

# California Lamp Trends

## CA CFL sales reach a new high in 2007, prices stay low

The Residential Market Share Tracking Lamp Trends report offers a comprehensive look at the residential lamp sales in California and nationwide. This ongoing analysis uses point-of-sale (POS) data from five major retail channels (food, drug, mass merchandiser, and home improvement and hardware stores) through which lamps are sold. The California data are further segmented into the service territories for each of the state's investor-owned utilities. The results reported in this update highlight key sales trends from 1998-2007. This project is funded with California Public Goods Charge Energy Efficiency Funds, is managed by Southern California Edison, and is being conducted by Itron, Inc.

*"The U.S. sales data published in the California Lamp Trends report are an integral part of our residential lighting forecasts as part of the National Energy Modeling System. The time series data provide insight into where the lighting market is today, and where it might be heading in the future."*

John Cymbalsky

U.S. Energy Information  
Administration

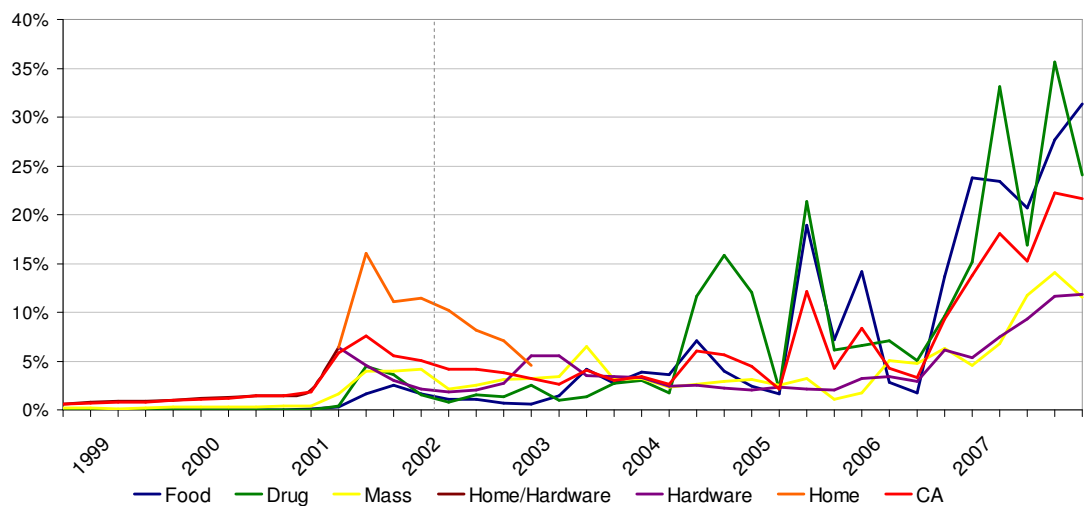
Figure 1 presents the compact fluorescent lamp (CFL) share of all medium screw-based lamps (MSBLs) over time. As shown, the CFL market share increased to its highest level in 2007, with 22% statewide in the third quarter. The largest increase in CFL share was in drug stores, where shares peaked at over 35%. The CFL share

in food stores also remained high. Figure 2 illustrates the average sales price of a CFL by retail channel from mid-1998 to 2007. The average sales price of a CFL has declined steadily, with the largest drop occurring after 2001. In 2007 the price of CFLs fluctuated, after falling in the first quarter to \$1.27 statewide. The lower prices

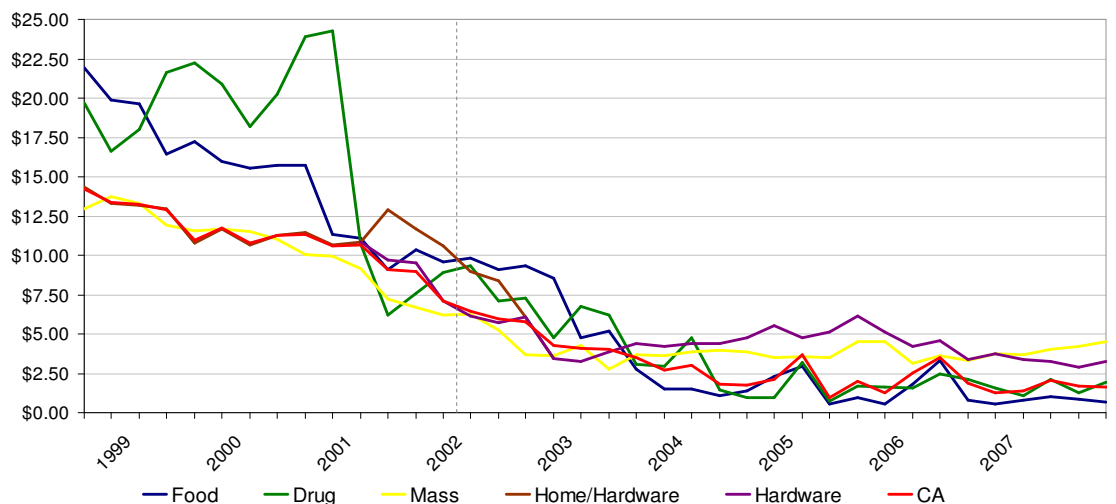
correspond with high sales in stores where large numbers of low-priced multi-packs were purchased.

Results presented in pages 1-5 represent RMST data that primarily include sales in food, drug and hardware stores. Pages 6-7 provide comparisons to data sources that include other market channels.

**Figure 1: CFL Shares of Medium Screw-Based Lamps by Retail Channel—California**



**Figure 2: Average Sales Price of Medium Screw-Based CFLs by Retail Channel—California**



\* Home & Hardware for 1999-2001 includes the CA line. Not many lamps were sold outside H&H in these years.

