

Eco-Tip for 12-10-17

Long-lasting LED Christmas Tree Lights Avoid Waste and Save Energy

By David Goldstein, PWA, IWMD

Lights! Camera! ... Nothing. That was the surprising result earlier this month at the San Buenaventura Mission. School groups caroled, parents lifted their children for a ground-to-tip view of the mission's two 120 foot Norfolk Pines, everyone counted down, and then the trees lights did not come on.

The lights are LED strands, installed in 2012. Had these lights been the big, energy intense incandescent bulbs regularly replaced in the mission trees' branches over the 30 years prior to the LEDs, everyone might have suspected burned out bulbs. In this case, an electrical problem was the culprit.

The mission leaves their light strings up all year and lights its trees for special occasions other than Christmas, and a typical incandescent bulb lasts 1,000 to 2,000 hours, but manufacturers of LEDs typically claim their lights will last 25,000 to 50,000 hours. Moreover, LEDs just fade when they get old. The lifetime estimates refer to the time when light emitted by the LED diminishes to just 70% of its original brightness; lights are still functional and will often continue to be used past that point. A high quality LED Christmas light will usually outlive the person hanging it on a tree.

In previous years, cities, power companies, and energy conservation organizations such as the Ventura County Regional Energy Alliance sponsored light strand exchanges. Light strands are not recyclable in curbside programs, but sponsoring organizations made special arrangements for shipping of collected incandescent strands, which they exchanged for free or discounted LED holiday lights. This year, now that LED lights have gained a reputation for reliability and energy conservation, no incentives are being offered.

"LED holiday lights have quickly gained popularity because they are more efficient, which saves money on monthly electric bills," said Alejandra Tellez, Program Manager with the Ventura County Regional Energy Alliance. She noted exchanges on a limited basis (perhaps two strands per person) may be offered again in the future to convince any remaining skeptics.

LEDs are far more efficient than incandescent lights. According to the U. S. Environmental Protection Agency, the amount of electricity spent by just one 7-watt incandescent holiday bulb could power 140 LED bulbs (or two LED 24-foot light strands). PG&E calculated the average annual operating cost for 300 lights based on operation of 225 hours per year for the holiday season of each light strand type are as follows: Large incandescent is \$91.43, mini incandescent \$5.88 and 300 LED lights cost only \$0.56 to operate per season.

LEDs are also more durable. The lenses of the LEDs are made of epoxy, and the lights have no moving parts, so LEDs will not break as easily as incandescent light bulbs.

LED products are also safer. The bulbs are cool to the touch, posing less risk of burns and reduced fire hazards. You can connect multiple strings of LED light sets together without

overload, and strand labels will tell you the chain limit. However, do not chain together incandescent strands with LED strands, or you will blow a fuse. Incandescent strands pull too much power, so they must be displayed separately and plugged into sockets independently from LED strands.