



March 4, 2009

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US Department of Energy  
1000 Independence Avenue SW, EE2J  
Washington, DC 20585

Alex Baker  
US Environmental Protection Agency  
Ariel Rios Building 6202J  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Dear Mr. Karney and Mr. Baker:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the proposed ENERGY STAR® Program Requirements for Integral LED Lamps, released by DOE on January 16, 2009 and the proposal to incorporate LEDs into the Advanced Lighting Package, included in an EPA letter dated January 14, 2009. CEE's continuing interest is in having an effective ENERGY STAR Program that includes Solid State Lighting (SSL), and therefore our comments are addressed to both EPA and DOE. CEE's previous comments on ENERGY STAR SSL stand and are supplemented by this letter.

The following comments, which were developed by the CEE Lighting Committee (Committee), are supported by the organizations listed below.

### **Overarching Comments on Program Coordination**

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR Program. CEE members are responsible for ratepayer-funded efficiency programs in 35 U.S. states and 5 Canadian provinces. In 2008, CEE members directed 83 percent of electric efficiency program budgets and 90 percent of gas efficiency program budgets in the two countries. In short, CEE represents the groups that are actively working to make ENERGY STAR the relevant platform for energy efficiency across North America.

CEE members highly value the role ENERGY STAR plays in differentiating energy efficient products and services that they support locally. For ENERGY STAR to effectively play this role, we believe it is critical that there is consistency across products and services regardless of the managing agency. CEE members need ENERGY STAR to develop and convey consistent messages to stakeholders and to speak with one voice.

As we have noted in previous comments, there are conflicting specifications for ENERGY STAR lighting. These include specifications for discrete SSL applications (Category "A"), general illumination products (Category "B"), and decorative products (RLF, v. 4.2). We have raised concerns about multiple SSL specifications because they hinder members' use of ENERGY STAR in their promotional activities. For example, given the multiple specifications currently in place, members cannot be assured that products with the ENERGY STAR label will have equivalent performance. As a result, some CEE members are considering the promotion of SSL products that do not necessarily adhere to either definition ascribed by the two agencies and without the

marketing emphasis to seek out ENERGY STAR qualified products. The implication is a diminished value of ENERGY STAR and potentially confusing messaging to consumers. We look to EPA and DOE to resolve these issues as soon as possible with the goal of enabling greater leverage of ENERGY STAR for greater lighting related savings.

### **Technical Comments on the Incorporation of SSL into ENERGY STAR**

We continue to emphasize that our greatest need is for a unified ENERGY STAR lighting program that accommodates and offers consistent treatment of solid state light sources. To inform ENERGY STAR about CEE members' other needs, we have considered the recent proposals by EPA and DOE and have developed technical comments, which are grouped into several categories below.

#### ENERGY STAR Requirements for Luminaires

##### *Rationale and Timing of Selected Applications*

CEE seeks from ENERGY STAR a detailed rationale including demonstrated evidence of suitable product performance for each of the applications offered under the ENERGY STAR Program Requirements for Luminaires, version 1.1. Further, we ask for greater detail about why four applications that were proposed in the draft version 1.1 criteria were not included in the final version. To capture energy savings, several CEE member programs are moving ahead on several of these categories without the ENERGY STAR label, which is necessitating more messaging, and program administration.

##### *Definitions*

To eliminate ambiguity, we again ask ENERGY STAR to develop clear and precise definitions that outline the specific fixture types that are covered under each general application title. While we appreciate the clarification that has been made to date, providing the descriptor "Residential" or "Non-Residential" is not sufficient to meet the need we have articulated. CEE believes that the potential for uncertainty and confusion exists given vague titles such as "Circular or Square Wall Wash Luminaires" and "Ceiling-Mounted Luminaires with Diffusers." A clarification of these definitions is critical to ensure that all stakeholders understand what is, and is not, covered at this point in time. In setting forth these definitions, CEE recommends that ENERGY STAR look to established definitions used by the lighting industry and not create definitions unique to the ENERGY STAR program.

