

In a new light

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The global ports system's resilience is being tested by a series of worldwide supply chain shocks: the post-pandemic trade rebound due to the accumulation of stranded cargo, sanctions against Russia, and climate change effects. Port operators, facing a juggling act to drive efficiency measures such as managing just-in-time operations, can potentially see their resilience compromised without the necessary support.

Ports and terminals have become accustomed to defending against risks, and major stakeholders expect ports to do all in their power to ensure safe, flexible, and reliable operations. This often means planning for the worst and hoping for the best. In practice, port authorities and operators have to do everything possible to ensure they can withstand a disruptive event through operational flexibility and safeguards. Frequently, the most effective way of achieving this is to widen the window in which work can safely be carried out.

Visibility is often a key factor here. Clear weather can extend operating hours, with more cargo moved at night. Heavy rain or fog, on the other hand, reduces visibility, making the situation more difficult or unsafe for port staff. When a serious incident occurs, part or all of a port's operations may be suspended for several days – seriously impacting staff welfare, logistics, and insurance.

Delivered as infrastructure

Good lighting contributes to the overall effectiveness of high-performing ports – particularly by preventing unnecessary disruption or downtime. Strong, high-quality lighting that properly illuminates congested areas, such as those with stacked containers, can cut through

adverse weather and safely extend a port's operating window.

The right solutions can also minimise the impact of dirty power scenarios in ports, whereby current pulses, voltage variations, frequency variations and surges occur, potentially damaging crucial equipment. Good design minimises the risks and creates more resilient systems with well-placed and appropriate circuit breakers, fuses, and switches.

However, achieving sound results is not as simple as selecting a single lighting level. Lighting has to be delivered as infrastructure that complements broader systems and operating conditions. Ports need to consult with lighting suppliers to create holistic systems that perform optimally in a real-world bustling activity harbour environment.

Sustainably superior

Our company works as a partner from the very early design stages to scope out an operator's lighting requirements to create bespoke systems that deliver the highest quality of light and resistance to even the most extreme weather. High-quality LED luminaires can achieve this. Additionally, LED lighting can reduce energy consumption by up to 70%, minimise light pollution, and reduce waste due to its durability. The solution is sustainably superior to legacy technologies relative to cost, lifespan, and energy efficiency.

Midstream's LED systems are designed and tested to provide not only high lighting levels but high-quality uniform light distribution, allowing for superior visibility across the entire working site, often increasing light levels by more than 50% in a terminal's darkest areas. These systems, coupled with comprehensive design, deliver high colour rendering light that enables near-daylight visibility in the most critical areas.

Unlocking other performance gains

Lighting is an investment that will pay dividends in improved productivity, safety and security, as well as significantly reduce energy consumption and lower energy bills. LED lighting can also unlock performance gains in other aspects of port operations, such as opportunities to invest in greater levels of port automation, among other cargo handling technology. Investment in improvements like new cranes will only fulfil their potential – and their return on investment – if harbours also invest in upgrading their lighting infrastructure.

The fact that high-grade LED lighting can supercharge other aspects of performance is an attractive proposition for ports and terminals when it comes to large-scale investments in infrastructure – or when they have less access to capital but still need to find a cost-effective way to compete.

Within reach for all – and today

There has been considerable debate about the ‘terminal of the future’ concept. At the same time, there are proven technologies and solutions that should rightly take their place in today’s terminals. Smart technologies, such as LED lighting, are one great example. Modern lighting is a tech solution that can unlock a range of performance, financial, safety, and environmental gains that are within reach for all ports and terminals and important to securing their future success.

Unfortunately, this is not widely understood, and it can take an accident to initiate lighting upgrades. According to a TT Club study from December 2019, lighting is recognised as a significant factor in the top 10 risks posed in container ports: either as an exacerbating factor if it is off-grade or as a valuable risk mitigator if it is up to modern standards.

The adoption curve for many new technologies often resembles a hockey stick, with slow initial growth before a sudden acceleration. The misconception that a technology such as LED lighting is a ‘technology of tomorrow’ is consistent with this. Still, there is no time to waste when it comes to decarbonisation, and LED lighting will play a vital role in the ports and terminals’ ability to reduce the global supply chain’s carbon footprint. This issue is rapidly accelerating in importance. Lighting accounts for nearly 5% of global CO₂ emissions, including logistics operations’ share within ports and terminals. Adopting LED lighting is a big step forward in improving environmental performance, particularly in energy usage.

Resilience = competitive advantage

Climate change is inextricably linked to the market forces currently causing congestion, as it has already increased weather-related delays. This will continue to be an issue for ports. [HELCOM’s Climate Change in the Baltic Sea 2021 Fact Sheet](#) indicates that annual mean precipitation is already rising in many parts of the region. In the future, many Baltic ports can expect a rise in sea levels and storm surges. The good news is that operators who want to build resilience and gain a competitive advantage can do so by putting the lighting infrastructure in their investment spotlight.



Photos: Midstream

The multiplier effect of an investment in lighting adds to the benefits delivered by investing in other areas. In some cases, it can also offset the need for spending on other areas of infrastructure.



From ship to shore, the right lighting is critical to the smooth and safe running of all port and maritime terminals – whatever their size. Whether it’s for an international container port, a local facility, or for maritime crane equipment, we’re dedicated to designing and delivering the most highly advanced, efficient, and innovative LED lighting solutions. Go to www.midstreamlighting.com to learn more.