



Lessons Learned from CFL Market Introduction

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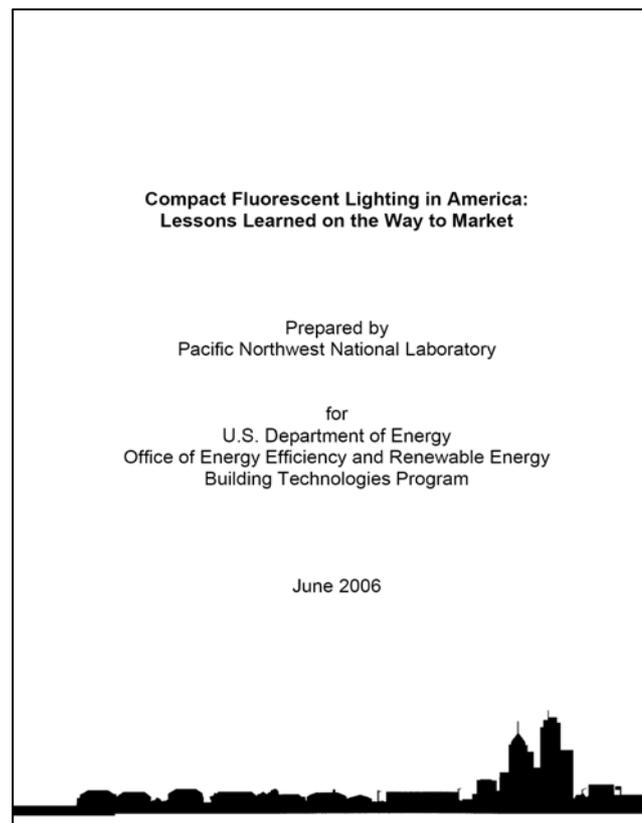
Voices for SSL Efficiency: Opportunities to Partner and Participate

Boston, Massachusetts



Compact Fluorescent Lighting in America: Lessons Learned on the Way to Market

- Compact Fluorescent Lighting in America: Lessons Learned on the Way to Market
 - Prepared for U.S. DOE by PNNL
 - June 2006
 - 45 studies reviewed
 - CFL manufacturer interviews
 - <http://www.netl.doe.gov/ssl/publications.html>





Overview

- Fluorescent lighting reputation established
 - CFL inherits and enhances bad reputation
- Issues and barriers limiting CFL sales
- CFL marketing mistakes and challenges
- CFL sales
- Lessons learned of interest to SSL
 - *Caveat: Lessons primarily concern consumer market*



Early fluorescent lamp days (Pre-CFL)

- Green tint due to use of halophosphors
- Harsh, unattractive
- Reputation persists
- Carried over to CFLs



“Harsh fluorescent lighting, linoleum floors and regular plaster walls are not ideal surroundings for neonatal intensive care units.” – Google Search.



Early CFLs

- Too big
- Too heavy
- Buzz and flicker
- Premature failure
- Poor cold weather performance
- Poor color quality (high CCT, low CRI)
- High prices (\$25 - \$35 in 1980s)





Early CFLs (continued)

- CFLs developed a bad reputation that has been hard to overcome
 - Many customers who installed CFLs in the early 1990's removed them
 - Eye strain, noise, green skin tones
 - Premature failure
 - Insufficient light output



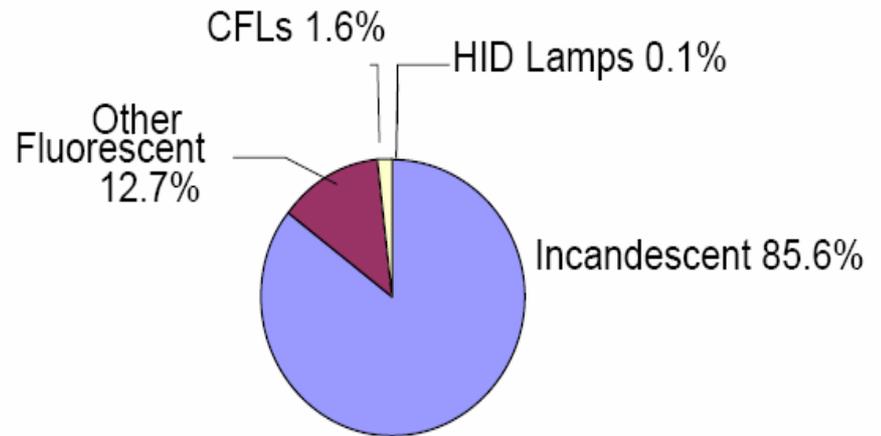
CFL Marketing Mistakes and Challenges

- Exaggerated life claims
- Inconsistent incandescent equivalency claims
- Consumer awareness hindered by lack of common product category name
 - (CFL, CFB, SL-lamps, etc.)
- Inconsistent efficiency program specifications and names
- Weren't available where people buy bulbs
- Retailers didn't understand the product



