## Expanding Replacement Options for CFL's It's Not Just For Residential Anymore

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## Introduction

The passage of the Energy Independence and Security Act (EISA) will begin the phase-out (Ban the Bulb) of inefficient standard incandescent light bulbs beginning in 2012. Energy efficiency programs often obtain nearly 50% of their energy savings from CFL promotion programs. Many opportunities will remain for the replacement of non standard incandescent bulbs with other lighting such as LED, Induction Lamps, Cold Cathode and CFL replacements for non standard incandescent lighting such as 3-way, Outdoor or wet location, display lighting such as retail and dimmable lighting such as in the hospitality restaurant or tavern sector. Many of these opportunities lie in the non residential sectors and include fixtures with long hours of operation in use at times of system peak demand.

## Findings

Pilot promotional programs and surveys of existing facilities identified many types of fixtures with low penetration of CFLs, long hours of use (nearly 4000 hours per year) and coincident with periods of system peak demand (1:00 to 6:00 PM). Many of these unmet opportunities are due to the lack of a suitable dimmable CFL bulb or CFL bulbs too wide, long or too big of a base. For each of these unmet opportunities there exists a suitable energy efficient replacement. Many dimmable fixtures can be retrofit with Cold Cathode CFL bulbs. These are fully dimmable and come in many sizes and shapes including decorative bulb shapes such as flame tip, torpedo, R 20 and standard A19 shaped. Recent efforts to develop an LED replacement for the 60 watt incandescent bulb through the DOE L Prize competition have yielded a 12.5 watt LED bulb with a 60 watt incandescent lumen light output that is fully dimmable and rated at 30,000 hour lifetime. It is cold temperature starting and can be rapidly cycled. The current high cost of about \$40 imposes a barrier for many procurement programs but with a 10 cent/kWh commercial rate the 47.5 watt savings over 30,000 hours would yield over \$140 lifetime savings or slightly less than two year payback at 4,000 hours usage per year.

## **Conclusions and Recommendations**

Many cost effect opportunities remain for energy efficiency lighting programs. These opportunities should be exploited as EISA requirements begin to limit the availability of standard incandescent bulbs. Programs should expand their efforts in the hospitality sector and in fixtures that utilize display lighting or down lighting such as in ceil lighting in conference rooms, halogen accent lighting, elevator lighting and other 24 hour per day security lighting. New opportunities are becoming available in LED and Induction Street Lighting, Parking Lot lighting and other areas of public lighting such as parks and building security lighting. High color temperature is becoming more common in T 8 ceiling troffers, display lighting because of sparkle and color rendition and apparent increased brightness. Decreased Mercury content in CFLs and total absence of Hg in LED lighting will provide additional promotional opportunities.