Regional Coordination of the ENERGY STAR® Residential Fixture Program: Design, Implementation, and Early Observations

Jody Moore, Ecos Consulting, San Dimas, CA
Lois Gordon, Portland Energy Conservation Inc., Portland, OR
Linda Latham, Latham Consulting, Long Beach, CA

ABSTRACT

The Northwest Energy Efficiency Alliance and a group of California utilities are implementing a unique market transformation initiative to promote the use of energy-efficient residential light fixtures. This effort is based on the current ENERGY STAR® specification for residential fixtures, and combines manufacturer rebates with aggressive education and marketing efforts in order stimulate increased sales of these products. The initiative was developed in 1997, and has been underway in Idaho, Montana, Oregon, Washington, and California since early 1998. Program efforts are designed to increase the availability of qualified fixtures in the retail and electric wholesale channels throughout the five-state area, and to stimulate direct sales to large homebuilders active in the region.

An RFP process was used to select six lighting manufacturers, who are now eligible to receive rebate payments of $7 to $10 for each qualified fixture shipped during 1998. A similar process will be employed in late 1998 to select the eligible manufacturers for 1999. As of May 1998, participating manufacturers have shipped over 37,000 qualifying fixtures throughout the five states covered by the program, with most units being delivered to retail stores such as Home Depot, Home Base, Eagle Hardware and Garden, and Costco. These shipments represent 10% of the 1998 program goal.

Introduction

This paper describes the energy-efficient light fixture program currently being implemented in the Pacific Northwest and California through a cooperative effort involving the Northwest Energy Efficiency Alliance ("the Alliance") and most of the California utilities. The program and the process used to develop it are explained, and some initial observations are offered about the lessons learned so far. This paper also describes how the initiative is linked to the U.S. Environmental Protection Agency's (EPA) ENERGY STAR® labeling program for residential light fixtures.

Background

The Alliance is a non-profit consortium that includes the following organizations: Bonneville Power Administration (BPA) and its 120 municipal utility customers; all six investor-owned utilities in the Pacific Northwest; representatives of the governors of Idaho, Montana, Oregon, and Washington; and public interest and energy-efficiency organizations. The Alliance was established in late 1996 as a voluntary mechanism for funding regional market transformation activities in the face of electric utility deregulation. Its purpose is to fund the design and implementation of regional market transformation initiatives. Funding is expected to approach $65 million over the next two years (through 2000).

Prior to the formation of The Alliance, utilities in the Pacific Northwest had worked together on a variety of energy-efficiency programs. In early 1996, five Northwest utilities (BPA, Washington

Water & Power, Puget Sound Power & Light, PacifiCorp, and Portland General Electric) developed and implemented a joint program to offer manufacturer rebates for screw-base compact fluorescent lamps (CFLs). Based on the initial success of that CFL program, and some new research conducted by Tacoma Public Utilities,[1] Alliance participants decided to expand their regional efforts to include efficient light fixtures.

Program planning began in January 1997 when the Alliance hired Portland Energy Conservation Inc. (PECI) and Ecos Consulting (jointly "the consulting team" or "PECI/Ecos") to design a regional initiative for efficient light fixtures. During the early planning stages, the consulting team explored two opportunities that would ultimately have a significant impact on the design of this initiative. First, PECI/Ecos learned that several of the California utilities were interested in pursuing market transformation activities for efficient fixtures, and that they were willing to consider joining forces with the Alliance in a wider western regional initiative. Second, EPA was planning to launch a new ENERGY STAR® labeling program[2] for residential light fixtures, which PECI/Ecos viewed as a potential platform for the regional initiative. The ENERGY STAR® fixture program—part of the joint EPA and Department of Energy (DOE) ENERGY STAR® labeling activities—was launched in March 1997 and recognizes residential light fixtures that meet certain efficiency and performance criteria.[3] As a result of input offered by utilities in the Pacific Northwest and New England, the EPA specification includes several performance characteristics of particular interest to utilities, e.g., a requirement that the fixtures have a relatively high power factor. Fixtures meeting the new specification were allowed to display the ENERGY STAR® label beginning in June 1997.

