

## A. Current Lamp Labeling

To facilitate the Commission's efforts to examine the effectiveness of the existing labeling program, we request that commenters consider the following questions:

11

### 1. Efficacy of Current Labels

a. How should the Commission measure the effectiveness of current lamp labeling requirements (including required catalog disclosures) in assisting consumer purchasing decisions? For example, should the Commission measure effectiveness by evaluating consumer comprehension of specific label elements, consumer preference for different labels, the impact of labels on consumer product choice, or by other means?

Need to evaluate consumers' awareness of terms like lumens. Need to understand what terms for CCT the consumer can relate to. Need to understand the consumers knowledge of watts as power etc. Effectiveness of current labels should be measured by evaluating consumer comprehension of specific label elements. This could be achieved with an online research survey or an online shopping exercise

b. Are the current labeling requirements effective in providing consumers with useful, accurate information about the energy consumption and energy efficiency of covered products? If so, how?

In some respects, yes, because consumers typically purchase by wattage and they understand that a 100w bulb uses more energy than a 60w bulb. They also understand that a 14w = 60w statement means that the bulb will produce as much light as a 60w equivalent and therefore save energy. However, the wattage and lumen statements fail to tell consumers about efficiency of one bulb vs. another. Yet, wattage and lumens are not meaningful to most consumers (other than GLS wattage as an index for light output). Most consumers are not able to easily discern which lamps are more efficient or what the relative energy savings will be. No information is provided to indicate tradeoffs or choices in light quality or color. In addition, labels are only required for "covered products" leaving the market wide open for specialty lamps as well as new SSL products for deceptive product labeling (many products do not even carry an indication of the output...only a misrepresentation of the incandescent output that they will "replace"). It is agreed that the labeling requirements must be consistent regardless of technology.

c. Do the current lamp label requirements aid in improving energy efficiency? If so, how?

No. Energy efficiency is not represented (only as the quotient of the provided lumens and wattage). Customers understand miles/gallon in cars, but there is no equivalent calculation for light bulbs. They have limited understanding as to the actual cost of operating the product under typical usage scenarios. A universal measurement, similar to mpg, would be helpful but needs to be developed and agreed upon by the industry.

d. Do the current lamp label requirements aid consumers in choosing

products that meet their lighting needs other than energy efficiency (e.g., brightness, color temperature, etc.)? If so, how? If not, why not?

Color temperature is not addressed at all and is a confusing topic to consumers...often a color temperature other than the desired one is selected and consumers may be left with a poor impression of energy saving lighting technology (e.g. LED's are "blue" or cool white/daylight CFL's reinforcing customer perception that all CFL's are like the old fluorescent "Cool White" tubes). Need to address common terms to use for CCT. This will not be easy. The technical definitions taken from the IESNA RP-16, Nomenclature and Definitions for Illuminating Engineering, include the following: On page 13 "Correlated Color Temperature of a light source" is defined as "The absolute temperature of a blackbody whose chromaticity most nearly resembles that of the light source." On page 3 "blackbody" is defined as "A temperature radiator of uniform temperature whose radiant exitance in all parts of the spectrum is the maximum obtainable from any temperature radiator at the same temperature. Such a radiator is called a blackbody because it will absorb all the radiant energy that falls upon it. All other temperature radiators may be classed as non-blackbodies. They radiate less in some or all wave-length intervals than a blackbody of the same size and the same temperature."

Should also address front of box and what should be allowable on the front if the label is to be positioned on the side

Current labels only provide output, wattage, and lifetime. Output is often poorly understood (average consumer does not have impression of lumen scale and this scale is not even really useful for reflector lamps).

No guidance is given towards a difference in color rendering (somewhat controlled for CFLi by Energy Star) which can be an important distinction in upcoming LED technology. The use of "Star" ratings has merit. However, it is recommended that the label exhibit the full range of ratings available and that the specific rating be designated by color or some other means. For instance, if the maximum star rating is "5 Stars", and a particular product only meets the requirement for "2 Stars" then the label would show an outline of all five stars with two of them filled in. In order for this to be effective, the definition of each level in the star rating system needs to be defined. But a high CRI doesn't mean a consumer would like it. It's best to set up definitive criteria for what a bulb can be called ie a daylight bulb must conform to a specific X/Y coordinate and have a minimum CRI. But this would also lead to commoditization of all products.

e. Should the Commission continue to require manufacturers to have a "reasonable basis" for their energy representations on current labels? Or, should the Commission require a specific test procedure, such as existing DOE test procedures (10 CFR Part 430, Subpart B, Appendix R), for measuring the energy characteristics represented on labels?

