



ECU[®]

**SUSTAINABLE ENERGY
AND ENVIRONMENTAL
ENGINEERING**

Details for Follow-up Activities: LED Recommendation

Installation & Labour

Installing LED lights is an easy process that may not necessarily require an electrician. It is recommended to hire an electrician if wiring rework is required. This will approximately cost an additional \$200. Each LED fixture may cost up to \$40. The following calculations assume two electricians and two helpers:

$$(12 [\text{fixtures}] * \$40) + \$200 = \$680.00$$

Implementation Schedule

In totality, 104 Fluorescent bulbs and 16 HID bulbs need to be replaced. If bulb replacement occurs at a rate of 6 bulbs per hour, then it is suggested 20 hours be designated to this task. This will consume two to three working days, and may disrupt the normal workflow.

Maintenance cost

LED lights have a shelf life of over 10 years with no maintenance—only replacement.

Energy Savings Cost

Electricity Cost @ \$0.06/kWh	Cost/ yr
Fluorescent	\$500.00
HID Bulbs	\$1920.00
LED Replacements	\$280.00
TOTAL (LED replacements for HID Bulbs)	\$660.00

Annual Expected Savings	
HID Bulbs	\$1,260.00
Fluorescent Lights	\$220.00
Total	\$1,480.00

Department of Energy Recommendations [1].

- Light Source: LEDs are the size of a fleck of pepper, and a mix of red, green, and blue LEDs is typically used to make white light.
- Direction: LEDs emit light in a specific direction, reducing the need for reflectors and diffusers that can trap light. This feature makes LEDs more efficient for many uses such as recessed downlights and task lighting.
- The high efficiency and directional nature of LEDs makes them ideal for many industrial uses. LEDs are increasingly common in streetlights, parking garage lighting, walkway and other outdoor area lighting, refrigerated case lighting, modular lighting, and task lighting.

Success Stories

KFC upgraded 35 restaurants throughout the southeast USA to LED, replacing their standard 1,000w (1,160 plug watt) fixtures with 150W LEDs for an incredible 88% energy savings. This drastically improved the quality, reliability, and safety of the site lighting.

Crowne Plaza - Hartford, CT: 64 parking garage fixtures were replaced using 197 watts with 30W and 250W wall packs with 30W units for an incredible 85% energy savings. The project was rebated 45% from the purchase and install costs and paid back in less than a year. For more success stories related to these, see the following two links [here](#) and [here](#).

Suppliers

The Centre of Sustainable Energy and Environmental Engineering has no affiliation with the following vendors. The following suggestions are simply a recommendation

Supplier	Website
DECO	Here
Lighting By Design	Here
Sturdy	Here
Sylvania	Here
XtraLight	Here

Brand	Wattage	Price	Website
Global	40W	\$33.95	Here
OOOLED	42W	\$70.00 for 4 pieces	Here
SuperBrightLEDs	60W	\$74.95	Here

Technicians

Company	Location	Phone	Website
Mr. Electric	Holly Ridge, NC	252-344-1803	Here
Amp'd Up	Jacksonville, NC	910-939-0260	Here
Onslow Electric Company	Jacksonville, NC	910-430-9933	Here
R Brown Electric Service	New Bern, NC	252-637-9210	Here

References

- [1] "LED Lighting." [Online]. Available: <https://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/led-lighting>.