After 2002, data from a large mass merchandise chain store are no longer included, and, after 2003, the data no longer include home improvement stores.



## California CFL and Incandescent Sales by Retail Channel

Figure 3 illustrates California incandescent MSBL sales by retail channel. Sales in food and drug stores have been declining since 2005, which correspond to high sales of CFLs during that period since they are substitute goods. Sales through mass merchandiser, drug, and food stores are cyclical and peak in the first and fourth quarters each year.

Figure 4 illustrates California total medium screw-based CFL sales by retail channel. The point of sales (POS) data reveal spikes in the number of CFLs sold through food stores during the second quarter of 2007, which corresponded to high sales of historically low-priced CFL multi-packs. Unlike the relatively constant sales through mass merchandisers and hardware stores, the increase of sales through food and drug stores helped California CFL sales reach historical highs.

Figure 3: Incandescent Medium Screw-Based Lamp Sales by Retail Channel – California

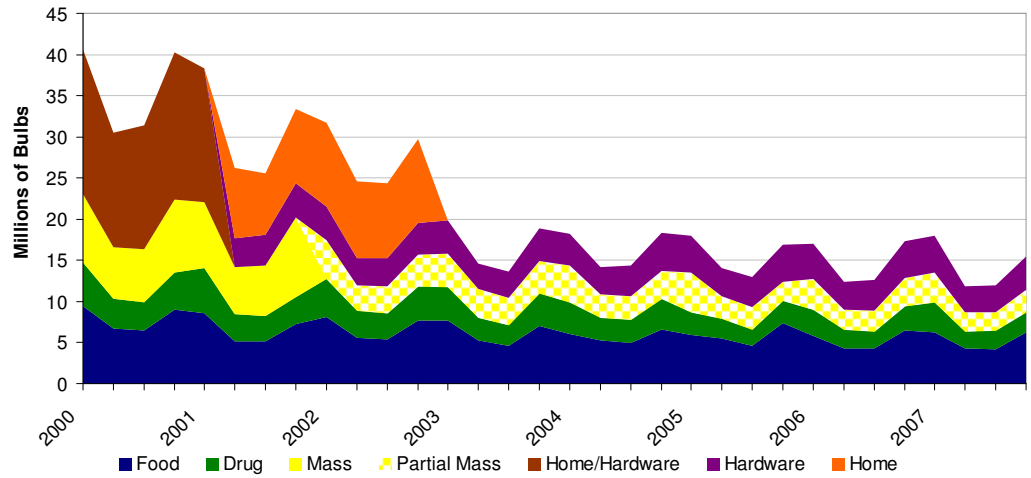
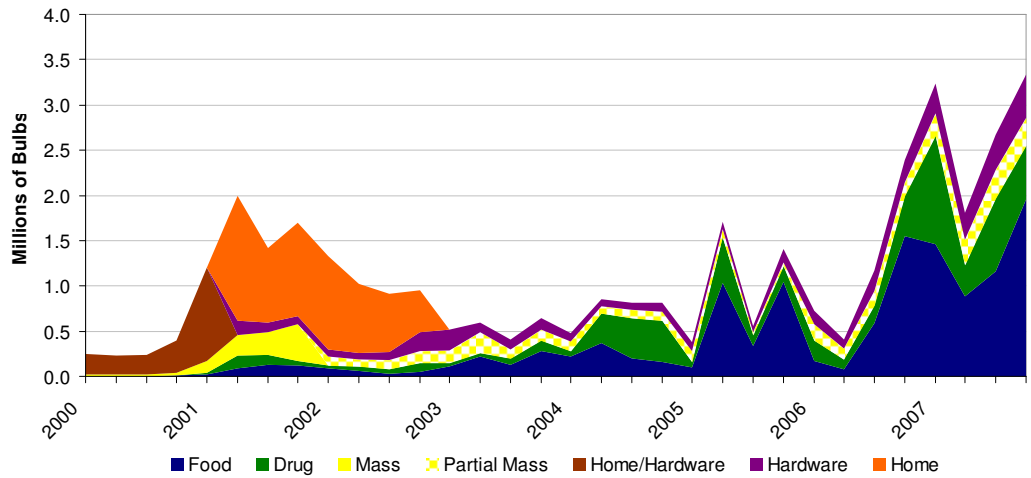


