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April 12, 2022

BY MAIL

Rob Bonta, Attorney General
State of California
P.O. Box 944255
Sacramento, CA 94244-2550

Re: Pacific Gas and Electric LED Fraud

Dear Rob Bonta,

Luminous efficacy and energy efficiency are not the same. Point light sources and surface light sources provide different services. LEDs are not energy efficient.

As per the California Attorney General's website: *"The Attorney General's responsibilities include safeguarding Californians from harm and promoting community safety, preserving California's spectacular natural resources, enforcing civil rights laws, and helping victims of identity theft, mortgage-related fraud, illegal business practices, and other consumer crimes."* The mission of your office is directly aligned with holding Pacific Gas & Electric accountable for the LED Fraud, which is injuring Californians, reducing community safety, severely

damaging California's natural night resource and violating Californian's civil rights. The PG&E LED Fraud constitutes an illegal business practice.

The Soft Lights Foundation is a non-profit corporation registered in Oregon, with members in California. We advocate for protection of people and the ecosystem from the harms of light pollution, especially LED light. Since 2017, we have accumulated extensive knowledge about the toxicity of artificial light at night, especially non-uniform surface source light such as LEDs, and about the myth the LEDs are energy efficient.

We hereby request that the California Attorney General hold Pacific Gas and Electric accountable for fraudulently claiming that LEDs are energy efficient. The following statements posted on PG&E's website are fraudulent.

Enhance every room with bright, natural light

https://www.pge.com/en_US/residential/save-energy-money/savings-programs/led-lighting/led-lighting.page

Advanced LED bulbs are a PG&E Smart Choice product that offers the best combination of energy efficiency and performance on the market today.

https://www.pge.com/en_US/residential/save-energy-money/savings-programs/led-lighting/led-lighting.page

Greatly reduce your energy use and maintenance costs while improving light quality and output by replacing high-intensity discharge (HID) or fluorescent high-bay and low-bay fixtures with LEDs.

https://www.pge.com/en/mybusiness/save/smbblog/article/save_big_with_led_rebates.page

When speaking about energy efficient lighting, one technology comes to mind more than any other: light emitting diodes (LEDs). They use less energy, last longer and provide highly reliable service, thereby greatly reducing energy bills and maintenance costs. LED fixtures also offer more focused light output and more uniform light distribution, key benefits for most lighting applications.

https://www.pge.com/en_US/small-medium-business/business-resource-center/energy-management-articles/energy-management-articles/past-articles/lighting-rebates-made-easier.page

LEDs do not provide natural light. LEDs are not energy efficient. LEDs emit a toxic, low-quality light. LEDs do not provide uniform light distribution. The statements by PG&E are fraudulent.

LED lights are a type of light called a surface source light. Light from an LED chip creates a narrowly directed beam of non-uniform energy. This non-uniform energy light interferes with the human nervous system, resulting in nausea, epileptic seizures, migraines, panic attacks, anxiety, and eye injury. LED light violates basic human civil rights.

Luminous Efficacy is a measure of the luminous efficiency of a light source. It is the ratio of the total luminous flux emitted to the total power input,

expressed in lumens per watt. The chart below shows the approximate luminous efficacy for different lighting technologies.¹

Lamp Type	Luminous Efficacy (lumens / watt)
Incandescent	10
Fluorescent	60
Compact Fluorescent	60
High-Pressure Sodium	120
Light-Emitting Diode	120
Low-Pressure Sodium	150

Energy Efficiency, on the other hand, is providing the same quality of service using less energy. Energy efficiency and luminous efficacy are not the same thing.

There are two types of light: point source and surface source. These two types of light provide different services. A point source provides uniform illumination which is safe and useful for lighting a volume of space. On the other hand, a surface source provides a directed energy beam of non-uniform light,

¹ https://www.ledrise.eu/blog/led_efficacy_efficiency_explained-lr/

which is useful for fiber optic communications, but unsafe and not useful for illuminating a volume of space. Surface sources such as LEDs do not provide the same quality illumination service that is provided by point sources such as incandescent and HPS. For illumination purposes, LED light is of such a low quality that it is toxic for humans, causing sickness, agitation, anger, and numerous negative neurological reactions.

