



Are we done yet?

Barriers to increasing CFL installations and program strategies for reducing them

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Introduction and Background

- Residential energy efficiency lighting programs have been active in the United States for over 20 years
 - Typically promote compact fluorescent lamps (CFLs)
 - Various program delivery strategies including customer rebates, free installation of CFLs and rebates to manufacturers and retailers
- Progress has been made – but still, even in the most active regions of the country CFLs are installed in less than 10% of residential lamp sockets

Introduction and Background

- Great energy savings potential remains
- Paper addresses the following issues:
 - What technical and market barriers exist to expanding CFL installations?
 - How should mature residential lighting programs address the remaining barriers?
 - What can emerging residential lighting programs learn from mature programs?

California and the Pacific Northwest

- Paper focuses on two of the most active regions of the United States – California and the Pacific Northwest
 - California’s investor-owned utilities have sponsored residential lighting programs since 1980
 - In the Pacific Northwest*, the Northwest Energy Efficiency Alliance (NEEA) has sponsored residential lighting initiatives in conjunction with the region’s utilities for over 10 years

*The states of Washington, Oregon, Montana and Idaho



California program history

- Sponsored by investor-owned utilities (San Diego Gas & Electric, Pacific Gas & Electric, Southern California Edison)
 - collectively serve 80%+ of electric utility customers in California
- Customer mail-in rebates and direct install (e.g., free installation of CFLs for low-income and multi-family residents) in the 1980s and early 1990s

California program history

- “Market transformation” programs in the mid- to late- 1990s
 - focusing on salesperson training, upstream rebates to manufacturers and retailers, cooperative advertising
- Large-scale customer point-of-sale rebates since 2001 (in response to the California energy crisis)
 - Huge volume – 5 to 10 million CFLs rebated per year
 - Current rebate levels between \$1 and \$2

Northwest program history

- NEEA is a regional body funded by Northwest electric utilities that coordinates with and leverages regional energy efficiency projects
- NEEA also offers several strategic market transformation initiatives, including residential lighting
 - retailer and manufacturer support, coordination with local utility and national ENERGY STAR and product quality initiatives
 - manufacturer buydown incentives (around 1 million per year)

Relevant research studies

- The California Public Utilities Commission has sponsored program evaluations and market studies that address residential lighting:
 - 2004-2005 California Single-Family Rebate program evaluation (KEMA and Itron – in progress)
 - General population survey – 1,000 households (follow-up to similar surveys from prior evaluations since 1998)
 - 2005 California Statewide Residential Lighting and Appliance Efficiency Saturation Study (RLW 2005)
 - On-site inventory survey – 806 households (follow-up to similar survey in 2000)

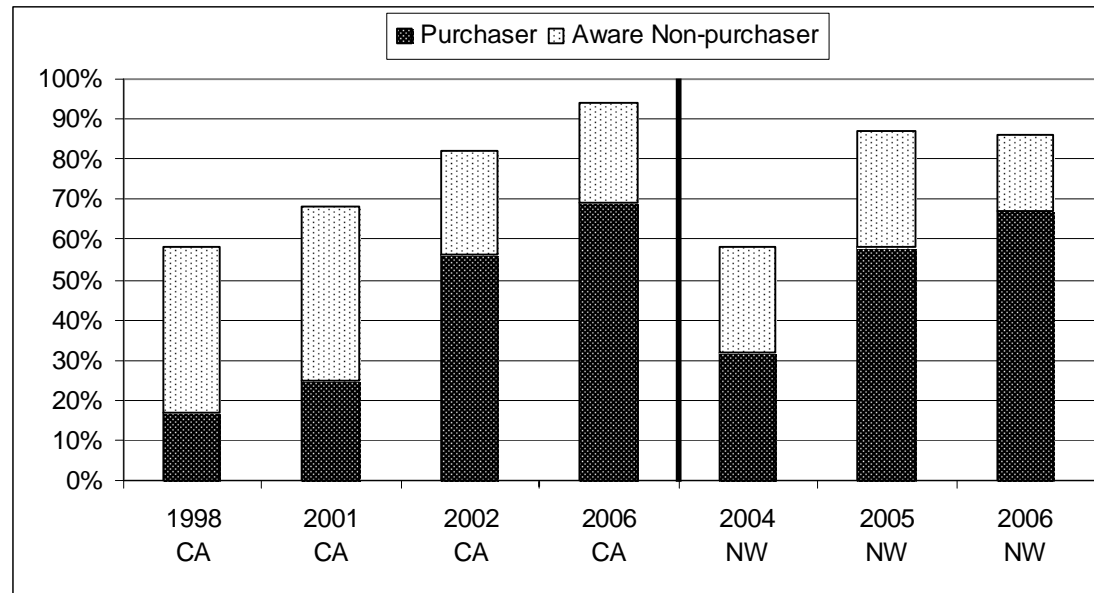
Relevant research studies

- NEEA sponsors market research that addresses residential lighting:
 - Consumer Products Project Market Progress Evaluation Reports 1, 2 and 3 (KEMA 2005, 2006 and in progress)
 - General population survey – 667 households (follow-up to similar surveys from prior evaluations since 2004)