Figure 4: CFL Lamp Sales by Retail Channel – California



## Screw-Based Lamps Sales Over Time

Figure 5: Annual MSBL Sales in California by Lamp Type

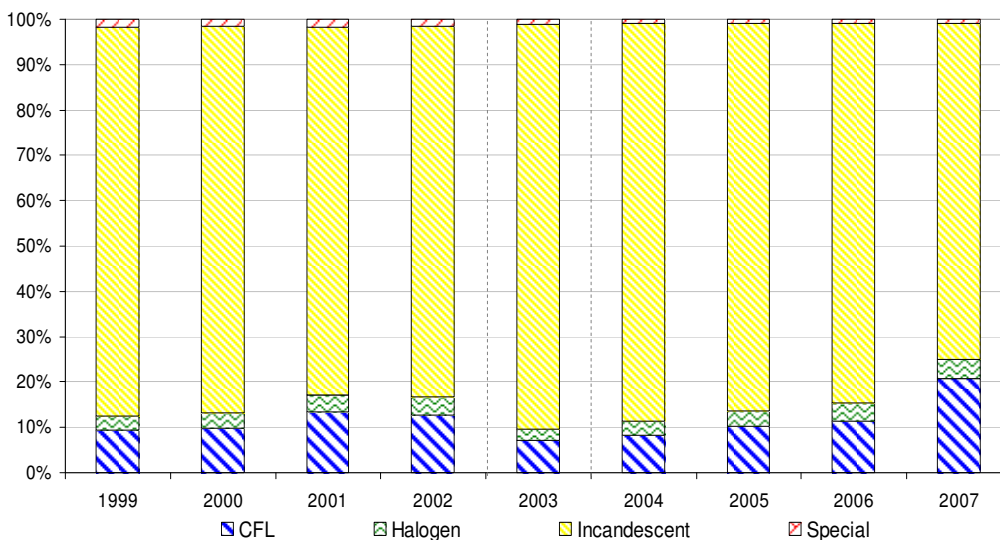
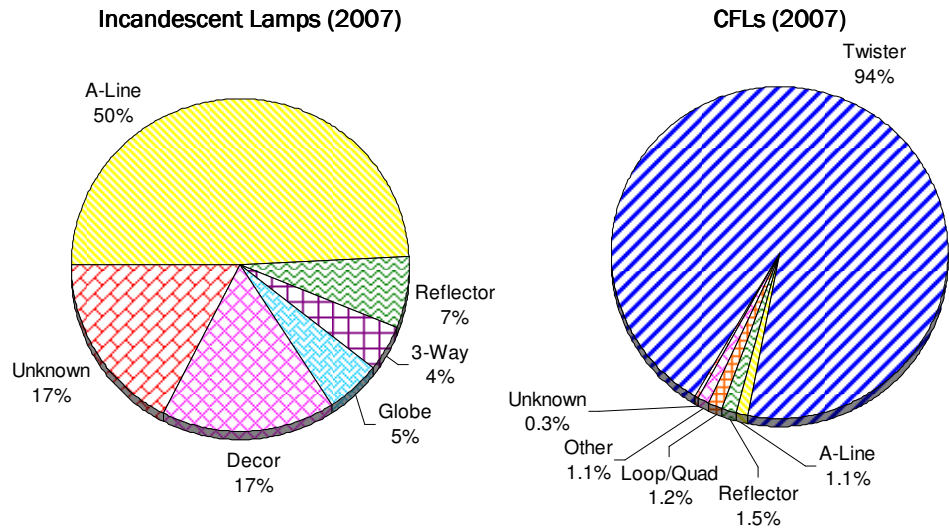


Figure 5 shows that in the years since 1999, although incandescent lamps still make up the majority of lamps sold, the share of CFLs has been steadily increasing. Shares of halogen lamps have remained fairly steady through out the years, although they do fall from 2002 to 2003, when home centers stopped providing data. After 2003, a major mass market chain also stopped providing data and is no longer included. As can be seen, there is still much room for increased CFL sales.

## Medium Screw-Based Lamp Sales by Type

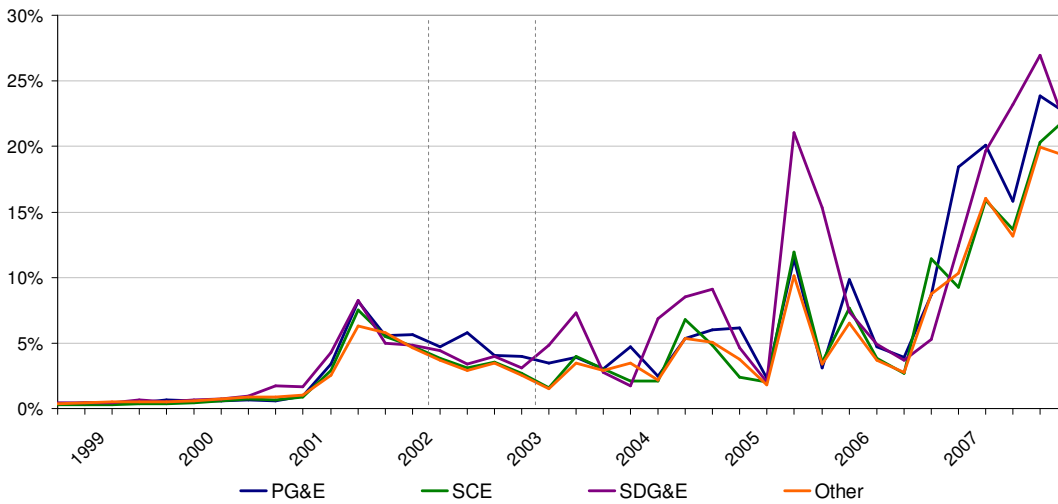
Figure 6 presents the share of MSBL sales by type in California for 2007. Comparing MSBL sales by type reveals that the majority of incandescent lamps sold are a-line (most of the unknown lamps are likely a-line, but could not be confirmed). Nearly all of the compact fluorescent lamps are twister shaped, with only a very small percentage being a-lined, reflectors, or loop/quad shaped.

