Market Progress Evaluation Report Executive Summary

ENERGY STAR® Residential Lighting Fixture Program, No. 3

prepared by

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EXECUTIVE SUMMARY

EVALUATION OBJECTIVES

This report is the second of three Market Progress Evaluation Reports (MPER #2) documenting the effects of the Northwest Energy Efficiency Alliance ENERGY STAR® (hereafter referred to as ENERGY STAR) Residential Lighting Fixture Program, and is meant to build on the already established baselines from MPER #1. The primary objectives for the overall evaluation are:

- Measure program progress toward overcoming identified market barriers
- Measure program progress toward the program exit strategy
- Provide timely feedback to refine the program

PROGRAM OVERVIEW

The ENERGY STAR Residential Lighting Fixture Program (the program) was implemented to accelerate product availability and consumer acceptance in the market for energy-efficient fluorescent residential light fixtures. The long-term goal (5–7 years) is to increase the market share by 25% for targeted energy-efficient fixture applications. Toward this end, the program established the following near-term objectives:

Consistent with the primary program goal, the program design specified an exit strategy of obtaining a sustainable market share for program fixtures that compete on price, quality, and desirability with conventional and nonprogram, energy-efficient fixtures. The intent is that installation of these fixtures will become a standard practice in new construction and retrofit applications. To accomplish this, the Alliance established a goal of selling 100,500 fixtures in 1999. The 1999 fixture allotment breakdown by fixture type is shown in Table 1.

Table ES-1. 1999 Fixture Allotment by Type

Fixture Type	Allotment
Torchieres	32,000
Indoor fixtures	42,000
Outdoor fixtures	26,500
Total	100,500

The program design emphasizes a dual “push/pull” approach; that is, the program works to increase both the supply (the “push”) and the demand (the “pull”) for energy-efficient light fixtures. Specific market intervention strategies

include: (1) manufacturer incentives to increase product availability and reduce incremental cost; (2) retailer education and marketing to increase retailer stocking of qualifying products; (3) promotion to increase retail and consumer awareness of products; and (4) mass advertising and branding to increase consumer demand and awareness/knowledge of the product.

The program scored some notable successes in its first year. In particular, it succeeded in gaining the participation of Catalina, one of the world's largest fixture manufacturers and a manufacturer that, unlike most of the other program participants, was not already making a fixture that nearly qualified. Thus, Catalina's joining the program meant that a major manufacturer developed significant new capabilities for producing energy-efficient fixtures.

METHODOLOGY

Primary data collection focused on three general sets of market actors: manufacturers, retailers, and consumers. Each set of market actors corresponds to a key market function: supply, distribution, and demand.

- **Manufacturer Interviews:** We interviewed eighteen lighting fixture manufacturers, including six who are currently participating in the program (including Evergreen and FSC as one company). Twelve of the seventeen manufacturers interviewed in MPER #1 were re-interviewed for MPER #2.
- **Retailer Interviews:** We interviewed sales staff and corporate representatives from 29 retail businesses. Twenty-two of the 23 retailers interviewed in MPER #1 were interviewed again for MPER #2. Also, we interviewed six retailers for the first time who were candidates to distribute fixtures for the 1999 program. This list of new retailers included EFI, who has contracted to serve as a fulfillment house and service catalog and Internet orders.
- **Consumer Mail Surveys:** We received 163 responses to a 12-page survey mailed to 2,500 randomly selected households in the region. Responses were compared to a set of 309 survey responses previously collected from residents of the Pacific Northwest in August 1998, as part of the baseline assessment.

CHANGES IN THE 1999 PROGRAM

In the intervening eight months since MPER #1, the program has made considerable progress toward establishing a market presence. For 1999, the program has renewed its commitment to obtaining product sales and consumer recognition in the rural and small-market areas east of the Cascade Mountains. In addition to expanding the number of manufacturers and retailers involved in the program, the 1999 program has added several elements to increase product availability in the region:

- Retail support services, commonly known as "circuit riders," Applied Proactive Technologies Inc. (APT), team of field delivery professionals with experience in energy-efficient lighting retail programs, has been hired

to recruit new retail outlets into the program, train their staff to promote ENERGY STAR products, and ensure program visibility in those stores, as well as locations that currently stock program products. The circuit riders are slated to operate primarily in Idaho, western Montana, and eastern Washington, where distribution has been particularly difficult. Retailers along the I-5 corridor will receive periodic circuit rider support focusing on maintaining displays, educating sales staff, and data collection. Visits will be conducted approximately four times between June and December of 1999.

