

RESIDENTIAL RETAIL LIGHTING PROGRAMS

A BRIGHT FUTURE



Residential Retail Lighting Programs A Bright Future

Shannon Montgomery, Wisconsin Energy Conservation Corporation, March 2011

About the Wisconsin Energy Conservation Corporation

Wisconsin Energy Conservation Corporation is a nonprofit organization based in Madison, Wis. Established in 1980, WECC is a national leader in designing and implementing energy efficiency and renewable energy programs that partner with private businesses to deliver value to consumers. It champions innovative energy initiatives that deliver short- and long-term economic and environmental benefits to consumers, businesses and policy makers.

INTRODUCTION

Compact Fluorescent Lamp (CFL) residential lighting programs are a core offering in many energy efficiency programs. While there is some concern that the ability to offer these programs has passed or may be adversely affected by pending Federal code changes and decreasing program attribution, Wisconsin Energy Conservation Corporation (WECC) believes that opportunities to achieve savings from energy efficient lighting in the Residential market will continue to be strong in the coming years. WECC, a leader in Demand-Side Management (DSM) planning and program design, has created a strategy for Residential retail-based energy efficient lighting programs that will ensure design and delivery approaches are responsive to changes in both the industry and markets for CFLs.

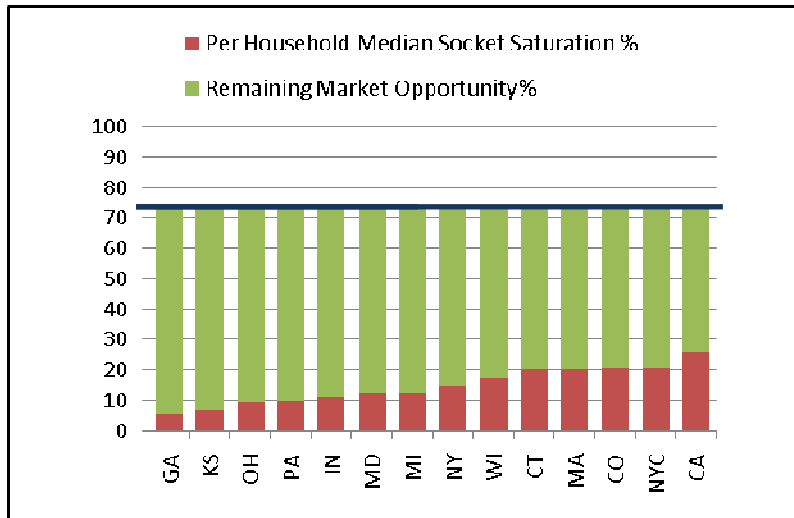
Current program approaches include coupons, markdowns and midstream programs. Beyond that, there is growing traction for approaches that drive retailers to increase the overall market share for energy efficient lighting, a concept called market liftⁱ. As a mission based nonprofit, WECC believes, it is important that our program designs are based on individual client/utility needs. Equally important is that programs be able to withstand the types of rigorous third party evaluations that are becoming increasingly standard practice. Some challenges being experienced across the efficiency industry include:

- Changing legislation will decrease the energy savings that can be claimed for a CFL over the next several years
- CFL acceptance and program evolution is leading to decreased net savings attribution rates for current common program designs

Although this may sound discouraging, in reality, it is a testament to the success of past programs and the positive impact the programs have had on customer acceptance of CFLs, and government legislation to increase the minimum efficiency standards. CFL programs have resulted in more educated consumers, and increased energy savings which ultimately drives positive brand awareness for sponsoring utilities/clients.

While declining net-to-gross ratiosⁱⁱ are concerning, with CFL attribution rates as low as 41% in some statesⁱⁱⁱ, there are still many reasons to be optimistic. States with established CFL programs, the research shows on average that customers have only 10 CFLs in roughly 50 available sockets, while those states without well-funded programs, saturation rates are about half of that or as few as 5 CFLs per household^{iv}.

The remaining market opportunity is substantial!



There are differing sources that put opportunity as high as 80% and practical saturation at 60%.