Figure 6: Medium Screw-Based Lamp Sales by Type



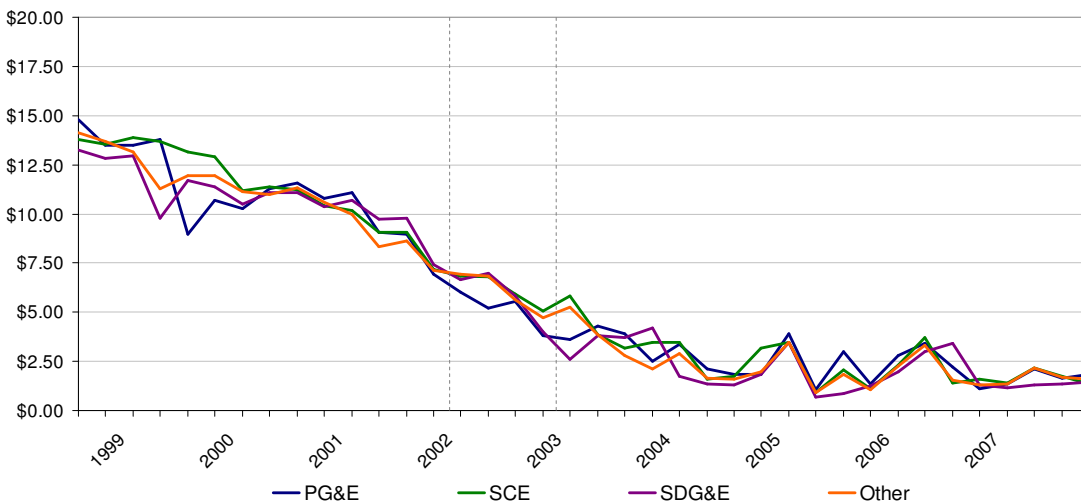
## CFL Shares Reach Record Highs in 2007 in All Service Territories

Figure 7: CFL Shares of Medium Screw-Based Lamps by California IOU and Other Service Territories



CFL lamp share trends were similar across utility service areas prior to 2000, and all increased at roughly the same amount during 2001, the time of the California “Energy Crisis.” Although CFL shares decreased in 2002, by mid-2003 they began to increase dramatically, with periods of high sales corresponding with sharp decreases in the price of CFLs. By 2005, the average price of a CFL had reached an all-time low of \$0.66 in the SDG&E service territory while market share of CFLs in the territory surpassed 20% for the first time. CFL shares dipped in early 2006 due to limited availability during the Geo Foundation Lawsuit in early 2006.\* By the end of 2006 however, CFL shares began to increase once again and in 2007 reached a new high of 20%. During 2007, prices remained fairly steady, averaging approximately \$1.50 per lamp.

Figure 8: Average CFLs Sales Price by California IOU and Other Service Territories



\* 2004/2005 Statewide Residential Retrofit Single-Family Energy Efficiency Rebate Evaluation. Itron, Inc., KEMA, Inc. October 2007.

## CFL Sales and Prices by Geographical Region

Figure 9: 2007 MSBL Sales by Geographic Region  
(See Map at Right for Regional Break Down)

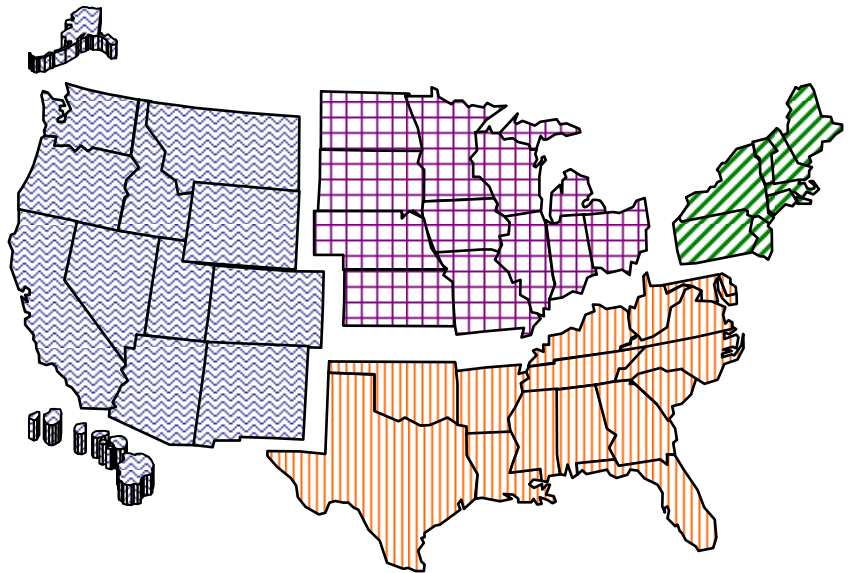
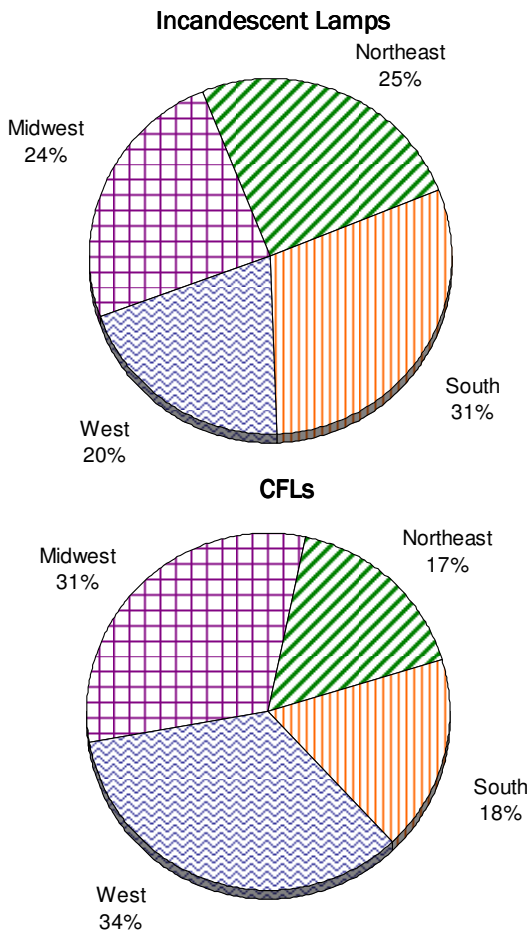


Figure 9 presents medium screw-based lamp sales by four geographical regions (West, Midwest, South, and Northeast). As can be seen, while more incandescent lamps are sold in the South than in any other region, only 18% of the CFLs sold in the country are sold there. Conversely, 34% of CFL are purchased in the West, a region where only 20% of incandescent lamps are sold. This may be due to the large number of CFL rebate programs in the West, and the paucity of rebates available in the South.