CFL Sales

- 1990: 0.1 to 0.2% national market share
- 2000: 0.4 to 0.6% national market share
- 2001: 2.1% (West Coast Electricity Crisis)
- NW reached 16%, before leveling at 5 to 8%
- California reached 8.5%, before leveling at 5 to 6%
- Sales still far under potential

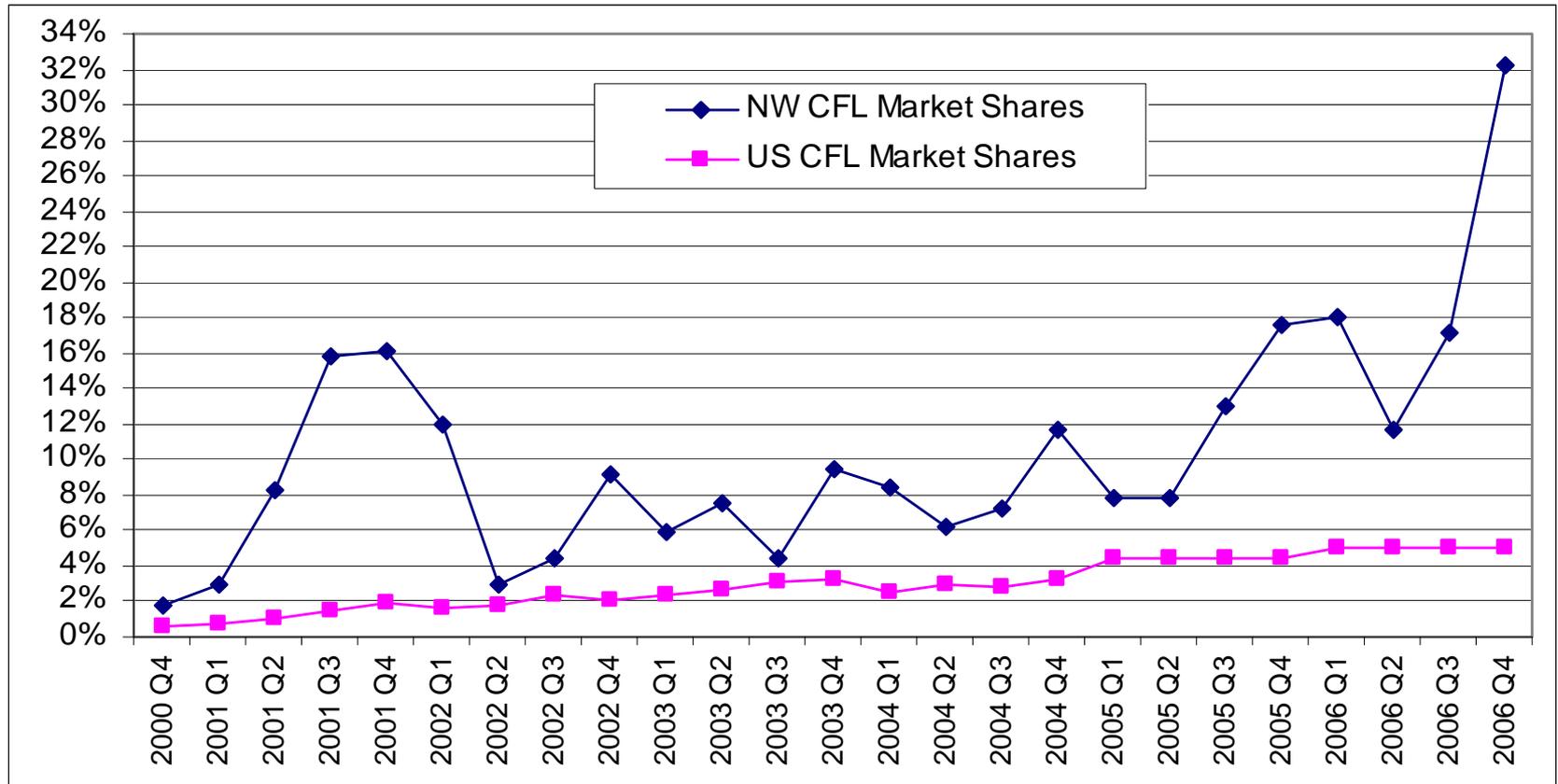


National CFL Penetration 2002

Source: Ecos Consulting



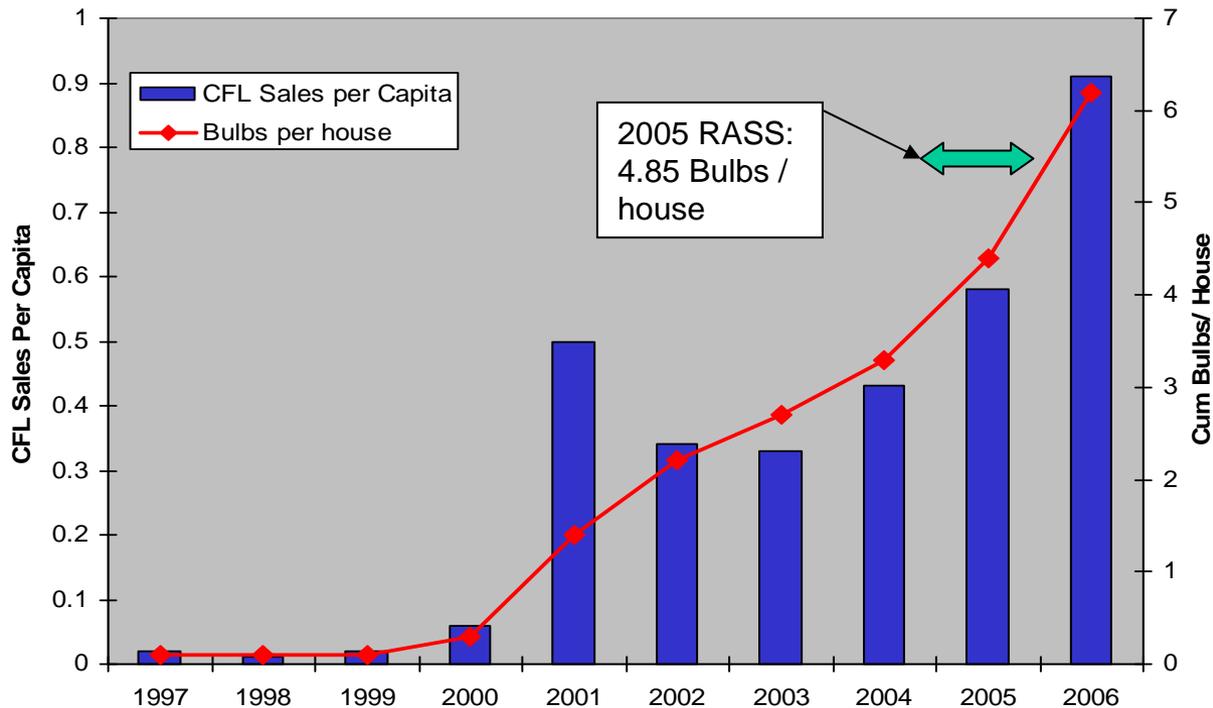
Estimated ENERGY STAR CFL Market Share for the Northwest and U.S., 2000-2006



Sources: NW CFL sales 2000-2006: PECEI and Fluid Market Strategies sales data reports; and NEEA estimate of an additional 1.5 million WAL-MART CFLs sold region-wide in 2006 (See Appendix A [Section 9.1.1] of MPER3 for more detail); U.S. and NW population estimates 2000-2006: U.S. Census 2004; U.S. market shares and non-CFL sales 2000-2005: Itron California Lamp Report (2006); U.S. market share 2006: D&R International (personal communication).



Per Capita Bulb Sales and Estimated Bulbs per Household in Northwest



Note: Estimated bulbs per house includes reduction for CFL burnouts
Source: Northwest Energy Efficiency Alliance



Lessons Learned - Technology

- Know and admit technology limitations
 - Realistic life claims (with warranty)
 - Realistic incandescent equivalency
 - Appropriate applications
- Identify technology advantages
 - Why should the consumer pay more?
- Performance is more important than appearance
 - Twister CFLs
- Strive for next generation products that overcome technical challenges
 - R-CFLs (Improved components for high heat applications)
 - Dimming CFLs (can we get there?)



Lessons Learned – Marketing & Education

- Work toward consistent, industry-wide terminology. Identify and avoid terms with negative connotations.
 - “Flourescent” was probably a mistake
 - “Compact Fluorescent Lamp” was needlessly complicated
- Focus on product value versus price.
