

The Race to Replace the Common Light Bulb

The Bright Tomorrow Lighting Prize (L PrizeSM) competition is the first government-sponsored technology competition designed to spur lighting manufacturers to develop high-quality, high-efficiency solid-state lighting products to replace the common light bulb. It aims to substantially accelerate America's shift from inefficient, dated lighting products to innovative, high-performance products.

The Energy Independence and Security Act (EISA) of 2007 directed the U.S. Department of Energy (DOE) to establish the L Prize competition. The legislation challenges industry to develop replacement technologies for two of today's most widely used and inefficient technologies: 60W incandescent lamps and PAR 38 halogen lamps. It also calls for development of a 21st Century Lamp that delivers more than 150 lm/W.

In each category, the competition will award up to three winners. The first entrant to meet all competition requirements will receive the cash prize plus opportunities for federal purchasing agreements, partner program promotions, and other incentives. Two additional winners will be eligible for federal purchasing agreements and all partner promotions and incentives. DOE welcomed the first competition entry in September 2009.

Opportunities for Recognition

The L Prize competition offers significant opportunities for recognition. All competitors and program partners will be in the media spotlight, both on the L Prize Web site and in national, trade, and regional publications.

Competition Requirements Set the Bar High

L Prize submissions must meet strict technical specifications to ensure compliance with the general requirements outlined in the legislation. Additional details are also specified for quality, performance, and mass manufacturing. To download the complete competition requirements, see www.lightingprize.org.

60W Incandescent Replacement Lamp	PAR 38 Halogen Replacement Lamp	21 st Century Lamp
<ul style="list-style-type: none"> • More than 90 lm/W • Less than 10 watts • More than 900 lumens • More than 25,000 hour life • More than 90 CRI • Between 2700–3000 K CCT 	<ul style="list-style-type: none"> • More than 123 lm/W • Less than 11 watts • More than 1,350 lumens • More than 25,000 hour life • More than 90 CRI • Between 2700–3000 K CCT 	<ul style="list-style-type: none"> • More than 150 lm/W • More than 1,200 lumens • Other attributes to be defined in a future L Prize announcement

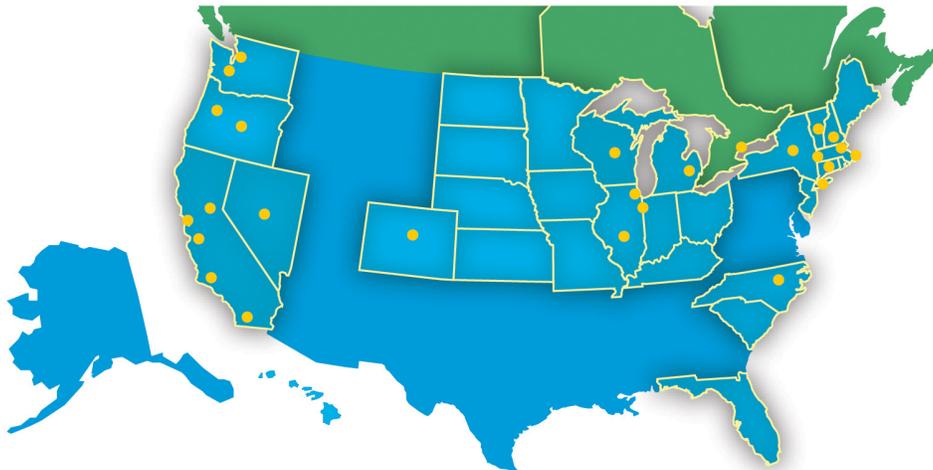
The competition also includes a rigorous evaluation process for proposed products, designed to detect and address product weaknesses before market introduction, to avoid problems with long-term market acceptance. Comprehensive product evaluation will include performance and lumen depreciation testing conducted by independent laboratories, field assessments conducted in collaboration with utilities and other partners, and stress testing under extreme conditions. This multi-step evaluation process is designed to provide a high level of confidence in the performance and energy efficiency of the winning products.

