

## DOCKETED

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**NRDC Comments on General Service Lamps, Invitation to Participate, June 16, 2017**

*Additional submitted attachment is included below.*



## **NRDC Comments on Phase 2 Pre-Rulemaking for General Service Lamps**

### **Docket # 17-AAER**

June 14, 2016

On behalf of the Natural Resources Defense Council and its more than 400,000 members and electronic activists in California we respectfully submit our comments on the California Energy Commission's (CEC's) "Invitation to Participate" for general service lamps (GSLs), which are more commonly referred to as light bulbs. NRDC has actively participated in the various legislative and regulatory proceedings at the national level and in California tied to GSL energy efficiency and brings a deep understanding of the lighting technologies, the GSL market, and test methods for measuring the light output and performance of various lighting products (incandescent, halogen, CFL and LED).

Our key recommendations for CEC's consideration are:

1. The CEC shall adopt and implement the updated federal definitions for GSLs issued by the Department of Energy and published in the Code of Federal Register on January 19, 2017 in an expeditious manner. These actions by the CEC will close potential loopholes and expand coverage of the CEC's GSL regulations to include certain previously exempted lamps including 3-way lamps, lamps with candelabra bases, reflector lamps, and lamps with various shaped enclosures.
2. The CEC shall set lower lumen output limits for its GSL standards at 150 lumens for GSLs with a candelabra base and 200 lumens for GSLs with all other bases. These values are consistent with the limits included in the CEC's LED performance regulations and will help ensure that the incumbent 25 and 40 Watt incandescent and halogen lamps are covered by the regulations.

These actions will provide California with additional energy savings, reductions in climate change emissions, and provide consumers with additional utility bill savings. Updating the CEC's definition for GSLs has the additional benefit of protecting California in the event the DOE fails to implement or enforce the federal standards that go into effect nationally on 1/1/2020.

Below we provide additional background and justification for our recommendations and replies to some of the questions posed by the CEC during its webinar on May 11, 2017.

**NATURAL RESOURCES DEFENSE COUNCIL**

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## **Background**

Per the federal Energy Independence and Security Act (EISA), California was granted the authority to adopt the federal efficiency standards for GSLs as early as 1/1/2018. While California has ratified the federal 45 lumen per watt (LPW) standard for GSLs, the standard is tied to the initial definition of GSLs contained in EISA. DOE has published updated definitions for GSLs on January 1, 2017 and through this proceeding California is taking the steps necessary to update the definition for GSLs in its Title 20 appliance regulations.

The federal standard of 45 LPW has the effect of removing inefficient technologies such as today's incandescent and halogen bulbs from the market. The GSLs purchased in the future will likely be CFLs and LEDs and will use much less energy. For example, the old 60 Watt incandescent bulbs (or the 43W version that complied with the first phase of EISA), will be replaced by a LED bulb that only uses around 10 Watts while delivering the same amount of light. In addition, the LED bulb that is used for 3 hours per day, the typical consumer usage pattern, will last between 10 to 25 years, depending upon the model purchased.

While the CFL and LED lamps have a higher purchase cost than the incumbent bulbs, they are extremely cost effective due to their much greater energy efficiency and longer life, which prevents the need to purchase a replacement lamp as is typically the case for incandescents and halogen lamps. In addition, the cost of LED lamps has come way down, with 60W replacement lamps as low as \$2 in some cases when purchased in a multipack.

## **The Importance of Adopting the Updated Definition**

Per EISA, DOE was required to review the list of exemptions and to remove those that were no longer necessary. DOE led an extensive process that included multiple opportunities for stakeholder input. The final definition removed several exemptions but maintained those for 15 different lamp categories. It should also be noted that DOE's final rule included several changes from its original draft in response to input and requests made by the lighting manufacturers.

In developing its final rule, DOE carefully assessed the availability and performance of lamps that would be able to meet the 2020 GSL efficiency standards.

We believe DOE was extremely thorough in its analysis and that CEC should be very comfortable adopting the DOE's updated GSL definitions.

Through its final rule, DOE eliminated potential loopholes and removed unnecessary exemptions. As a result of these actions, DOE brought into scope a range of lamps, most notably reflector lamps, 3-way lamps, high light output lamps and those with candelabra bases. The updated definition also eliminated the exemptions for a range of lamps that were exempt simply due to their shape or form factor.

We are unaware of any lamps covered by the updated DOE definition for GSLs that have a unique form factor or do not yield similar or superior performance to the incumbent lamps.