#### ENERGY STAR Requirements for Integral Lamps

##### *Rationale and Timing*

CEE members agree with ENERGY STAR's premise that the number of poor quality integral lamp products being brought to market poses a risk to consumers' long-term perception of LED replacement lamps. We agree that manufacturers, retailers, and consumers all need guidance about these products to make informed decisions and are working together to develop talking points to enable members to provide a consistent response to these stakeholders' queries about integral lamps.

In addition to the CEE talking points, we recognize that the ENERGY STAR criteria are another tool that could offer market guidance. However, ENERGY STAR has previously

been used to recognize the most efficient products already available on the market, not to guide development of new products by manufacturers. We thank DOE for explaining its proposal to move ahead with an integral lamp criteria before products exist in the market; we understand this was partially in response to requests by efficiency programs. Due to possible implications on the ENERGY STAR brand, we ask DOE to more fully articulate the basis for this change in criteria-setting methodology and to describe how risks to the ENERGY STAR Program from this change in approach are being mitigated. In addition, we ask ENERGY STAR to provide a greater level of detail in general about criteria proposals. We find the level of detail provided during recent windows and dishwasher specification revisions to be extremely helpful and ask that a similar level of information be provided for SSL criteria proposals in the future.

As we stated above, due to the risk of tainting consumer perception of LED replacement lamps noted above and the speed with which the SSL industry moves, CEE supports beginning the exploration of integral lamp criteria at this time, but cautions ENERGY STAR that using this model in other situations may be inappropriate.

#### *Test Methods for Integral Lamps*

In past comment letters, CEE has stated its support for photometric testing of the directional SSL fixtures covered under the Category A Luminaire Criteria. These comments were made with the underlying goal of creating a level playing field for SSL (versus CFL or other light sources) with respect to delivered lumens per watt. We have also stated that luminaire efficacy may not be feasible or meaningful for decorative fixtures. Our support for beginning exploration of ENERGY STAR criteria for integral lamps, with performance measured by LM-79 and LM-80, should not be interpreted as a change in CEE's previous position on test methods for directional and decorative fixtures.

CEE agrees with ENERGY STAR that elevated temperature testing provides important information regarding product performance across the variety of applications in which they are used in residential and commercial settings. In the past, CEE has supported the inclusion of elevated temperature testing within the ENERGY STAR CFL specification and it is logical to conclude that this type of testing could offer similar benefits for LED replacement lamps. Despite these potential benefits, CEE is concerned that ENERGY STAR is proposing to use a nonstandard test procedure to measure performance at elevated temperatures. In CEE's past comments on ENERGY STAR SSL, we have repeatedly stressed the need to use industry standard performance measures and continue to believe that these procedures are essential to the success of the program.

A further complication in elevated temperature testing is how to address the rapid product development cycles currently seen in SSL. How would ENERGY STAR respond when new generations of products are introduced before an older generation of the same product has finished undergoing elevated temperature testing?

*CRI*

CEE supports ENERGY STAR's efforts to ensure that qualified lamps and fixtures meet users' needs with regard to color rendering. In that regard, we are pleased to see that a CRI of 80—consistent with the ENERGY STAR CFL criteria—was proposed in the draft integral lamp criteria.

We are aware that there is work within the lighting industry to create a more appropriate metric for color rendering due to the shortcomings that CRI has with regard to addressing deep red tones. As this work is ongoing and unlikely to yield actionable outcomes in the short term, in the interim we suggest ENERGY STAR consider adding the deep red (R-9) tone to the ENERGY STAR specifications for lighting. Under this scenario, in addition to a CRI of 80, a measurement against the R-9 color would also be required. We look forward to discussions with ENERGY STAR and with industry on the feasibility of this concept.

