Taylor Jantz-Sell
ENERGY STAR Lighting Program Manger
1200 Pennsylvania Avenue
NW MC 6202J
Washington, DC 20460

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Ms. Jantz-Sell,

Northeast Energy Efficiency Partnerships (NEEP) appreciates the opportunity to provide comments to the ENERGY STAR program to the first draft of the Lamp 2.0 Specification. After careful review of the specification and participation in the EPA led webinar on March 3rd, NEEP, along with the Cape Light Compact, Eversource MA, Liberty Utilities NH, and Efficiency Vermont (henceforth referred to collectively as NEEP), respectfully submit the following comments.

EPA's Primary Goals and Overall Specification Timeline

NEEP is incredibly supportive of the primary goals put forward by EPA in the cover letter associated with this specification. We feel that EPA has identified the key needs for a lamp specification, particularly through increasing efficacy levels and broadening the scope and features, especially to account for connected lighting which is a rising category and has the potential to increase lamp energy consumption if not addressed soon. NEEP is also impressed with the timeliness of this specification, as V 1.1 had been in effect for only a few months before the release of this V 2.0 first draft. This is appropriate given the rapid evolution of the lighting market and NEEP wants to recognize the EPA for the hard work to pull this specification together in such a timely manner.

NEEP's Overarching Comments

Overall, our comments will follow a general theme: while we are very supportive of the specification's aim to increase quality, incorporate connected products, and increase efficacy levels for ENERGY STAR Lamps, we are concerned that when all of the changes to this draft are put into place, there will not be adequate availability of affordable, efficient ENERGY STAR products in the market. Our comments are focused on the impact to the omnidirectional category, and any reference to QPL numbers are from a spreadsheet downloaded 3/3/15. Specifically, at the proposed efficacy levels, very few CFLs will qualify, and the ones that do stay on the list would only be the higher lumen output lamps (above 75W equivalents). None of the current ENERGY STAR qualified 60W or 40W equivalent CFLs would make the list as proposed in Draft 1. As acknowledged by EPA in the March 3rd webinar and as NEEP has observed, the trend for manufacturers has been to shift investments from CFLs into LEDs, and as such it may not be realistic for manufacturers to make the necessarily investments in CFL products to meet the ENERGY STAR certification by the time this specification goes into effect. NEEP's comments support increasing efficacy levels, but advocate to the EPA to make a mild reduction in the efficacy levels proposed in order to allow some CFLs of lower lumen outputs to still qualify for ENERGY STAR certification. We understand that CFLs have some shortcomings and with the wide variety of high quality LEDs in the market, it may seem that ENERGY STAR should only focus on those products. To that end, we are comfortable with the proposal when it comes to covered and specialty CFL products that would largely come off the QPL, but we advocate for adjustments to preserve the inclusion of high-quality bare spiral CFLs that are a reliable, low-cost option that customers have come to know and appreciate.

The need to maintain a selection of standard CFLs is multifaceted. By the time this specification goes into effect in early 2016, the price points for the lowest-cost omnidirectional 40W and 60W equivalent

LEDs are projected to be in the $6-7 range, with many products costing significantly more then that[1]. According to the EPA's most recent Light Bulb Trends document, CFLs in the 40-60W range average prices fall into the $2 range and that unrebated price is expected to remain relatively stable. For a customer in a territory without energy efficiency programs, the CFL would be the clear price winner over LEDs, but with the price of EISA-compliant Halogens at an average of $1.50 (or less when purchased in a multipack), Halogens become much more compelling. Even when efficiency programs offer incentives on efficient lighting, they do so only for ENERGY STAR certified products. If this specification goes into effect as is, efficiency program incentives would only be available for LEDs and high lumen CFLs, as no 60W or 40W equivalent CFLs would stay on the list. As such, customers looking for a 60W equivalent bulb, the most common type in a home, may be faced with the choice of an incented LED that costs closer to $3-5, a non-incented CFL for $2, or a Halogen for $1.50. For price constrained customers, the customers who are most impacted by their energy bills, they would likely continue to purchase the halogen and as such continue to pursue non-efficient options. Even if they did choose the non-incented CFL at the higher cost, it would no longer be ENERGY STAR Certified and therefore the quality assurance measures would not be in place to ensure customer satisfaction. If some lower lumen CFLs were to stay on the list and maintain eligibility for efficiency program incentives, even a very modest incentive on a CFL would bring the cost to be competitive with Halogens. In the larger picture, this would ensure that many consumers make the efficient decision.