- A master distributor/fulfillment house. Energy Federation Incorporated (EFI) has been contracted to provide small retail outlets and utilities the option of ordering small quantities of program fixtures, without the barriers associated with buying directly from manufacturers.
- An on-line web resource. Lightsite.net, currently available as an on-line shopping and information resource for torchieres, will expand to offer all LightWise and ENERGY STAR fixture products, and will continue to be a source of consumer information about applications of efficient lighting products.
- Other marketing. In addition to circuit rider activities, the 1999 marketing budget includes allocations for (a) in-store promotions, including 50 sidewalk sale events; (b) halogen torchiere turn-in events throughout the region; (c) media relations; (d) co-op advertising; (e) support for member utility activities; (f) maintenance of point-of-purchase (POP) materials, including Energy Corners; (g) and new POP.

Fixture incentive levels for the 1999 program remain unchanged from 1998.

INDICATORS OF SUCCESS

Consistent with the program goals and objectives, the program has established the following progress indicators:

- Increasing consumer awareness of ENERGY STAR products and the benefits of purchasing energy-efficient light fixtures
- Increasing number of manufacturers supplying each distribution channel (electric wholesale, independent retail, and local outlets of regional and national retail chains) with ENERGY STAR fixtures
- Increase in the variety of products (indoor, outdoor, torchieres) available to each market segment (homebuyers and volume builders) throughout the region
- Retailers show preference for program products through in-store promotions, shelf placement, or feedback to manufacturers
- Increased specifications and installations in single-family and multi-family construction

- Prices of ENERGY STAR fixtures drop to levels competitive with standard fixtures
- Increase in market penetration of ENERGY STAR units shipped to retailers and purchased by consumers in the Northwest

Table ES-2 summarizes program progress to date, as gauged by the established progress indicators.

Table ES-2. Fixture Program Indicators of Success

Success Indicators	Program Activities	Program Status
Increasing consumer awareness	Expanded visibility at the retail level	Expanded retail initiatives were just getting underway at the time of consumer data collection; thus no observed change in consumer awareness from baseline status
Increasing number of manufacturers	Issued new manufacturer RFP for 1999; recruited manufacturer participation	Number of participating manufacturers increased from 6 in 1998 to 9 in 1999
Increasing variety of products	Issued new manufacturer RFP for 1999; recruited manufacturer participation	Number of qualified program products increased from 80 in 1998 to 165 in 1999
Retailer preference for program products	Expanded program interaction with retailers, including staff training and maintenance of promotional materials	Expanded retail initiatives were just getting underway at the time of retailer data collection; thus no observed change in retailer preferences from baseline status
Increasing specifications and installations in residential construction	Previous evaluation research has determined that labeling program targeted at consumers is appropriate for retrofit/replacement situations but ill-suited to new construction	1999 program emphasizes retail channels
Competitive prices for ENERGY STAR fixtures	Worked with EPA/DOE to revise product specification	Relaxed power factor requirements for ballasts should reduce fixture prices by reducing manufacturing costs and stimulating competition. Revised requirements went into effect in June, 1999. Change may take several months to show up at the retail level.
Increase in market penetration	Program rewards manufacturers who successfully meet their allotment targets.	1998 program fixture sales totaled 75,657; 1999 sales are projected at 100,500.

CHALLENGES AND SUCCESSES TO DATE

Changes in Recognition and Acceptance

- Program administrators report positive interactions with retailers. Program point-of-purchase materials and reduced prices for program products (via the manufacturer incentives) have helped increase fixture sales. Torchiere products have been particularly well received.
- According to program administrators, manufacturers are frustrated because they cannot offer an open purchase order for unlimited supplies of program fixtures.
- The press coverage generated by the Great Torchiere Turn-in Event, held April 24 in Seattle, indicates the potential value of such events beyond just removing halogen torchieres from use and selling compact fluorescent units. Targeted events that generate free publicity are particularly important and probably produce more credible messages than paid advertising could achieve.
- Among manufacturers we interviewed, perceptions of the program are still mixed but more positive than they were during phase 1. Overall, important themes voiced by both participating and nonparticipating manufacturers are that the recent specification changes have contributed greatly toward making the program palatable and realistic from manufacturers' perspective but that the program needs to place even greater emphasis on consumer education.

