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Residential Lighting Programs and Federal Minimum Lighting Standards: An Overview for Regulators

Many jurisdictions are confused about the effects of federal lighting standards on utility-funded residential lighting programs. To help address this problem, EPA produced a report, [Next Generation Lighting Programs: Opportunities to Advance Efficient Lighting for a Cleaner Environment](#). As a summary companion document, this fact sheet provides information on the schedule of the new standards, how the new standards will affect program baselines, and the substantial remaining energy savings that are still available from promoting ENERGY STAR qualified lighting.

Significant Energy Savings Potential

Lighting standards of the Energy Independence and Security Act (EISA) are designed to help move the market towards more efficient lighting technologies, but do not ban incandescent bulbs and are unlikely to cause a dramatic shift towards compact fluorescent lamps (CFLs). At this juncture, the impact that EISA will have on CFL sales is unknown. While EISA-compliant bulbs deliver some efficiency gains over traditional incandescent bulbs, ENERGY STAR qualified CFLs and other technologies are significantly more efficient.

Exhibit 1: Savings Estimates with ENERGY STAR Qualified Lighting vs. EISA Baseline

Standard Lamp Prior to EISA (Baseline)	EISA Effective Dates	EISA's Intended Replacement Lamps (New Baseline)	Typical ENERGY STAR Qualified Lighting Replacement Option	Savings Over New Baseline
100 W incandescent (approx. 1,690 lumens)	2012	72 W (1490 – 2,600)	23 – 26 W CFL (1,600 – 1,800 lumens)	46 – 49 W
75 W incandescent (approx. 1,190 lumens)	2013	53 W (1050 – 1489)	18 – 20 W CFL (1,100 – 1,300 lumens)	33 – 35 W
60 W incandescent (approx. 840 lumens)	2014	43 W (750 – 1049)	13 – 15 W CFL (750 – 900 lumens)	28 – 30 W
40 W incandescent (approx. 490 lumens)	2014	29 W (310-749 lumens)	9 – 11 W CFL (440 – 600 lumens)	18 – 20 W

Approximately three out of four light sockets in the United States still contain inefficient light bulbs. These inefficient lamps consume roughly 200 billion kWh per year, resulting in more than 140 million metric tons of carbon dioxide (CO₂) emissions. Basic spiral CFLs will continue to play an important role in filling those remaining sockets, but will need to be joined by Light Emitting Diodes (LEDs) and specialty CFLs, since many high-use fixtures have dimming and 3-way features or require recessed lighting.

Program Design Considerations

ENERGY STAR qualified lighting can cut residential lighting energy use in half over the next decade—saving more energy than CFLs have saved over the last 20 years. These savings translate to \$13 billion in annual energy bill savings and avoid the CO₂ output of more than 30 power plants. ENERGY STAR qualified lighting products meet strict quality and performance criteria and are technology neutral, creating a level playing field for all technologies and ensuring a positive consumer experience.

To effectively tap into these savings, energy efficiency programs around the country are expanding their program offerings to promote a variety of efficient lighting technologies including specialty ENERGY STAR qualified CFLs and LEDs. These are often phased in according to the maturity of the local market and program offerings – see Exhibit 2 below.

Exhibit 2: Sample Progression of Residential Lighting Portfolio

Early Stage Program (0-2 years)	Mid Stage Program (3-6 years)	Advanced Stage Program (> 6 years)
Focus rebate dollars on basic (spiral) CFLs in the short-term, but then gradually migrate to a more diverse technology mix.	Continue to offer rebates for basic CFLs in the short-term while steadily phasing in a more diverse technology mix, such as specialty (e.g. dimmable) CFLs and LEDs.	Offer rebates for a diverse mix of lighting technologies including specialty CFL, LED, and 2X incandescent lamps.
Increase education on high-efficiency lighting solutions focused on customer choice.		

Given the dynamic nature of today's residential lighting market, program design flexibility is recommended. Incentive levels may need to be adjusted as market conditions, particularly price, change. To assist programs, EPA is currently tracking pricing trends for EISA-compliant halogens and ENERGY STAR qualified CFLs and LEDs, which are available online at www.energystar.gov/lightingresources.

In addition, engaging manufacturers and retailers in program design and implementation ensures product is available where consumers commonly shop. Many utility programs rely on negotiated cooperative promotions to ensure product availability and in-store marketing. This allows retailers to promote efficient products in a way that is compatible with their brand and store image. Negotiated cooperative promotions are usually bid through a request for proposal process and require sales data be provided to the program administrator prior to payment.¹ Manufacturers and retailers often contribute in-kind resources. Proposals range from upstream buy downs, product mark downs, point of sale discount coupons, and consumer rebates, to creation of lighting bays, sales associate trainings, in-store demonstrations, or other specialized promotions. Additional strategies and flexibility may be needed in rural, urban and ethnic markets to access hard to reach customers and ensure small businesses are not disadvantaged.

Education is also important for helping consumers understand how lighting choices are expanding, how to evaluate these choices using the lumen-based labels required by the Federal Trade Commission, and which technologies are best suited for the socket they are trying to fill. EPA provides a number of online resources including a fact sheet about the new lighting standards and guidance on how to choose a light at energystar.gov/lighting.

Program Cost-Effectiveness

Despite the change in baseline caused by EISA, lighting programs are expected to remain among the most cost-effective residential program options and will continue to deliver significant savings. However, lighting program costs are likely to increase because of the higher upfront costs of efficient technologies, increased need for consumer education, declining net-to-gross allowances in some markets, and reduced net energy savings from standard CFLs. However, incremental costs (and average rebate amounts) are also likely to drop because new baseline halogen incandescent bulbs are more expensive than incandescent bulbs. An appropriate baseline technology should reflect the intended purpose of the high-efficiency bulb that will replace it. For example, LEDs, because of their directional lighting nature, are usually compared to incandescent reflector bulbs, and CFLs are usually compared to general service incandescent bulbs with similar lumen output.

¹ This model requires agreement between the oversight authority and program administrator on acceptable monitoring and evaluation criteria.