

## DOE and Manufacturers Prepare for Launch of Energy Star Program for Solid-State Lighting

By James Brodrick, Manager, US Department of Energy Solid-State Lighting Portfolio



In September 2007, the US Department of Energy (DOE) issued Energy Star criteria for solid-state lighting (SSL) products. Energy Star is a voluntary labeling program<sup>1</sup> that establishes industry-wide energy efficiency criteria that manufacturers can use to promote a wide range of qualifying products.

The Energy Star label on SSL luminaires will provide consumers with confidence that these products meet efficiency and performance criteria established by DOE in collaboration with industry stakeholders. With related

test procedures being finalized, the Energy Star SSL program is on schedule to launch September 30, 2008.

The rapid pace of solid-state lighting technology advances led DOE to design a unique two-category approach for the Energy Star SSL program. The first group of products (Category A) eligible for the Energy Star label will take advantage of the directional nature of LED technology. These products include undercabinet kitchen lighting, undercabinet shelf-mounted task lighting, portable desk task lights, recessed downlights, outdoor wall-mounted porch lights, outdoor step lights and outdoor pathway lights.

Category B encompasses a much wider range of future applications that will emerge as the technology matures. This transitional, two-category approach recognizes the learning curve and unique issues involved in applying solid-state lighting to general illumination.

### Earning the Star

The Energy Star SSL program criteria are based on compliance with existing lighting industry reference standards and test procedures, as well as new or revised standards and test procedures that address the nuances of solid-state lighting technology.

To begin the product qualification process, manufacturers must first register to become an Energy Star Partner. Manufacturers who complete a voluntary, non-binding partnership agreement are set up with an individual Energy Star account.

Next, manufacturers must submit products for Energy Star SSL review. The SSL Manufacturers Guide outlines the product submission process and includes forms, provides a checklist of data needs and defines sample sizes and approved margins of error.

Products must be sent to a DOE-approved laboratory for testing. Specific tests and thresholds are detailed in the criteria, and include:

- C78.377-08, Specifications for the Chromaticity of Solid-State Lighting Products
- LM-79-08, Approved Method for the Electrical and Photometric Testing of Solid-State Lighting Devices
- LM-80, Approved Method for Measuring Lumen Depreciation of LED Light Sources (expected summer 2008)

Groups of similar products can qualify for Energy Star designation based on test results from one product from the group. DOE will verify that products in the group are identical except for minor variations. Manufacturers can submit a single luminaire to represent the group; if the individual product passes, all items in the group qualify.

Applications will be submitted using the Energy Star Product Submission Web tool. The tool guides participants through each step to upload test reports and product information. It also offers instant feedback, alerting applicants if additional information is needed to complete the application. The on-line submission tool is slated to debut by September 1.

### Long-Range Plans

As SSL product quality and performance progress, the Energy Star program will grow. The first phase of the Energy Star SSL program allows for early participation of a limited range of market-ready products (Category A products). However, possible additions to Category A already have been identified. Street and area lighting, parking garage lighting, cove lighting, ceiling fan light kits, replacement lamp applications, display and accent lighting, and wallwash applications are under consideration for addition to Category A.

In the second phase, the Energy Star SSL program will transition from Category A products to Category B, which will cover all types of SSL general lighting applications. Category B sets an aggressive efficacy requirement of 70 lumens per watt to ensure that solid-state lighting products match or exceed the performance of competing traditional lighting sources.

In addition to expanding Category A applications, DOE plans to adopt a schedule of future efficacy increases for Category A products to ensure that these products continue to reflect the upper performance range of available products. For each Category A application, the current criteria specify a minimum efficacy requirement. DOE intends to increase the minimum requirement periodically, different increases for each application, until all reach 70 lumens per watt.

As part of the Energy Star SSL program, DOE will create a quality assurance testing program to ensure that the products that have earned the Energy Star perform as expected. This new testing program will be administered by an independent third party and will consist of off-the-shelf testing. The quality assurance program is expected to launch in early 2009.

