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**BY EMAIL**

California Energy Codes and Standards  
California Energy Code Stakeholders  
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**Re: LEDs are Not Energy Efficient**

Dear California Energy Codes and Standards

Light is far more than lumens per watt. Light is perhaps the most fundamental and necessary resource for all biological systems on planet earth. The quality of light, the quantity of light sources, and timing of light are all critical for proper functioning of human and other cellular organisms.

Artificial light is impacting the proper functioning of the entire planetary ecosystem. There are now two types of light in this world: point sources such as the sun, candle, incandescent and High-Pressure Sodium, and surface sources such as LED and laser. Point sources, meaning the light source can be modeled as a mathematical point, emit uniform energy light in the same way that the sun emits uniform energy light. Surface sources, meaning that the light source must be modeled as a rectangular flat surface, emit non-uniform energy light which has probably never before been seen in this history of the world, and is a vastly different product than point-source light. A rectangular surface source can NEVER be modeled as a mathematical point, despite LED lighting industry claims that it can.

## Energy Efficiency

To be energy efficient, a new technology must provide the same service as the previous technology but using less energy. There are numerous links to sources confirming that energy efficiency does not just mean providing any type of light. Energy efficiency means providing the same uniform illumination that is provided by incandescent and HPS.

- **United States Department of Energy** - "Simply put, energy efficiency means using less energy to [get the same job done.](#)"<sup>1</sup>
- **West Virginia Department of Environmental Protection** - "Energy efficiency means using less energy to [accomplish the same task.](#)"<sup>2</sup>

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<sup>1</sup> [https://www.energystar.gov/about/about\\_energy\\_efficiency](https://www.energystar.gov/about/about_energy_efficiency)

<sup>2</sup> <https://dep.wv.gov/daq/EnergyEfficiency/Pages/default.aspx>

- **Environmental and Energy Study Institute** - "Energy efficiency simply means using less energy to [perform the same task](#)."<sup>3</sup>
- **United Kingdom Department of Energy and Climate Change** - "*On a technical level, energy efficiency is the relationship between the energy consumed and the output produced by that energy, often called 'energy services', for example the number of miles travelled for a gallon of fuel. Increasing energy efficiency means using either less energy to provide the [same level of energy services](#), or using same level of energy to provide a higher level of energy services.*"<sup>4</sup>
- **Law Insider** - Energy Efficiency means a decrease in customer consumption of electricity or natural gas achieved through measures or programs that target customer behavior, equipment, devices, or materials [without reducing the quality of energy services](#).<sup>5</sup>

California Energy Codes and Standards claims that LEDs are more energy efficient than previous technologies. THIS CLAIM IS FALSE.

For the sake of an energy efficiency comparison between a point source and a surface source of light, using only lumens per watt is not valid. As clearly noted above in numerous examples, energy efficiency means providing the same quality of light as previous technologies. LED light is a directed, non-uniform beam that is a very poor-quality light that is toxic to human and ecosystem health. The only valid use of this low-quality light is in an industrial setting, or perhaps an indicator light at the tiniest of energies.

The low-quality LED light is causing epileptic seizures, migraines, panic attacks, anxiety, lupus flareups, thoughts of suicide, reduced vision, and eye damage. These reactions to low-quality LED light prove that LED light does not provide the same service as high-quality point source light.

The only result of switching from incandescent or HPS to LED is that we now have a world filled with low-quality, toxic, discriminatory surface source light. There has been no energy savings; only a reduction in quality.

For the 2025 Code Cycle, the California Energy Codes and Standards must remove all claims that LED light is energy efficient. Any tables that show a lumens per watt comparison between a point light source and surface light source is invalid because these two light source types provide entirely different services and quality. The California Energy Codes and Standards for 2025 must make exceedingly clear to all stakeholders that all past claims that LED devices are more energy efficient than incandescent, compact fluorescent, High-Pressure Sodium or Low-Pressure Sodium has been false.

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<sup>3</sup> <https://www.eesi.org/topics/energy-efficiency/description>

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/65598/6918-energy-efficiency-strategy-statistical-summary.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65598/6918-energy-efficiency-strategy-statistical-summary.pdf)

<sup>5</sup> <https://www.lawinsider.com/dictionary/energy-efficiency>

Sincerely,

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**YOU DON'T HAVE THE RIGHT  
TO SHINE YOUR  LIGHT  
IN MY **