Figures 9, 10, and 11 only contain data for food, drug and hardware stores. Mass merchandiser sales were not available on a regional level.

## California's CFL Share is Greater than National CFL Share

Figure 12 shows that although the national share of CFLs increased greatly during 2007, to reach a new high of 10% in the fourth quarter, the share of CFLs in California remains significantly higher. This is most likely due to the highly influential CFL rebate programs. In 2002, a large mass merchandiser with a very strong national presence in the CFL market ceased providing data, so it is likely that the national CFL share was affected more than California's. Also, home centers stopped providing data after 2003.

Figure 12: CFL Share of Medium Screw-Based Lamps – U.S. (non-CA) and California

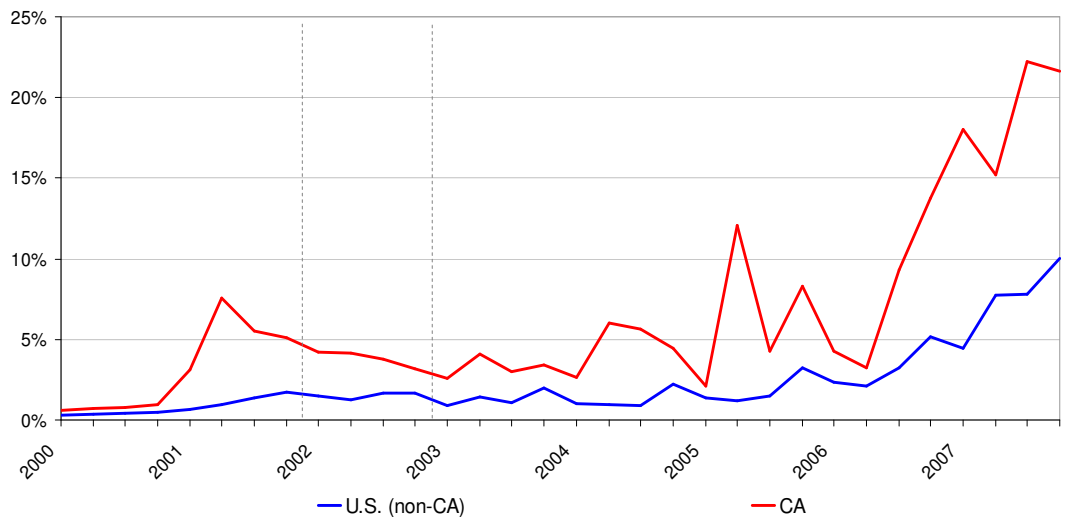
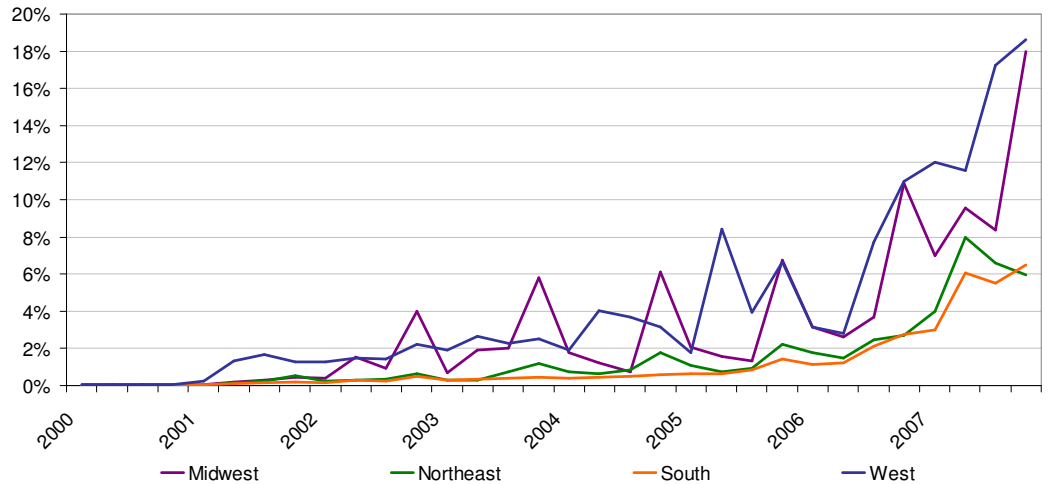


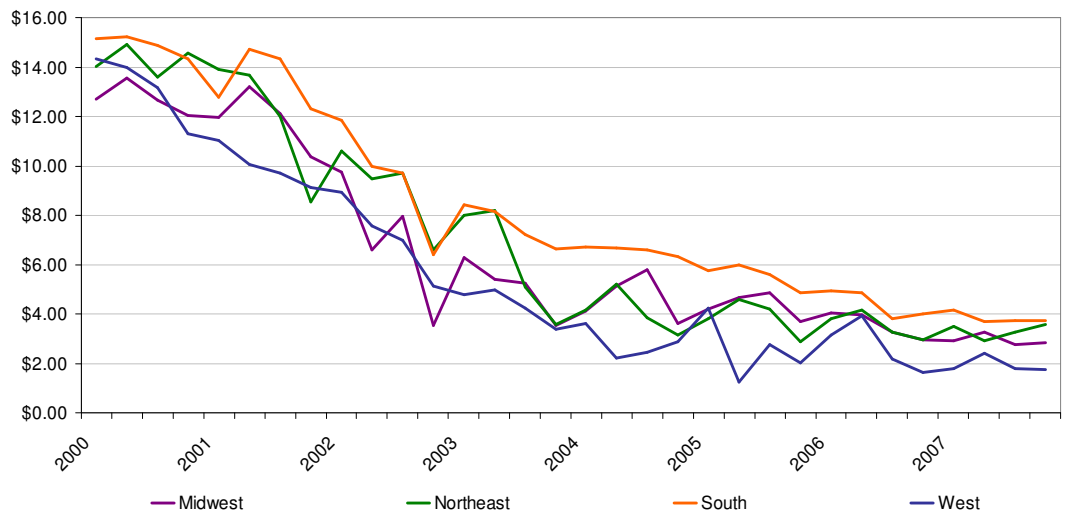
Figure 10 compares the CFL share of all MSBL from 2000 to 2007 for four geographical regions (please see map on page 4 for the regional breakouts). As shown, the share of CFLs has increased in all parts of the country, with the highest gains occurring in the West and Midwest. This is likely due to the presence of a large number of rebate and discount programs in these regions. The share of CFLs in the Midwest is much more seasonal than in other parts of the country, sharply peaking in the fourth quarter of each year. This is attributable to the cyclical nature of the rebate programs offered in this region, with the majority of rebated lamps coming to market during the fourth quarter.