### *Dimming*

The ability of light sources to dim is of great interest to CEE members for several reasons. We believe that to be successful in the market, efficient light sources should meet users' expectations and function well in myriad applications in homes and businesses, including those applications that dim. Further, step dimming is considered by many members to be a critical functionality in controlling lighting for demand response purposes. To ensure that dimming systems function appropriately and achieve their full energy and demand savings potential, we believe that a coordinated strategy is needed that involves ENERGY STAR, efficiency programs, manufacturers of lighting and controls, and installation contractors. Therefore, while we agree dimming is important and generally share ENERGY STAR's objectives in requiring qualified integral LED lamps to dim, we note that this requirement on its own will not be sufficient to achieve the savings from dimming that we seek.

### *Labeling*

CEE supports ENERGY STAR's objectives in providing the consumer with consistent information on which to base purchase decisions. This is particularly important in the case of SSL because it is an emerging technology and new type of light source. To assist in the development of a system in which all types of light sources can be compared, including SSL, CEE is participating in the Federal Trade Commission's process to review and update its labeling requirements for lighting. Until the results of this process are known, we appreciate ENERGY STAR's careful consideration of what data are likely to be needed by consumers, how those data are presented in order to maximize understanding, and how to balance these needs with available packaging space and other limitations. To the extent that the proposed Lighting Facts label meets these criteria, we support its incorporation within the criteria.

### *Efficacy*

CEE understands that the efficacy levels proposed in the ENERGY STAR draft integral lamp criteria were selected to be consistent with the levels in the ENERGY STAR CFL criteria. We seek confirmation of this understanding from ENERGY STAR. CEE supports the objective of creating an even playing field for different technologies and

agrees that consumers who are shopping for ENERGY STAR replacement lamps should be delivered with the same minimum standard of efficiency and performance regardless of technology that they select.

*Power Factor*

CEE supports the Power Factor level of 0.70 that was proposed in the draft ENERGY STAR integral lamp criteria.

*Warranty*

Consistent with the longer rated lifetime of integral lamps under the proposed criteria (25,000 hours), we agree that a longer time period for the warranty is appropriate within the ENERGY STAR integral lamp criteria.

*Nonstandard Lamps*

ENERGY STAR asked for stakeholder comments about the inclusion of nonstandard lamp shapes within the program. We agree that to the extent the requirements within this category are less stringent than other product categories (such as directional and omnidirectional), it could present an attractive alternate path for products that wouldn't meet the requirements of the other categories. We suggest ENERGY STAR carefully consider how to address this, perhaps by making this route to qualification a less attractive path e.g. with higher efficacy levels or by developing clear and precise labeling requirements to communicate that these lamps are not intended to replace standard products.

SSL and ENERGY STAR Requirements for Homes

CEE supports ENERGY STAR's proposal to include ENERGY STAR qualified LED light fixtures in the Advanced Lighting Package (part of the ENERGY STAR Homes Program). We agree that the homeowner and builder should be permitted to choose whichever technology will work best for their application and budget. CEE cautions that the adoption of ENERGY STAR-qualified LED fixtures within the Advanced Lighting Package should not be arbitrarily limited to one specification or another, but should be either open to *all* ENERGY STAR qualified products or focused on the more stringent specification that delivers greater energy savings over the product's lifetime.

Thank you for your consideration of these comments. Please contact CEE Senior Program Manager Rebecca Foster at (617) 589-3949 ext. 207 with any questions.

Sincerely,



Marc Hoffman  
Executive Director

CC: Kathleen Hogan, EPA  
Scott Hine, DOE  
Jim Brodrick, DOE

## **Supporting Organizations**

AVISTA

BC Hydro

Cape Light Compact

ComEd

Efficiency Vermont

Long Island Power Authority

New York State Energy Research and Development Authority

Northeast Energy Efficiency Partnerships

NSTAR Electric

PacifiCorp

Pacific Gas & Electric

Puget Sound Energy

Seattle City Light

Southern California Edison

Tacoma Power

The United Illuminating Company

Wisconsin Focus on Energy Program