Alliance members and the interested California utilities met in April 1997 to discuss the possibility of a broad regional initiative based on the new ENERGY STAR® technical specification. The parties met again in May 1997 to finalize the basic program, which is envisioned as a five to seven year market transformation initiative designed to fundamentally change the residential fixture market in the west, and to contribute to broader efforts to transform the fixture market nationally. The program is the first market transformation initiative coordinated across five contiguous states, and the first regional initiative to be based on a national ENERGY STAR® specification.

The utility participants have agreed to provide a significant amount of resources to this program, and over $8 million has already been committed. Due to organizational and regulatory constraints, however, the participants have secured funding commitments for only the early years of this longer-term initiative. The Alliance has approved a two-year program for fixtures that would last through the end of 1999. The three California investor-owned utilities (Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison) filed program proposals with the California Public Utility Commission (CPUC) seeking approval to implement the coordinated fixture program through December 1998. The Sacramento Municipal Utility District, a municipal utility not regulated by the CPUC, proceeded to approve funding for a one-year period of March 1998 through March 1999. The Los Angeles Department of Water and Power has approved program funding through December 1998.

---

[1] BPA funded the Baseline Residential Lighting Energy Use Study, which metered lighting fixtures in 161 single-family homes in the Pacific Northwest between 1993 and 1995. Tacoma Public Utilities (TPU) was the lead utility in the study, and thus this project is often referred to as the TPU Study. A summary of this project can be found in Tribwell and Lerman (1996).

[2] The ENERGY STAR® name and symbol are registered marks of the U.S. EPA.

[3] For a copy of the ENERGY STAR® technical specification, contact the EPA's ENERGY STAR® toll-free Hotline at (888) STAR-YES or visit the EPA's web page at www.epa.gov/energystar.

Program Description

This section is divided into the following topics: analysis and design phase; program implementation; and evaluation and exit/transition plans.

Design Phase

Analyzing the Fixture Market. The program design phase included an analysis of the residential fixture market. This process included a review of recent technical and market research, as well as a substantial number of interviews with fixture manufacturers and other market players in the distribution chain. This crucial step helped the program participants to better understand the areas of greatest potential, and to identify the particular barriers that needed to be addressed through the regional initiative.

This analysis confirmed that residential lighting is a significant end use and is an appropriate target for a market transformation initiative. Residential lighting accounts for about 10-15% of annual residential energy consumption; the average American home includes about 30 light fixtures, of which 85% are illuminated with inefficient incandescent bulbs (Jennings et al. 1996, 3). Based on a detailed analysis of metered data collected by Tacoma Public Utilities, it appears that energy use is concentrated in relatively few fixtures. Twenty percent of the fixtures in a residence are typically responsible for about 70% of the total lighting energy consumption (Jennings et al. 1996, 9). The residential fixtures associated with the greatest energy use are ceiling-mounted fixtures in kitchens and dining rooms, portable fixtures in living rooms/family rooms, and hardwired fixtures outdoors (Jennings et al 1996, 11). In addition, other recent research by Calwell (1996) suggests that the halogen torchiere has become the most popular and energy-intensive type of residential light fixture in America. By mid 1996, 40-50 million had been sold, and due to their use of 300-Watt halogen bulbs, halogen torchieres are estimated to account for 20% of residential lighting electricity use.

The market assessment phase also looked at the different market segments and distribution channels for residential lighting. Unit sales of residential light fixtures can be broken down between hardwired fixtures that are directly connected to the home's electrical system (61%), and portable fixtures that are plugged into wall outlets and can be moved easily from room to room (39%). About half of all hardwired fixtures purchased each year are for use in new homes, and are selected by the homebuilder or electrical contractor. The rest of the hardwired fixtures are purchased as part of a renovation/remodel, or to replace an existing fixture that has stopped operating or become undesirable to the homeowner. In contrast, portable fixtures are typically selected by the homeowner or occupant and are purchased at retail outlets such as "do-it-yourself" home improvement stores or specialty lighting stores (Jennings et al. 1996, 20-21; Calwell et al. 1996, 4-9).