Figure 11 compares the average sales prices of CFLs in the four geographic regions. Sales prices have fallen in all regions, with the lowest prices occurring in the West. Prices are highest in the South, but a major retailer of CFLs with a high density of Southern stores does not provide data to the RMST project.

**Figure 10: CFL Share of MSBLs – By Region**



**Figure 11: Average Sales CFL Sales Price – by Region**



**Figure 13: Average Sales CFL Sales Price – U.S. and California**

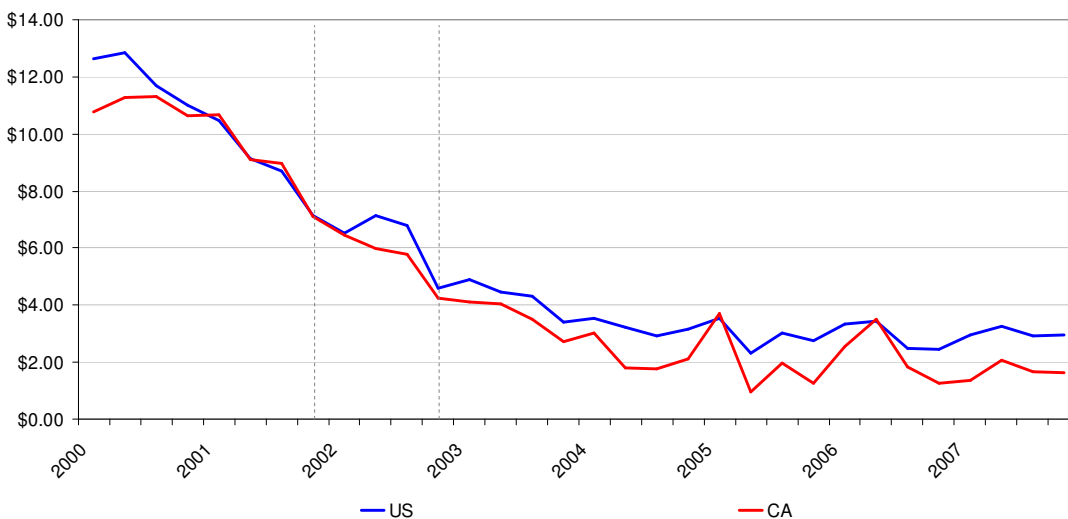


Figure 13 compares the average national and California sales price of CFLs. During 2001, the U.S. price and the California price were nearly identical. This is most likely due to the fact that California made up the majority of the national market at that time. In the following years, the prices diverged, except for a few quarters where the California price rose above the national price. Since 2004, the national price has remained around \$3.00 per lamp.

Because of the method used to calculate prices, the average U.S. price includes California.

## Other Sources of CFL Sales Data

Other than the RMST, there are currently two known efforts to estimate national and state level CFL retail sales for 2007.

### ENERGY STAR

- CFL sales data is currently collected by The Cadmus Group in support of the EPA's ENERGY STAR program. This data includes ENERGY STAR qualified CFLs from five major national retailers.

### 18Seconds.org

- CFL sales data presented on this website is collected by AC Nielsen in conjunction with Yahoo! and Wal-Mart. These data overlap the RMST data, and include many of the same market channels.

Table 1 compares CFL sales estimated by these other data sources and compares them to the RMST.

**Table 1: Comparison of CFL Sales**

Data Source	National Sales	CA Sales
ENERGY STAR 2007Q1&Q2	94,038,253	8,637,032
ENERGY STAR Estimated 2007	225,691,807	20,728,878
RMST 2007	48,376,369	11,047,139
18Seconds.org 2007	124,685,587	10,370,472
18Seconds.org thru 2008Q1	152,770,402	13,061,218

*Information from Yahoo!/Nielsen regarding the lag time between sales and reporting was unavailable at the time this report was written.*

## Comparison of National CFL Data Sources

Below is a brief overview of the three national data sources described above. *The views expressed here are the opinion of the RMST project team.*

### ENERGY STAR

#### Strengths

- Collects point-of-sales information in every state from one regional and five large national retail chains.
- Publishes data quarterly.
- The data are limited to most popular form of CFLs (twister-shaped lamps under 30 Watts).

#### Weaknesses

- Totals do not include sales from hardware stores (non-large home improvement stores), food and drug chains, regional chains, Internet retailers, or small independent store fronts.
- Does not include CFLs that do not qualify for the ENERGY STAR label.
- The data are currently only available since 2007.