Major market progress

- Rate of awareness and purchase of CFLs has increased substantially – with over 60% of households having bought a CFL

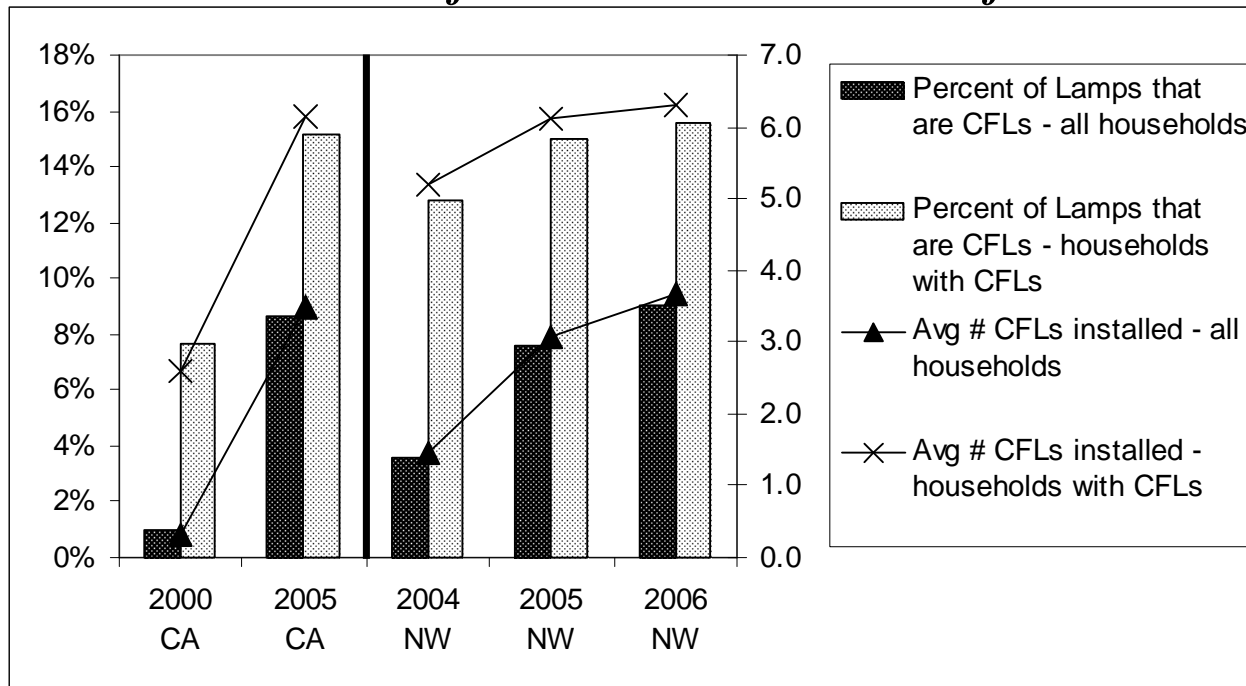
Consumer Awareness and Purchases of CFLs in California and the Northwest from 1998 – 2006



Major market progress

- Fraction of residential lamp sockets that are CFLs (CFL saturation) has increased substantially

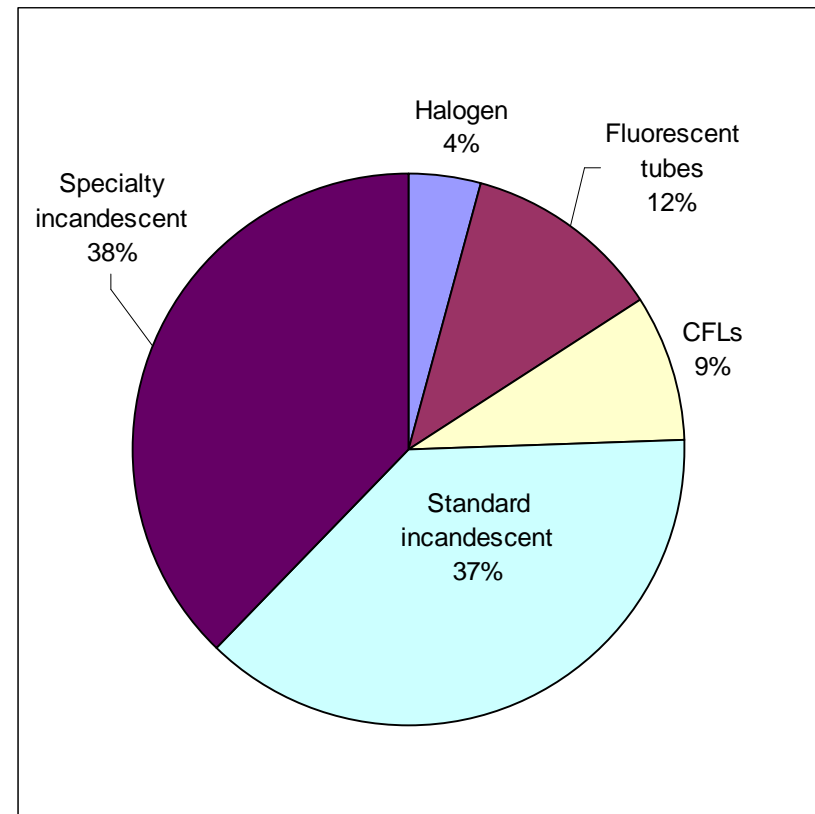
CFL Saturation in California and the Northwest from 2000 to 2006