Entry of Additional Manufacturers and Retailers into the Market

- The number of participating manufacturers increased by 50% from 1998 to 1999, from six to nine. Of these, Catalina, Emess, Good Earth, and Lights of America participated in 1998. New program entrants for 1999 include EFI, FSC/Evergreen, General Innovations, GFL, and MaxLite.

Introduction of New Qualifying Products

- Over 140 products qualify for the 1999 program, compared to less than 70 qualifying products in the 1998 program.
- EPA has recently modified its program specification to allow fixtures with a lower power factor rating (0.5 instead of 0.9) and it has dropped the total harmonic distortion requirement. Under the modified requirements, many more existing fixtures will satisfy the new specification requirements and manufacturers should have yet more incentive to develop ENERGY STAR-compliant products.
- An emerging opportunity for the Alliance program is to push development of a good recessed can fixture. Current ENERGY STAR fixtures meet the program's energy efficiency requirements but are not sealed fixtures.

Introduction of Competing "Nonprogram" Products

- Program administrators report that the program may be stimulating sales of nonprogram fixtures. In particular, they have observed compact fluorescent torchieres with GE 2D ballasts for sale at OfficeMax and WalMart.
- Manufacturer interview results showed that Simkar Lighting Fixture Company is shipping ENERGY STAR fixtures into the Alliance's territory. Simkar produces ENERGY STAR fixtures for the NEEP program but has not joined the Alliance program.[1]

Changes in Market Visibility

- The program's focus in 1999 has been on expanded visibility at the retail level. The top priority for retail visibility has been in the eastern part of the Alliance market; that is, Idaho, western Montana, and eastern Washington.
- Planned activities in the "I-5 corridor" (the urbanized markets in western Oregon and Washington) include halogen torchiere turn-ins in Seattle, Snohomish, Tacoma, and Portland and cooperative advertising money for energy bays/corners (i.e., dedicated display areas within the store) and periodic display maintenance.

Changes in Market Availability

- Program administrators report that the general availability of compact fluorescent fixtures continues to expand, even as overall fixture sales have declined.
- Catalina Lighting, Good Earth Lighting and Lights of America each exceeded their milestone 1 program goals requiring 20% of program product to be shipped by May 31. All three fixture manufacturers shipped close to 20,000 ENERGY STAR fixtures since the first of the year.

Changes in Costs and Prices

- We found no changes in program fixture prices. Prices were flat with only minor fluctuations over time.

Changes in Market Support Structures

- We found no changes in market support structures.

Organizational Support for Similar Programs

- In 1998, the program contractors, Ecos and PECI, succeeded in leveraging the influence of the Alliance's Residential Lighting Fixture

[1] Simkar received a copy of the solicitation for the 1999 program but declined to submit a proposal to the Alliance program.

Program by gaining the cooperation and participation of the five largest electric utilities in California. The inclusion of California in the program increased the overall program size by almost 330%.

- The California utilities have committed to supporting the existing program structure through the first half of 1999 and have contracted with a team that includes Ecos Consulting to coordinate a similar program, starting in the second half of 1999 and continuing through 2001.

Standardization and Code Changes

- EPA's revised specifications reflect the input from the Alliance and other interested parties.

MANUFACTURER INTERVIEW FINDINGS

- With the introduction of the revised ENERGY STAR fixture performance standards, it is likely that start-up costs will be less of an impediment for manufacturers considering joining the program
- Phase 2 results indicated that the ENERGY STAR program may be impacting the number of manufacturers producing program fixtures by creating a “me too” attitude among manufacturers.
- In Phase 2, two large participating manufacturers who use off-shore production facilities noted that per-unit costs of Alliance ENERGY STAR fixtures are higher than for non-program fixtures due to shipping expenses resulting from the need to ensure that ENERGY STAR fixtures are distributed in the Alliance service territory.
- It is evident from program data that the number of ENERGY STAR fixtures being placed into the Alliance service territory's distribution system has been steadily increasing since the Phase 1 study was performed.

