

# LED: A small light source with a BIG impact on port equipment operation efficiencies

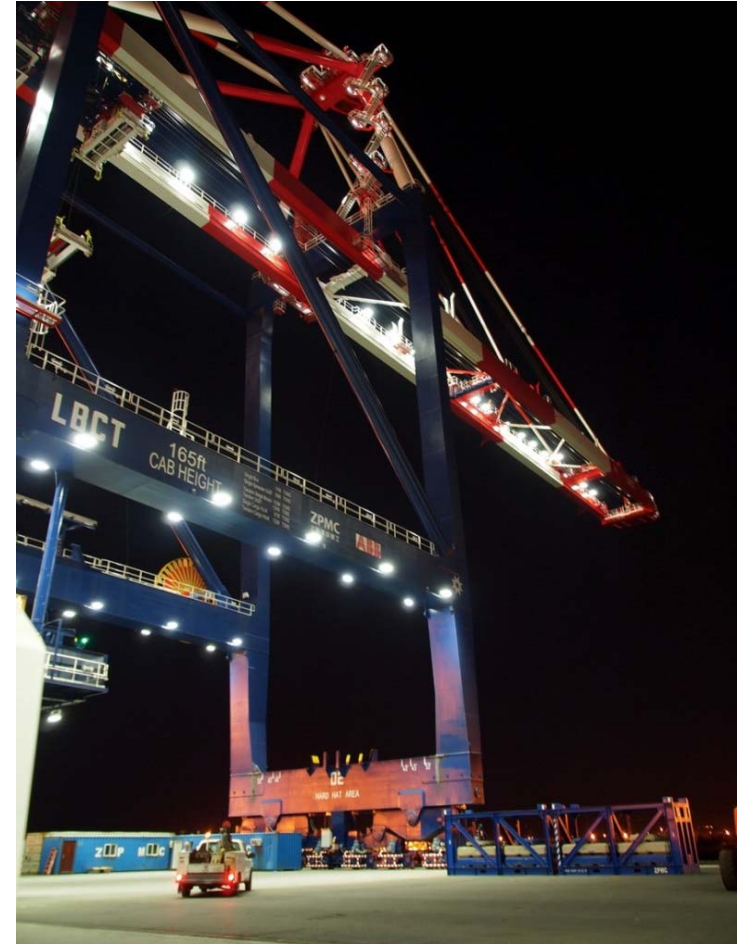
**WIAM AFIFI**  
**REGIONAL SALES**  
**MANAGER-EUROPE**

**PHOENIX<sup>®</sup>**  
**DURABILITY X DESIGN™**

# LED: A small light source with a BIG impact on port equipment operation efficiencies

## Agenda

- Brief Overview of Phoenix Lighting
- What LED Lights Impact
- What to ASK and EXPECT from LED



# PHOENIX : Company Overview

Founded in 1892 by George  
Wordingham

125 years family owned Company

World Headquarters: Milwaukee, WI

ISO 9001: 2008 certified

Number of Employees: 120+  
- 25 Engineers



# PHOENIX Lighting: Experience

1950's: Above Ground Mining  
P&H (Joy Global)  
Bucyrus (Caterpillar)  
-Shovels  
-Draglines  
-Drill

1970's: Marine  
-Navy  
-Offshore Drilling/Vessels

1970's: Port Equipment  
-Container Handling  
-Bulk Handling  
-Mobile Harbor Cranes