Additionally, many efficiency programs already have budgets and regulator approved plans contingent on continued support of CFLs in some capacity for the next 1-3 years. If there were no longer ENERGY STAR certified CFL products for inclusion in these programs, some may decide to continue support of CFLs that are not ENERGY STAR certified or perhaps are certified to earlier versions of ENERGY STAR. This would run the risk of manufacturers no longer needing their products to meet the stringent quality metrics included in the ENERGY STAR specification, and may result in a backslide of poor-quality CFLs being made available. Efficiency programs have partnered with ENERGY STAR and relied upon the high quality that ENERGY STAR has represented, but without adequate CFLs meeting ENERGY STAR's specification and many factors pushing continued CFL support through 2017 or beyond, this healthy situation is in jeopardy.

NEEP's recommendations would result in only very high quality CFLs being eligible to earn ENERGY STAR recognition for the 2.0 specification revision, and we implore EPA to strongly consider these recommendations.

NEEP's Specific Comments:

Color Tunable Lamps

NEEP supports the EPA's proposed testing and inclusion of color tunable lamps in section 5.1. However, while the ability for a user to adjust the CCT of a "white light" lamp is appealing, NEEP does not support any energy allowance for this feature. Another consideration could be confusion with the language of "color tuning" which can refer both to white-light only lamps that adjust their CCT along the white light black body curve, or to RGB products that can tune to produce any color. There is an opportunity for customer confusion regarding this terminology and the possibility that customers would expect a "color tuning" white light lamp to change colors. We recommend EPA suggest common language in this regard to the industry, perhaps using differentiating language such as "tunable white light" and "color tunable" lamps.

Section 9: Efficacy, R9, and CCT

[1] NEEP's 2014-2015 Update to the Residential Lighting Strategy, pg 35

As mentioned in our overall thoughts, NEEP is supportive of the proposed efficacies for decorative and directional lamps, however NEEP recommends that EPA lower the efficacy requirements for omnidirectional lamps slightly, and our analysis finds that 69lpw may be sufficient to address our concerns. At that level, some lower lumen CFLs would meet the efficacy requirements. Of currently qualifying products in the 69-70lpw range, the vast majority are CFLs, so this would not be a major concern of weakening the efficacy requirements for LEDs. While even more CFLs would quality at 68lpw, more LEDs would as well. As such, if EPA is motivated to limit the LEDs to a more selective group, we feel that 69lpw would do this appropriately without removing CFLs from being able to qualify.

Regarding R9 values in section 9.7, NEEP would support EPA setting R9 minimums to ensure high quality products; however that would be contingent on the additional change of reducing efficacy to 69lpw. If the efficacy levels of the specification stayed at 70lpw for omnidirectional, the increase in R9 would mean an even more drastic reduction of qualifying CFLs which we would not support. Our calculations are below:

- Of omnidirectional CFLs that meet 70lpw (104 products), only 44 products have R9 > 0.
- If went to 69lpw, would have 370 more CFL products that qualify, but only 145 have R9 > 0.
- As such, both a 69lpw efficacy requirement and an R9 > 0 would result in 189 CFLs on the qualifying list (without consideration for any other factors). That is 13% of the CFL products (total 1437) that would qualify, which seems sufficiently stringent.

A final R9 recommendation would be to change the requirement to $R9 \geq 0$, as an R9 of 0 seems sufficient to still be included.

Otherwise, NEEP supports EPA's efforts to clarify and align photometric performance with DOE, FTC, and the forthcoming Luminaires specification. Regarding Note Box 16, we would be supportive of lower CCT levels of 2500K or 2200K for decorative products, where the greatest need for ambiance and color tuning dimming comes into play. At present, we do not see compelling evidence to expand that to other product categories and would anticipate potential consumer confusion over low CCT omnidirectional or directional lamps; with decorative lamps, however, we see low CCT as a possible advantage and more of those types of products are entering the market.

Start time and Run-Up time

NEEP wants to thank the EPA for providing a more detailed data set regarding start time and run-up time. Regarding Start time, NEEP supports the EPA's proposal to limit Start Time to .5 seconds. After reviewing the data set, we feel that this would not have a major impact on limiting CFL availability and rather could have a positive impact on consumer acceptance of quick-starting CFLs and LEDs.