In June 1997, PECI/Ecos commissioned a comprehensive baseline analysis in order to assess the current mix of fixture products available in retail outlets in the Pacific Northwest. In-store surveys were conducted, and the number and type of lighting products currently stocked was recorded. Information on price was also gathered. This data helped the consulting team to further understand the current market offerings, and to establish an important baseline against which future program accomplishments could be measured. An analysis of over 3,300 light fixtures in the four-state region found that 1.27% of these fixtures qualified as energy efficient under EPA's ENERGY STAR® specifications. These 3,300 fixtures fell into ten categories: Indoor Bathroom/Vanity, Indoor Wall Sconces, Indoor Ceiling, Outdoor Wall, Outdoor Freestanding, Outdoor Mounted, Indoor

Freestanding, Torchieres, and Indoor Hanging Pendants. Energy-efficient fixtures were found only in three of these ten categories (Indoor Ceiling, Outdoor Wall and Outdoor Mounted).

Based on the available market data and interviews with manufacturers and retailers, the program decided to focus only on certain fixture types. Targeted fixture types were chosen based on the following criteria: 1) level of placement in high-use locations; 2) aesthetics as compared to non-efficient fixtures; 3) availability in the marketplace; and 4) interest to retailers. After careful analysis, the following types of hardwired fixtures were included in the program: outdoor porch, bathroom vanity, surface-mounted ceiling, and pendant-mounted ceiling. In addition, the portable torchiere floor lamp was added because of its immense energy use, popularity with consumers, and safety concerns.

Next, the program determined what market segments should be targeted with promotional activities. Volume homebuilders represent a significant and relatively centralized component of market demand for hardwired fixtures, and thus were chosen as a direct target for the program. Since the long term success of a lighting initiative rests on changing the purchase ethic of the mass market, it was also deemed essential to target individual consumers via retail stores.

Defining the Market Barriers. Prior to designing the actual program, it was important to characterize the key barriers or challenges hindering the market adoption of more efficient residential fixtures. As with other energy-efficient products, some of the barriers are well understood. These include 1) higher first cost of the more efficient alternatives; 2) limited availability of high-quality, aesthetically pleasing products; and 3) lack of consumer awareness. In addition, there are other barriers specific to residential fixtures.

Fixture manufacturers perceive that there is little consumer demand for high-quality, efficient residential fixtures. While many companies have offered cheap low-end fluorescent fixtures for various residential applications, few companies had attempted to develop and market a high-quality, efficient residential fixture product.

For similar reasons, except for cheap fluorescent strips or ceiling mounted fixtures, retailers and wholesalers have not perceived efficient fixtures as a profitable product line. The relatively high price points and low sales volume of higher quality efficient models typically inhibit retailers from stocking or promoting such fixtures. In addition, since consumers tend to be unaware of the benefits of efficient fixtures, they do not request them when they visit a retail store. This places the burden of educating consumers and promoting the new products directly on the retailer, which reduces the margins associated with these products. Furthermore, if the efficient models are not available from current suppliers, an interested retailer might be forced to seek out a new vendor and engage in a new contract for supplying the new products, which, again, increases the retailer's burden.

Consumers do not always consider the energy performance of products they buy for their homes. While they may carefully analyze the price of various alternatives, few consider the total operating costs they will incur over the product's lifetime, i.e., the "second price tag." This behavior leads consumers to omit an important variable, since many fixtures have a second price tag well in excess of the initial purchase price. Besides being unaware of the general benefits of energy-efficient fixtures, few consumers have access to the specific information they need to make a more-informed purchasing decision. Consumers may not be aware that energy-efficient fixture alternatives are available, or may be unable to differentiate the energy efficiency performance of various products on the showroom floor. It is also difficult for consumers to analyze the benefits of a particular energy-efficient fixture, determine if it is of good quality, and decide if it is a cost-effective choice. Absent information about the benefits, and faced with a higher purchase price, few consumers are likely to select the more efficient models. Many consumers also associate fluorescent light sources with low

quality light output (primarily due to the types of cheap fluorescent products to which they have been exposed). Thus, they may not perceive efficient fixtures as a desirable or high-quality option.