If CEC fails to update its definition, then it leaves California vulnerable to increased sales of exempted bulbs and a lot of lost energy savings. For example, the sales of shatter resistant bulbs – a bulb that simply has a rubber like coating on the exterior of the bulb’s envelope could continue to be sold in California. Ditto for 3-way lamps that are rated 30, 70 and 100 Watts, which provides another way for a consumer to purchase an inefficient 100 Watt incandescent bulb. The biggest energy saver due to the expanded definition will be incandescent reflector lamps, which are currently extremely inefficient and often have very high operating hours as they are used in recessed cans and as flood lights, some of which are left on all night. (Note, the CEC’s existing regulations for reflector lamps only applies to those with a diameter < 2.5 inches and does NOT cover conventional incandescent reflector lamps.)

It should also be noted that many of these lamps – vibration service, shatter resistant, reflectors, etc. do not even meet the Tier 1 federal standards that took effect in California between 2010 and 2012. Some of these can be made as cheaply and inefficiently as the old-style incandescent light bulbs. To make matters worse, vibration service lamps are even less efficient than the old incandescents were and their sales have been increasing dramatically as they provide a loophole with Tier 1.

## **Timing**

We recommend CEC adopt and implement the updated GSL definition as expeditiously as possible. The earlier CEC can adopt the standard the sooner they can go into effect. Ideally the CEC would adopt the standard by 1/1/2018 and have an effective date a year later, 1/1/2019. This enables California to receive the incremental benefits of the GSL standard, with its expanded scope, a year earlier than the 1/1/2020 national level effective date.

The updated definition for GSLs and its effective date would not impact the CEC’s other existing standards for state regulated LED lamps and small diameter directional lamps (SDDLs). Those standards would continue to go into effect on January 1, 2018. (For more information go the CEC’s March 30, 2017 [Regulatory Advisory](#).)

## **Quantifying the California Benefits**

The Lawrence Berkeley National Labs recently published [an analysis](#) of the national impacts of the updated GSL definitions. We encourage the CEC to refer to this report and to extrapolate the national energy and carbon savings estimates for California based on its population relative to the national population. This should provide the appropriate order of magnitude estimate necessary to demonstrate the benefits of the proposed expanded definition.

To highlight the significant impact the updated definition has, we point directly to LBNL's national estimate of additional carbon dioxide emissions reductions for GSLs not included in the EISA 2007 definitions – 540 million metric tons by 2030. If one assumes California represents 12% of total US population, this translates to CO2 savings of 54 million metric tons by 2030.

For more precise numbers, California can apply state specific average values that reflect the state's average electricity rates and average emission rates from its electricity supply.

### Rationale for Changing the Lower Lumen Limit

The updated federal definition for GSLs established a lower lumen limit of 310 lumens. GSLs that produce less than 310 lumens are exempted from the federal standards. We recommend CEC apply the same minimum lumen limits – 150 lumens for candelabra bases and 200 for all other bases – as specified in CEC's other lighting regulations. Moving the lower lumen limit down from the federal level will help ensure that these lower light output lamps will also be energy efficient and covered by the regulations. This will also provide consistency and remove potential for confusion.

Below is an image we created that illustrates: a) that there are already a lot of products on the market that claim equivalency to 40 W incandescents and are at 300 lumens, which is just below the cutoff of the federal definition of 310 lumens, and b) LED versions of these lamps already exist.



## **Product Availability**

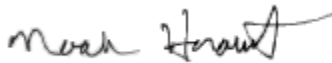
Today LED light bulbs that easily meet the 45 LPW standard for a wide range of shapes and light outputs are already on the market. These include the additional types of lamps that would be covered by the updated definition. In addition to the most common A-lamp or pear shaped models, LED versions of reflector lamps, round globe lamps, 3-ways, etc are also available at a wide range of retailers. To illustrate the wide variety of LEDs that are already available, we went to [Home Depot's website](#) and found that there were over 2200 different LED lamps offered, the vast majority of which fall within the scope of the updated definition. These bulbs come in a wide range of form factors, color temperatures, base types, etc.

## **Conclusion**

As this standard provides the largest energy and carbon savings of all the standards currently under consideration by the CEC, we encourage the Commission to finalize this standard as quickly as possible and to avoid delays that would be caused by bundling this standard with other products that might require more time to develop.

We very much appreciate the opportunity to provide our comments and are available to discuss them further if you have any questions.

Respectfully submitted,



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