RESIDENTIAL MARKET SHARE TRACKING PROJECT
Managed by Southern California Edison

2002
Volume 1

California HVAC Trends

The Residential Efficiency Market Share Tracking (RMST) HVAC report offers a comprehensive look at the residential market for central air conditioners (CAC), heat pumps (HP), and gas furnaces (FUR) throughout California. Sales data from HVAC distributors were analyzed to determine the statewide market share of ENERGY STAR® qualified HVAC equipment and average efficiencies of all units sold. The data in this update highlight key findings from 1999 through the first half of 2002. This project, funded by the California Public Goods Energy Efficiency Fund, is managed by Southern California Edison, and is conducted by Itron, Inc.

"This latest HVAC tracking report, together with the Appliance and Lighting reports, provides a comprehensive look at the market shares of ENERGY STAR products in the residential sector in California."

Rich Pulliam
SCE Residential Market Share Tracking Project Manager

Itron

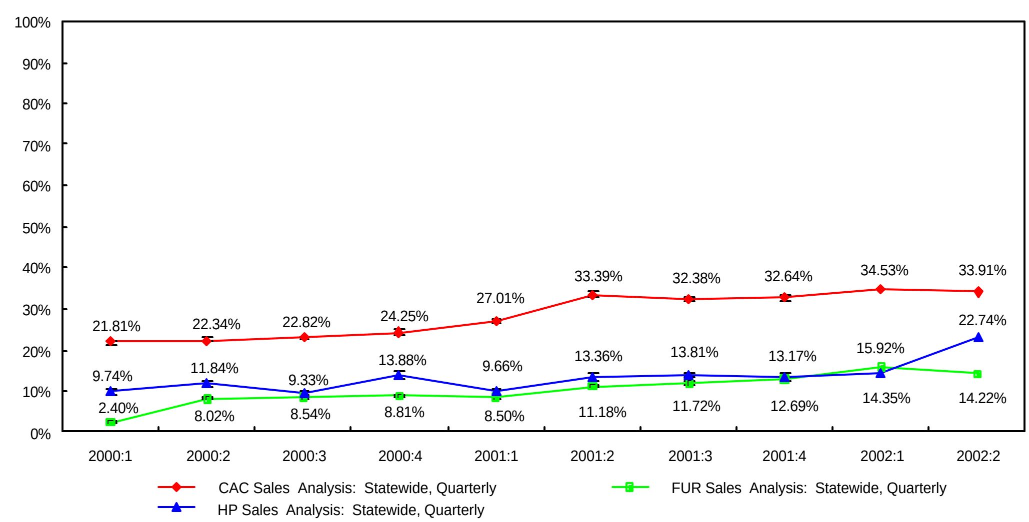
HVAC ENERGY STAR® Market Share in California Continued General Increase in First Half of 2002

This summary examines efficiency shares and average efficiencies for central air conditioners, heat pumps, and gas furnaces. Data used in the analysis were collected from a panel of distributors located throughout California. Findings to date indicate that the overall market share of ENERGY STAR® central air conditioners, heat pumps, and gas furnaces increased in California during 2000, 2001, and the first half of 2002. These trends continue to be examined over time as the RMST progresses. Figure 1 presents the percentage of ENERGY STAR qualified HVAC equipment sold by quarter.

The national ENERGY STAR program, sponsored by the Environmental Protection Agency (EPA) and the Department of Energy (DOE), provides specifications for ENERGY STAR branding of HVAC equipment. The efficiency standards for the ENERGY STAR program also serve as the criteria for many energy efficiency programs statewide, including many utility rebate programs.

This report summarizes the findings from the HVAC portion of the RMST project for California. The full HVAC report is an integral part of the ongoing RMST study. The RMST, now in its third year, produces several separate reports: New Construction, Lighting, Appliances, and HVAC. The objective of each RMST report is to present the market share of energy efficient products, over time, within the California residential market.