Defining Goals and Objectives. The overall purpose of this market transformation initiative is to stimulate sustained changes in the purchasing practices of volume homebuilders and residential consumers, and to create a robust market for high-quality energy-efficient residential light fixtures. Accordingly, the initiative must encourage changes in the immediate purchasing decisions of these target consumers, but it also must foster longer-term changes in underlying consumer attitudes and preferences in order to shape future purchasing decisions.

To accomplish this broad purpose, a number of goals were developed. These include the following:

- Increase consumer awareness about the benefits of energy-efficient fixtures and fostering an understanding that these products are a good value.
- Stimulate an increase in consumer demand for efficient fixtures that will be sustained even after the program is completed.
- Encourage the introduction of new high-quality and aesthetically pleasing fixtures for a variety of customer applications.
- Improve the overall availability of efficient fixtures within the key distribution channels across the five-state region.
- Encourage retailers to prominently display energy-efficient fixtures in their stores and to work cooperatively with manufacturers, utilities and others to promote these products to consumers.

Several quantitative objectives were also established, in order to provide specific targets and indicators for tracking program success. It is hoped that all of these can be met before the program is concluded. Some of these objectives are outlined below:

Product Availability and Diversity

- At least 2 to 3 different manufacturers are providing labeled fixtures to each distribution channel, i.e., wholesale, retail, volume builders.
- 75% of retail stores in the 5-state region carry a good variety of qualified fixtures, e.g., bathroom vanity, recessed cans, ceiling kitchen, outdoor floods, dining area, and torchieres.
- 30% of homebuilders within the 5-state region offer a good variety of qualified fixtures as an upgrade option.

Market Acceptability and Consumer Demand

- Within each targeted product class, qualified fixtures reach 33% of annual sales.
- Over 80% of consumers are satisfied with purchased products, and the majority of consumers recognize the benefits of purchasing qualified fixtures.
- Prices of qualified fixtures are similar to those of comparable standard fixtures.
- Annual market sales increase 25 percentage points compared to the baseline.

In developing potential program activities to achieve these goals and objectives, it is important to note that the goals are interrelated. Activities designed to meet one objective may also be contributing to the success of another. For example, directly stimulating demand for qualified fixtures will also help to stimulate supply, as growing consumer interest will encourage the initial manufacturers to increase their production levels, achieve economies of scale, and achieve greater profitability. Early business successes will encourage other fixture manufacturers to enter the market, which will contribute to expanded product offerings and more price competition. Increasing consumer

demand also demonstrates to retailers and wholesalers that efficient fixtures can be a profitable product line.

Selecting Program Tools & Approaches. In designing the fixture program, activities were developed that would address the identified barriers and help to achieve each of the goals and objectives outlined above. The general approach is to simultaneously stimulate increased supply of and demand for ENERGY STAR® labeled fixtures. The basic program strategy can be summarized as follows:

- Provide performance-based financial incentives to selected manufacturers of ENERGY STAR® qualified fixtures in order to reduce the wholesale and retail price of these models, and to encourage the manufacturers to form marketing alliances with wholesalers, retailers, and volume homebuilders.
- Educate consumers and promote the purchase of ENERGY STAR® labeled fixtures through point-of-sale promotions, direct mail, and other outreach activities.
- Collect information about market progress and adjust program tactics as needed.

The heart of this program is the use of performance-based manufacturer rebates. Eligibility for financial incentives is awarded through a competitive RFP process, and only selected fixture companies who sign a contract with the program are allowed to receive payments. The manufacturer incentives were instituted in order to accomplish severalobjectives. First, the incentives help to reduce or eliminate the price premium faced by consumers when considering these products. Second, by providing the incentive directly to manufacturers, rather than to consumers, a smaller incentive can translate into a larger reduction in the ultimate retail or wholesale price faced by the consumer. Third, the financial incentives are performance based, and manufacturers only receive payments in accordance with their ability to achieve actual product sales. Fourth, the incentives also are tied to the performance of certain activities by manufacturers that were deemed important to program success (e.g., including the ENERGY STAR® label on all qualified products, shipping all fixtures with the appropriate light source, and distributing products to wholesale/retail outlets in rural areas). Finally, the incentives require manufacturers to form specific distribution and marketing relationships with wholesalers, retailers, and builders in the Pacific Northwest and California markets which was essential to obtaining the participation of the rest of the distribution channel.