DOE intends that Energy Star-labeled solid-state lighting products reflect the upper range of high efficiency, high performance products on the market, while being cost-effective and meeting or exceeding buyer expectations.

### Getting Ready

In recent months, DOE has hosted several workshops and webcasts to prepare manufacturers for the launch of the Energy Star program in September 2008.

In May, DOE hosted an Energy Star Workshop in Washington, D.C. to share information on the criteria, the status of related test procedures, the process and timeline for product qualification, and future program plans.

In June, DOE hosted a webcast on Energy Star: Getting Ready for September 30 to share

### Current Energy Star Category A Applications

- Undercabinet kitchen lighting
- Undercabinet shelf-mounted task lighting
- Portable desk task lights
- Recessed downlights
- Outdoor wall-mounted porch lights
- Outdoor step lights
- Outdoor pathway lights

### Additional Category A Applications Under Consideration

- Street and area lighting
- Parking garage lighting
- Cove lighting
- Ceiling fan light kits
- Replacement lamps
- Display and accent lighting
- Wallwash applications

an overview of the criteria, implementation plan, and timeline for those unable to attend the workshop in May and for energy efficiency program managers preparing for the first Energy Star SSL products.

In July, DOE will host Voices for Efficiency 2008, the annual DOE SSL Market Introduction Workshop, which includes a session on the Energy Star SSL program implementation and future plans, with opportunity for discussion and Q&A.

The SSL Luminaire Monthly Update is an e-newsletter that provides ongoing Energy Star program updates. To subscribe, contact [ssl@energystar.gov](mailto:ssl@energystar.gov).

#### References

1.) *The Energy Star program is a voluntary energy efficiency labeling program, jointly managed by the US Department of Energy (DOE) and the US Environmental Protection Agency (EPA).*

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#### DOE Energy Star Online Resources:

To view the complete criteria for Final Energy Star Requirements for SSL Luminaires visit [www.netl.doe.gov/ssl/energy\\_star.html](http://www.netl.doe.gov/ssl/energy_star.html).

To learn more about beginning the product qualification process, or to obtain a partnership agreement, contact [ssl@energystar.gov](mailto:ssl@energystar.gov).

To view the SSL Manufacturers Guide visit [www.netl.doe.gov/ssl/energy\\_star.html](http://www.netl.doe.gov/ssl/energy_star.html).

Additional tools and resources will be available at [www.netl.doe.gov/ssl/energy\\_star.html](http://www.netl.doe.gov/ssl/energy_star.html) prior to the September launch, including a Partner Resource Guide, Frequently Asked Questions, SSL Facts and Figures and other resources. Register for updates at [ssl@energystar.gov](mailto:ssl@energystar.gov) to receive ongoing notices about new tools and resources for partners.

For more information on the DOE Energy Star program for SSL, visit [www.netl.doe.gov/ssl/energy\\_star.html](http://www.netl.doe.gov/ssl/energy_star.html). To register for ongoing program updates and announcements, contact [ssl@energystar.gov](mailto:ssl@energystar.gov).

More information and presentations from the DOE workshop in May are available at [www.netl.doe.gov/ssl/energy\\_star.html](http://www.netl.doe.gov/ssl/energy_star.html).

The Energy Star: Getting Ready for September 30 webcast and related presentations are available for download at [www.netl.doe.gov/ssl/technetwork-webcasts.htm](http://www.netl.doe.gov/ssl/technetwork-webcasts.htm).

Highlights and presentations for the Voices for Efficiency 2008 Workshop held in July, will be available at [www.netl.doe.gov/ssl](http://www.netl.doe.gov/ssl).

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#### Attributes

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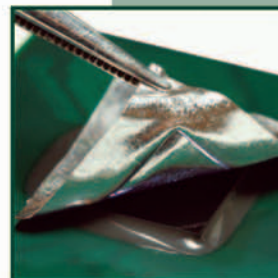
#### Applications

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