Partners Leverage Know-How and Market Pull

A growing number of utilities and energy efficiency organizations from coast to coast have signed on with DOE as L Prize partners. These program partners have agreed to play an important role in evaluating and promoting the winning L Prize products, developing markets, and providing access to more than 100 million customers from Los Angeles to Cape Cod. These organizations participate in bi-monthly planning meetings, working with DOE to develop region-specific plans for field assessments and product promotion.

Field assessments of submitted products will provide valuable information on energy use, lighting system performance, reliability, customer acceptance, and cost-effectiveness in real-world conditions. Product promotions may include incentives paid directly to manufacturers or to consumers, collaborative marketing and educational campaigns, retailer partnerships, and demonstrations. To learn more, see www.lightingprize.org.

POTENTIAL TO REACH **100 MILLION** CONSUMERS.



L PRIZE PARTNERS

- Ameren Illinois Utilities
- Cape Light Compact
- Commonwealth Edison
- Connecticut Energy Efficiency Fund
- Connecticut Light & Power
- DTE Energy
- Efficiency Vermont
- Energy Trust of Oregon
- Eugene Water and Electric Board
- green Tbiz, Toronto Association of Business Improvement Areas
- Long Island Power Authority
- Midwest Energy Efficiency Alliance (covers 13 states)
- National Grid
- Natural Resources Defense Council
- New York State Energy Research and Development Authority
- Northeast Energy Efficiency Partnerships (covers 8 states)
- NSTAR Electric
- NV Energy
- Pacific Gas & Electric
- Platte River Power Authority
- Progress Energy
- Puget Sound Energy
- Sacramento Municipal Utility District
- San Diego Gas & Electric
- Seattle City Light
- Southern California Edison
- United Illuminating Company
- Wisconsin Energy Conservation Corporation

For more information on L Prize, see www.lightingprize.org.

Competition Requirements Set the Bar High

The L PrizeSM competition is designed to spur development of high-quality solid-state lighting products capable of replacing today’s most widely used and inefficient products: 60W incandescent lamps and PAR 38 halogen lamps. The Energy Independence and Security Act of 2007 directed the U.S. Department of Energy (DOE) to establish the competition and outlined general competition requirements. To draw on lessons learned from past lighting market introduction experiences, DOE worked with leading energy efficiency programs and utilities to tap their expertise in developing a comprehensive technology competition program.

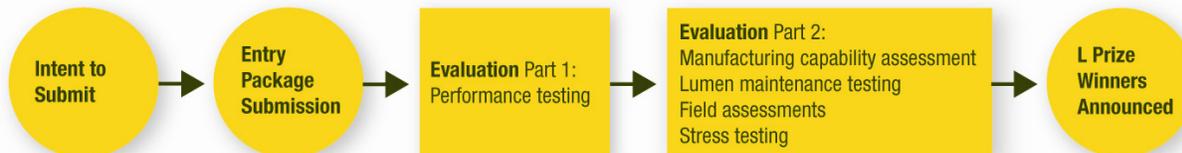
The L Prize technical specifications comply with the general requirements outlined in the legislation, with additional details specified for quality, performance, and mass manufacturing. The competition requirements are designed to ensure that the winning products deliver excellent lighting quality. To view the complete competition requirements, see www.lightingprize.org.

Why Compete?

- Opportunities to be recognized as the best of the best
- Immediate market potential for sales
- Program partner promotions, incentives, marketing
- Intense media spotlight
- Automatic ENERGY STAR[®] qualification
- Cash prize (first winner in each category)
- Up to three winners per category eligible for partner promotions

Requirement	60-Watt Incandescent Replacement	PAR 38 Halogen Replacement
Efficacy	More than 90 lm/W	More than 123 lm/W
Light Output	More than 900 lumens	More than 1,350 lumens
Wattage	Less than 10 watts	Less than 11 watts
Lifetime	More than 25,000 hour life	
Color Rendering Index (CRI)	More than 90	
Correlated Color Temperature (CCT)	2700–3000 K	
Form Factor	Same lamp form factor as incumbent technology	
Beam Distribution	Beam characteristics equivalent to incumbent technology	
Dimming	Products must be compatible with at least three widely available residential dimmers and must be continuously dimmable to at least 20% of maximum light output	