2009: Installation of First Led Fixture

2015 : Phoenix Terminal Solutions





# Recent Port Reference List



Terminal	Country	Equipment	Crane Qty	Commissioned*	LED Fixtures		
					Floodlights	Interior	Accessway
<b>AMERICAS</b>							
Port of Buenos Aires - APM	Argentina	STS (Trolley)	1	2015 Q2	EcoMod*		
BACTSSA - HPH	Argentina	STS (Trolley)	1	2015 Q2	EcoMod		
DP World Cauceado	Dominican Republic	STS (Trolley)	6	2015 Q2	EcoMod		
DP World Cauceado	Dominican Republic	MHC	1	2015 Q2	EcoMod		
Icave	Mexico	STS (Trolley)	2	2014 Q2 - 2015 Q2	EcoMod		
Operadora Portuaria Centroamericana - ICTSI	Honduras	STS (Trolley)	1	2015 Q2	EcoMod		
Operadora Portuaria Centroamericana - ICTSI	Honduras	MHC (Boom)	1	2015 Q2	EcoMod		
Diamond State Port	United States	STS (Trolley)	1	2015 Q1	EcoMod		
Kingston Terminal	United States	STS	1	2015 Q1	EcoMod		Cube-Light
DPW Vancouver	Canada	RTG	2	2014 Q4	EcoMod		LEDL728
Massport - Conley Terminal	United States	STS	2	2014 Q4	ModCom*		
Panama Ports Company	Panama	STS (Trolley)	1	2014 Q4	EcoMod		
Port of Freeport Bahamas	Bahamas	STS	10	2014 Q4	EcoMod		
Port of Portland	United States	STS (Trolley)	4	2014 Q4	EcoMod		LEDL728
Diamond State Port	United States	MHC	1	2014 Q3	EcoMod		
Maier Terminals	United States	STS (Trolley)	1	2014 Q3	EcoMod		
TC Buen	Colombia	RTG (Gilder)	1	2014 Q3	EcoMod		
TC Buen	Colombia	STS (Trolley)	1	2014 Q3	EcoMod		
Global Terminals	United States	STS (Trolley)	8	2014 Q2	ModCom		
Port Everglades	United States	STS	3	2014 Q2	EcoMod		
SSA	United States	STS (Trolley)	1	2014 Q1	ModCom		
Terminal Pacifico Sur Valparaiso S.A.	Chile	STS (Trolley)	3	2014 Q1	EcoMod		
Tropical Shipping	United States	MHC	1	2014 Q1	EcoMod		
Tropical Shipping	St. Thomas	MHC	1	2014 Q1	EcoMod		
Total Terminal International Company	United States	STS (Trolley)	4	2014 Q1	ModCom		
APL	United States	RMG	1	2013 Q4	EcoMod		
Matson (Hawaii)	United States	STS (Trolley)	2	2013 Q4	ModCom		
Virginia International Terminal	United States	STS (Trolley)	6	2013 Q3	ModCom		
Port of Oakland	United States	STS (Trolley)	2	2013 Q3	ModCom		
DPW Vancouver	Canada	STS	6	2013 Q2	ModCom		
TraPac	United States	STS (Trolley)	10	2013 Q3	ModCom		



Terminal	Country	Equipment	Crane Qty	Commissioned*	LED Fixtures		
					Floodlights	Interior	Accessway
<b>AMERICAS</b>							
Total Terminal International	United States	STS	4		ModCom*		
DP World Callao	Peru	STS	1	2016 Q1	EcoMod*		
Long Beach Container Terminal	United States	RMG	2	2015 Q4	ModCom	RSL	PCWL
Maier Terminals	United States	STS	6	2015 Q1 - 2015 Q4	EcoMod		Cube-Light
Long Beach Container Terminal	United States	STS	8	2014 Q1 - 2015 Q4	ModCom	RSL	PCWL
Tropical Shipping	United States	MHC	1	2015 Q3	EcoMod		
Global Terminals	United States	STS	2	2015 Q2	MRSE		Cube-Light
Evergreen	United States	STS	2	2015 Q2	MRSE	LFSB	LFW
Port of Houston Authority	United States	STS	4	2015 Q2	ModCom	HDL	PCWL/LEDLT
New York Container Terminal	United States	RMG	2	2015 Q1	EcoMod		
MIT Panama	Panama	cRMG	6	2014 Q2	ModCom		
Long Beach Container Terminal	United States	ARMG	32	2014 Q1	ModCom	RSL	PCWL
TraPac Los Angeles	United States	ASC	10	2014 Q1	ModCom		
CSX Intermodal	United States	RMG/RTG	18	2014	EcoMod		Cube-Light
Global Terminals	United States	ASC	20	2013 Q4	ModCom		
Port of Houston Authority	United States	RTG	15	2013	EcoMod		
<b>EUROPE</b>							
Baltic Container Terminal	Latvia	RTG	2	2015 Q3	EcoMod		
Port of Oslo	Norway	STS	2	2015 Q2	EcoMod	HDL	Cube-Light
Asayaport	Turkey	RTG	24	2014 Q4	EcoMod/SturdiLED*		PCWL
Port of Oslo	Norway	eRTG	8	2014 Q4	EcoMod		
Evyapport	Turkey	RTG	8	2014 Q3	EcoMod/SturdiLED		
Gävle Container Terminal	Sweden	RMG	2	2013 Q4	EcoMod		
London Gateway	United Kingdom	ASC	40	2013 Q3	ModCom		
Rotterdam World Gateway - DP World	Netherlands	ASC	50	2013 Q3	ModCom		