### RMST Study

#### Strengths

- Uses a consistent set of data based on point-of-sale information at both the state and national levels. The data allow for high quality time-series analysis.
- The data are available since 1999.
- Consists of UPC-level data, which include wattage, lamp type and shape, and price.

#### Weaknesses

- The data do not include sales through other market channels, such as club warehouse stores, large home improvement stores, Internet retailers, small independent stores, and direct sales from the manufacturer to the consumer.

### 18Seconds.org

#### Strengths

- Collects point-of-sale information in every state from a consistent panel of food and drug stores and mass merchandisers.
- Publishes data daily.

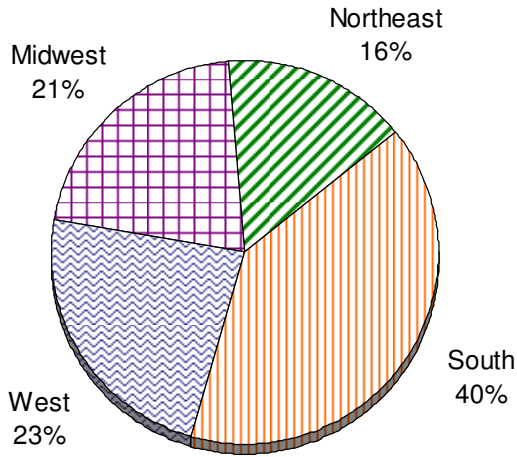
#### Weaknesses

- Lack of transparency in daily data calculation method.
- The data are only available since January 2007.
- The data do not include sales through other channels, such as club warehouse stores, Internet retailers, small independent stores, large home improvement stores, and direct sales from the manufacturer to the consumer.
- Correct classifications of lamp types is questionable.
- Wal-Mart has claimed to have sold more CFLs in 2007 than listed on the website for all market channels.

## Combining RMST and EPA CFL Sales Data for 2007

For Figures 14 and 15, CFL data from RMST and EPA were combined to present an estimate of CFL sales by geographical region. Combining the two data sets for 2007 was possible because the RMST and EPA data do not overlap, but instead track CFL sales from different retailers. By combining this data, it is possible to present results for approximately 80% to 95% of the CFL market. These data do not include several retail channels, e.g., regional chains, Internet retailers, small independent stores, and direct sales from the manufacturer to the consumer. Unfortunately, sales of incandescent lamps are not available for the data covered by ENERGY STAR, so comparisons of CFL sales to total lamps sales are not possible.

**Figure 14: 2007 CFL Sales by Region – RMST and EPA Data Combined**



Please see map on page 4 for geographic breakout.

As seen in Figure 14, after the data are combined, the highest percentage of CFLs are sold in the South. Although the South has few In 2007, a retailer with a very strong Southern presence heavily promoted the sale of CFLs, issuing several press releases about the high number of CFLs sold in its stores. While this retailer does not provide data to the RMST project, it is possible that it is included in the ENERGY STAR data.

**Figure 15: 2007 CFL Sales per Household – RMST and EPA Data Combined**

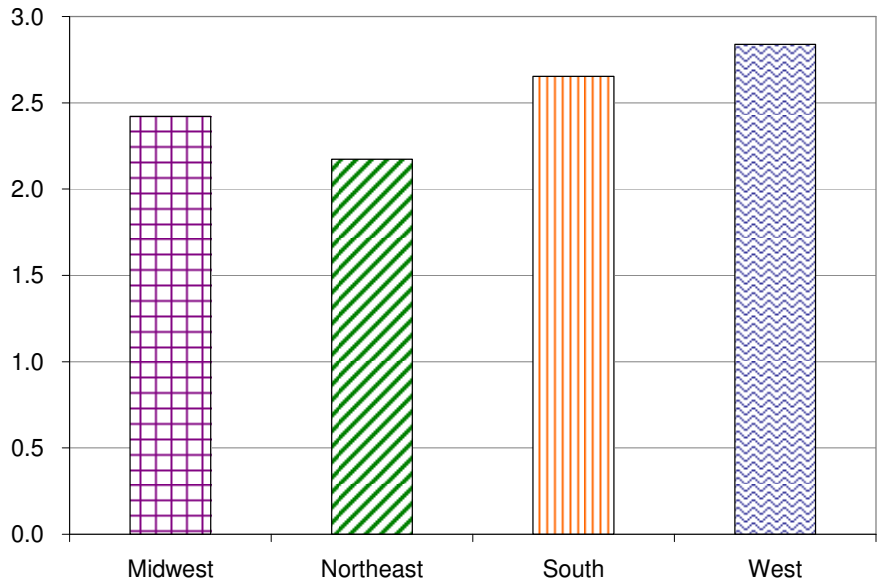
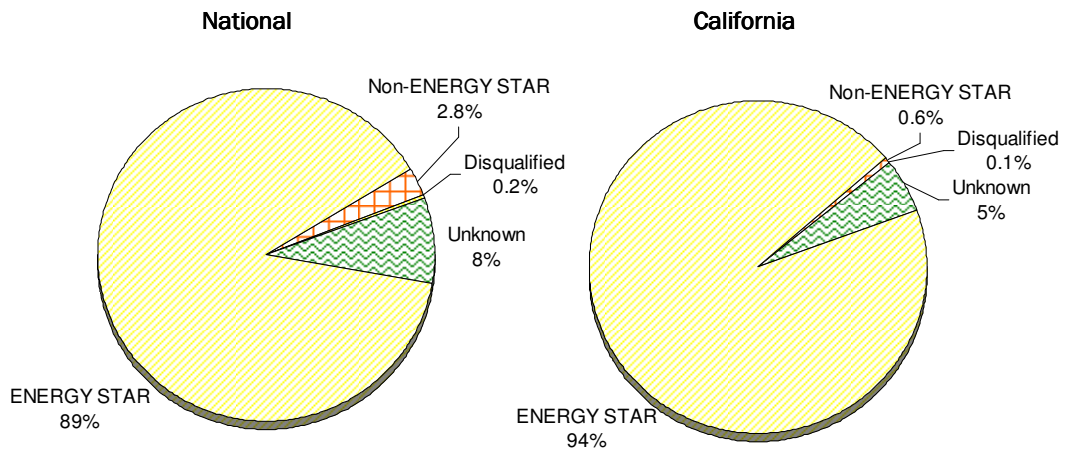


