



CITY OF CLEVELAND
Mayor Frank G. Jackson

LED Lighting Initiative for Jobs and Economic Sustainability

Frequently Asked Questions

LEDs

- **What are LEDs?**
 - LEDs are Light Emitting Diodes, a type of lighting product that has been widely used around the world for decades in electronics.
 - Over the last two years, LED technology has advanced to the point that they can be used for general lighting purposes, both inside facilities and outdoors.
- **How are LEDs better than regular (incandescent) light bulbs and CFLs (compact fluorescent lights)?**
 - LEDs use less energy to produce the same amount of light as traditional light bulbs and CFLs.
 - Because they use less energy, they lower electric bills and reduce carbon emissions.
 - LEDs have a much longer life than either incandescents or CFLs. Therefore, they do not need to be replaced as frequently.
- **Why does pursuing LED technology make economic and environmental success?**
 - According to the EPA, LEDs will be able to meet the new requirements established by the Energy Independence and Security Act of 2007 (the “Energy Bill”), signed by the President on December 18, 2007 and are expected to both increase in performance and drop in cost over the next few years.
 - The U.S. Department of Energy estimates that rapid adoption of LED lighting in the U.S. over the next 20 years can:
 - Deliver savings of about \$265 billion;
 - Avoid 40 new power plants; and
 - Reduce lighting electricity demand by 33% in 2027.
- **Aren't LEDs more expensive to buy?**
 - Initially, LEDs are more expensive to purchase than incandescents and CFLs but over the life of the product, the LED saves more money than the competing technologies.

- **How are LEDs better for the environment?**
 - LEDs use less electricity to produce the same amount of light as incandescent light bulbs and CFLs, which, in turn, reduces the demand on fossil fuels, like coal and oil that are used to create electricity.
 - Less electricity means lower carbon emissions. A 100 watt incandescent bulb creates about 5 tons of carbon dioxide (CO₂) every half hour it is in use. An LED equivalent produces only 1,080 pounds of (CO₂) in the same period.
 - LEDs do not waste electricity – nearly 100% of the electricity used by an LED is converted into light, compared to only 2% for incandescents.
 - LEDs can be manufactured without lead or mercury, reducing exposure to toxins.
- **Does the Department of Energy (DOE) approve of LED technology?**
 - Yes. The DOE has called LEDs “a pivotal emerging technology that promises to fundamentally alter lighting in the future.”
(<http://www1.eere.energy.gov/buildings/ssl/index.html>)
- **Are LEDs Energy Star rated?**
 - The DOE and the Environmental Protection Agency (EPA) have rated some LED products to be Energy Star.
http://www.energystar.gov/index.cfm?c=products.pr_find_es_products.
 - The DOE is currently developing Energy Star standards for additional LED products.
- **Are LEDs safe?**
 - Yes – LED lights are safe. UL certification of LEDs testifies to the electrical safety of the product and RoHS (Restriction of Hazardous Substances) standards prohibit certain hazardous materials from being in the product.