MARK HERRING LIGHTING

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LED – Total Cost of Ownership

The primary question that has emerged from conversations with potential customers concerns the perception that LED lights are very expensive. This article attempts to answer that question, as well as providing additional details on where these new LED lights can be successfully used around the home or office.

First, the price issue: LED lights are, indeed, far more expensive up front than incandescent lights or fluorescent lights. A typical high-end 10-watt LED light bulb, for example, currently costs just under $100. It replaces an incandescent 100-watt light bulb that typically costs around $1. So at first, the 10-watt LED light seems to be $99 more expensive.

However, lights do not actually work unless they also consume electricity, and thus the real question about the cost of light bulbs must take into account the **Total Cost of Ownership**, or TCO. What is the TCO for producing 50,000 hours of light with a 100-watt incandescent bulb?

As it turns out, a 100-watt light bulb actually uses 101.5 watts of electricity. Over 50,000 hours (which would require replacing it 50 times with a new bulb), it will use 5,075 kilowatt-hours of electricity, costing approximately $500 (based on ten cents per kilowatt-hour). So **a 100-watt light bulb actually costs you $500 to operate** over 50,000 hours. On top of that, it produces a whopping 10,150 pounds of carbon dioxide emissions which directly promote global warming and climate change. Mercury is also released into the atmosphere from all the energy usage, thanks to the fact that much of the electricity consumed in the world comes from coal-fired power plants that emit toxic mercury into the air.

So the Total Cost of Ownership for a 100-watt light bulb is well over $500 for producing 50,000 hours of light.

In contrast, what is the Total Cost of Ownership for a typical high end 10-watt LED light bulb? The LED light itself costs about $100 up front. It uses 10.8 watts of electricity, which adds up to 540 kilowatt-hours over 50,000 hours. That's about $54 in electricity, vs. the $500 needed to power the 100-watt bulb mentioned above. Plus, our 10-watt LED light reduces CO2 emissions by 9,000 pounds, producing only about 1,080 pounds of CO2 instead of the 10,150 pounds produced from a 100-watt incandescent bulb.

The Total Cost of Ownership for a 10-watt LED light bulb is $100 for the light, and $54 in electricity for producing 50,000 hours of light.

Thus, the LED light is $154 vs. $550 or so (electricity + the cost of replacement bulbs) for incandescent lights.

Which brings us to the question: **How much would you rather pay for 50,000 hours of light? $154 or $550?** It makes obvious financial sense to pay only $154, especially when you're also protecting the environment at the same time.

When you consider that some commercial buildings, hotels and street lighting can contain thousands of these bulbs, it doesn't take an accountant to work out the savings that can be made over the lifetime of a high quality LED light bulb.