Technical barriers to installing more CFLs

Distribution of Residential Lamp Sockets, California 2005

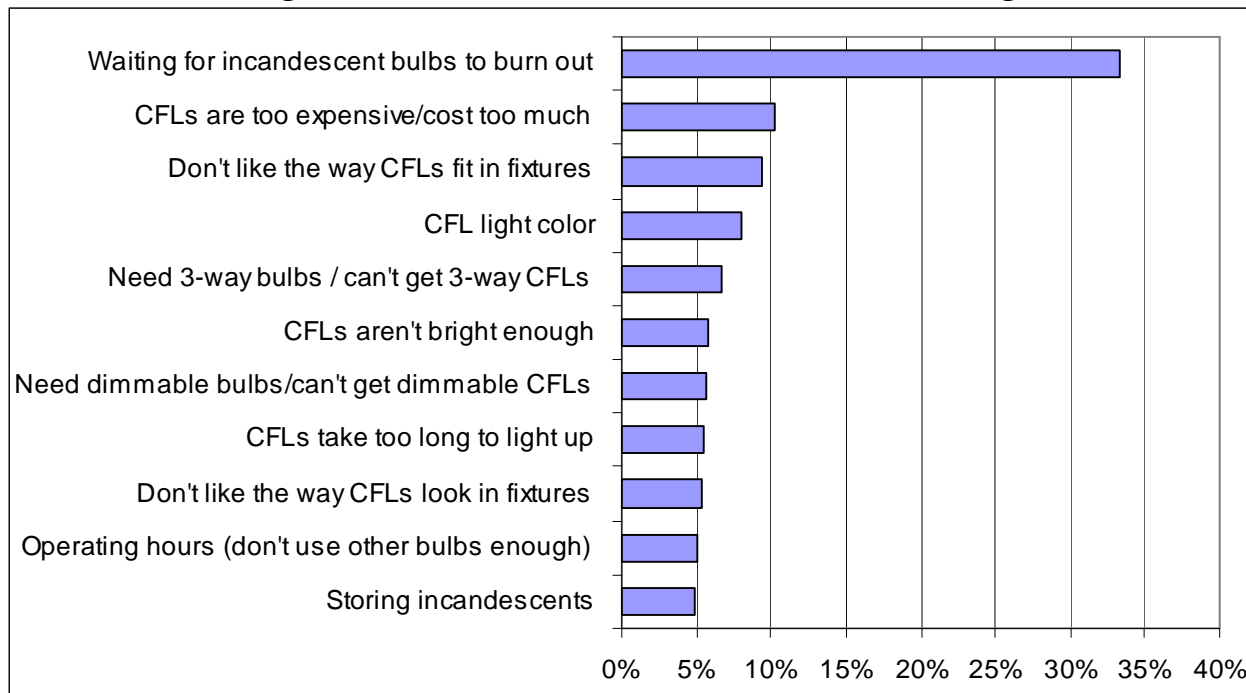
- Over one-third of the remaining lamp sockets that are not filled with CFLs are standard incandescent bulbs – readily available twister-style CFLs may be used
- Another one-third are specialty incandescent bulbs – requiring specialty CFLs



Consumer barriers to installing more CFLs

- Households that already have CFLs are most often waiting for their incandescent bulbs to burn out