To make the claim that LEDs are energy-efficient, the LED light must have a higher luminous efficacy, plus the LED light must provide the same quality of service as the incandescent light or the same quality of service as the High-Pressure Sodium light. Since LEDs do not provide the same quality of service as incandescent or HPS, the claim that LEDs are energy efficient cannot be made, even if the luminous efficacy is higher.

Pacific Gas & Electric has purposely equated luminous efficacy with energy efficiency to fraudulently claim that LEDs are energy efficient. By making the impossible leap that luminous efficacy equates to energy efficiency, PG&E has defrauded hundreds of city and county governments in California, and the public, resulting in profit for PG&E, and a severely degraded service for PG&E's customers. This has resulted in hundreds of millions or billions of dollars in damage and injury.

Figure 1, Figure 2, and Figure 3 shows examples of the toxic, non-uniform energy LED light.



Figure 1 - Toxic LED light



Figure 2 - HPS point source on the left, LED surface source on the right

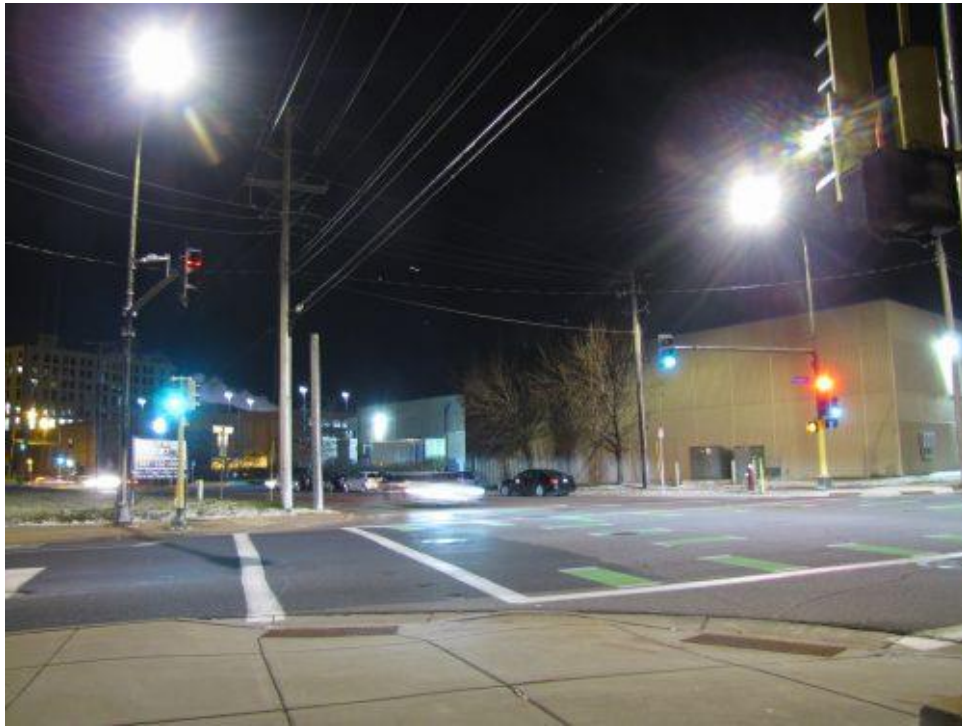


Figure 3 - Blinding Glare from LED streetlights

We request that the California Attorney General take the following actions:

- 1) Impose significant monetary penalties on PG&E for fraudulent and deceptive practices.
- 2) To protect public health, require PG&E to remove all outdoor surface source LED streetlights.
- 3) Require PG&E to remove the false claim that LEDs save energy or are energy efficient from its website and marketing materials.

4) Require PG&E to notify the public via its website that LEDs are not energy efficient, and to alert the public to the toxic effects of non-uniform energy surface source LED light.

Sincerely,

Mark Baker

Mark Baker

President

Soft Lights Foundation

mbaker@softlights.org

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