Phoenix LED lighting currently in operation on more than **300** cranes

# LED impacts

## *Operations Impact*

Operational  
Efficiencies

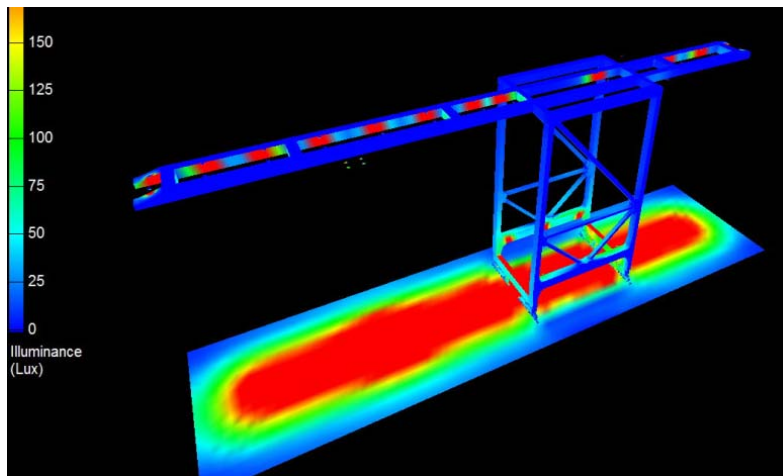
- Safety
- Light control
- Quality of Light
- Zero Maintenance

## *Financial Impact*

Pay Back

Considerations

- Energy Savings
- Labor Savings
- Component Savings



# Operations Impact

- Improved visibility
- Improved color rendering: HPS <25% Vs LED >70%



# Light control

- Light Waste
- Increase Light Level
- Increase Uniformity
- Dimmable
- Operator Eye Fatigue



