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Hi Taylor and team,

I wanted to put forward suggested changes that I think should go into the Lamps 2.0 Specification Draft 4 (with rationale beneath). Taylor, thanks for your note on Monday—hopefully these comments will be helpful with your process moving forward.

Reduce required lifetime for omnidirectional LEDs to 10,000 hours

- As the market has developed and matured, the original safeguard of an LED that lasted 25,000 hours is no longer necessary. “Quality” has been defined by many other performance metrics beyond lifetime, and the level of 10,000 hours has long been sufficiently high-quality for the ENERGY STAR Lamps specification regarding CFLs. For LEDs, we’re finding that the product quality is high and a very long lifetime is no longer necessary to justify the \$20+ price tag of early products.
- Market developments are showing that 10,000 hour LEDs are gaining consumer acceptance.
- Utilities are not able to claim savings for LEDs beyond 2025, meaning a lifetime longer than 9 years (for a spec that’s final in 2016) is not beneficial for savings calculations.
- By the time the lifetime of these products is reached, replacement LEDs are projected to be much more efficient than the current products available.
- Including 10,000 hour LEDs into ENERGY STAR will ensure that products entering the market have the ability to be taken through the quality assurance testing and meet the requirements surrounding quality that ENERGY STAR puts on all lamps. This would be a major improvement for the market.

Increasing Omnidirectional product Warranty to 5 or 6 years

- At present, the omnidirectional products that would meet draft 3 of the specification have an average warranty of 4.19 years (over the 2/3 year requirement)
- Increasing to 5 or 6 years would be a small manufacturer investment that would go a long way to ensuring consumer protection around these products.
- Coupling a decreased lifetime and increased warranty should help protect consumers from premature product failure, as recent the recent [DOE SSL R&D Plan](#) shows that lumen depreciation is not the primary cause of lamp failure (page 77). By having both sufficient lumen maintenance testing to extrapolate out to 10,000 hours using TM-21, as well as a strong warranty, we feel customers will continue to have a great experience with ENERGY STAR LEDs.
- At present, when analyzing the ENERGY STAR QPL, the average warranty for CFLs exceeds that of LEDs, though the average lifetime for a CFL is less than half that of LEDs. Given this disparity, it would seem that warranty may provide a bit more comprehensive durability where the lifetime testing/rating is not hitting the most common failure modes.
- The issue of space on packaging was raised in the 10/22 call, and I would support a change to list the number of years of a warranty with a URL **AND** a phone number for customers to follow up with to get all the details (or else manufacturers could still include all the warranty fine print on the packaging). *This is after further consideration of my public statement realizing that many consumers do not have reliable internet access, but should be able to access the warranty details via phone.*

Increasing omnidirectional efficacy to 75lpw

- After much consideration, I would like to amend my draft 1 comments regarding efficacy levels for omnidirectional products. At the time in early 2015, having an efficacy above 65lpw would prevent most CFLs from qualifying for the specification, which at the time was set to be effective mid-2016. CFLs were the only low-cost efficient options available to consumers that could rival prices with halogens (especially with a 50 cent or \$1 incentive from an efficiency program).
- In October 2015, the lighting market is a different place. There are numerous low-cost LEDs, comparably priced to CFLs, being manufactured by companies with a long track-record of partnership

with ENERGY STAR Lighting. These are reputable companies producing products at low price points that are relatively close to meeting the ENERGY STAR specification in all points except for lifetime.

- If the lifetime were lowered to 10,000 hours, then these low-cost LEDs could qualify for ENERGY STAR, and as such ENERGY STAR could raise the efficacy to 75lpw and not run the risk of wiping out the low-cost options for consumers.
- Since Lamps V2.0 would not go into effect until early 2017, it is expected that much program support of CFLs would be diminished. That being said, I would request that CFLs could still be able to qualify to the old spec for an additional 6 months after the final date in order to help the market fully transition. This is especially considering that the current crop of low-cost 10,000 hour LEDs would need to be re-engineered to meet the ENERGY STAR spec and may not be able to earn certification until the second half of 2016.
- Regarding CFLs, since the 2005 passing of EPCAct and the yet-to-be-finalized DOE CFL Test Procedure, the remaining CFLs sold that would not meet ENERGY STAR would still be required to meet some minimum quality requirements including efficacy, CRI, lifetime testing, rapid cycle stress tests etc. As such, I feel there are sufficient safeguards to ensure the original challenges with CFLs will be safeguarded against even without their continued inclusion in the ENERGY STAR Program.

Please let me know if you have any questions about any of these comments. Thank you so much for leading a productive process and I hope we are able to reach common ground for a strong and impactful Lamps 2.0 specification. All the best,

-Claire

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