Appliance Standards Awareness Project

Efficiency Standards Question and Answers
Fluorescent Tube and Incandescent Reflector Lamps

What is an efficiency standard and who sets it?
The U.S. Department of Energy (DOE) establishes and periodically updates minimum efficiency standards for many residential and commercial products. These standards apply to new products manufactured for sale in the United States. Usually, once DOE announces a new standard, the manufacturers have about 3 years until new products must comply.

What will be covered under the new 'lamp' standard?
Lamp is a commonly accepted term for light bulb. The current rulemaking will update existing standards for the following:

Fluorescent tube lamps
Fluorescent tube lamps work when the the electric current produces ultraviolet radiation and converts it into visible light by a layer of a fluorescent substance. Lamps covered under this ruling are either straight (4- and 8-foot long single and bipin tubes) or U-shaped. A fluorescent lamp is considerably more energy efficient than an incandescent because it doesn't use heat to create light.

Incandescent reflector lamps
Incandescent reflector lamps are the very common cone-shaped light bulbs most typically used in track lighting or "recessed can" light fixtures that mount flush with a ceiling such that the socket and bulb are recessed into the ceiling. The cone is lined with a reflective coating to direct the light. Incandescent lamps create light by heating a filament inside the bulb. Most of the energy in an incandescent light bulb is dissipated as heat.

What are the potential savings and benefits?
Strong new efficiency standards for fluorescent tube lamps and incandescent reflector lamps have the potential to save more energy than any other appliance standard ever established by the Department of Energy.

- According to DOE, if the agency selects the strongest cost-effective standards evaluated, the annual electricity savings in the year 2020 would be about 50 billion kWh, an amount roughly equal to the annual consumption of 4.4 million typical American households.
- Using current electricity prices, these savings are worth about $5 billion per year.
- Over thirty years, the standard would cut CO_2 emissions by nearly 800 million metric tons. If you parked 146 million cars for a year, you'd get the same savings.

- Net present value benefits for consumers and businesses, according to DOE, would be about $70 billion over 30 years.

- Energy efficiency spurs economic growth by shifting money not spent on energy costs to other goods and services, thereby indirectly creating jobs. DOE estimates that the higher standards will help to create between 4,300 and 15,100 jobs in 2012, increasing to between 15,000 and 42,700 jobs in 2022. DOE estimates that strong standards will have no effect on employment in the fluorescent tube manufacturing industry and only a slight effect on incandescent reflector manufacturing (jobs that could be made up if manufacturers choose to make advanced technologies in the U.S.).

What are the key issues?

Tube fluorescents: Of five trial standard levels (TSLs) evaluated, DOE proposed TSL 3, with a 4-22% efficiency increase over existing standards, depending on the type of lamp. DOE found that for general service fluorescent lamps, standards at TSL 4 or 5 would yield larger benefits than the proposed standards. Over 30 years, higher standards would increase total energy savings by between 130 and 570 billion kilowatt hours or enough to meet the total power needs of 10 to 50 million U.S. households for a year; increase net economic savings for businesses and consumers by another $11 to $26 billion; and reduce carbon dioxide emissions by another 56 to 285 million metric tons (an amount equal to that emitted by about 10 to 52 million cars in a year).

DOE selected TSL 3 primarily because levels 4 and 5 would eliminate "T12s" (1½ inch diameter tubes) and less efficient "T8s" (1 inch diameter tubes) from the market, forcing 9% of purchasers to buy new ballasts when their existing T12 lamps fail. However, at TSL 5 DOE projects that, for the most common lamp type, the four foot long lamp used most commonly in offices, **98%** of consumers would save money even if they had to replace ballasts. (DOE estimates that for 8 foot lamps, used mostly in industrial facilities and warehouses, the portion of purchasers who benefit is from 67% to 76 %.) ASAP supports substantially strengthening the proposed standard.

Incandescent reflector lamps: DOE also evaluated five TSLs for these lamp types and proposed to adopt TSL 4. The highest level (TSL 5) is based on advanced halogen IR technology and gains the most efficiency. However, based on concerns about manufacturer impact and proprietary technology at level 5, DOE opted for TSL 4. DOE is seeking comments about alternate, non-proprietary pathways to achieve TSL 5 and may reconsider based on the information it receives. A key equipment supplier testified to DOE that manufacturers have multiple options for meeting TSL 5. Also, this standard only covers "incandescent" reflector lamps, but many consumers and businesses are already choosing compact fluorescent reflectors and other energy efficient, non-incandescent reflectors (LED and ceramic metal halide) are expected to gain market share in the years ahead. By eliminating the least efficient, but cheapest priced products, the new standards would accelerate market adoption of the more efficient, non-incandescent technologies. Over 30 years, TSL 5 would save an additional 30 billion kWh and increase net benefits by $1.5 billion dollars. ASAP supports TSL 5.

The 65 watt BR lamp "loophole": A key additional issue for reflector lamps is the scope of the new standard. In the initial proposed rule released at the end of the previous administration, DOE chose to exempt 65wBR lamps and certain ER lamps based on a narrow (and in ASAP's view, erroneous) legal interpretation of the Energy Independence and Security Act of 2007. In the revised proposed rule published in April 2009, DOE "reexamined its authority" and "has concluded that its earlier view may have been in error". ACEEE estimates that covering the exempted lamps (which account for about 30% of total reflector lamp sales) would increase electricity savings in 2020 by at least 4 billion kWh and 30-year cumulative savings by 1.1 quads of electricity. Consumers would net another $3 billion in

savings over 30 years. ASAP supports closing the loophole and recommends that DOE complete the rulemaking on the previously exempted lamps by the end of this year.

Haven't incandescent lights already been phased out?

Congress enacted a law in 2007 which will phase out most of today's conventional incandescent light bulbs starting in 2012, leaving consumers a choice of efficient incandescent light bulbs (known also as halogen IR lamps - a 70 watt halogen IR lamp provides about the same light as a 100 watt conventional incandescent bulb), CFLs and, in the future, LED light bulbs. However, incandescent reflector lamps are not covered by this phase out. ASAP believes DOE should set incandescent reflector lamp standards which are similar to those Congress established for other incandescent light bulbs.

When will DOE complete the new standard?

DOE released a proposal for the new standard in mid-January 2009 and held a hearing in Washington, DC on February 3rd. A revised proposed rule was published by the new administration on April 13, 2009 (link below). The 60-day comment period is now open and will end on June 12, 2009. DOE is required by law to publish the final standard, based on the proposal and public input, by June 30, 2009.

Link to DOE Notice of Proposed Rulemaking:
Appliances and Commercial Equipment Standards: Fluorescent and Incandescent Lamps Energy Conservation Standard Notice of Proposed Rulemaking

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