



Greater efficiency supports patient care.

Optimizing Current Lighting and Roll Out Upgrades

All PIM content was independently developed and reviewed to be vendor-, product-, and service provider-neutral.

Description

It's not always possible for a facility to do a wholesale lighting project to replace a large batch of light fixtures at once. However, optimizing the facility's existing lighting can be a start to saving energy and potentially funding a more comprehensive lighting project.

Project Talking Points

- According to the U.S. Energy Information Administration's 2003 Commercial Building Energy Survey <https://energent.link/u20>, lighting accounts for 18 percent of hospital energy use.
- Strategies such as delamping, timers, occupancy sensors, layout optimization and task lighting can unlock significant savings.
- Start replacing your current stock of less efficient T8 or T12 bulbs with Light Emitting Diode (LED) bulbs.
- If your lights are running on magnetic ballasts, replace with electronic ballasts.
- Your local power company may offer rebate programs for replacing magnetic ballasts, installing occupancy sensors and replacing T12 and incandescent bulbs with more efficient models.
- Leverage the savings from lighting optimization to fund future projects.

Triple Bottom Line Benefits

- **Cost benefits:** Optimizing an existing lighting system will reduce energy use and, in turn, costs.
- **Environmental benefits:** Cost savings on utility bills can be used to fund energy efficiency projects and the energy savings will reduce the carbon footprint of the facility.
- **Health and Safety benefits:** Reduced utility costs will reduce the operating costs of hospitals and lower the cost of healthcare overall or the funding can be used to improve healthcare outcomes.

LED lighting has been shown to improve patient comfort, resulting in better satisfaction.

Purchasing Considerations

- Partner with lighting vendors to conduct facility walkthrough's assessing the opportunities to save energy without replacement
- Check with your local electric utility for energy efficiency rebates on LED bulbs or lighting controls
- Specify bulbs with the DesignLights Consortium (DLC) label
- Phase out existing inventory and replace with energy efficient LED bulbs

How-To

1. Engage purchasing staff to update your lighting purchasing strategy and the facility construction standards. Ensure new lighting inventory adheres to efficiency standards.
2. Engage clinical staff to assess areas that will not impact patient care. Look at building census records and choose easy to access areas where lights are on a majority of the time (corridors, waiting rooms etc.)
3. Use a handheld light meter with IES standards on required lumen levels to assess areas that are overlit. 3 different strategies can be employed:
 - Delamping
 - Most lighting troffers have 3 or 4 light tubes, remove 1 or 2 lights and re-check the light levels
 - Layout Optimization
 - There may be lighting fixtures so close together they are lighting the same area. You may be able to remove an entire fixture in a room
 - Task Lighting
 - Reduce overhead lighting in areas where lower wattage task lighting will be adequate
4. Assess your ballasts with a handheld meter and replace any magnetic ballasts with electronic.
5. Consider areas that are only periodically occupied such as private offices, mechanical or IT closets, restrooms, stairwells, etc. that will be good candidates for occupancy sensors.

6. Assess your outdoor/parking lot lighting to see if they are on timers or daylight sensors.
7. Once your stock of LEDs is built up, when bulbs fail, it will be necessary to replace areas at a time with LED bulbs as they will look different than the existing tubes. Take advantage of areas that are shut down or under construction.
8. Get involved during the construction planning process to advocate for LED lighting in areas surrounding the new construction (as the standard there will be LED).

Tools

If you have an ROI tool, calculator, or similar resources to share, please contact us or participate in the discussion below.

Case Studies

Regulations, Codes and Standards, Policies

- ANSI/IES RP-29-06: Lighting for Hospitals and Health Care Facilities <https://energent.link/f2640>
- ASHRAE Standard 90.1: Energy Standard for Buildings Except Low-Rise Residential Buildings <https://energent.link/fyk>
- U.S. Environmental Protection Agency, ENERGY STAR program <https://energent.link/ES>

PIM Synergies

- Establish baseline for current energy consumption.
- Energy Efficient Lighting
- Surgical Task Lighting

Educational Resource

- Energy University Courses <https://energent.link/EU>
 - Lighting I: Lighting Your Way
 - Lighting II: Defining Light
 - Lighting III: Lamp Families: Incandescent and Low Pressure Discharge
 - Lighting IV: Basic Lamp Families: High-Intensity Discharge and LED

More Resources

- U.S. Department of Energy, Energy Efficiency & Renewable Energy Building Technologies Program tools:
 - [Wireless Sensors for Lighting Energy Savings](#)
 - CBEA Specifications <https://energent.link/sip>
 - Energy Efficiency and Your Hospital's Bottom Line <https://energent.link/sk1>
 - Energy-Efficient Hospital Lighting Strategies Pay Off Quickly <https://energent.link/qwl>
 - Energy Smart Hospitals: Retrofitting Existing Facilities <https://energent.link/l18>
 - LED Surgical Task Lighting <https://energent.link/p7w>
- U.S. Environmental Protection Agency (EPA), ENERGY STAR tools:
 - [Building Upgrade Manual, Chapter 6: Lighting](#)
- American Society for Healthcare Engineering (ASHE)
 - [The Use of LED Lighting in Healthcare Facilities](#)
 - [Reducing Operational Costs Through Energy Efficiency](#)

PIM Descriptors

Energy, Supply Chain

Category List:

- Lighting

PIM Attributes:

- Basic Device Upgrades
- System Upgrades

Improvement Type:

- Energy

Department:

- Engineering/Facilities Management

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