



## **NRDC Comments on ENERGY STAR Lamp Specification – Version 2.0 Draft 1**

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On behalf of the Natural Resources Defense Council (NRDC) and its more than 1.4 million members and online activists, we respectfully submit these comments on EPA's Version 2 Draft1 specification for ENERGY STAR lamps. NRDC broadly supports the direction and much of the content of EPA's first draft. Below we provide some comments and recommendations that in summarized form includes:

- Modify the proposed efficacy levels of 70 LPW slightly downwards to ensure that omnidirectional CFLs intended to replace 40W-75W incandescent lamps are also able to qualify. This will help ensure that the energy saving lamp option with the lowest first cost remains in the ENERGY STAR program and that the successful efforts to date to improve the quality and performance of CFLs are not jeopardized.
- Take steps to address the performance of lamps that could be placed in totally enclosed fixtures. Ideally this would include requiring all lamps to meet the elevated temperature testing requirements and if that's not feasible for this specification revision cycle, then enhance the labelling requirements for lamps not suitable for use in totally enclosed fixtures to make sure such warnings appear prominently on the front of the package where they have a greater chance of being noticed, rather than buried on the back of the box amidst lots of other fine print.
- Reduce the proposed run-up time for omnidirectional CFLs from the proposed 60 seconds, which does not reflect an increase from Version 1.1, to 30 or 45 seconds. This is important as slow run-up time is one of the biggest consumer dissatisfiers and there are more than 500 omnidirectional CFL models that already meet the 30 second run-up time today.
- Establish a maximum allowable standby power limit for connected lamps of no more than 0.5 watts and consider setting a lower level of 0.25W should additional data support it.
- Expand labelling requirements for 3-way lamps to include all three settings, not just the light output for the brightest setting as EPA currently proposes. Manufacturers already report the light output at all three settings and make wattage equivalency claims; this

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requirement does not create any additional labelling burden but will ensure these claims are accurate.

**1. CFLs and Efficacy** – CFLs, in particular uncovered omnidirectional models, continue to provide consumers with the energy saving option with the lowest first cost. CFLs purchased in a multipack may cost as little as \$1.50 per lamp, whereas LEDs today are typically purchased in single packs and cost \$8 or more per lamp. Some consumers may currently be unwilling to buy a LED lamp despite their longer life and overall savings due to their higher first cost, or lack of familiarity with this technology. As such, we think it's important for the ENERGY STAR specification to continue to include CFL products that span a range of light output levels (e.g. 40 to 150W equivalents). Consumers who select ENERGY STAR rated CFLs benefit greatly from the quality related requirements contained in the ENERGY STAR specification and the verification testing and compliance mechanisms in place to ensure the lamps perform as promised. If CFLs fall out of the specification, then we can expect a race to the bottom in terms of CFL quality that could result in lost savings should the consumer revert back to incandescent halogen lamps that use three to four times more power to deliver the same amount of light. In addition, many utilities across the country continue to promote ENERGY STAR CFLs as part of their energy efficiency and low income programs as they represent one of the most cost effective energy savings opportunities available.

As currently proposed, the ENERGY STAR specification requires all omni-directional lamps to achieve an efficacy of 70 lumens per watt (LPW). Unfortunately at this level, none of the 40 and 60-watt equivalent CFLs (<850 lumens) and very few of the 75-watt equivalent CFLs on the ENERGY STAR qualified product list (QPL) meet the 70 LPW requirement.

We encourage EPA to revise its analysis and to separately assess the impact the specification has on the availability of lamps within a given lumen range. As a starting point we recommend a LPW value somewhere between 65 and 68 LPW. We also point out that relaxation by 3 LPW, from 70-67 LPW for a 60 watt-equivalent lamp with a light output of 850 lumens results in a difference of only 0.5 watt, but will significantly increase the number of energy saving CFLs capable of meeting the ENERGY STAR Version 2 lamp specification.

We agree with ENERGY STAR's proposal to simplify its specification and only have three lamp types: omni directional, directional and decorative. As many covered and directional CFLs have suffered from performance problems and since the price differential between covered and directional CFLs and equivalent LEDs products is not that large, we concur with EPA's decision not to have a separate lamp type and less stringent efficacy levels for covered or directional CFLs.

**2. Wattage Equivalency Claims** – NRDC supports EPA's requirements contained in Section 9.2 that provides minimum light output levels that must be achieved in order for a manufacturer to claim equivalency to traditional incandescent lamps. We recommend EPA expand the language contained for 3-Way lamps to apply to all three of the lamp settings, not just the brightest one as EPA currently proposes. This recommendation is based on very confusing and

inconsistent lumen equivalency claims that we observed for the equivalency claims made for the middle settings for the two bulbs displayed side by side by the same manufacturer at a local Target store. The image shown on the left for the middle setting for a 3-way CFL lamp has a light output of 1600 lumens and claims equivalency to a 75W incandescent; whereas the 3-way incandescent bulb shown next to it claims equivalency to a 100W incandescent yet only gives off 1350 lumens, which is 250 lumens dimmer than conventional 100 W lamps. As manufacturers already make equivalency claims for all three settings, not just the brightest setting, ENERGY STAR would not be imposing additional labeling burdens. It would simply be requiring these claims to be accurate.



**3. Enclosed fixture requirements** – The majority of lamps on the market today contain some type of warning against usage in an enclosed fixture or luminaire. (Conversely there are some LED lamps on the market today that do not include such a warning and are suitable for use in these higher temperature operating environments.) If used in a totally enclosed fixture, the lamp may suffer accelerated lumen depreciation or outright premature failure. This would result in disappointed consumers and could possibly damage the reputation of LEDs and create the impression that they don't last anywhere near as long as advertised, regardless of where they are installed. This could, in some cases, result in consumers shying away from LEDs and reverting

back to the halogen incandescent bulbs which use roughly four times as much power to deliver the same amount of light.

