



## ENERGY STAR Qualifying Fixtures: An Important Addition To Your Residential Lighting Portfolio

ENERGY STAR qualifying fixtures are an important part of a residential lighting program portfolio, and for energy efficiency program sponsors interested in transforming the residential lighting market, there has never been a better time to get involved.

In 2001, 61 million fixtures<sup>1</sup> were sold for use in both new and existing homes (includes 1.3 million new housing starts<sup>2</sup>). And if trends hold, this number may increase. For example, in New England, on average, twenty-three 100- to 50-Watt down light (overhead) fixtures are installed in each newly constructed home. That's a minimum of 2,500 Watts of lighting--the equivalent of three room air conditioners.

### Savings opportunity

Whether installed in a new home or bought at retail, each sale offers an opportunity for replacement with a well-designed ENERGY STAR qualifying fixture. Based on analyses done by Lawrence Berkeley National Laboratory, ENERGY STAR qualifying fixtures offer one of the best opportunities for saving energy in the residential products market.

### National Average Savings Opportunities for ENERGY STAR Qualifying Fixtures (unit savings)

	Product lifetime (Years)	Lifetime electricity savings compared to standard incandescent (Site KWh)	Lifetime fuel savings compared to standard incandescent (Site MBtu)	Lifetime energy savings compared to standard incandescent (MBtu Primary)
Fixture	20	1500	NA	15.7

If by 2010, EPA and its partners were able to increase market share for ENERGY STAR qualifying fixtures to 16 percent, *annual* energy savings (from products sold between now and then) would exceed 27,000 gigawatt hours and reduce air pollution by approximately 3.85 million metric tons of carbon. Based on household population, here is how energy savings breakdown by census division:

<sup>1</sup> U.S. Department of Commerce, U.S. Census, *Electric Lighting Fixtures: 2001*, Issued January, 2003  
<sup>2</sup> U.S. Department of Commerce, U.S. Census, 2001 Housing Starts

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New England: 1383 GWh   Mid Atlantic: 3857 GWh   South Atlantic: 5054 GWh  
E. N. Central: 4478 GWh   E. S. Central: 1685 GWh   W. N. Central: 1924 GWh  
W. S. Central: 2956 GWh   Mountain: 1694 GWh   Pacific: 4192 GWh

### **Long-term advantage**

While EPA, DOE, and many regional/local efficiency program sponsors remain enthusiastic about the success of ENERGY STAR qualifying CFLs, dedicated ENERGY STAR qualifying fixtures offer the best way to improve the quality, reliability, and longevity of efficient residential lighting in the long run, especially in new home construction and renovation.

**High light output and longevity.** ENERGY STAR qualifying fixtures are designed as a system. The bulbs are designed to fit the fixture hardware, avoiding problems associated with improper CFL applications. For example, CFLs are not designed to operate in enclosed fixtures and heat buildup may cause them to fail prematurely. (The Lighting Research Center lists heat as the primary cause of early failure, ahead of rapid on/off switching). ENERGY STAR fixtures are designed to dissipate heat, which reduces premature failure and their rated lamp life is 10,000 hours versus 6,000 hours for many CFLs.

ENERGY STAR qualifying fixtures provide excellent light quality and their shades and lenses are more uniformly illuminated, which minimizes bright and dark spots. Most start at 22 watts and go up to 55 and even 70 watts--a light output that is difficult to achieve with most screw-based CFLs that are currently available.

**Reduced solid waste.** Since the ballasts are integrated within the fixture, there is less solid waste generated when bulbs are disposed.

**Greater likelihood of persistence.** Unlike conventional fixtures, when it comes time to replace the bulb of an ENERGY STAR qualifying fixture, it must be replaced with a high efficiency bulb.