The other critical component of the program is the education, outreach, and promotional activities. These activities fall into two categories: 1) general educational efforts designed to increase basic consumer knowledge and awareness of the benefits of energy-efficient fixtures; and 2) targeted promotional efforts designed to provide consumers with specific and persuasive information about ENERGY STAR® labeled fixtures at the exact point in time when they are considering a fixture purchase. General educational activities include an advertising campaign (TV, print, radio, billboard, subway/bus), a public relations or news media campaign, and utility bill stuffers. Targeted outreach activities include in-store point-of-purchase materials and other promotional tie-ins or special events.

Program Implementation

PECI and Ecos Consulting administer the ENERGY STAR® Residential Fixtures program. Pacific Rim Resources was hired to develop and execute the promotional campaign, and Pacific Consulting was hired to carryout evaluation and survey work.

In August 1997, a pre-qualification letter was sent to over 100 fixture manufacturers describing the new regional program. It was explained that only manufacturers that had joined the EPA's ENERGY STAR® fixture program would be eligible to participate in the upcoming solicitation. As a result of this letter, eight new companies decided to join the EPA's program. In October 1997, the RFP to solicit interested fixture manufacturers was issued. After a negotiation phase, contracts were awarded in January 1998 to six fixture companies (Brownlee Lighting, Catalina Lighting, Good Earth Lighting, Lights of America, EMESS Lighting, and Enertron Technologies). These manufacturers will be offering approximately 25 qualified fixture models, and were selected in part based on their ability to provide products to the various targeted distribution channels. For example, Brownlee Lighting plans to ship to electric wholesalers and volume homebuilders, Catalina Lighting and Good Earth Lighting plan to ship to hardware stores, home improvement stores and other discount chains, and EMESS Lighting will ship to higher-end outlets such as lighting showroom and department stores.

The goal for 1998 is to ship approximately 400,000 qualified fixtures in the five-state region (81,000 in Pacific Northwest and 319,000 in California). By end of 1999, the program hopes to encourage the sale of 1 million fixtures. At the beginning of each year, the participating manufacturers are allocated a designated number of units, which allows each to budget for an estimated amount of incentive payments. Rebate amounts for 1998 and 1999 were set at $7 for hardwired fixtures and $10 for torchieres. Early market research suggested an average incremental cost of $14 at mass retail for hardwire (indoor and outdoor applications) and $20 for tochieres. Based on experience with another manufacturer based incentive program (LightWise) manufacturers can leverage the incentive to achieve a retail price reduction significantly greater than the incentive amount, often twice the incentive. Therefore, incentives were set at levels that would likely match or perhaps exceed the average incremental cost for program fixtures.

Manufacturers play a large role in implementing the program. The participating manufacturers are responsible for forming a distribution team with one or more electric wholesalers, retailers, and/or volume builders. Manufacturers will assist these important market players by educating them about the program and helping with employee training. In return, the distribution partners agree to stock qualified fixtures, track fixture sales, conduct promotional activities, and assist with program evaluation and survey activities as necessary.[4] In order to help with program evaluation, each fixture manufacturer must attach a customer survey card to each qualified fixture. Each month, fixture manufacturers send an invoice to the program administrator that outlines the number of qualified fixtures shipped to each distribution or retail outlet, the wholesale price to each recipient, and other basic information. If certain manufacturers perform poorly in meeting their assigned milestones and sales levels, a portion of their designated unit sales will be allocated to another manufacturer who is performing well.

PECI/Ecos works with individual manufacturers, wholesalers, retailers, and builders as necessary to help them fulfill their program commitments. Program staff also visits participating

[4] Specific activities for each player are discussed in more detail in the Program Work Plan.

retailers on a random basis to spot check that ENERGY STAR® labeled fixtures are on display, promotional materials are available, and to observe the retail prices.