When statistical or scientific data is presented, the Commission requests enough detail about data, study design, statistical analysis, and findings to enable it to understand the methodology that was used to conduct the analysis.

Manufacturers should be able to self measure and declare results. A procedure for challenging a labeled result might be useful to maintain honesty in the self declarations (e.g. sampling procedure and testing procedure/laboratory in case of suspected misrepresentation). It is strongly recommended that adopted language be strengthened to stipulate that specific test procedures be used in order to provide consistency throughout the lighting industry. The listing of testing standards contained in 10 CFR Part 430, Subpart B, Appendix R is a reasonable approach if it is updated to include the standards for SSL products.

## 2. Reports, Studies, or Research on Current Labels

a. Do any recent reports, studies, or research provide data relevant to estimating the effectiveness of current energy disclosures on consumer lighting products in the United States? In particular, have any such <sup>16</sup> reports, studies, or research examined the effectiveness of current disclosures compared to alternative formats and approaches?

LRC Studies that are pertinent: “A System for Communicating Color: What do Consumer’s Think”; “Increasing Mkt Perception of CFL’s”, 2003)

b. Are there any recent reports, studies, or research from other countries that the Commission should consider?

Unaware of any relevant European studies.

## 3. Costs and Benefits of Current Labels

a. What are the benefits to consumers, if any, of the current lamp labels?

Provides a consistent means of comparison of the trade off between Energy, Life and Light Output....if consumers use it in that manner. Has been in use for many years and therefore some consumers have familiarity with it.

It would be extremely beneficial for the new law to apply to ALL light bulbs sold to consumers – as this will provide continuity/familiarity with the label and terms as well as ensure that certain products that are not energy-efficient do not end up on an “exclusion” list, thereby negating the true intent of the law.

b. What costs, if any, have the current lamp labels imposed on consumers?

All costs are absorbed by the manufacturers and built into standard packaging costs. There is no incremental cost to consumers.

c. What benefits, if any, have the current lamp labels provided to businesses, and in particular to small businesses?

Very few. They would help small businesses to choose more energy efficient products, but these choices are seldom made based on packaging. Club stores, where many small businesses purchase lighting, tend to carry limited choices so there are few products to compare against. They carry primarily CFLs so the retailer has already chosen an energy saving alternative in the products they are providing the small business owner.

d. What costs, including compliance costs, have the current lamp labels had on businesses, and in particular on small businesses?

All businesses, including small businesses, will bear the costs of creating new artwork and printing plates for newly labeled packs. There are also the internal costs incurred to manage the changes.

The implementation of new packaging is a timely process involving a lengthy supply chain. Existing inventory of current packaging is a major concern that must be considered as part of this plan. Current packaging inventory exists with the packaging supplier, in the factory, in the manufacturer warehouse, and on retailer / distributor shelves. Therefore, the only feasible way to enable the transition without causing confusion and excess scrap / repackaging costs for the industry is to ensure that the new labeling requirement is based on a manufacture date – not a product sell date.

Some elements that will impact cost, which need to be factored into the new guidelines:

1. Not all packages are color – a black and white label is preferred, or at least a black & white option
2. Many packages are small and the move is to continue to reduce size, so there must be an option that is no more than 1” x 1”
3. It will be very important to have a phase-in of any new label. The costs to the lighting industry will be very significant and the costs to retailers could be significant if a hard-change date leads to inventory markdowns.
4. Considering the cost of making a change to what amounts to 1000’s of sku’s, any phased-in approach must allow ample time (2 years or more) to make the first change and even more time (3years or more) to implement the second phase.
5. The label rule must reflect a products MANUFACTURE date – as it will be extremely expensive and logistically difficult to change any product on shelf or retailer inventory

## **B. Possible Alternatives to Current Labels**

To aid the Commission in considering possible changes to current lamp labeling requirements, we request that commenters consider the following questions:

### **1. Possible Alternative Information on Labels**

a. What changes, if any, should the Commission make to the information on current lighting labels?