Table ES-3 summarizes the baseline status of the expected market effects, along with any observed changes from the baseline.

Table ES-3. Status of Manufacturer-Level Market Effects

Manufacturer Market Effects	Baseline Status	Change from Baseline
Expanded product market share	All 8 ENERGY STAR manufacturers said they expect an increase in number of competitors offering E.S. fixtures	**Change.** The number of ENERGY STAR manufacturers has increased. All 10 ENERGY STAR manufacturers said they expect an increase in number of competitors offering E.S. fixtures
Reduced per-unit production costs	6 of 7 (86%) manufacturers report per-unit production costs of ENERGY STAR fixtures exceed those of nonprogram fixtures due to more expensive ballasts	**Possible Change.** 6 of 10 (60%) report per-unit production costs of ENERGY STAR fixtures exceed those of nonprogram fixtures due to more expensive ballasts
Higher profit margins relative to standard fixtures	4 of 6 participants (67%) said profit margins for ENERGY STAR fixtures are lower than for standard fixtures. 4 of 8 (50%) anticipate an increase in the profit margin for E.S. fixtures, 3 expect no change, and 1 expects a decrease. All respondents (8) said profit margins for E.S. fixtures acceptable. All nonparticipants said they expect no change in profit margins. 5 of 7 (71%) said profit margins for nonprogram compact fluorescents are acceptable.	**No Change.** 4 of 7 participants (57%) said profit margins for ENERGY STAR fixtures are lower than for standard fixtures. 1 (10%) anticipates an increase in profit margin, 9 expect no change. 8 of 9 respondents said profit margins for E.S. fixtures acceptable, 1 said they were too low All nonparticipants said that they expect no change in the profit margins. 5 of 6(83%) said profit margins for nonprogram compact fluorescents are acceptable.
Expanded manufacturer volume	In the next six months, 6 of 8 (75%) participants plan on increasing production levels of E.S. fixtures, 1 plans no change. When asked what percent of their lighting fixture production were E.S. fixtures, the answers were: < 1%, 2–3%, <5%, 12%, 20%, 30%, and 100% (Energy Federation)	**Possible Change.** In the next six months, 7 of 10 (70%) participants plan on increasing production levels of E.S. fixtures (2 decrease, 1 plans no change). When asked what percent of their lighting fixture production were E.S. fixtures, the answers were: <1%, <1%, 2%, 5%, 6–8%, 12%, 20%, and 100% (Energy Federation)

RETAILER SURVEY FINDINGS

The following tables illustrate changes in the retail sector from the program baseline and are based on the Phase 1 baseline sample of respondents.

Table ES-4. Status of Retailer Market Effects

Retailer Market Effects	Baseline Status	Change from Baseline
Increased stocking	Mentions of plans to change the amount of E.S. fixtures ordered Order the same 3 Order more 1	**No change.** Order the same 4 Don't Know 1
Increased sales staff expertise	Among retailers, 9 of 21 (43%) companies train lighting sales staff.	**No change.** All retailers but one reported "no change" with the way they train their sales staff.
Increased promotion by sales staff	2 of 4 (50%) retailers said ENERGY STAR products displayed with more prominence than standard fixtures, 2 said same.	**No change.** 4 retailers said they display E.S. fixtures with the same prominence as standard fixtures. 1 retailer displays them less prominently.
Identification of ENERGY STAR as a symbol of high performance	When asked if they were pleased with ENERGY STAR fixtures, all the retailers who carry ENERGY STAR (4) said they were pleased.	**No change.**
Greater array of energy-efficient product types	Between 4/1/98 and 7/31/98 program fixture shipments totaled 28 fixture models from 2 manufacturers.	**No change.** Between 8/1/98 and 3/31/99 program fixture shipments totaled 27 fixture models from 4 manufacturers.
Plentiful availability of products	Consumer agreement that compact fluorescent fixtures are widely available: Agree: 47% Disagree: 53% Shipments through 7/31/98: 31,178	**No change.** Consumer agreement that compact fluorescent fixtures are widely available: Agree: 44% Disagree: 56% Shipments 8/1/98-3/31/99: 47,433
Expanded sales	E.S. fixtures as % of total lighting fixture revenues: <1%, 4 to 5%, 5 to 10% Nonprogram CF-fixtures as % of total lighting fixture revenues: <5%, 5%, 10%, 5 to 10%	**Change.** 2 retailers of E.S. said that sales increased in the last six months.

