

Your Warehouse: A Brighter Future

The Surprising Impact of Lighting on Operational Performance



The Economic Burden of Old Lighting is Hurting You...

TECHNOLOGY HAS CHANGED



Traditional
HID lighting

VS.

New LED
Lighting



18,000

LUMENS
(same brightness)

18,000

458

WATTS

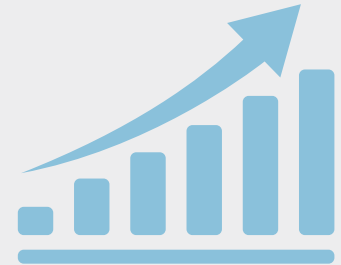
135

15,000 hours

LAMP LIFE

100,000 hours

ENERGY COSTS ARE RISING



> 10% =

projected increase in commercial electric rates from 2014 to 2017

Source: EIA: Short-Term Energy Outlook

MAINTENANCE: THE FREE COST THAT ISN'T



"Great – have to pull out the lift again. Every time I turn around another light's out."

"Do I have the right bulb?
Hate to climb this thing twice."

"I waited as long as I could to replace,
but people are complaining."



Burning Out Your Light Bulbs Adds Up

Estimated Annual Warehouse Lighting Expenses*

Warehouse sq. ft.	100,000	300,000
Costs		
Electricity	\$24,649	\$73,947
Maintenance	\$6,316	\$18,947
Total Lighting Expense	\$30,965	\$92,894

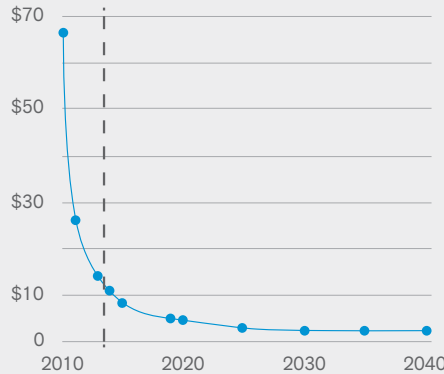
*Based on 400 W Metal Halide (458 input watts), 4680 hrs/yr, \$.10 per KWH, 115 fixtures per 100K ft sq, maintenance includes lamps, ballasts, labor

LEDs and Lighting Controls Can Make Your Budget Shine

NOT YOUR FATHER'S LED

- | Cost 85% less than 5 years ago
- | Can save up to 80% of the electricity used for lighting
- | Can last up to 100,000 hours at optimal brightness

Average LED Lighting Cost



Source: U.S. Energy Information Administration, Annual Energy Outlook 2014 Early Release

HUGE ENERGY SAVINGS

Cut your electricity bill up to **66%** with LED lighting.



THE NEW DIMENSION OF CONTROLS

- | Automatically turns lights off when space is unoccupied
- | Instant-on responsiveness
- | Light only the space needed
- | Configure individual fixtures or lighting zones



ALMOST MAINTENANCE-FREE

- | Minimize lift usage and labor crews
- | Reduces disposal issues
- | Less downtime



The New Economics of Lighting and Controls

Estimated Annual Warehouse Lighting Expenses*

Warehouse sq. ft.	100,000	300,000	
Comparison			% Savings
Current Lighting Expense	\$30,965	\$92,894	
NEW: Cost of Lighting with LED	\$7,211	\$21,634	77%
NEW: Cost of Lighting with LED and Controls	\$4,326	\$12,979	86%

THE BOTTOM LINE:

Moving from HID to LED with controls typically can yield an 80% savings.

*Based on 134 W LED fixture, 115 fixtures per 100K ft sq, Controls at 40% "off". Request your proposal at: graybar.com/smarter-warehouse

Bad Things Can Happen in the Dark



FACILITY SAFETY

FACT



According to OSHA, there are **100,000** fork lift-related accidents per year



34,000 are serious



The average cost of an OSHA recordable is \$35,000 (U.S. Dept. of Labor)

FACT



Traditional lighting is more prone to burnouts and dark spots

FACT



Approximately 70% of all accidents reported could be avoided with proper safety. (OSHA)



PRODUCTIVITY DECLINES

FACT

45+

According to U.S. Dept. of Labor, 48% of warehouse workers are over 45 years old

FACT



The typical 50-year-old driver needs twice as much light to see as well after dark as a 30-year-old (New York Times (Growing Older, and Adjusting to the Dark), March 13, 2007.)

FACT



2% of picking errors occur because the employee can't see the barcode (Order Picking Technologies. N.p., n.d. Web. February 11, 2016.)



REPUTATION RISK



Where would you rather work?



Poor lighting compromises visibility and can lead to accidents.



Poor lighting can contribute to inefficiencies.



Old lighting could give the perception that facility is poorly maintained and less green.

Good Can Happen in the Light



INCREASED SAFETY

- | Long bulb life means fewer employees on high ladders or lifts and less chance for falls
- | Better light coverage decreases blind spots where damage to people and property can occur



IMPROVED PRODUCTIVITY

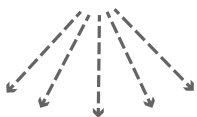
- | More light, especially for aging eyes, means less chance for rework and mistakes
- | 10-50% increased productivity with adequate task lighting
(Lighting in the Workplace: New Perspectives. Zeeland, MI: Herman Miller, 1993.)
- | OSHA recommends less glare to minimize eye strain and headaches



BRAND CONSISTENCY

- | Light and bright can translate to clean and efficient in your customer's mind
- | Demonstrates concern for employee welfare
- | 2,801,000 lbs. annual CO₂ reduction. That's like planting 382 trees or removing 267 cars annually*

Why LEDs Produce Better *LIGHT QUALITY*



LEDs are designed to direct and diffuse light



Minimize contrast - to ease adjustment from dark to light



Reduce glare



Meet safety and environment requirements

*Calculations based on a 500,000-square-foot warehouse facility with 1,250 400W HID fixtures. A mix of 30% open area and 70% racked aisles. The space does not utilize air conditioning. Fixtures are installed on a 20x20 center. Operating hours—14 hours/day, 6 days/week @ 11 cents/KWh. Replaced with 375 units of Albeo ABHX LED 2-module VHO 245W (open area); 875 units. Albeo ABHX LED 2-module ST 154W (racked aisles).