- b. Should the Commission consider requiring descriptors other than those already required (*i.e.*, lumens, watts, and hours)? For example, should the Commission consider operating costs (*e.g.*, dollars per year or dollars per megalumen-hour), light quality (*e.g.*, color temperature and color rendering index), lifecycle costs, an efficacy factor, or some other metric of energy use? If so, why?
- i. Should the Commission consider labels including the operating cost or lifetime cost of a lamp? If so, how should those figures be calculated? What assumptions regarding discount rates are made with this calculation?
  - ii. Should the Commission consider labels that address light quality? If so, what attributes should they convey (*e.g.*, color temperature and color rendering index)? Which of these attributes are most important for consumers?
  - iii. Should the Commission consider labels including a range or scale comparing the energy use of similar products?
- c. If the Commission should require alternative descriptors on labels, for each proposed descriptor:
- i. How should the descriptor be presented to consumers?
  - ii. Is use of the descriptor applicable to all lighting technologies?
  - iii. Are there existing test procedures or other ways to measure or substantiate the descriptor (*e.g.*, usage patterns for calculating annual operating costs)?

### Suggested label information/format

(see above Bulb Facts label Q2a.) the following information should be included on the label:

1. A cost of operation expressed in YEARLY energy costs should be included. Philips research shows that Consumers understand and relate to an expression of usage in Years v. months or hours. A common kw/h rate and hourly operation (3 hours is the avg for most fixtures) @ 7 days per week must be applied by all manufacturers to ensure that all calculations are comparable.

Costs need to relate only to electricity usage. Factoring in lamp replacement, maintenance, disposal etc, would serve only to confuse consumers.

The label needs to help educate the consumer that Watts equals Power consumed NOT light output – linking watts to cost per year will help to do this. (eg. 40w = \$6.00 )

2. As noted above, life needs to be expressed in Years and on common usage levels. It is best to show a scale so consumers understand the potential (*i.e.* LEDs) that can be achieved and where on that scale the product that they are purchasing sits.

3. Brightness, expressed in lumens. For a period of time, a comparison to standard incandescent wattage can be used, but this may serve to confuse consumers, especially when those wattages are no longer available. It also may serve to promulgate the use of watts. A consumer education campaign on Lumens and energy would be a better solution.

4. Because the use of Lumens for directional sources may confuse consumers (reflectors may have less lumens, but in fact, put more light on the intended object) – we suggest that Light Direction be included. This would include verbiage such as General, Spot, Flood, accompanied by an illustration of the beam pattern (as shown above for General)

5. Lastly, because consumers have little understanding of color and how it can differ in lighting, we suggest the inclusion of 2 color indicators: Color Temperature, which should be described in clear terms that consumers understand. We suggest Warm White; White; Cool White; DayLight, as there is some familiarity with these terms and as none are ‘leading’ the preference (terms such as Bright white may be preserved as better and therefore, avoided) These terms should be included in any consumer research conducted.

We also suggest a “star rating” for color quality. As some energy-efficient sources may not have a desirable color quality for those consumers looking for High color rendering in certain applications. We do not want Energy-Efficiency to be the only basis for their decision-making, as it is certain to disappoint some consumers who have a decorative purpose for the product.

Refer to the matrix of packaging attributes supplied by NEMA.

d. Do recent or impending changes in technology affect whether and how the Rule should be modified? If so, which technologies would affect modification and how?

Certainly, LEDs must be considered because the use of watts to make a purchase decision, will no longer be meaningful to consumers.

e. What other information (other than that required by the Rule), if any, are manufacturers currently providing to consumers through packaging disclosures and other advertising to convey characteristics of light bulbs, such as energy use, lighting level, light quality, lamp lifetime, and total lifecycle cost?

f. What modifications, if any, should be made to current “encircled E” labeling requirements for lighting products covered by the Rule such as general service fluorescent lamps (and ballasts) and metal halide lamp fixtures?

2. Possible Alternative Formats for Labels

a. What changes, if any, should the Commission make to the requirements for the format of lighting disclosures (size, format, color, graphical presentation, etc.)? If appropriate, please provide examples of recommended label designs.



The label should appear in full on either the side panel or back panel of the package. The front panel, should have either a reference to this label, the one key efficiency element, or allow consumer familiarity to take its course – much like food labels – consumers know that the label exists on the back and will refer to it if they choose to.

b. Should the Commission require a uniform label with specific text styles, sizes, etc. (e.g., an “EnergyGuide” label for lighting packages)?

The labels should be uniform, but various alternative designs must be offered to accommodate the different proportions of packages. There also should be requirements regarding sizes and information allowed on the front panel so that manufacturers do not detract from the intended message with large wattage or sales info.

### 3. Costs and Benefits of Possible Alternative Labels

a. What are the benefits to consumers, if any, of any recommended label alternatives?

It will help them choose the most energy efficient product for their application, which also meets other needs they may have such as color.

b. What are the costs to consumers, if any, of any recommended label alternatives?