 - Identify non-energy benefits (eg. longevity, energy savings)
 - Rebates alone are not effective
- Target training programs/awareness campaigns to traditional market channels such as builders, designers, and retailers.
 - Poor understanding hindered sales.
 - Utility and regional programs to improve understanding worked.



Lessons Learned – Program Design

- Delay program launch rather than introduce inferior products; first impressions are long lasting.
 - Efficiency Programs pushed technology too soon; often for inappropriate applications.
- Join forces in national energy-efficiency programs (e.g., ENERGY STAR).
 - Nationally coordinated programs have worked well
 - Expenses are lower
 - Market signals are clearer



Lessons Learned – Program Design

- Introduce new lighting technology first in niche applications or markets where benefits are clearly defined and consistent with buyer needs.
 - Hotel and multi-family worked well for early CFLs
 - Be clear about appropriate applications
 - Resist temptation to focus on high use applications
 - Inappropriate application undermines technology reputation
 - Target applications where the technology is as good or better than what is being replaced.
 - Do the market research needed to understand
 - Consumer needs/wants
 - Consumer perceptions of the new technology



Lessons Learned – Program Design

- Establish minimum performance requirements
 - Coordination of manufacturers, energy-efficiency groups, government
- Make product available where consumers traditionally purchase lighting products
- Consider a variety of program approaches depending on goals/objectives
 - Targeted distribution outlets (e.g. grocery stores)



Key Take Away from CFL Experience

- Early consumer experience with fluorescent lamps and CFLs still defines attitudes towards CFLs, even though the technology has greatly improved.
- Leverage what we have learned.
- Lets get it right with LEDs!