Source: Nexus Market Research, Multi-state Modeling Effort, Feb 2010

There is a huge opportunity to increase socket saturation. This paper will lay out WECC's strategies to gain additional sockets as well as touching on new technologies; opportunities, we believe are available in the short-term to protect and maximize lighting energy savings for years to come.

CURRENT STATE

The CFL market has grown dramatically over the last few years. Programs are driving more bulbs than ever through one of the most cost effective programs in most residential portfolios. Changes in federal legislation, lower retail prices, new and emerging technologies and increased customer awareness are all impacting how CFL programs are operating in the market. Programs have been successful. Customer education is effective and federal energy standards are increasing which ultimately helps reach our goal of providing real energy savings. While this is exciting, and helps support the success of the programs that have been running over the years, it does not mean our mission is complete. There are still more savings out there.

The changing regulatory landscape, in addition to declining CFL attribution, is making it increasingly difficult to cost effectively achieve the substantial energy savings of past years. Part of the Energy Independence and Security Act of 2007 (EISA)^v requires general purpose lighting to achieve a 25-30% power reduction, thereby decreasing the available savings attributed to a standard CFL due to an increased baseline level of efficiency. This legislation does not ban incandescents; it will just require them to meet higher efficacy standards by producing the same amount of light, but consuming less power. There are currently other alternatives on the market that meet these standards such as, tungsten halogen lamps, which are currently marketed as "long life" incandescents. These lamps will likely become the new baseline when measuring the energy efficiency of a CFL. EISA regulations apply to the manufacturing date of bulbs rather than the sales date. Many retailers have stated they will stockpile incandescents to sell well beyond the effective dates described in the table below. EISA is being phased-in from 2012-2014, with higher-wattage bulbs being impacted first. The most

popular wattage bulbs will not be impacted until 2014 and beyond, meaning the full impact of EISA is still many years away.

Table 1: | EISA Transition Dates & Coverage

| Tier | Effective Date | EISA -Rated Lumen Ranges | Efficacy Requirement | Major Incandescent Wattage Categories Affected (W) |
|------|----------------|--------------------------|---------------------------------------|--|
| 1 | 2012 | 1,490-2,600 | Maximum wattage: 72 W ~21-36 lumens/W | 100 and 150 |
| | 2013 | 1,050-1,489 | Maximum wattage: 53 W ~20-27 lumens/W | 75 |
| | 2014 | 750-1,049 | Maximum wattage: 43 W ~17-24 lumens/W | 60 |
| | 2014 | 310-749 | Maximum wattage: 29 W ~11-26 lumens/W | 40 |
| 2 | 2020 | All | No less than 45 lumens/W* | All |

*EISA Tier 2 will require all lamps to have an efficacy of at least 45 lumens/W unless higher standards are otherwise determined by DOE.

Source: Energy Star® CFL Market Profile, Sept. 2010

FUTURE APPROACH

With EISA regulations and the declining net-to-gross attribution rates, a change in program strategy is needed^{vi}. There is no silver bullet to address these challenges in the coming years but a variety of approaches will be utilized to help minimize the impact. Energy savings are available; although they may cost more, Residential Lighting programs will continue to be part of an Energy Savings Program portfolio and will still be among the most cost-effective program in the portfolio. WECC advocates a multi-tiered approach focusing on the following areas:

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| ➤ Retail channel program design and product mix |
| ➤ Customer segmentation |
| ➤ Increased customer education |
| ➤ Balanced portfolio |
| ➤ Monitoring of new lighting technologies |

Channel Program Design & Product Mix Strategies

Retailers and retail channels are different, so it is important that programs be designed to leverage their specific business models and target customers. WECC is planning to offer a new program design called Market Lift.^{vii} Retail channels that prove the biggest challenges with net-to-gross attribution, like Home Centers, will be offered the Market Lift program, incenting them to shift consumers to CFLs (this may vary by state). This

strategy is designed to move more of the market to CFLs and will enable evaluators to assign a 100% net-to-gross ratio on those bulb sales. It is a shift from what retailers are accustomed to; however in order to protect their ability to participate, qualify for incentives, and ultimately drive energy savings, those channels must drive more first time CFL sales. A fully integrated plan to achieve the goals is imperative for both the retailer and program sponsors. Retail channels with high net-to-gross attribution will continue to participate in the current program designs with additional enhancements to continue to reap the energy savings. Finally, expanding participating retailers and retail channels provides another method to reach more customers to drive awareness and sales of CFLs.

