

Brief History of LED Laws

On July 29, 2005, members of the Senate voted 74 to 26 to pass the Energy Policy Act.¹ The bill was signed into law on August 8, 2005, by President George W. Bush. Buried on page 266 of the 551-page bill is Section 912 – Next Generation Lighting Initiative. It is in this the section that the members of Congress directed the Department of Energy to research and attempt to develop an equivalent replacement for the humble incandescent light bulb using new solid-state technology.²

Surely no member of Congress predicted what would come next. Only two years later, Congress passed the Energy Independence and Security Act of 2007, formally declaring, but not defining, the existence of the General Service Light-Emitting Diode Lamp, and directed the DOE to determine if luminous efficacy standards should be increased for General Service Lamps.³ The law states that, if the DOE didn't approve luminous efficacy rules, then, as of January 21, 2020, a minimum luminous efficacy of 45 lumens per watt would be mandated.

What members of Congress were not told and still do not understand is that by declaring, without defining, the General Service Light-Emitting Diode Lamp, they were doing something horrible and unexpected. You see, an LED does not produce a light equivalent to that of the incandescent light bulb. LEDs use a flat surface to generate light in a directed beam with entirely different physics characteristics than traditional light sources. While the goal of the 2005 Energy Policy Act was to have the DOE research the concept of developing a solid-state equivalent to the incandescent light bulb, the DOE was not successful in achieving this goal. While LEDs do indeed emit light, the light is not the same as incandescent light. Even though the DOE had not met Congress' original goal, by 2007 everyone had become so excited about the possibility of creating a significantly more energy-efficient light bulb that Congress directed the DOE to proceed full steam ahead, without waiting for the results of the research that was initiated in 2007.

LED light sources are now everywhere. We have LED vehicle headlights, LED streetlights, LED light bulbs, LED strobe lights on emergency vehicles, LED office lighting, LED flood lights, and LED indicator lights in appliances. There are now billions of these LED emitters in our environment, and yet, none of these devices has been vetted or approved to ensure the comfort, health, and safety of the public. Despite this lack of vetting, the DOE implemented the 45 Lumen Per Watt Rule, and on August 1, 2023, began full enforcement, effectively banning the sale of the incandescent light bulb.

¹ https://www.senate.gov/legislative/LIS/roll_call_votes/vote1091/vote_109_1_00213.htm

² <https://www.congress.gov/109/plaws/publ58/PLAW-109publ58.pdf>

³ <https://www.govinfo.gov/content/pkg/PLAW-110publ140/pdf/PLAW-110publ140.pdf>

In the state of euphoria caused by the promise of using LED technology as a replacement for the incandescent light bulb, federal agencies skipped many procedural steps. Not a single person in the federal government recognized or made Congress aware that LEDs emit electromagnetic radiation in the visible part of the spectrum and that the Food and Drug Administration is mandated by the 1968 Radiation Control for Health and Safety Act to regulate this radiation to protect public health. Despite this mandate, codified as 21 U.S.C. 360ii, the FDA has failed to research, vet, approve or publish performance standards for any LED product. Nobody in the federal government has made sure that LED radiation is comfortable, healthy, or safe. 21 U.S.C. 360ii also requires that the FDA liaise with all other federal agencies to publish performance standards for LED products. For example, the National Highway Traffic Safety Administration would publish regulations for LED headlights. The DOE would publish regulations for LED light bulbs. The Occupational Safety and Health Administration would publish standards to protect workers. None of this has happened. Despite billions of LED emitters already placed into our environment, there have been no efforts to ensure that this radiation is safe for human health or the environment.

The result of the switch to LED lighting has been as catastrophic as it was predictable. LED vehicle headlights cause eye pain and extreme glare. LED streetlights are causing individuals to suffer migraines and life-threatening seizures. LED office lights cause brain fog, preventing people from using their office. Light pollution has increased from a rate of 2% increase per year to 10% increase per year due to the use of LED lighting.

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