Figure 15 shows total CFL sales per household by geographic region. As can be seen, although the highest percentage of CFLs was sold in the South, the Western region has the highest number of lamps sold per household, followed by the South. The lowest number of lamps sold per household occurs in the Northeast. The high level of CFL sales in the West and Midwest are likely due to the large number of CFL rebate programs.

## ENERGY STAR Rated Lamps in the RMST Data

Figure 16 shows the percentage of CFLs in the RMST data that are ENERGY STAR rated. As can be seen, the percentage of non-ENERGY STAR rated lamps is higher nationally than it is in California. Lamps that are included in the California rebate programs are required to be ENERGY STAR rated. Since it is likely that a large portion of the lamps purchased in California are rebated lamps, this may account for the difference between California and the rest of the country.

**Figure 16: 2007 RMST CFL Sales – ENERGY STAR Status**



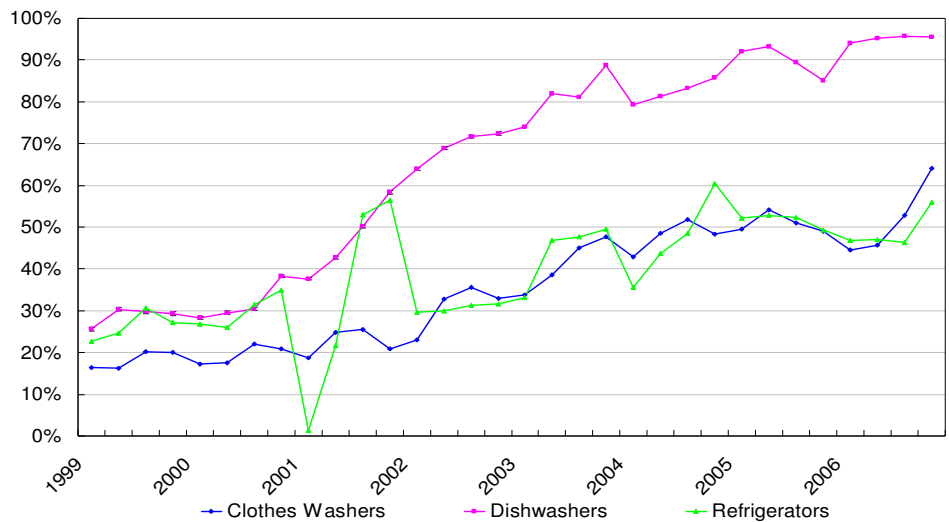
## Efforts to Expand Point-of-Sale Data Sources

Efforts are currently underway to develop a partnership with the ENERGY STAR® program to track the market penetration of CFLs on a national scale. Central to this new endeavor are the efforts of the ENERGY STAR implementation contractor to collect POS data from ENERGY STAR retail partners not currently represented in the data that Itron obtains from market research firms, including home centers, club warehouse stores, and a mass market chain that ceased providing data to the RMST data sources. If these efforts are successful, the additional data will be invaluable in evaluating the progress of the national ENERGY STAR program and improving estimates of CFL market penetration in California.

## 2006 California Appliance Efficiency Trends

*California Appliance Trends* summarizes the findings from the appliance portion of the Residential Market Share Tracking (RMST) project for California. This project examines the average efficiency ratings and estimates the share of ENERGY STAR qualified clothes washers, dishwashers, and refrigerators sold in California since 1998. Each year, data for the appliance sales analysis are collected from a panel of large national chains and independently owned retailers. Sales data from appliance retailers were analyzed to estimate the market share of ENERGY STAR qualified appliances. Estimates of the average efficiency ratings of clothes washers, dishwashers, and refrigerators are also reported.

**Figure 17: Market Shares of ENERGY STAR Qualified Appliances in California**



The RMST report estimates the market share of ENERGY STAR qualified clothes washers, dishwashers, refrigerators, and room air conditioners from 1999 through 2006. The overall market share of ENERGY STAR appliance sales has increased significantly in California since 1999, although the trend varies across appliance types. In California, independent appliance retailers have sold a larger share of ENERGY STAR qualified appliances than have national chain retailers throughout most of the study period.

Figure 17 presents the share of ENERGY STAR qualified appliances sold in California, by quarter, from 1999 through 2006. The dips in the share of ENERGY STAR refrigerators during the first quarters of 2001 and 2004 were primarily due to changes in the ENERGY STAR specifications for refrigerators. The market shares of ENERGY STAR qualified refrigerators, dishwashers and clothes washers have shown an upward trend in recent years. Ninety-five percent of dishwashers sold in 2006 qualified for the ENERGY STAR label, about half of clothes washers (51%) and refrigerators (48%) qualified. Sharp decreases in the share of ENERGY STAR refrigerators have coincided with more stringent ENERGY STAR qualifying standards in 2001 and 2004.

*Itron has previously reported on HVAC efficiency trends in California and the U.S. However, due to consolidation in the HVAC distribution industry, the data sources used in other years are no longer available, and Itron regrettably can no longer report on HVAC efficiency trends.*

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