Of greater significance on consumer impact, however, is run-up time. Since lamps already are already down to 1 second or less, start times are less perceivable than long run up times. As such, NEEP fully supports EPA's proposal to limit run-up time to 60 seconds or less, and in fact recommends the EPA consider decreasing that further to 45 seconds or less. After analysis of the provided supplemental data set, it appears that the majority of CFLs would pass a run-up time of 45 seconds or less. A shorter run-up time is closely related to consumer satisfaction with CFLs, and a 60 or 45 second or less limit would improve customer experience with CFLs without limiting the product availability of CFLs too greatly.

We continue to strive to ensure that if more stringent requirements are put on CFLs, that there is still a sufficient mix of lumen ranges available as the low-cost efficient option for consumers. In the case of

run-up time, at 45 seconds or less we feel there is sufficient product availability and those limits would help ensure the CFLs that are available are higher quality.

Connected Lamps

NEEP supports EPA's expansion of the Lamp speciation to include connected lamps. As spelled out in Note Box 3, we support the adjustment in excluded products.

Generally, NEEP supports the way EPA has put forward the connected requirements. A maximum stand-by wattage of .5W seems appropriate at this time, though should sufficient product availability exist below .5W, NEEP would recommend EPA consider lowering the threshold to .3W or .25W either in this specification and certainly for future specification updates. EPA promoting open standards communication is very important to ensure these products can be installed within homes and can work with Home Energy Management systems. Regarding 12.10, NEEP agrees that the product must share information, but urge EPA to add the energy used by the product as another data point that must be able to be communicated. Luminous intensity when being dimmed will go down, but it is more important to understand the energy used (for example, is the product using 90% energy at 50% luminous output?). We feel that both the luminous intensity and the actual energy consumed at that time should be reported.

NEEP does caution the EPA to consider setting guidelines for products that have external hubs in order to be connected. For example, how would this specification work if a 9.5W, 800lumen omnidirectional LED is connected when in communication with a lamp-specific gateway that draws 5W in standby power, but can connect to 20 or more lamps? If a consumer has 1 lamp and the gateway, essentially it becomes 9.5W and 5W of standby power, but if the consumer has 10 lamps connected, the 5W is spread out to be a .5W share of standby power for each lamp. For such products, while the lamp itself may be able to qualify for ENERGY STAR Certification, if it requires a gateway with a higher standby power than would be allowed by the specification to be connected. Perhaps the specification could limit ENERGY STAR Certification to products that do not require an external hub to be connected unless the hub would meet the .5W or less standby power requirement.

Lamp Labeling

In general, NEEP supports the labeling requirements put forward by EPA. One lingering concern is regarding enclosed fixtures; while lamp packages are being labeled "not for use in enclosed fixtures," especially for LEDs that produce a lot of heat, the small-print package labeling might not be enough to ensure customers actually do not use them in enclosed fixtures which could result in color shifting, early failure, or in a worst case scenario, even posing a fire hazard. One consideration might be that EPA requires a larger font size both on the front of the packaging, as well as information on the bulb itself to not be used in enclosed fixture.

Additionally, we feel it would be beneficial to the consumer if a "connected" or another similarly clear label was required on the lamp itself for connected products. This way a connected lamp can be identified after it has been removed from the packaging.

Regarding section 15.2, NEEP supports EPA's efforts to develop common terminology for color temperature, though do recognize concerns from manufacturers regarding packaging changes and legacy use of terminology. As such, we believe EPA could develop "recommended" terminology for the various color temperatures and hope that manufacturers will begin to use this language when they can make those changes. It is in the best interest of the lighting industry to have common language around

CCT, and as such we believe manufacturers would see the benefit of unified terminology, but would not force the manufacturers to make potentially costly changes for certification. One recommendation for language for the 6500K could be "bright white."

Thank you again for leading a productive and inclusive process and for offering the opportunity for NEEP, along with the Cape Light Compact, Eversource MA, Liberty Utilities NH, and Efficiency Vermont to provide comments on this first draft of the Lamps 2.0 Specification. Please don't hesitate to contact me with any follow up questions or clarifications.

Sincerely,

Claire Miziolek
Market Strategies Program Manager
Northeast Energy Efficiency Partnerships (NEEP)
cmiziolek@neep.org
781-860-9177 x115