



October 30th, 2015

Taylor Jantz-Sell
US Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: ENERGY STAR® webinar - ES Lamps V2 preDraft4_Webinar_10-22-15.pdf

Dear Ms. Jantz-Sell,

Cree has attended the webinar and reviewed the *ES Lamps V2 preDraft4_Webinar_10-22-15.pdf* slide deck with respect to the upcoming release of *Lamps v2.0 DRAFT 4*. Cree appreciates the opportunity to comment on requirements in the current draft of the specification and on the direction that other industry representatives are trying to take the lamps specification. It concerns us greatly that there are folks looking to cheapen and degrade the LED portion of the lamps specification. Therefore, Cree respectfully submits the following comments and request that each be carefully considered prior to finalizing the *Lamps v2.0 DRAFT 4* specification for review.

Thank you in advance for your consideration. Please feel free contact me at 919.407.4077 with any further questions that you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "JV", written over a horizontal line.

Jonathan Vollers
Lighting Qualification Program Manager



GENERAL

Cree believes that the ENERGY STAR *Lamps V2.0* DRAFT's, that have been proposed to date are going in the right direction and that any reduction in requirements or allowance for sub-standard bulbs would not only erode the ENERGY STAR brand and stifle innovation by making this specification a lower bar and not incentivizing a higher quality product. It would also confuse consumers on why an ENERGY STAR rated LED bulb product was performing worse tomorrow than it is performing if it were qualified to today's standard.

If the lifetime was adjusted down for LED products to drive reduction in cost it would also have an effect on quality of the product (this seems obvious but may not be talked with all stakeholders).

A typical design would alter the following to help drive down the costs:

- Reduce the number of LEDs and drive them harder to achieve the initial light output for a category (i.e. A-Type 60W equivalent of 800 lumens). Effect – increased rate of lumen depreciation and increased rate of color shift. Possible dissatisfaction of consumers for decreased light output and color shift compared with replacement lamp installed at a later date.
- Running LED's harder (more drive current) reduces the efficacy of that package and will affect the overall efficacy of the bulb.
- Reducing quality (cost) of driver components. Effect – increased failure rate sooner in the life of the product. Depending on the design and other sacrifices made could result in a delayed failure impact in a few years as these products start to exhibit greater issues than expected.

DRAFT 3 COMMENTS DISCUSSED AT WEBINAR

Provide warranty information via a URL: Cree would agree that reduction of the full warranty language would be beneficial to save packaging space as long as the number of years the warranty is stated along with the URL.

TM-30 Metrics: Cree believes it is beneficial to start collecting the fidelity and gamut metrics outlined in TM-30 but not impose any requirements on those values. Cree also believes that they should be reported on the ENERGY STAR website, so that as these metrics become more widely used early adopters' and advanced programs could start to discern different products on the market.

2200K & 2500K for Decorative Only – Nomenclature required for these CCTs: Cree would entertain a consistent nomenclature if it can be agreed upon by the EPA and industry.



Previously Proposed Nomenclature:

2200K = *Amber White*

2500K = *Candlelight* / it was mentioned that candle light is in the 1600-1800 CCT range so another option could be *Twilight*

Revised Start-Time to allow for Connected Products: Cree would agree with re-wording the requirement to address stand-by to start-up time. There also needs to be consideration on if a connected product would then have the same amount of time to a non-connected product.

Other Lamp Bases & Shape (i.e. – wedge, GY6.35, PAR36/AR111): Cree has no objection to adding base options.

CALIFORNIA ENERGY COMMISSION COMMENTS – KEN RIDER

Cost-effectiveness Slide: Cree agrees with a majority of the data presented and believes that programs are adopting LED's at a much quicker rate that estimated and that cost-effective ratios show that programs will be able to be effective in delivering the savings required. LEDs will continue to achieve greater cost effectiveness in rebate programs as the cost of a true ENERGY STAR LED lamp is reduced as it has over the last two years thanks to Cree and the Cree LED bulb family that have been so effective in driving the market. This trend also helps to dispel the myth that ENERGY STAR will need to adopt sub-standard bulb requirements (erosion of lifetime, power factor, omni-directional, etc...) to be relevant in the LED market and help drive adoption.

Efficacy Slides: Cree believes that efficacy is important but also believes that by maintaining at or near 65 LPW there is enough flexibility to drive cost reductions, increase quality, increase color rendering, etc... that will help drive adoption and really shatter the market penetration that CFLs never could achieve. This flexibility will also be critical in addressing the sub-standard bulb so that a true ENERGY STAR qualified lamp really satisfies or exceeds the customer's expectations at a price that is competitive over the coming 1-2 years with any product currently on the market. Please note that LED bulbs provide more value than current lower cost technologies so they need to be competitive but not at cost parity with other technologies.

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS (NEEP) COMMENTS – CLAIRE MIZIOLEK

Priorities Slide: Cree agrees that omnidirectionality, efficacy, dimming, lifetime and color rendering are critical to truly replace incandescent in the market. Cree would also argue that start-time and power factor does matter but due to LED's capabilities this has not been a challenge. The ENERGY



STAR specification should not start to compromise as this may open up new dissatisfactions that are not present in today's ENERGY STAR qualified products.

Power Factor has not been a significant factor in consideration but for LED's the line has been drawn at 0.7 for residential and 0.9 for commercial. This could be due to the understanding that if you really replace all of the incandescent product with a new energy efficient product that you may have lost an opportunity to help utilities reduce losses on their transmission lines and reduce the need to build new power plants due to the peak load required beyond rated power that utilities need to account for in their power grid. Also, as smart meters become more sophisticated would they start to evaluate a residential home for its effective power factor and charge accordingly. This may not have been a big consideration with CFL's as the apparent benefit outweighed the negative but if we look at the aggregate of homes across North America that will change over to new products, hopefully ENERGY STAR, in the next 10-15 years would this be a lost opportunity to reduce demand on our power grids.

Examples:

[DTE - Understanding & Improving Your Power Factor](#)

- Apparent Load for a 8W bulb with a 0.65 PF would be 12.3 VA required to support
- Apparent Load for a 10W bulb with a 0.90 PF would be 11 VA required to support

CONCLUSION

CFL's achieved only abysmal market penetration due to the fact that they could not deliver on all the priorities mentioned above. LED's are on the precipice of overtaking CFL's and truly giving a consumer a better option that does more and provides more value. There should not be a sacrifice in requirements as many manufacturer's dedicated to LED design and technology have been working diligently to deliver on that promise. It would be insulting to allow other manufacturer's to commit late to LED technology and somehow be ENERGY STAR qualified with sub-standard bulbs that will hinder energy efficient adoption and by their poor performance and in a few years be labeled "CFL v2.0".

Cree has learned the importance of the ENERGY STAR brand in the residential market over the last three years after the introduction of the Cree LED bulb. This understanding has helped us appreciate how the quality specification, though not strictly energy efficiency related, has learned from the failures of the CFL technology and is striving to ensure we do not replicate the sins of the past. Therefore, Cree requests that there is no regression of requirements on lifetime, omnidirectionality, power factor, or any other requirement that has been proposed in *Lamps v2.0 DRAFT 3*. We would argue of the possible elimination of non-dimmable product from the *Lamps* specification to help ensure the differentiation of quality ENERGY STAR products from sub-standard LED products.