None foreseen since manufacturers typically absorb the cost to change the packaging.

c. What are the benefits to businesses, and in particular to small businesses, if any, of any recommended label alternatives?

Same benefit as with consumers.

d. What are the costs, including compliance costs, to businesses, and in

particular to small businesses, of any recommended label alternatives?

None foreseen.

#### 4. Consumer Research Concerning Possible Alternative Labels

a. If the Commission were to conduct consumer research on alternative label designs, what questions should be explored?

Questions should be explored regarding issues with current labeling, consumer likes and dislikes and needs of labeling from consumer perspective. Also, address what causes confusion to the consumer. Develop a list of potential label elements (see the NEMA matrix) and determine which are most relevant, which terminology would be most well understood.

b. Should the Commission explore the effect of various label designs on consumers' ability to rank products by energy use, efficiency, and operating cost? If so, how?

Should be specific here on what terms need to be measured and how (eg. How incandescent wattages should be used as a frame of reference for lumens). Determine if current ranking of product attributes is relevant to the consumer.

c. Should the Commission explore the impact of different label designs on consumer product choice, product use, and consumer willingness to pay more for more energy efficient products? If so, how?

See <http://www.energystar.gov>.<sup>17</sup>

As part of this rulemaking, the Commission will need to consider changes to existing definitions in the Rule. For example, section 321(a) of EISA revises the statutory definition of general service incandescent lamps to, among other things, add a lumen range to the definition and to add several categories of lamp types to the list of exclusions. See 42 U.S.C. 6291(30).

Yes, possibly through labeling ideas presented by each manufacturer or recommendations resulting from conference call. Surveys presenting choices for clarity and understanding in conjunction with focus groups could be used to prioritize choices.

#### 5. Other Considerations

a. Are there international laws, regulations, or standards with respect to lamp labeling that the Commission should consider as it explores labeling alternatives? If so, what are they and how do they affect the Commission's rulemaking?

The commission should look at the icons used on European lamp packaging. This may generate ideas for use in the U.S.



b. ENERGY STAR is a voluntary labeling program covering high efficiency products and administered by the Environmental Protection Agency (EPA) and DOE. What issues, if any, does the ENERGY STAR program raise <sup>17</sup> with regard to the Commission's consideration of labeling alternatives? Are there any potential conflicts between ENERGY STAR requirements and possible changes to Commission label requirements?

#### Current Energy Star Labeling CFLi Requirements

The Energy Star labeling requirements must be considered, so that the same information is not required to be listed multiple times in different formats. Failure to incorporate the two sets of requirements will add unnecessary complication and increase consumer confusion.

- ✓ Model Number – Required for product identification purposes
- ✓ Wattage – Must include due to wattage limitations for fixtures. This requirement should be consistent with the new label.
- ✓ Lumen Output – This requirement should be incorporated into one consistent “light output” labeling requirement.
- ✓ Average rated lifetime – This requirement should be incorporated with the new label.
- ✓ CCT – This requirement should be incorporated with the new label, and instead of the numerical color temperature ratings, the label requirement should require color temperature to be expressed this in words that will help the customer make an informed decision. The numerical CCT numbers do not mean anything to consumers.
- ✓ Warranty (based on application type and standard avg. hours per day)
- ✓ 800 number, or address, or web address
- ✓ Equivalent incandescent watts and lumens displayed in a side-by-side comparison panel (only required for globe, decorative, or reflector types) – This should be eliminated as it is no longer required with the information that will be provided with the new label. We no longer want to use incandescent as the baseline. It limits the consumer decision to lumens and watts; however there is more to consider in the purchase decision. Color temperature, light quality, light direction are also important factors for the consumer to consider in making the appropriate choice.
- ✓ Starting temperature
- ✓ Electromagnetic interference
- ✓ Known incompatibility with controls and application exceptions
- ✓ Mercury labeling – Hg with circle, “Lamp Contains Mercury”

Packaging must state:

Other Notes:

- ✓ Packaging must be in English & French for lamps sold in both US & Canada
- ✓ Energy Star lamps must be identified by one of the following designated CCTs. At least 9 of 10 samples must fall in the MacAdam ellipse:

2700k, 3000k, 4100k, 5000k, 6500k – See previous note about color temperature. The labeling requirement should be expressive words that will help the customers make informed decisions. The numbers are not meaningful to customers.