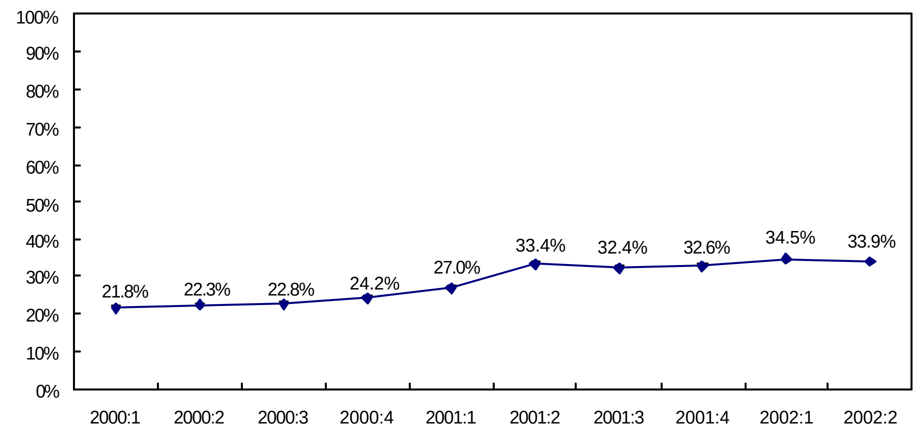
Figure 1: Percentage of ENERGY STAR HVAC Equipment Sold in California by Quarter



Central Air Conditioner ENERGY STAR Qualified Market Share Grows

The project team continues to analyze data and estimate the residential market share of ENERGY STAR qualified HVAC equipment in California. Figure 2 illustrates the average percent of ENERGY STAR qualified CACs sold throughout California from 2000 through the first half of 2002. This estimate results from an analysis of sales data provided by HVAC distributors throughout the state. As shown, there is an increase in market share, from 21.8% in the first quarter of 2000 to 33.9% in the second quarter of 2002. The largest single quarter gain occurs between the first and second quarters of 2001. The share has been fairly steady in the subsequent year. This ENERGY STAR share analysis is not available for 1999, but will continue to be part of future reports.

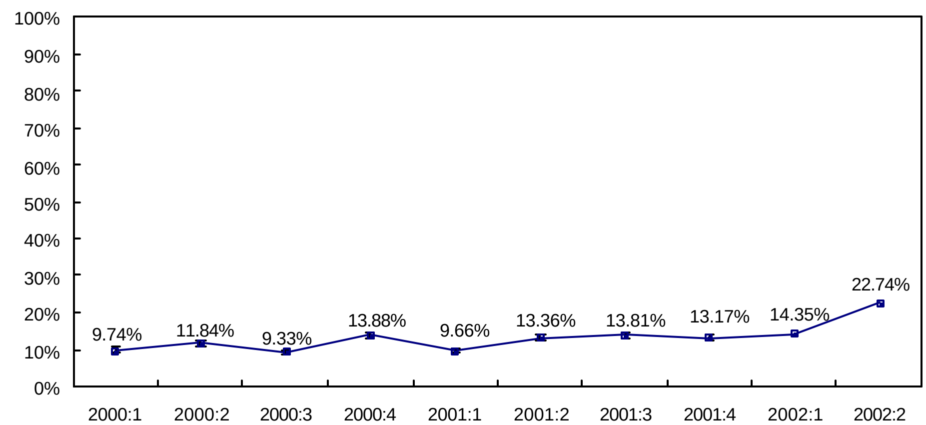
Figure 2: California CAC Sales, Percent of ENERGY STAR Qualified Units



Growth in Market Shares of High Efficiency Heat Pumps

Figure 3 presents the market share of ENERGY STAR air-source heat pump unit sales in California for 2000 through the first half of 2002. It is important to understand that heat pumps have a low saturation throughout the State. As shown, 2000 began with ENERGY STAR qualified heat pumps having a 9.8% market share. The share of ENERGY STAR qualified heat pumps then fluctuated until mid-2001. At that point, the share stabilized. However, in the first two quarters of 2002, another gain in share is seen. At the end of 2001, there was an ENERGY STAR qualified heat pump share of over 13%. Six months later, during the second quarter of 2002, the share had grown to almost 23%.