CONSUMER SURVEY FINDINGS

While the program has scored some tangible successes among manufacturers, that success has apparently not yet translated into increased consumer awareness of ENERGY STAR fixtures and increased sales. For 1999, the program has expanded the number of manufacturers and retailers involved in the program and added several elements to increase product availability, retailer skill levels, and market visibility. However, these elements were just being put into place as the data collection effort for this study concluded.

Table ES-5 summarizes the baseline status of the expected market effects, along with any observed changes from the baseline. Each market effect is discussed in greater detail in Section 5 of this report.

Table ES-5. Status of Consumer Market Effects

Consumer Market Effects	Baseline Status	Change from Baseline
Increased recognition of ENERGY STAR logo	37% recognition rate, apparently due primarily to computer labeling	**No change:** 37% recognition rate
Increased awareness of program messages	No recall of advertising slogans associated with logo	**No change** in recall of advertising slogans
Increased knowledge of efficient equipment attributes	Attitudes toward compact fluorescent technologies: Positive: 78% Negative: 22%	**No change:** Attitudes toward compact fluorescent technologies: Positive: 80% Negative: 20%
Greater experience with functioning equipment under actual conditions	80% of respondents cited in-store displays as source of information.; accounting for 38% of *all* mentions). Hard to compare how various fixtures would perform: Agree: 76% Disagree: 24%	**No change.** 78% of respondents cited in-store displays as source of information. Hard to compare how various fixtures would perform: Agree: 77% Disagree: 23%
Greater visibility of neutral, authoritative information sources	Easy to find trustworthy information about lighting fixtures on the market: Agree: 62% Disagree: 39%	**Change:** Easy to find trustworthy information about lighting fixtures on the market: Agree: 68% Disagree: 32%
Increased understanding of the value of efficient fixtures as cost savers	Agreement that compact fluorescent fixtures cost more to buy, but two-thirds less to operate: Agree: 80% Disagree: 18%	**No Change:** Agreement that compact fluorescent fixtures cost more to buy, but two-thirds less to operate: Agree: 77% Disagree: 23%

Table ES-5. (cont.). Status of Consumer Market Effects

Consumer Market Effects	Baseline Status	Change from Baseline
Increased confidence in point-of-purchase information sources	Point-of-purchase information sources were listed as being among the top four most trusted information sources with the following frequencies: Displays of operating fixtures 38% Sales clerks 24% Fixture packaging 20% Other displays 12%	**No change:** Point-of-purchase information sources were listed as being among the top four most trusted information sources with the following frequencies: Displays of operating fixtures 42% Sales clerks 23% Fixture packaging 17% Other displays 12%

PROGRAM EFFECTS

As part of our review of program activities, we examined program effects on electricity usage in the Pacific Northwest. In doing so, we reviewed the input assumptions that were used to construct both the estimates of program impacts and the cost-effectiveness estimates developed during the program design phase. Where appropriate, we developed recommendations for revising the inputs to reflect actual conditions. Finally, we integrated projections of program fixture sales with data reflecting overall projected market activity to arrive at projections of program market share and MWh impacts through the year 2010

Estimates developed during the program design phase projected a total of 278,700 fixture sales over four years would be attributable to the program. Of these, 118,300 were projected to result directly from fixture incentives the program paid to manufacturers. In addition, the forecast estimated the average price per fixture would drop from $38.65 prior to the program to $24.00 after the program, a decrease of almost 38% in the pre-program price.

Two sets of assumptions bear closer scrutiny in light of changes to the program fixture specification: the assumed zero percent baseline and the level of anticipated market effects[2]. With the rigorous power factor requirement, reasonable assumptions about the baseline and market effects were relatively straightforward. The assumption of zero baseline appeared relatively accurate and assumptions of any significant levels of market effects were probably optimistic. However, with the more relaxed requirements, significant numbers of existing fixtures may now meet program standards, raising the program

[2] In the original program planning documentation, market effects were referred to as spillover effects.

baseline. On the other hand, the prospects for generating significant levels of program market effects are also greatly enhanced. Disentangling market effects and baseline fixture sales will present a challenge.