Some retail channels are impacted more by net-to-gross ratios while other retailers have a very narrow product offering; both require product mix strategies specific to each channel. By taking steps toward the changes in the market, our response is to continue to maximize the savings still available in the market while addressing the changing landscape. Specialty CFL bulbs and fixtures are an opportunity for inclusion in a more diversified program offering. Specialty bulbs can include three-way and dimmable models as well as a variety of flood, globe, and candelabra types. The adoption of these bulbs has been very low compared to standard CFLs. Programs will need to include these type products in the future in order to diversify the product incentive offering.

Balanced Portfolio Approach

Residential retail programs will be impacted the greatest by EISA and net-to-gross changes. Therefore, it will be important not only to address the retail and product mix strategies, but to also consider shifting some funding to other programs which will drive additional savings for untapped opportunities. Shifting funding allows programs to continue to achieve high energy savings goals while allowing for market research development and investing in pilot programs which will pave the way for the energy saving programs of the future. Due to WECC's expertise and broad portfolio offering, we have the flexibility to realize additional savings by shifting funds to residential direct install and commercial programs as well as other unique lighting programs outside of the retail channel.

Customer Segmentation

Market research that segments customer types and their purchase influencers is available. WECC believes a one-size-fits-all approach is ineffective and inefficient for both customers and retailers. Customer segmentation data can be utilized to tailor program design and customize the education and communication around the customer's needs to help to maximize the program effectiveness. Approaches can include a price message versus an environmental message, both tailored to the type of customers who shop in specific retail channels. Other alternatives include messaging based on the customer's energy efficiency attitudes. One message may target the early adopters by encouraging replacement of incandescents before they burn out, "A Bulb in Every Socket." For other customers, a different message may help educate consumers more broadly around the benefits of CFLs. The program and channel delivery of the messaging can vary as well.

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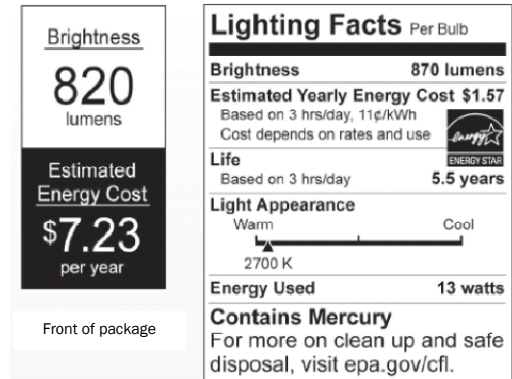
Customer Education

Within EISA regulations, new labeling for light bulbs will be required starting in mid-2011. While consumers are more familiar with watts, lumens are a better representation of the brightness of a bulb. There is a significant opportunity to educate customers on the new labeling and what it means for their lighting needs for all light sources. Manufacturers will be developing and distributing consumer education materials, and we plan to

leverage and reinforce their messaging through educational tactics including outreach, websites, newsletters, bill inserts and point-of-purchase materials.