To remedy this situation we propose two solutions. The first would be to require all LED omnidirectional<sup>1</sup> lamps to be tested at and pass the elevated temperature test. This would ensure any ENERGY STAR rated LED omnidirectional bulb the consumer purchases, regardless of where it is installed, will result in a good consumer experience, including those lamps that are placed in the higher temperature operating environment posed by jelly jars and totally enclosed ceiling mounted fixtures. This is a much more consumer friendly solution and eliminates the need for consumers to understand the arcane nomenclature of not suitable for enclosed luminaires and having to pick between two types of seemingly identical bulbs when shopping or picking from their stash of light bulbs in the closet. The consumer is already faced with several decision points: a) How bright of a bulb do I need? (e.g., I want a 60W replacement); b) Color temperature – Do I want yellowish or bluish white bulb?; and c) Dimmable or not?, and may not be considering a lamp’s suitability for use with enclosed fixtures when selecting a lamp.

As LED light bulbs come down in price, we can expect manufacturers to increasingly offer multi packs and for consumers to store and go into their closet when they need to pick the 60W-equivalent LED lamp to replace the 60W incandescent or equivalent CFL that just burned out. At that given moment, consumers are unlikely to read or adhere to the hard to find fine print warning against use in a totally enclosed fixture. By having all lamps suitable for enclosed fixtures, this problem can be eliminated.

As such, we encourage EPA to explore the availability and incremental cost of producing lamps that meet the elevated temperature requirements and pending their analysis to add the requirement for all omnidirectional LED lamps to meet the elevated temperature test.

If EPA is unable to add this requirement to Version 2 of its specification, we offer a second option that includes:

- a) Highlighting this issue as a topic in the Future Specification Revisions section and to indicate that it will likely require omnidirectional lamps to meet elevated temperature testing requirements in its next specification update; and
- b) Expanding the proposed labeling requirements to increase the visibility of “not for use in enclosed fixtures” type claims made on product packaging.

NRDC found the lamp packaging requirements contained in Section 15.2 that relate to enclosed fixtures insufficient. While we agree that lamps not suitable for use in a totally enclosed fixture should be required to contain a warning label on the package, the ENERGY STAR specification is devoid of any requirements regarding the location of such a claim or its visibility (e.g., minimum font size, contained within a warning box, etc.). Below we show two examples of

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<sup>1</sup> Directional lamps already are already subject to the elevated temperature testing requirements. We did not extend this requirement to decorative lamps as they are almost always installed in non-enclosed fixtures.

woefully inadequate warning claims which have a very low probability of being seen or acted upon by a consumer as they are not located on the front of the package and can only be found amongst lots of fine print on the back panel.

As such, regarding labeling we recommend EPA:

- a) Require “Not for use in a totally enclosed fixture” type language to be printed on the front/main panel of the package for lamps that do not meet the elevated temperature testing requirements; and
- b) Establish a minimum font and other appropriate graphics requirements to increase the visibility for this warning and the probability it will influence consumer decision making.

The first example shown below is for an LED omni-directional lamp<sup>2</sup> where the front of the package does not include any text regarding the suitability of usage in an enclosed fixture and the warning that does exist is found at the last line of the caution box on the back stating not for use in an enclosed luminaire. Given all the fine print on the back of the box and the fact that few if any consumers are familiar with the term luminaire, this warning will likely be ignored.

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<sup>2</sup> Although the examples provided below are of GE products, we observed similar hard to find warning claims on other manufacturer’s products. GE products were selected due to the popularity of their products in retail outlets near the author’s office and the ability to conveniently document these examples while drafting these comments.



Even worse is the example below, where again, no mention of the warning against usage in a totally enclosed fixture can be found on the front panel, and the warning info is located on the back under the flap and can only be viewed if the flap is lifted. This reduces even further the probable effectiveness of this warning.



consider setting a more stringent run-up time of either 30 or 45 seconds. These levels are justified by the fact that today just under a 1000 CFL models on EPA's QPL already meet 45 seconds and more than 500 models meet 30 seconds. At 30 seconds, consumers would benefit from a dramatically improved user experience. (Note: LED lamps come to full brightness almost instantly and this tightened requirement would not impact them)

**5. Standby Power** – We fully support EPA's decision to include a standby power limit for connected lamps. While these lamps have very little market share today, their popularity is expected to grow as prices come down and manufacturers promote the benefits/convenience of being able to control the lamps remotely via Wi-Fi. As these lamps would draw standby power continuously, the incremental energy use caused by standby power can be significant. For example an LED lamp that draws 10W on and 0.5W in standby that is operated 1000 hours a year would draw 10 kWh/yr. when on and just under 4 kWh/yr. in standby. The standby power use in this case would increase the lamp's annual energy use by almost 40%.

To slow the growth of standby power associated with connected lamps, we recommend at a minimum that EPA set a maximum allowable standby power draw per connected lamp no higher than 0.5W and consider setting a lower level at 0.25W instead, assuming there would be sufficient product availability and limited incremental cost. We encourage EPA to review various sources such as the recent [report from the International Energy Agency \(IEA\) Standby Power Annex](#) which showed Wi-Fi transceiver DC standby/idle power use of 0.004 to 0.13 Watts and after power conversion, assuming a conventional power supply, AC power draws of 0.036 to 0.25 watts. This data seems to justify a standby power level of no greater than 0.25W.