

ENERGY STAR Consumer Products Lighting Project

Market Progress Evaluation Report #4

PREPARED BY

Kema

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**NORTHWEST
ENERGY
EFFICIENCY
ALLIANCE**

www.nwalliance.org

529 SW Third Avenue, Suite 600
Portland, Oregon 97204
(tel) 503-827-8416 (fax) 503-827-8437



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Northwest Energy Efficiency Alliance
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E.1 Executive Summary

E.1.1 Program History and Theory

NEEA's launched its first residential lighting market initiatives in 1997 to accelerate the awareness and use of high-efficiency compact fluorescent lamps (CFLs) and fluorescent light fixtures among residential customers. The program was designed to address market barriers including high first cost; lack of product availability; lack of consumer awareness; incompatibility of CFLs with existing fixtures, dimmers, timers and photocells; performance problems; unattractiveness of energy-efficient lighting products; and consumer fear of fluorescent technologies. The programs provided financial incentives to manufacturers to increase product availability and reduce product price. Other program components included retailer education and marketing, promotions, mass advertising, and branding.

Program-qualifying products expanded during the late 1990s. As a result, the project strategy evolved from targeting manufacturers to retailers in 2000. The project provided retailers with salesperson training as well as advertising and marketing support to encourage ENERGY STAR product promotion and marketplace acceptance. Local utility activities were leveraged and regional and national initiatives were launched to encourage the improvement of ENERGY STAR product quality.

In 2004, the project focused on improving the quality and consumer acceptance of CFLs in response to market data suggesting consumer issues with product performance. The project provided cooperative marketing opportunities and field services to retailers to promote ENERGY STAR products to consumers, and coordinated offerings of financial incentives for qualifying products. The project also coordinated with national efforts such as ENERGY STAR's Change a Light, Change the World campaign and the lighting quality research conducted by the Program for Evaluation and Analysis of Residential Lighting (PEARL). Finally, the project supported the advancement of new lighting technologies (e.g., dimmable, reflector CFLs) and supported efforts to encourage proper disposal of burned-out CFLs.

In 2005, the project coordinated a regional manufacturer buydown to reduce the market price of CFLs in the region and establish promotional distribution channels to move high-quality, low-priced products into the market. The promotion provided broad geographic sales coverage (including rural markets) through distribution channels including grocery, drug, supermarket, hardware, do-it-yourself chains, and wholesale clubs. The project coordinated similar promotions in 2006 and 2007 with a specific focus on consumers who had had limited access to high-quality, low-priced CFLs as well as those who had never purchased CFLs. The promotions emphasized non-traditional CFL distribution channels (such as drug and grocery stores) and rural areas, and excluded large do-it-yourself chains and wholesale clubs from the promotion.

E.1.2 Project Goals and Market Progress

The project's goals and evidence of progress towards these goals are described below.

- ***Increase consumer awareness of CFLs as measured by the rate of consumer awareness and purchase.*** Consumer awareness of CFLs and the CFL purchase rate increased substantially over the lifetime of the project. As of 2007, nearly all consumers in the Northwest were aware of CFLs as of 2007 and two-thirds had purchased them.

- **Increase product availability** as measured by the number of retail stores in the region that stock CFLs and the number of manufacturers that produce program-qualifying products. The number of retail stores stocking CFLs swelled from 30 before the project's launch to over 2,000 by 2007. The number of manufacturers producing qualifying product expanded such that all major lighting manufacturers produce ENERGY STAR CFLs and many new companies have entered the market that exclusively produce energy-efficient lighting.
- **Reduce product price** as measured by the average CFL price in both large and small markets. The average retail price per CFL dropped dramatically during the lifetime of the project – from approximately \$20 to less than \$5 in both large and small markets.
- **Increase product market penetration** through increased sales as measured by the number of CFLs sold in the region annually. The project intended to reach sales of 9 million by 2010, and achieved this goal ahead of schedule in 2007. In 2007, Northwest retailers sold more than 18 million ENERGY STAR CFLs.
- **Encourage improvement of ENERGY STAR product quality** as measured by consumer satisfaction with CFLs, CFL purchaser intentions to buy CFLs again and changes to the ENERGY STAR specification for CFLs. Consumer satisfaction with CFLs rebounded in 2004 after a slight drop and was sustained even as the CFL purchaser base expanded beyond early adopters to the general population. A large majority of CFL purchasers are repeat purchasers and intend to replace burned out CFLs with new CFLs. Additionally, there have been several key updates to the ENERGY STAR qualifying criteria for CFLs during the project's lifetime that have incorporated tighter standards with respect to various product quality attributes and independent quality assurance procedures.