While the sale of thousands of program fixtures per year is a noteworthy accomplishment in itself, one must not overlook the fact that the ultimate goal is to improve the energy efficiency of the residential lighting stock in the Pacific Northwest. With that in mind, we projected long-term market penetration and energy impacts for the program. Our projections were based on original program design assumptions, coupled with the additional assumption that the overall residential lighting fixture market grows at an annual rate of 1% per year. This rate is equal to the observed growth rate from 1986 to 1996, as documented in EIRI (1998).

Figure ES-1 shows projected market penetration for two scenarios: (1) assuming all fixture sales are directly attributable to the program (i.e., incented); and (2) assuming that, by 1999, the program stimulates market effects equivalent to 100% of direct program effects, which continue after program activities cease.

Figure ES-1. Market Penetration

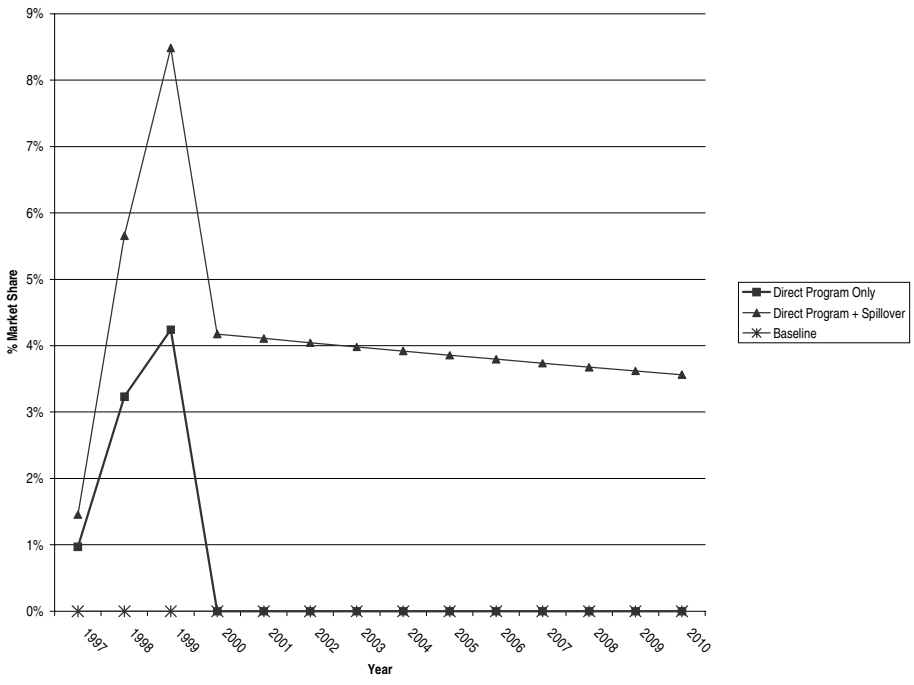

Figure ES-2 shows projected cumulative energy savings, assuming all fixture sales are directly attributable to the program. The graph represents savings with and without "take-back effects." The term "take-back" refers to the incidence of consumers "taking back" some of the energy savings in the form

of improved lighting. For example, as part of an energy efficiency upgrade, a consumer might increase overall lighting levels or use the lights more frequently. Thus the projected savings without take-back effects represent the energy-related benefits to the consumer. The projected savings with take-back effects represents the utility perspective in that it represents the net change in energy consumption.