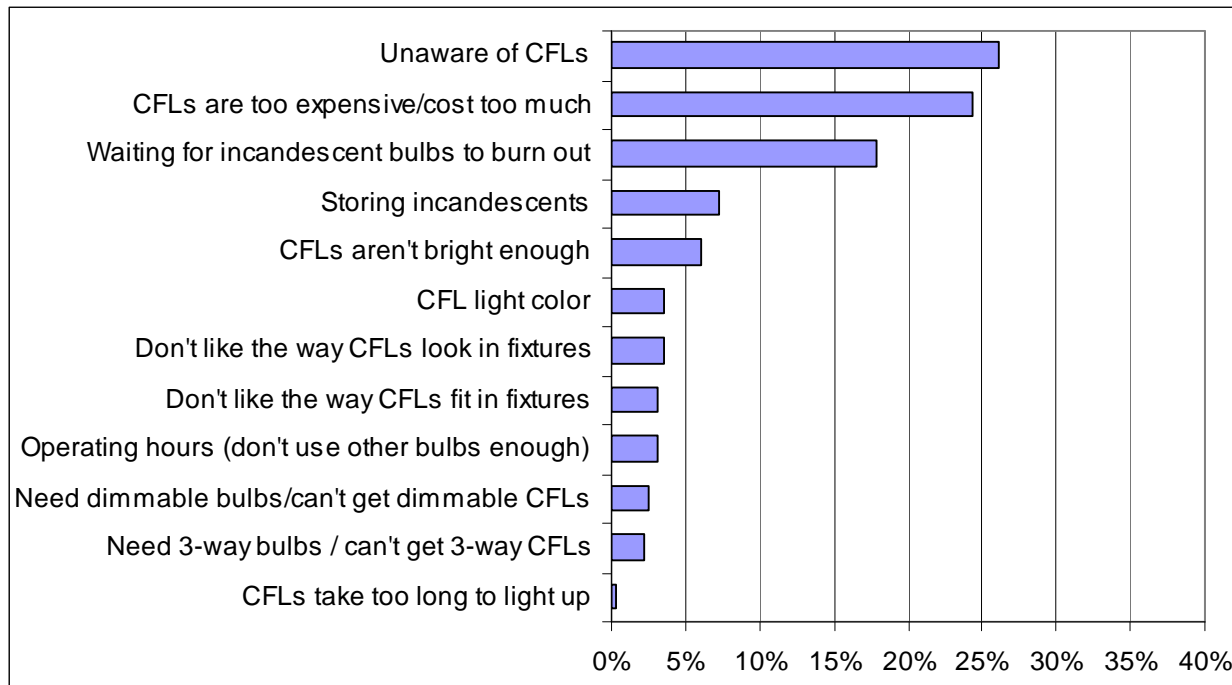
Main Factor Preventing Increased Saturation of CFLs Among Northwest CFL Households, 2006



Consumer barriers to installing more CFLs

- Households that do *not* have CFLs installed are either unaware, say CFLs are too expensive or are waiting for incandescent bulbs to burn out

Main Factor Preventing Increased Saturation of CFLs Among Northwest Non -CFL Households, 2006



Meeting the untapped CFL energy savings potential

- About half the remaining potential may be met with CFLs already on the market at low prices (around \$1 in some regions compared to around \$.50 for incandescent bulbs)
- The remaining potential requires specialty CFLs
 - Very expensive
 - Not widely available
 - Quality not tested
 - Lack of consumer awareness and education

Remaining market barriers

- Waiting for incandescent bulbs to burn out
 - Most households have CFLs in storage, indicating they will actually install CFLs
 - Programs must take into account that not all CFLs that are bought in a given year are installed right away
 - Program messages may need to change from installing 1 or 2 CFLs in high-use fixtures to installing 5, 10 or more

Remaining market barriers

- CFL performance issues
 - While satisfaction is high with CFLs currently in use, consumers may be more particular as they expand their installations
 - ENERGY STAR labeling program and independent quality testing bodies have been successful in addressing CFL quality for the basic models
 - Continue and expand these efforts, especially as specialty CFLs become more of a focus
 - Consumer education on appropriate CFL applications and selection criteria

Remaining market barriers

- The need for specialty CFLs
 - Programs need to expand their focus to specialty CFLs
 - Learn from lessons in the twister CFL market – work through market channels, educate consumers on how to select the right CFL and which applications are appropriate, monitor and ensure product quality
 - Will probably take several years of market support

Remaining market barriers

- CFL price
 - Even at \$1 or less, still a barrier for some households that will never be willing to pay more than incandescent bulbs
 - Promotions are not year-round and do not include all stores that sell CFLs
 - Some major retailers sell CFLs at low prices even after promotions – programs can stop promotions at those locations
 - Programs should consider expanding their reach to less traditional retailers and go year-round

Lessons learned for emerging residential lighting programs

- Use market-based approaches in order to generate lasting change
- Focus on twister-style CFLs first as it is available in high volumes and the technology has been tried and tested
- Monitor and ensure product quality



End sheet

Thank you for your attention.