E.1.3 NEEA's Influence on Market Changes

Based on feedback from market actors, program staff, and industry observers, NEEA's interventions impacted the market in three major ways:

- **Supplier conditions:** The promotions first targeted big-box stores, which could buy and sell CFLs in large volumes. Low promotional prices increased consumer demand, which in turn created supplier competition and led to lower prices. Once prices became relatively low, more retail stores could stock them – including discount, drug, grocery, rural, and independent stores. NEEA educated retailers and supported their promotional efforts, helping them succeed in selling CFLs.
- **Consumer purchases:** The promotions' effects on prices allowed the purchaser base to expand beyond 50 percent of the population by attracting new purchasers with relatively low prices at an expanded range of retail outlets.
- **Product quality:** NEEA was a leader in supporting the evolving ENERGY STAR specifications and addressing early CFL design flaws. NEEA was an early and influential member of PEARL and helped lay the groundwork for the eventual inclusion of third-party product testing into the 2008 ENERGY STAR qualifying criteria. NEEA's leadership in advancing product quality helped increase consumer acceptance and made strides toward overcoming CFLs' negative reputation. These market outcomes were crucial to creating opportunities for CFLs to become one of the major responses to address global warming – through media saturation, Wal-Mart's sustainability initiatives, and lighting efficacy legislation.

E.1.4 Conclusions and Recommendations

NEEA met its residential lighting project goals by the end of 2007 after a decade of market interventions. These interventions were instrumental in creating the right supplier conditions and product quality standards to expand consumer acceptance dramatically over the last few years. By 2006, increased positive media attention, Wal-Mart's sustainability initiatives, and lighting efficacy legislation helped propel CFLs into mainstream status.

The expected short- and long-term Northwest lighting market outcomes have occurred, and according to the program theory, the expected impacts should be realized within the next few years. Is the market transformed? Based on past evidence, the program theory logic suggests that answer is an unequivocal yes. However, if we look forward and predict what market outcomes will occur in absence of continued interventions, the answer is probably "not yet" – because of uncertainty surrounding the sustainability of widespread CFL availability and low prices.

The recent and dramatic market developments have taken place as a result of the expansion of retail channels selling CFLs and the CFL purchaser base beyond early adopters, as well as hospitable external conditions. These market outcomes resulted from promotions that allowed non-traditional retail outlets to sell CFLs at attractive prices. The dramatic market gains were also made possible by a confluence of concern regarding global warming and positive publicity from energy-efficiency program sponsors and the general media suggesting that CFLs are an easy and cost-effective step toward addressing to the climate change problem.

There could be some backsliding in market progress if grocery, drug and discount stores do not offer attractive prices and aggressively promote CFLs in absence of CFL promotions. Many representatives of CFL manufacturers, retailers, and utilities in the Northwest assert that CFLs will disappear from many of these channels or that the chains will stock only one or two CFL models at prohibitively high prices if CFL promotions do not continue. An additional threat to sustaining the recent substantial gains in CFL purchases is the increasing media attention on the hazards associated with mercury in CFLs.

There are still market barriers and opportunities that could be addressed through market interventions to ensure that the full potential for CFL energy saving impacts is realized. Solid state lighting has advanced appreciably in the past few years, but household applications will be niche-only for the foreseeable future. To achieve the intended market impact of 50 percent residential socket saturation with CFLs, market actors and industry observers agree that several remaining CFL market barriers need to be reduced. To that end, we recommend that NEEA play a continued role in addressing these market barriers to ensure that the long-term project impacts occur. Below we list remaining barriers in the CFL market and our specific recommendations to address them.

Inadequate consumer education regarding proper CFL applications and the role of specialty bulbs.

Continue to support ENERGY STAR's efforts to educate consumers regarding proper CFL choices for specific applications; retailers and manufacturer efforts to educate consumers on proper CFL applications; and local utilities efforts to directly educate consumers on these issues.

Lack of widespread and sustained availability and low prices. Continue strategic, targeted market interventions that address availability in non-traditional retail channels, leveraging local utility and

supplier resources, relationships with suppliers, and the national ENERGY STAR program to support the development of the specialty CFL market.

Inconsistent quality. Continue to support CFL quality assurance initiatives and utility promotions in the region (and ensure that these promotions include high-quality products); and continue to support relationships with regional suppliers to encourage supply and sales of high-quality products.

Lack of accurate information about the potential hazards of CFLs' mercury content and disposal infrastructure. Continue to provide input toward developing consistent messages for consumers about the mercury issue; support local utilities and suppliers to educate consumers on mercury issues; and work with various stakeholders at the regional and national levels to support disposal infrastructure development.