Figure ES-2. Cumulative Energy Savings, Direct Program Effects Only

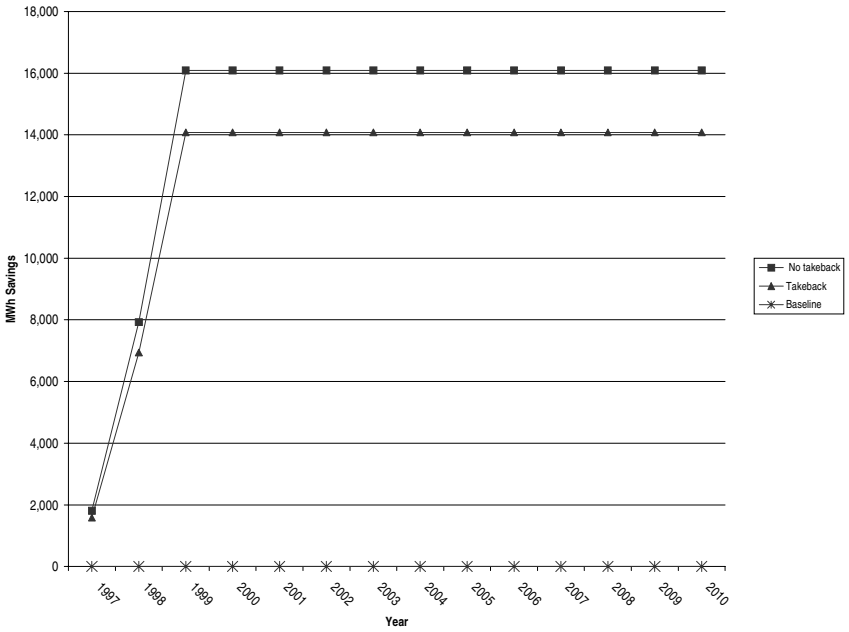

Figure ES-3 shows projected cumulative energy savings, assuming that, by 1999, the program stimulates market effects equivalent to 100% of direct program effects, which continue after program activities cease. Again, the graph represents savings with and without take-back effects.

Figure ES-3. Cumulative Energy Savings, Direct and Market Effects

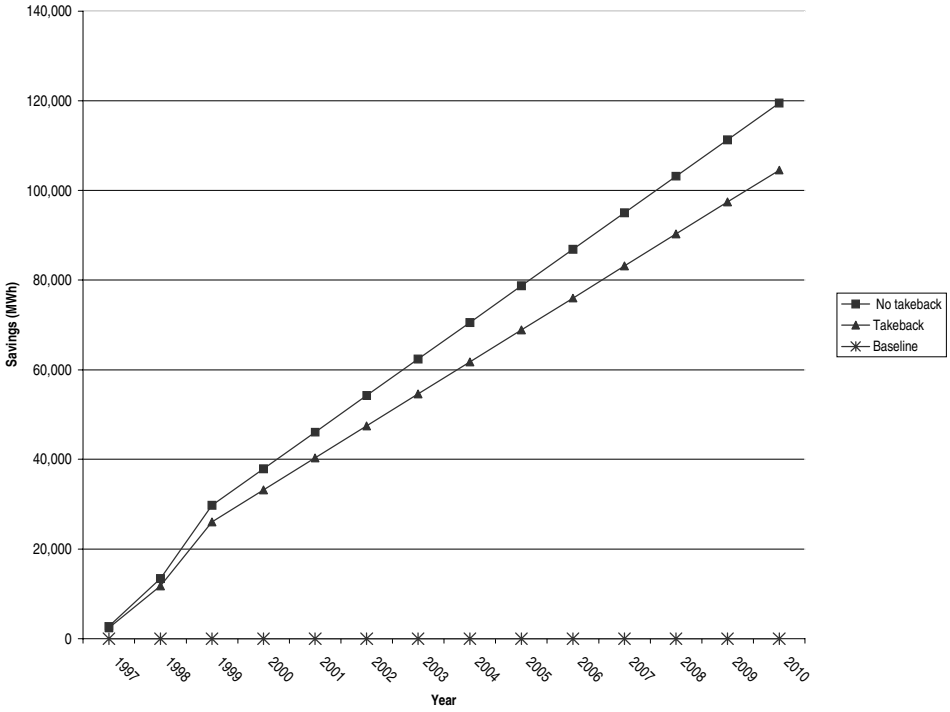

Table ES-6 summarizes average MW savings values corresponding to the cumulative savings projections in Figures ES-2 and ES-3.