Walking the Talk

For nearly a decade, Graybar has been performing significant energy efficiency improvements to its facilities such as implementing lighting controls and new lighting. From 2006 to 2014, Graybar calculated a reduction in electric consumption of 99,194,000 kWh.

This equates to a total savings to Graybar of \$9,626,000*

CASE STUDIES

WE'VE EXPERIENCED THE BENEFITS OF NEW LIGHTING FIRSTHAND

Graybar Northwest Service Center | 130,000 sq. ft. warehouse
| Annual Savings: \$28K

"Customers often comment when they visit, 'This sure is clean and bright.' They often want to walk down the aisle to see how much light gets in the shelves. Many have asked to have our lighting renovation team visit their place."



Lorraine Anderson
Service Center Manager
Renton, WA



Lorraine Anderson, Graybar Northwest Service Center Manager, remembers when the warehouse pickers had to use a flashlight to see inside boxes. Since upgrading to LED, the flashlights are no longer necessary. The change also increased productivity for the fork lift drivers, making it easier to detect the guide wire in the floor. "Better light gives our drivers confidence," said Lorraine. She also notes the added convenience of having lighting controls. "This is a big place, and I don't need to worry if I left a light on!" she said.

Based on the results she experienced at work, Lorraine bought LEDs for her home too. She saved 19% on her power bill the first month!

Graybar Hayward Service Center | 150,000 sq. ft. warehouse
| Annual Savings: \$20K

"With LEDs there's zero or low maintenance. High bays and T5s burn out and require a difficult lamp swap utilizing a specific lift and safety cage. Lamps break and crash down. If you lift too high and bump into a T5 fixture, the waterfall of broken glass that follows is a safety concern."



Chris Storonas
Zone Manager
Union City, CA.



When a break-in occurred at the Graybar Hayward Service Center in 2014, Chris Storonas, Zone Manager, was grateful they had new lighting throughout the warehouse. Lighting controls darkened places in the warehouse not in use, making it easy to detect vacant areas. So when a lighting sensor triggered an "instant-on," that was a red flag. The criminals were illuminated upon entry to the warehouse.

"We were able to watch on the security cameras. Thankfully nothing was taken," said Chris.

*includes all energy conservation measures

A Proven Process that Works to Your Advantage

A Bolt-On for Your Bandwidth

- | Graybar has worked on lighting projects for over 100 years.
- | We have lighting specialists on staff to help plan, design and implement your retrofit.
- | We bring together the manufacturers, integrators, installers and can manage the project from start to finish.
- | We put the plan together, you review and approve.

GRAYBAR POWERSMART® PROCESS

The Graybar PowerSmart team consists of Graybar team members and trusted installers. We manage the whole project for you from start to finish.



Graybar Green Certification Award

Environmental impact and corporate social responsibility can be influenced by consuming less electricity and taking a proactive approach to conserving energy in your facility. You can earn Graybar's Green Achievement Award when you install products that help you maximize energy efficiency in your warehouse.

BENEFITS

- | Proudly display award in your facility
- | Publicize internally and externally
- | We can help produce a case study or press release
- | Ask your sales representative for more details



The Investment that Isn't: It Pays for Itself

HID vs. LED

10-Year Impact: **\$717,610 In Savings**

What would you do with an extra \$71,000 per year?

Warehouse Renovation Examples | 250 Luminaires – 5-year Lifecycle

> **87%**
SAVINGS

> **77%**
SAVINGS

> **70%**
SAVINGS

OPTIMIZED

System	Average Yearly Operating Cost*	Investment Drivers*	Savings by System
Replace with: LED High Bay Luminaire with Wireless Controls & Occupancy and Photocell Sensor	\$10,694 / \$71,761	1.5 Yearly Payback / 65% IRR	
Replace with: LED High Bay Luminaire with Occupancy Sensor	\$18,589 / \$63,866	1.4 Yearly Payback / 70% IRR	
Replace with: LED High Bay Luminaire Only	\$24,750 / \$57,705	1.4 Yearly Payback / 71% IRR	
Existing Lighting: 400W Pulse Start Metal Halide High Bay Luminaire	\$82,455 (energy & maintenance)		

■ Operating Cost
■ Annual Savings

Chart courtesy of Acuity Brands
*Figures are based on conversion from existing 458W pulse start metal halide luminaires to new 142W IBH LED high bay luminaires. Savings and returns estimates assume \$0.10/kWh utility rate, 6,570 yearly operating hours, projected typical control system performance, and typical HID lamp/ballast replacement and labor costs. Actual savings, payback period and IRR may differ as a result of product cost, end-user environment and application and utility rates.

Lighting Upgrades Can Be CAPEX OR OPEX: Your Choice

ADVANTAGES OF CAPITAL EXPENDITURE

- | Realize all savings immediately
- | Amortize costs; cleaner balance sheet
- | Start saving day 1

ADVANTAGES OF OPERATIONAL EXPENDITURE

- | Finance through Graybar Financial Services®; save monthly
- | Preserve capital
- | Start saving day 1

Get started with an assessment at graybar.com/smarter-warehouse

FEATURED MANUFACTURERS



1-800-GRAYBAR | graybar.com



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