The program implementers are also in regular contact with the EPA's ENERGY STAR® fixture program so that materials, messages, and efforts can be coordinated for maximum effectiveness. While the program was under development, PECI signed a Memorandum of Understanding with the EPA outlining the basis for the national-regional coordination. This agreement also outlined the terms under which the program participants could utilize the ENERGY STAR® name and symbol. Based on that agreement, the marketing/PR firm developed a set of promotional materials that include the ENERGY STAR® symbol. Point-of-purchase materials, e.g., hang tags and shelf talkers, are designed to allow participating utilities to include their own corporate name and "co-brand" with ENERGY STAR®. In-store promotions are designed to build on the special ENERGY STAR® promotional labels that all participating fixture manufacturers have applied to their qualified products.

Evaluation & Transition Plans

The Alliance has hired an evaluation contractor to perform program evaluation and provide guidance for mid-course corrections and timing of transition strategies. The regional fixture initiative is intended to be a five- to seven-year project that would wind down during the last two years as market sales begin to reach the targeted levels, and other indicators show substantial progress toward achieving (or surpassing) the initial objectives. If conditions warrant, manufacturer incentive payments will be reduced incrementally in the later years of the initiative in order to "wean" the participants off of the subsidy and to assess whether there market sales will be maintained once the payments are curtailed.

Progress in meeting the goals outlined above will be tracked on a regular basis. The indicators will be measured using appropriate tools such as data collected from manufacturers and distribution partners, on-site verifications, and surveys. See Table 1, below for a more detailed description of the indicators/objectives and how they will be tracked.

Table 1. Program Indicators and Evaluation Techniques

Program Indicators	Evaluation Technique
# of manufacturers shipping to each distribution channel (wholesale, retail, homebuilder)	Annual manufacturer surveys Review of manufacturer invoices
# of retail stores carrying qualified fixtures # of homebuilders offering qualified fixtures as an upgrade option	Review of manufacturer invoices
% of purchasers satisfied with fixtures % of consumers that recognize the benefits of purchasing qualified fixtures	Consumer phone surveys and in-store interviews

Program Indicators	Evaluation Technique
Prices of qualified fixtures Prices of comparable standard fixtures	Field verification or phone survey of retailers and review of manufacturer data and sales data
Annual market share for each fixture type	Review manufacturer invoices and compile sales figures

Accomplishments to Date

As of May 31, 1998 approximately 37,000 ENERGY STAR® qualified fixtures have been shipped to the five-state region (see Table 2, below). Shipments to the retail channel have been highest, primarily due to the activities of Lights of America, which had products available early in the year and was able to get them into the retail stores where its other lighting and fixture products are regularly sold.

Table 2. Total ENERGY STAR® Fixture Shipments as of May 31, 1998

	Electric Wholesalers	Retail Stores	Volume Homebuilders	Total Shipments
Pacific Northwest (ID, MT, OR, WA)	1,857	17,320	0	19,177
California	5,407	12,945	0	18,352

Benefits of the Regional Approach

The process of developing and implementing this regional light fixture initiative has provided several lessons regarding the benefits of regional efforts. These observation include the following:

- By utilizing the national ENERGY STAR® specification and label, the regional fixture initiative fits within the broader context of a national market transformation strategy for residential lighting. This linkage strengthens the regional initiative, but also contributes to the broader effort to transform the residential lighting market nationally. In fact it already appears that the initiative has had an effect on the broader U.S. fixture market. Based on anticipated market demand in the Pacific Northwest and California, GE Lighting (GE) has decided to ramp up production levels for its new 2-D fluorescent lamp. An interesting outcome from this decision is that at these new production levels, the per-unit costs have declined to a level that has opened up additional market opportunities for GE (Ellison, 1998). While GE will continue to manufacture a high-power-factor model for sale in the Pacific Northwest and California, a cheaper version with a lower power factor will be distributed nationally in a variety of retail

outlets. Of particular interest is the fact that GE was successful in encouraging Walmart, which sells only low-cost products, to carry the new models.

- Adopting a pre-existing national specification and label allowed the program to avoid the lengthy and controversial process of analyzing a technology, developing a specification, and negotiating with fixture manufacturers. In addition, it has enabled this effort to "piggy-back" on the brand recognition already achieved by EPA and DOE for the ENERGY STAR® symbol.

