

DOE Solid-State Lighting Portfolio



ENERGY STAR® Criteria for Solid-State Lighting Products

ENERGY STAR is a voluntary energy efficiency labeling program that establishes criteria manufacturers can use to promote qualifying products, guiding consumers in making informed decisions about products that save energy, relative to standard technology. Designed to set industry-wide specifications for solid-state lighting (SSL) products and to ensure the quality of all products bearing its mark, final ENERGY STAR criteria for SSL luminaires were released in September 2007, with an effective date of September 2008, contingent on related standards and test procedure finalization.

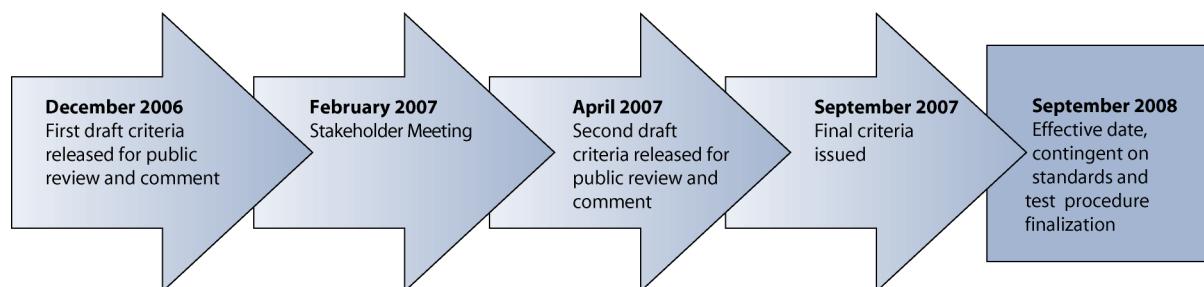
The ENERGY STAR label is a highly valued and widely recognized mark of energy efficiency, used by the American public to select cost-effective, energy-efficient products. As part of the Department of Energy's national strategy to accelerate market introduction of high-efficiency SSL products, DOE is leading ENERGY STAR management, specification development, and partner relations for SSL luminaires used for general illumination.

The ENERGY STAR criteria for solid-state lighting specify a transitional two-category approach.

- **Category A** addresses near-term applications, where SSL technology can be appropriately applied
- **Category B** establishes a future efficacy target for all applications, which will take effect once SSL technology improves



ENERGY STAR CRITERIA TIME LINE



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Category A covers residential, commercial, industrial, and outdoor lighting SSL applications of all types. This category includes near-term products such as undercabinet kitchen, undercabinet shelf-mounted task, portable desk/task, and recessed downlights for residential and commercial applications, outdoor wall-mounted porch, outdoor step, and outdoor pathway lighting. These lighting applications were chosen on the basis of their suitability for solid-state lighting, given the current state of the technology.

Category B covers innovative SSL systems applications of all types, including "free-form" SSL systems, and those incorporated into furniture, buildings, and equipment. This category encompasses a much wider range of future applications that will emerge as the technology matures further, and serves as a target for lighting manufacturers as they develop products over the next several years. SSL products will be able to qualify under Category B approximately three years after the effective date of the criteria.

At some point in the next three to five years, Category A will be dropped, and Category B will become the sole basis for ENERGY STAR criteria. This transitional approach recognizes the rapid pace of SSL technology developments, yet allows early participation of a limited range of products for directional lighting applications in Category A.

DOE intends to periodically review and amend the criteria to parallel technology advances and ensure that criteria remain up-to-date. For more information on DOE ENERGY STAR criteria for solid-state lighting, or to view the complete criteria, see: www.netl.doe.gov/ssl/energy_star.html.

Key Partners in Criteria Development

DOE worked closely with key partners in developing the new ENERGY STAR criteria and the testing procedures upon which the criteria are based, including the Next Generation Lighting Industry Alliance (NGLIA), Illuminating Engineering Society of North America (IESNA), and American National Standards Institute (ANSI). DOE also received extensive advice and useful comments from individual lighting companies, electric utilities, energy efficiency organizations, and others.

NGLIA is an organization of U.S. lighting manufacturers, administered by the National Electrical Manufacturers Association (NEMA), which works with DOE to enhance the manufacturing and commercialization focus of the SSL portfolio. The Alliance provides input to shape research priorities, develop needed standards and test procedures, and support DOE voluntary market-oriented programs such as ENERGY STAR. More information about the Alliance is available at: www.nglia.org.

General Requirements

The principal energy efficiency metric used in the criteria is luminaire efficacy (net light output from the fixture divided by the input power). Additional standards and test procedures necessary to address the nuances of SSL technology are currently being developed by IESNA, ANSI, and other organizations. DOE anticipates the key standards and test procedures will be completed by their respective organizations in early 2008.

More details on the ENERGY STAR requirements and qualification process, along with application forms, will be available on the ENERGY STAR website in early 2008. DOE will also issue periodic updates to stakeholders discussing implementation procedures, submittal dates, and marketing opportunities.

For More Information