Phoenix LED



Phoenix HID

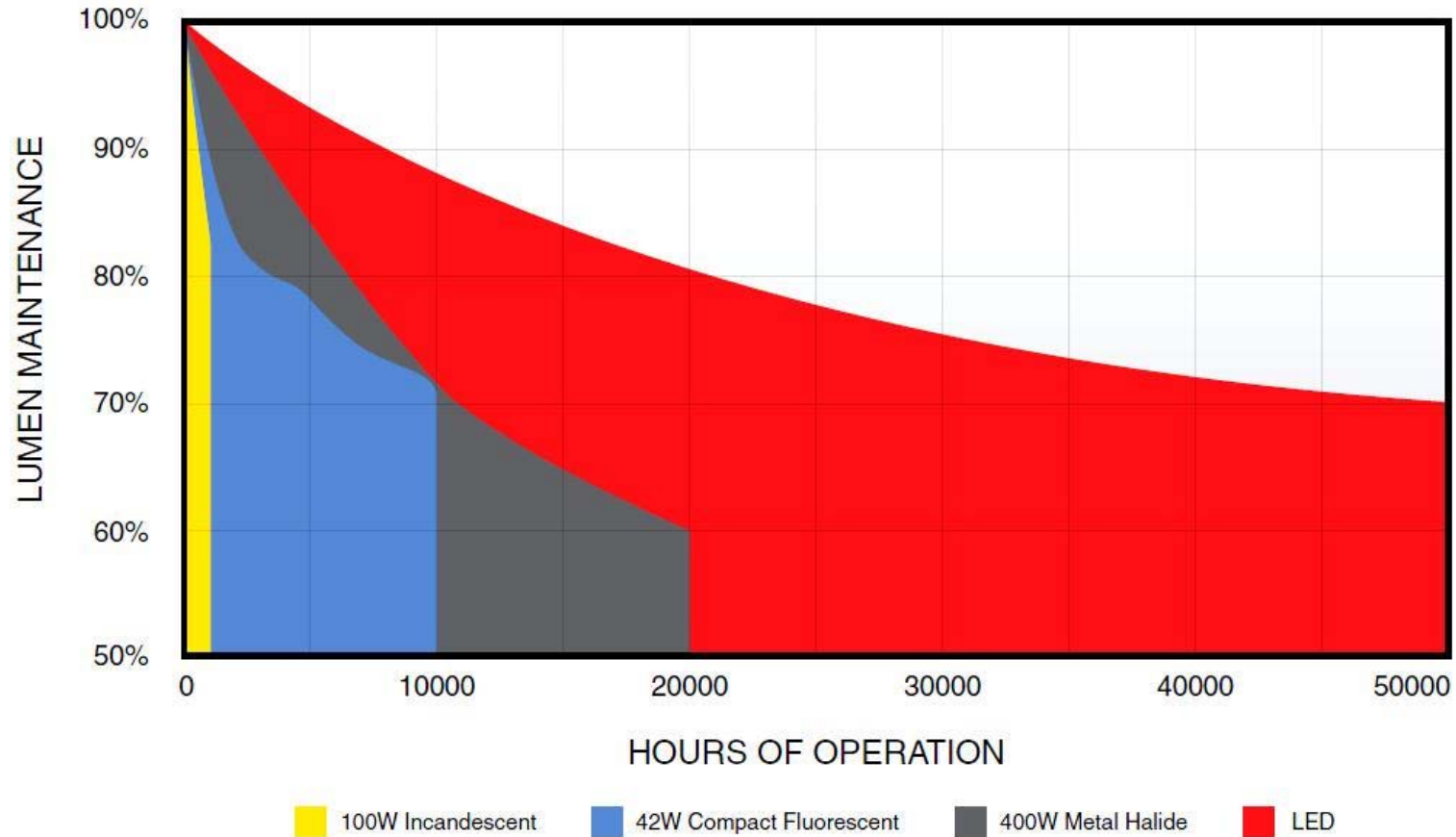




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# General Illumination Market



# Payback Considerations

*QC : 28 HID floodlight replaced by 28 LED floodlights*

**1000w HID** vs **300w LED**

Calculations:

- Energy consumption/costs
- Maintenance costs



# Energy Consumption & Costs

**HID fixture: 1100 W**

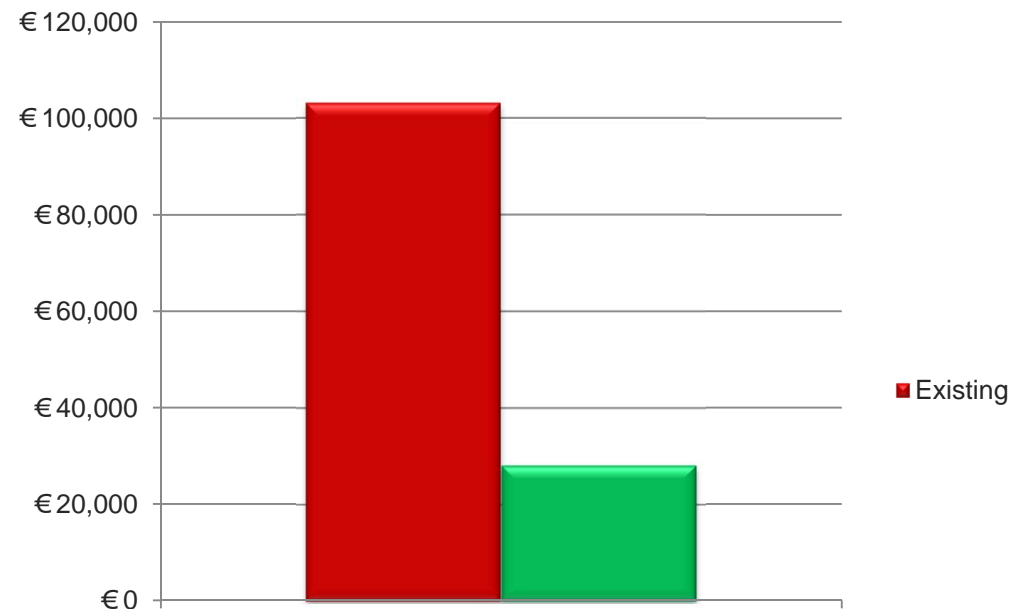
VS

**LED fixture: 300 W**

Savings:

- > 70% Energy Costs
- > 70% Energy consumption

Annual Energy Cost





# Maintenance Costs

**HID fixture: 1100 W**

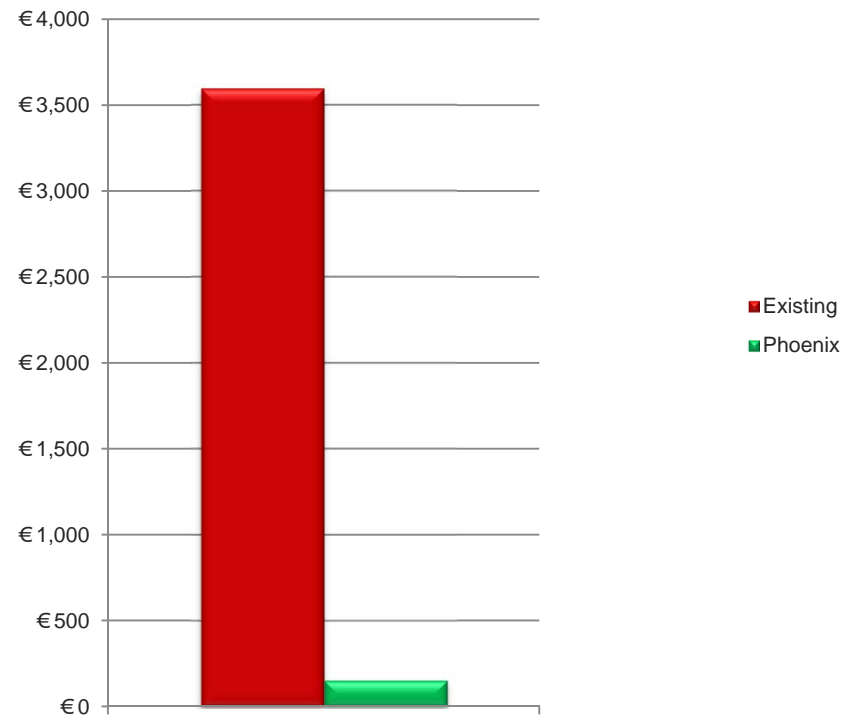
VS

**LED fixture: 300 W**

Savings:

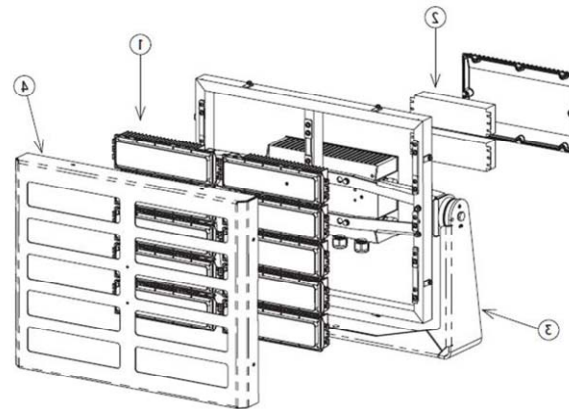
- Labor costs
- No need for a components storage.

Annual Maintenance Cost



# What Questions to Ask?

- Is the manufacturer using a reputable LED supplier? (Philips, Cree, Bridgelux, Osram)
- Is the fixture designed for the application?
- Is it repairable/ replaceable?
- How long have they been in business?
- 3<sup>rd</sup> party certifications? ( UL, CSA, LM-79, LM-80, Saltwater Test)
- What is the warranty?



 **ModCom® Series**  
LED Floodlight



**The ModCom® Series**  
**LED Floodlight**



**PHOENIX®**  
DURABILITY X DESIGN™

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Thank you!