- ✓ Packaging must comply with FTC labeling requirements
  - “To save energy costs, find the bulbs with the light output you need, then choose the one with the lowest watts.” – This should be removed. The new label will provide the information required to assist the consumer in making the best decision for their needs. This statement indicates that light output is the only thing to be considered in the purchase decision; however, color temperature, light quality, light direction are also important factors for the consumer to consider in making the appropriate choice.

c. Should the Commission continue to require catalog sellers (paper catalogs and websites) to provide consumers with the information required for package labels? If so, why? If not, why not?

Yes. Though not a significant source of retail sales today, catalogs and internet outlets will grow their lamp sales and should put energy labels prominently next to images of the actual products.

### **C. Coverage of New Lighting Products**

The current required disclosures for lumens, watts, and hours apply to compact fluorescent lamps and general service incandescent lamps as those terms are defined in 16 CFR section 305.3. The Rule also requires an encircled “E” for fluorescent ballasts, luminaires, metal halide lamp fixtures, and general service fluorescent lamps. To aid the Commission in considering possible Rule changes to cover additional product types, we request that commenters consider the following questions:

1. Should the Commission consider issuing labeling requirements for consumer lighting products other than those currently covered by the Rule? If so, which lamp types should be included?

Yes, it is preferred that the labeling requirements not be by technology, but cover all replaceable (screw base, pin base, or other) lighting products. These should cover GLS, Halogen, CFL, LED, Fluorescent, HID, and other types that may be developed in the future. An ideal labeling system will not require changes to the label format in order to deal with new technical options (though the definitions behind the labeling might require adaptation). This would result in a system least confusing to the consumer moving forward.

2. If the Commission should consider labeling requirements for other lamp types, are there adequate test procedures in place to measure light output, energy use, life, and any other characteristics of these products that may be relevant to FTC labeling requirements? If so, what are they?

Standard testing procedures for the measurement of light output and power (Energy) already exist for most lighting sources: Those standards include:

- IESNA LM 9 – Electrical and Photometric Measurements of Fluorescent Lamps
- IESNA LM-20 – Approved Method for Photometric Testing of Reflector Type Lamps
- IESNA LM-45 – Electrical and Photometric Measurement of General Service Incandescent Filament Lamps
- IESNA LM-51 – Electrical and Photometric Measurements of High Intensity Discharge Lamps
- IESNA LM-59 – Electrical and Photometric Measurements of Low Pressure Sodium Lamps – Not a suitable GLS source. This information is provided only to reflect the completeness of existing standards.
- IESNA LM-79 – Electrical and Photometric Measurements of Solid-State Lighting Products

Standard testing procedures for the measurement of life of lighting sources exist including:

- IESNA LM-40 – Life Testing of fluorescent Lamps
- IESNA LM-47 – Life Testing of High Intensity Discharge Lamps
- IESNA LM-49 - Life Testing of General Lighting Incandescent Filament Lamps
- IESNA LM-60 – Life Testing of Low Pressure Sodium Lamps – Not a suitable GLS source. This is information provided only to reflect the completeness of existing standards.
- IESNA LM-65 – Life Testing of Single Ended Compact Fluorescent Lamps

Many of the above standards are already within the scope of accreditation for the CRCL. The link to the CRCL scope of accreditation under NVLAP Lab Code 100399-0 is: <http://ts.nist.gov/standards/scopes/1003990.htm>

Currently in development is IESNA – LM-80 which will deal with Lumen Maintenance of Solid State Lighting Products. The current state of standards relating to SSL products is somewhat lacking but is being aggressively addressed by the Standards Bodies such as IESNA and DOE. . LM-80 was recently approved by the Testing Procedures committee and is being processed through the rest of the IESNA approval at this time.

3. If the Commission should consider labeling requirements for other lamp types, are there any issues that would affect labeling for those products? If so, what are those issues and how should the Commission address them?

Issues associated with labeling different lamp types are primarily associated with size and shape and temperature profile.. UL provides guidelines for the use of its mark that addresses these situations as follows: “The complete four element Listing Mark will appear on the smallest unit container in which the product is packaged when the product is of such a size that only the UL Symbol can be applied to the product or when the product size, shape, material or surface texture makes it impossible to apply any legible marking to the product.” It is strongly suggested that a similar approach be taken for labeling Energy Efficient Labeling requirements.

**Example of Current Lamp Label**

**List of Subjects in 16 CFR Part 305**

Advertising, Consumer Protection, Energy Conservation, Household appliances, Labeling, Lamp Products, Penalties, Reporting and recordkeeping requirements.  
By direction of the Commission.

Donald S. Clark  
Secretary