### Strategies for overcoming market barriers

While the potential for ENERGY STAR qualifying fixtures is compelling, product availability, distribution, and limited design options have constrained wider spread adoption. Together with EPA and DOE, organizations such as the Natural Resource Defense Council (NRDC), the Lighting Research Center (LRC), the American Lighting Association (ALA), the National Electrical Manufacturers Association (NEMA), Pacific Northwest National Laboratory (on behalf of DOE) and Consortium for Energy Efficiency (CEE), are working with utilities and state agencies to help overcome these barriers with notable progress!

Barrier	Strategy for overcoming barrier	Progress/current status
Design/lack of selection	<p>Energy Efficient Lighting design competition sponsored by ENERGY STAR, CEE, ALA, and the PNNL</p> <p>State of California RFP to fund manufacturer prototype development for energy efficient hard-wired fixtures, portable fixtures, and torchieres</p> <p>New lines of ENERGY STAR qualified fixtures are being designed and produced by major manufacturers</p>	<p>RFP's anticipated by end of year 2002.</p> <p>Over 5,000 new qualified fixtures will be available in 2003</p>
Lack of traction/acceptance in new construction market	<p>EPA research on understanding the new construction lighting market</p> <p>ENERGY STAR lighting in new construction initiative/Pilot programs for new construction lighting upgrades</p>	<p>Now available: ENERGY STAR Guide for Residential New Construction Programs and Light Fixtures Builders' Kit</p> <p>Currently, eight demonstration/pilot programs to track the installation and performance of ENERGY STAR qualifying fixtures in a sample of new homes.</p> <p>EPA with the assistance of Vermont Energy Investment Corporation, NRDC, and the Lighting Research Center has developed a lighting house-pack for the new construction market. The housepack targets high-use fixtures and provides builders with a minimum target percentage for ENERGY STAR qualifying fixtures.</p>



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<p>Limited manufacturer participation due to cost associated with laboratory testing</p>	<p>Development of the Lamp Ballast Platform Matrix, a joint effort between the NEMA and ALA, that provides a listing of common lamp/ballast combinations that meet certain performance characteristics of ENERGY STAR qualifying fixtures</p>	<p>As a result of the matrix, the number of ENERGY STAR qualified fixtures is expected to grow to over 5000 by the first quarter of 2003. Progress, Wilshire, Sea Gull, Access, Angelo Brothers/Westinghouse, and other big name manufacturers should be offering new products in 2003.</p>
<p>Limited involvement of lighting showrooms in retail programs</p>	<p>ALA is providing outreach and training to its lighting showroom membership</p> <p>Support by REPS (marketing, training, and cooperative incentives) can help engage showrooms</p> <p>Major retailers are beginning to work with manufacturers to expand qualifying fixture lines and consumer product displays</p>	<p>Over 200 ALA members have joined ENERGY STAR (as of July 2002)</p> <p>New England Program with Lighting Showrooms currently underway</p> <p>Beginning in 2003, expanded fixture lines and some design bays will be available in national retail stores</p>
<p>Lingering concerns about quality and longevity</p>	<p>Changes to ENERGY STAR specifications</p> <p>The Program for the Evaluation and Analysis of Residential Lighting (PEARL), an initiative developed by energy efficiency program sponsors and advocates, is conducting independent testing of ENERGY STAR qualifying lighting products. (PEARL does not have authority to disqualify products as ENERGY STAR.)</p> <p>Durability Test Procedures currently in Development</p>	<p>Version 3.1 of the ENERGY STAR Criteria for Residential Light Fixtures, which requires laboratory testing and documentation, is now in effect (as of July 2002)</p>



## **Resources for REPS**

The following resources are available to assist REPS in program planning and implementation.

Quarterly Lighting Fixtures E-mail Newsletter  
NEMA/ALA Lamp and Ballast Platform Matrix

Retail lighting programs  
-Showroom sales training materials

New construction lighting programs  
-ENERGY STAR Guide for Residential New Construction Programs  
-ENERGY STAR Light Fixtures Builders' Kit  
-Draft ENERGY STAR Lighting Fixtures House Pack

Resources can be downloaded from the Partner resource section of [www.energystar.gov](http://www.energystar.gov)