Table ES-6. Average MW Savings

Year	Direct Program Only		Direct Program + Market Effects	
	No takeback	Takeback	No takeback	Takeback
1997	0.21	0.18	0.31	0.27
1998	0.91	0.79	1.53	1.34
1999	1.84	1.61	3.40	2.97
2000	1.84	1.61	4.33	3.79
2001	1.84	1.61	5.26	4.60
2002	1.84	1.61	6.19	5.42
2003	1.84	1.61	7.12	6.23
2004	1.84	1.61	8.05	7.05
2005	1.84	1.61	8.98	7.86
2006	1.84	1.61	9.92	8.68
2007	1.84	1.61	10.85	9.49
2008	1.84	1.61	11.78	10.31
2009	1.84	1.61	12.71	11.12
2010	1.84	1.61	13.64	11.94

CONCLUSIONS

Our review of program documentation and interviews with program staff indicate that the program is gaining momentum. Building on the initial success at recruiting Catalina into the 1998 program, the 1999 program has added new manufacturers and an expanded line of program products. After encountering initial hurdles due to limited availability of high power-factor ballasts, the program was successful in getting products into stores and selling them during the 1998 lighting season. The addition of circuit riders in the eastern portion of the Alliance service territory shows promise for addressing identified needs for retailer and consumer outreach.

Qualitative responses from manufacturers and retailers also suggest some reason for optimism that the program will have some success in changing the residential lighting market. Not surprisingly given the timing of the data collection relative to 1999 program roll-out, hard data to support that optimism is scarce. A number of manufacturers and retailers were only just beginning to get involved with the program during the evaluation data collection period, leaving them with little concrete experience to relate. The small number of responses to the consumer survey also limited our ability to quantify small percentage shifts in consumer awareness and attitudes with statistical confidence.

Among manufacturers, the greatest source of optimism seems to be the recent revisions to the product specification, which is anticipated to smooth production and lower costs. It should also expand the number and variety of

fixtures eligible to bear the ENERGY STAR label, since a number of products met all the original requirements except the power factor provisions. Taken together, the relaxed criteria may stimulate greater interest and competition among manufacturers to produce and market energy-efficient fixtures.

Among consumers, the most tangible evidence of program success are the increase in positive opinions about the ease of finding credible information, and the notable increase in fixture sales attributed to ENERGY STAR label recognition. Again, the limited hard evidence of success should not be surprising, considering the limited 1998 market presence, the early state of the 1999 program and the small number of survey responses.

RECOMMENDATIONS

Based on our interactions with manufacturers, retailers, consumers, and program administrators, we offer the following recommendations for refining the program design. In some cases, recommendations may appear contradictory. This is intentional and inevitable, given the balancing act the program must perform between competing interests and needs.

- Program staff should maintain and nurture established relationships with retailers and manufacturers. Healthy relations with manufacturers and retailers will help program staff to bridge any communication gaps left by the informal and ad hoc communication channels that exist.

- Further study may be needed to work with manufacturers and large retail organizations to develop expedient and efficient transportation and tracking systems that maintain standard industry practices while simultaneously supporting program goals (e.g., shipping fixtures from offshore factories to Alliance territory).

- Continue to recruit fixture manufacturers who can produce a variety of stylish products. Style is a primary factor driving the consumer decision-making process.

- In making allocation decisions, the program administrator should be conscious not only of each manufacturer's ability to move large product volumes, but also the quality of those products.

- If it becomes apparent that overall demand for ENERGY STAR fixtures exceeds the program incentive budget, then the program should consider reducing the per-fixture incentive to spread incentive resources further and move toward true market price points.

- Engage electric utilities in the effort to inform consumers about the benefits and availability of ENERGY STAR Residential Lighting Fixture Program products. Utility information is well regarded but continues to be a minor source of information about light fixtures.

- Continue to emphasize direct contacts with retailers to ensure that in-store marketing signage and collateral materials are available to consumers.
- Continue a strong ENERGY STAR Residential Lighting Fixture Program presence at lighting industry trade shows.
- While the program should continue to recruit large manufacturers aggressively, it should be careful not to allow any perception that large manufacturers are favored in a substantive way.
- Review the input assumptions that went into the original cost-benefit calculations and revise if necessary.
- Explore the possibility of adding recessed cans to the mix of qualifying products. Suitable fixtures should be sealed and be capable of being installed in direct contact with insulation.