

ENERGY EFFICIENCY STANDARDS FOR LIGHTING

FREQUENTLY ASKED QUESTIONS

Why have lighting standards?

Light bulbs can use a lot of energy. The proposed standards will ensure that the next bulb you purchase will be energy efficient, meet quality standards, and last for years to come. As LED demand grows, standards will help California achieve its long-term energy goals and reduce greenhouse gas emissions.

The Energy Commission's proposed lighting standards are prompted by legislation that calls for a lighting energy reduction in homes by 50 percent and businesses by 25 percent from the 2007 levels by 2018.

Why will proposed standards make a difference?

According to the 2009 Residential Appliance Saturation Survey (RASS), lighting consumed 22 percent of home electricity.

In 2010, there were more than 600 million general-purpose LED lamps in California homes. At that time, LEDs made up less than 1 percent of the total stock, but is predicted to increase over the next 10 years.

Small-diameter directional lamps are often used in retail, hospitality, residential, and museum applications. In California, about 16 million of these lamps are installed in existing buildings, and the stock is expected to grow to 18 million by 2029.

What do the standards cover?

The standards cover screw-in LED light bulbs that a consumer would purchase for almost any household use. They also cover more specialized bulbs, called small-diameter directional lamps, used in commercial applications such as track lighting. The proposed standards focus on efficiency while maintaining performance. The standards also reinforce product labeling to help find energy efficient replacement LED bulbs.

How much energy can be saved?

The proposed standards could save Californians more than \$4 billion in energy costs over 13 years. In 2029, the total estimated savings is more than 3,000 gigawatt hours (GWh) per year, equivalent to the amount of electricity required to power all the households in Santa Barbara and Ventura Counties (about 400,000 average homes) indefinitely. The savings is equivalent to displacing one 500 megawatt power plant.

The proposed regulations are estimated to avoid 10.3 million metric tons of carbon dioxide between 2017 and 2029. The greenhouse gas savings are roughly equivalent to the CO₂ emissions of 168,000 cars.

Are there already products on the market that comply with the proposed standards?

Yes. All major manufacturers have bulbs that comply with the new standards.

Will the proposed standards increase the cost?

While energy-efficient light bulbs may cost more than inefficient bulbs, they make up for those prices in lifetime savings.

LEDs last about 20 years with the savings, cost, and pay back varying by type. However, costs are declining as demand grows. Directional lamps will potentially increase in cost by \$1.50 with an average lifetime savings of nearly \$12. Candelabra lamps will potentially increase in cost by \$1 with an average lifetime savings of about \$4.50. Omnidirectional lamps will potentially increase in cost by \$.50 with an average lifetime savings of nearly \$8.

The estimated increase in cost of a small-diameter directional lamp is roughly \$4 per lamp with an average 11-year lifetime savings of nearly \$250 in reduced energy and lamp replacement costs.

Why is the Energy Commission looking at the color content of a bulb?

The color of a light bulb is distinguished by the color rendering index (CRI), which is a score that rates a bulb's ability to make an object appear as it would under natural light. Daylight is the ideal for making colors look the way they should, so its CRI is a perfect score of 100. Unfortunately colors can be distorted by removing them from the light to make the bulb seem more efficient. The Energy Commission proposal sets minimum color requirements, yet allows for some tradeoffs between the efficiency and CRI.

Why is there standby mode in a light bulb?

There are a growing number of LED lamps that are designed to be connected to power at all times, so they may be controlled via a network. This "standby mode" contributes to the constant consumption of power when the lamp is both on and off. Proposed regulations include limits for standby mode because it makes up a significant percentage of the energy use of connected lamps today and because of the large potential statewide energy impacts with market saturation.

Who supports these proposed standards?

Supporters range from nonprofits to manufacturers to other stakeholders, including the California's investor-owned utilities, California Lighting Technology Center, Green Creative, CREE, Soraa, and the Natural Resources Defense Council.

What is the process for finalizing the standards?

To develop the report recommending the proposed standards, the Energy Commission sought stakeholder input and proposals on standards, test procedures, labeling requirements, and other measures to reduce energy consumption. Stakeholders are invited to comment on the most recent report before it goes before the full Commission for possible adoption by the end of the year.

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