- By running one regional program, rather than multiple individual programs, participating utilities are centralizing program administration and overhead, achieving economies of scale in delivery and materials development, and incurring lower overall program costs. Pooling money in a centralized organization also provides participating utilities with greater overall buying power and increased market leverage when dealing with manufacturers and distribution partners, since the five-state region represents a combined market of about 44 million people.

- The market for most technologies is national (or international) in scope, and it can be complicated for manufacturers to keep track of multiple programs and different specifications across the country. A regional initiative (especially one based on a national specification) facilitates participation for manufacturers since it offers: one label, one program and reporting structure, and one point of contact for a large geographic market.

Conclusions

Though we are confident that the current program design will yield significant results in the Pacific Northwest and California, it is too early to draw any specific conclusions about the future success of this initiative. While program shipments appear to be on target, and manufacturer response has been good, it will be important to continue to build the number of qualified products and increase their availability in the electric wholesale and volume homebuilder channels. It will also take several years of marketing and education efforts to create substantial and sustainable increases in consumer demand for efficient fixtures.

We would like to offer several other thoughts on more general issues that were faced while developing and initiating this program. These thoughts are outlined below.

Regional programs require significant coordination and the development of a common vision among all players in the affected region. This was relatively easy to accomplish in the Pacific Northwest since there was strong policy and political support for this type of activity, and the central organization had already been created. However, we believe this type of effort could be replicated in other regions if utilities are motivated and state regulators are amenable to the concept. In fact the Northeast Energy Efficient Partnerships (NEEP) organization in New England appears to be succeeding in its effort to forge an ad hoc voluntary alliance among regional utilities. While we have found a centralized "agent" to be a key party in "grounding" this effort, we note that the expansion to include California utilities was done on an ad hoc basis using multiple individual contracts, proving regional cooperation can be accomplished in many ways.

We also believe that similar program efforts in other regions would contribute additional benefits to the broader market transformation strategy for efficient residential fixtures, as it would further increase consumer demand and demonstrate to fixture manufacturers that this is a profitable

area for new product development. We encourage other regional organizations or groups of utilities to consider developing a similar ENERGY STAR® fixture program.

The regional fixture initiative is designed to be a five- to seven-year effort, and it will be essential for the coordinated activities to continue beyond the initial one- to two-year period. This continuity may be difficult to achieve, since starting in 1999 California will change the way it funds and implements energy-efficiency programs. While the state is committed to supporting market transformation efforts, the newly established California Board for Energy Efficiency (CBEE) will be selecting statewide administrators to oversee energy-saving programs. It will be important for policymakers to recognize the value associated with the continuation of ongoing market transformation initiatives when making program and funding decisions for future years.

References

Calwell, Chris. 1996. *Halogen Torchieres: Cold Facts and Hot Ceilings.* Tech Update TU-96-10. Boulder, Co.: E SOURCE, Inc.

Calwell, Chris, Chris Granda, Charlie Stephens, and My Ton. 1996. *Energy Efficient Residential Luminaires: Technologies and Strategies for Market Transformation.* Report prepared for the Natural Resources Defense Council.

Ellis, Marvin. (Fluorescent Product Manager at GE Lighting). 1998. Personal communication with Jody Moore. January.

Jennings, Judy, Rich. Brown, Mithra. Moezzi, Evan Mills, Robert Sardinsky, Barbara Heckendorn, David Lerman, Lyle Tribwell. 1996. *Residential Lighting: The Data to Date.* LBL-38484. Berkeley, Calif.: Lawrence Berkeley National Laboratory

Tribwell, Lyle and David Lerman. 1996. "Baseline Residential Lighting Energy Use Study." In *Proceedings of the ACEEE 1996 Summer Study on Energy Efficiency in Buildings*, Volume 3. Washington, DC: American Council for an Energy Efficient Economy.

Vorsatz, Diana, Leslie Shown, Jon Koomey, Mithra Moezzi, Andrea Denver, Barbara Atkinson. 1997. *Lighting Market Sourcebook for the U.S.* LBNL-39102. Berkeley, Calif.: Lawrence Berkeley National Laboratory