply base is enhanced bearing capacity of the soil, but the length of the project development process should allow ports sufficient time to find funding and upgrade.

Smaller ports are also good candidates to serve as the base for maintenance vessels. They don't need to be able to dock large ships or have high load ratings on terminals. Offshore turbines are not manned. According to Kopits, if a turbine is struck by lightning, it can often be serviced by a small boat and a technician with a little

“epoxy and moxy.” Most maintenance work will be done from crew transfer vessels, and provisioning of replacement blades, nacelles and other larger components is expected to be infrequent.

Good Intentions and Groundwork

The Port of Galveston's initial foray into handling wind project cargo was with Mitsubishi towers truck, back in 2008. Although concerned at first about having to adjust infrastructure, cut down trees or

Port Readiness for Offshore Wind Projects

GL Garrard Hassan recently prepared a U.S. Department of Energy-funded readiness assessment of offshore wind ports and developed a readiness assessment tool that allows ports to see how their facilities stack up against a baseline. Ports may access the free site, and maintain data in the system, at www.offshorewindportreadiness.com

In the second phase of their project, GL Garrard Hassan is addressing the federal target of generating 54 gigawatts of offshore wind capacity by 2030. They have mapped out some different growth scenarios to reach regional targets, looked at the number and types of port facilities required, and are analyzing gaps and opportunities. Their report is due out at the end of summer.

move light poles, few changes were actually needed. More recently, GE Energy's plans to move imported towers and blades by unit train generated concerns about accommodating 6,000-foot trains, horizontal clearances for heavy and wide tower bases, and sufficient spacing between on-dock rail tracks. Partnering with BSNF and the port's shortline carrier, Galveston Railroad, a \$1.5 million dollar investment was made in trackage at the port's Pier 33 facility. Coupled with additional investments on the inland line, the Port of Galveston became an ideal wind-energy project-cargo gateway and other manufacturers now use the hub.

The size of turbine components gives rise to steep inventory carrying costs. Pieces languishing in a lay-down yard may play havoc with facility productivity and may impact other customers' cargo. In 2008, the recession caused buyers to back out of contracts with a wind energy provider, resulting in towers sitting at the Port of Galveston, according to Mierzwa, for a year or more. Negotiated contracts or escalating tariff storage rates may help compensate for industry instability.

Energy tax credits, which ignite imports of components, are a wild card. They come and go, creating uncertainty. In late 2012, when the U.S. wind-energy tax credit was about to expire, Texas ports such as Houston, Corpus Christi and Galveston handled a rush of imports.

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Curb Energy Costs to Boost Profits, Maintain Competitiveness

By Scott Fredrick
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We're witnessing the "shrinking" of our planet – metaphorically, of course. Political, cultural, environmental and economic interconnections are having significant implications for the rise in global trade.

Ernst & Young predicts that machinery and transport equipment will lead the way, followed by other manufacturing goods in accounting for 57 percent of the overall rise in international trade between 2010 and 2020. Seaports will play a necessary role in the transfer of these often massive, weighty goods.

Industrial trade is only part of the picture. Growing lower- and middle-class populations in emerging nations not only are clamoring for goods; they are boosting their home country's exports, increasing port traffic as seagoing vessels carry exports and imports around the globe.

Worldwide Emphasis on Sustainable Operations Parallels Trade Growth

In a parallel evolution, there is a growing worldwide emphasis on sustainability. AAPA is encouraging port terminal managers to play a role in reducing the environmental impact of their operations. Considering that energy consumption can account for up to 60 percent of a port's operating expenses, it's logical to take steps to curtail energy use.

Port operators are beginning to specify light emitting diode (LED) light fixtures at the outset or when they upgrade their facilities and equipment to reduce energy costs and move toward sustainable operations. In the process, they are discovering not only dramatically reduced costs; they're seeing higher profits and enhanced competitiveness.

Energy-efficient LED technology has existed for decades, but recent enhancements are making LEDs the illumination

of choice for multiple applications, including ports. Here's why:

Energy: Because there are no filaments to heat and no vapors to burn as is the case with high pressure sodium or metal halide lamp technology, LED lights operate with significantly less energy; they convert more than 75 percent of the electrical current they consume into light. Port operators in countries with high energy costs and elevated electricity rates for peak hours especially appreciate the lower draw of LED fixtures.

Maintenance: Solid-state LED technology is ideal for use in harsh environments and on industrial equipment subject to high vibration, moisture and corrosion. Properly designed and manufactured LED fixtures for installation on port container cranes will operate maintenance-free for 50,000 hours. Averaging 12 hours of illumination per day, that connotes an LED fixture life span of more than 10 years.

Further, LED fixtures don't suddenly, unpredictably burn out; toward the end of their long life, they begin to slowly fade, enabling maintenance technicians to proceed with gradual, manageable, convenient replacement.

Parts: Solid-state technology and modular design reduce the need to stock replacement parts, further cutting material costs and the operational downtime often inherent during repair or preventive maintenance. LEDs have no moving parts, no fragile filaments and no breakable glass.

Safety: Less maintenance reduces the need to have personnel work at great heights. Creating a safer work environment translates to fewer injuries and workers compensation claims, including their accompanying human toll and financial costs.

Disposal: LED fixtures are made of highly durable materials that are 90–95 percent recyclable. Unlike fluorescent tubes, which are classified as hazardous waste because of their mercury content



ModCom® Series LED floodlights mounted on a Manitowoc Crawler Crane at the Port Authority of the Cayman Islands.

and must be disposed of accordingly, LEDs contain no chemicals, mercury or other dangerous metals.

Color Rendering, Illumination Area, Instant-On Features Enhance Effectiveness

Today's LEDs rate from 80-85 on the Color Rendering Index. Their bright light is comparable to daylight, even at night from the soaring heights found in port terminals.

And contrary to HID fixtures, they emit light in a single forward direction, enhancing light penetration and reducing light pollution. LEDs can illuminate container-handling and bulk-handling equipment at a fraction of the power consumption of other lighting technologies.

Instant-on performance means immediate illumination. Consider this advantage when comparing LEDs to traditional high-pressure sodium or metal halide fixtures, with their extended warm-up times that decrease productivity.

Ports will continue to add traffic as world trade expands. Recognizing that ongoing sustainability efforts yield cost benefits and address environmental concerns, it is logical to make LED lighting a requirement for new equipment and overall port upgrades. ●

Scott Fredrick has served for 19 years and is in his 11th as CEO of Phoenix Products Company Inc., a manufacturer of special-purpose lighting fixtures designed to withstand harsh environments.