Competition Process



- **Intent to Submit.** To participate in the L Prize competition, interested manufacturers must provide a letter of intent to submit.
- **Entry Package.** Manufacturers must then submit a complete entry package that includes the required **technical information**, **product samples**, and a **commercial manufacturing plan** describing their capability for mass production and distribution of proposed products.
- **Evaluation Part 1.** Samples of proposed products will undergo **performance testing** at independent laboratories such as those participating in the DOE CALiPER program.
- **Evaluation Part 2.** The L Prize technical review committee will assess the provided technical information, test results, and **manufacturing capabilities**.
 - Products that meet the competition requirements will then undergo at least 6,000 hours of **lumen maintenance testing**.
 - At the same time, DOE and program partners will coordinate **field assessments** using criteria established through the DOE GATEWAY demonstration program to evaluate energy use, lighting system performance, reliability, customer acceptance, and cost effectiveness.
 - DOE will also conduct **stress testing**, subjecting products to extreme conditions such as high temperatures, humidity, frequent switching, voltage fluctuation, and electromagnetic interference.
- At key stages in the process, DOE may request additional information or follow up with submitters regarding the product or information provided.

Selection of Winners

Entries will be accepted for each product category until a winner is declared, or until 24 months have elapsed since the first award in that category, whichever comes first. In each category, the first entrant to successfully meet the full competition requirements will receive the cash prize. Up to two additional entrants may be eligible for program partner promotions.

For more information on L Prize, see www.lightingprize.org. Learn more about the DOE SSL CALiPER and GATEWAY programs at www.ssl.energy.gov.

Program Partners Leverage Know-How and Market Pull

Partners are key to the success of the L PrizeSM competition. Utilities and energy efficiency programs from coast to coast have joined the U.S. Department of Energy (DOE) to promote super-efficient, solid-state lighting products to replace today's most common light bulbs. L Prize partners assist DOE in evaluating potential L Prize products through field assessments and provide ready-made markets for winning products.

New technologies are almost always more expensive when first brought to market due to low volumes and high development costs. By joining together to represent significant demand, the U.S. government and L Prize partners drive sales volumes up and prices down far more quickly than would otherwise be possible.

Why Partner?

- Confidence in performance and consistency of winning products
- Reduced risk through intensive product evaluations
- Opportunities for hands-on field testing
- Save time learning about new LED technologies
- Sure, effective route to energy savings

West	Mountain/Central	East

L Prize Product Evaluation

Products entering the L Prize competition are evaluated in a multistep process designed to provide a high level of confidence in their performance and energy efficiency. Photometric and electrical testing of proposed products is conducted by independent laboratories, such as those participating in the DOE CALiPER test program.

Program partners play a critical role in the evaluation process by conducting field assessments of proposed products. Field assessments use criteria established by the DOE GATEWAY demonstration program and include:

- Installation in host customer facilities, such as homes, commercial spaces, or outdoor locations.
- Installation in utility technology demonstration facilities.
- Focus group testing with retailers, builders, and/or consumers.

L Prize field assessments:

- Evaluate **energy use** of the products when installed in-situ.
- Characterize the **lighting system performance** as compared to the existing technology.
- Evaluate **reliability** and **customer acceptance** of the products during the test period.
- Evaluate criteria for **cost-effective deployment** through an energy efficiency program.

Field Assessment

- ✓ Energy use
- ✓ Lighting system performance
- ✓ Reliability
- ✓ Customer acceptance
- ✓ Cost-effective deployment

Field assessment results provide valuable input for the ultimate selection of winners.

L Prize Product Promotion

Program partners play an important role in promoting and developing markets for the winning L Prize products. Up to three winners may be declared in each product category. A large amount of quantitative and qualitative data is available to support promotion of the winning products via:

- **Product incentives** paid directly to manufacturers or to consumers.
- Collaborative **marketing and promotion**.
- **Partnerships** with local, regional, and/or national retailers.
- **Demonstrations and promotions** with local homebuilders, commercial developers, hospitality chains, local governments, schools, universities, etc.

Join Us

For more information on becoming a program partner, contact lpriize@pnl.gov.

For more information on L Prize, see www.lightingprize.org. Learn more about the DOE SSL CALiPER and GATEWAY programs at www.ssl.energy.gov.