Under the new labeling rules, the back of each light bulb package will have a “Lighting Facts” label modeled after the “Nutrition Facts” label that is currently on food packages. The Lighting Facts label will provide information about:^{viii}

- brightness (light output in lumens)
- annual energy cost
- the bulb’s life expectancy
- light appearance (ex., if the bulb provides “warm” or “cool” light)
- wattage (the amount of energy the bulb uses)
- whether the bulb contains mercury



Back of package

By educating consumers on how to compare products based on equivalent lumens rather than wattage, they are able to find products that will meet their needs for efficiency and performance

LEDs

There will also be lighting program opportunities that will include new technology like Light Emitting Diode lamps (LEDs). LED technology is promising as LED lamps offer benefits such as dimming, instant-on and higher color quality, which have been difficult features for CFLs to achieve and may have impaired customer acceptance. While WECC is excited about the new lighting technology, the availability, consistent quality, and high cost make including these products in our programs premature. The technology is lagging behind legislation. We believe there will be opportunities in the coming years to include new lighting technologies into our programs; however, our focus will continue to be on CFLs. Pilot LED programs may be considered as products emerge where there is confidence in quality and savings to support it, though the broad-based inclusion of LED products into standard programs will not happen in the short-term. We will continue to keep a close eye on new opportunities and utilize them when appropriate.

SUMMARY

Past programs have delivered success and their positive impact should be applauded. For over 10 years, WECC has been an innovator and implementer of these programs. With the new challenges facing the industry, now is the time to evolve program strategies to continue achieving real energy savings. In the next few years, during the transition phase between the current market and the implementation of EISA, WECC will continue to deliver savings through CFL incentives in retail channels. Attribution rates continue to be at a high enough level to make this a very cost effective method for achieving energy savings in some retail channels. Low CFL saturation levels indicate there are more energy savings opportunities to exploit. This does not mean that programs remain static but they evolve so they not only continue to promote the product and achieve energy savings, but they prepare the market for a time when incentives will no longer be available.

There are many unknowns that will become clearer as time goes by. What type of response will customers have when their incandescent bulbs are no longer available? Will they trade-down to a lower wattage incandescent, or switch to halogens, or CFLs? Will they understand the differences and make an informed choice? Our strategies are designed to help sway them to switch to the most cost effective and energy efficient lighting

products: the CFL. How long will incandescents be available on retail shelves, since EISA legislation applies to the manufacture date and not the sales date? Finally, how will net-to-gross ratios evolve with the customer acceptance of CFLs and the changing legislation? Will they decline further or start to increase?

There are certainly challenges in the coming years for utilities and program sponsors to continue the same energy savings within the same budget for Residential Retail Lighting programs. While energy savings through CFL programs may cost more in the future, they will still be more cost effective than many other efficiency program options. While it is unclear if we can maintain the same level of the energy savings, due to questions around baselines and future attribution rates, actions will be taken to protect as much as possible. WECC plans to take a multi-tiered approach that will include:

- Updated program design approach to help mitigate net-to-gross challenges
- Retail channel/product mix approach that will vary based on specific needs and challenges
- A continuous emphasis on a balanced portfolio approach (including both product and sector approach)
- Cautious approach to new technologies

Let's celebrate the positive impact of the past programs and leverage the changes as a new opportunity to continue transforming the market and customers' attitudes for a better environment. The future is very bright for these programs to continue delivering solid savings for years to come.

For questions regarding this document, please contact Shannon Montgomery, Programs Planning & Analysis Consultant with WECC at (608) 249-9322 x291.

ⁱ Higher Savings Goals and Rebate/Buy-down Elephant in the Room, ACEEE 2010

ⁱⁱ A net-to-gross ratio (NTGR) is used to apportion energy savings attributable to a DSM program, separate from savings that would have occurred without the program. The NTGR is a ratio or factor that is multiplied by the gross savings to identify an estimate of net savings, often adjusting for various factors such as free-ridership and spillover

ⁱⁱⁱ ENERGY STAR CFL Market Profile, September 2010

^{iv} Focus on Energy: The Market for CFLs in Wisconsin, Feb 2010

^v EISA Standards and timing: http://www1.eere.energy.gov/buildings/appliance_standards/eisa2007.html

^{vi} Focus on Energy Evaluation; 2008 Sector-based CFL Net-to-Gross Analysis

^{vii} Higher Savings Goals and Rebate/Buy-down Elephant in the Room; ACEEE 2010

^{viii} Federal Trade Commission, 2010: <http://ftc.gov/opa/2010/06/lightbulbs.shtm>