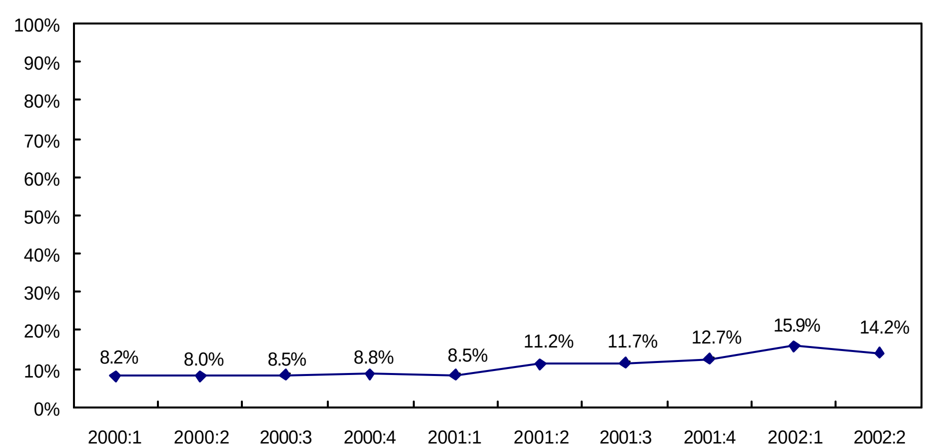
Figure 3: California HP Sales, Percent of ENERGY STAR Qualified Units



Market Share of ENERGY STAR Gas Furnaces

Figure 4 presents the total percent of ENERGY STAR qualified unit sales of gas furnaces for 2000 through the first half of 2002. Year 2000 began with ENERGY STAR qualified gas furnaces having a 8.2% market share. By the second quarter of 2002, ENERGY STAR qualified gas furnaces increased to a share over 14%. During 2000, the share held fairly steady. Small gains in share appeared in 2001. However, in the first quarter of 2002, the share increased by 3%. This was the largest gain since the beginning of the RMST. Also, it is interesting to note that although general sales of gas furnaces follow seasonal trends, the California market share of ENERGY STAR qualified gas furnaces does not appear to be affected by the sales cycle.

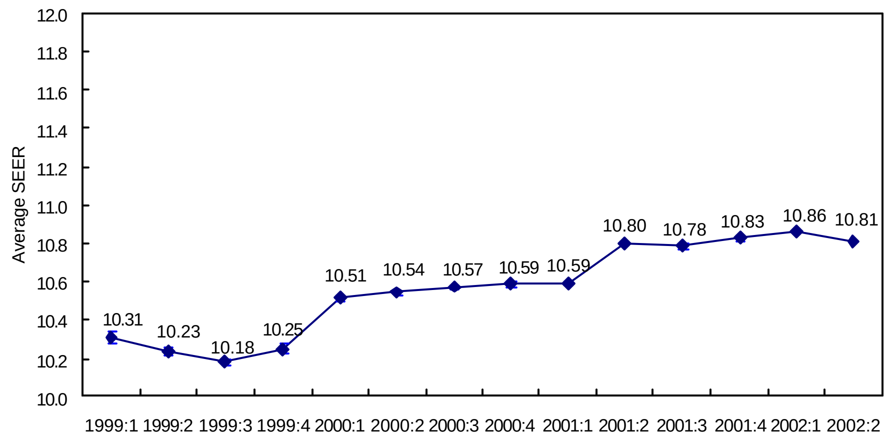
Figure 4: California Furnace Sales, Percent of ENERGY STAR Qualified Units



Central Air Conditioner Average SEER for Units Sold in California

Figure 5 presents the average SEER of CAC units sold throughout California. The average SEER level fluctuated noticeably over the past four years. One reason for the difference between 1999 and 2000 may have been the substantially larger sample for 2000. However, the sample between 2000 and 2001 was unchanged, and the average SEER level of CAC units sold in California increases noticeably in first half of 2001. This trend of higher average SEER levels continued into the first two quarters of 2002. The lowest average SEER during the past three years was 10.18 in the third quarter of 1999. The highest was the first quarter of 2002, when the average SEER was 10.86.

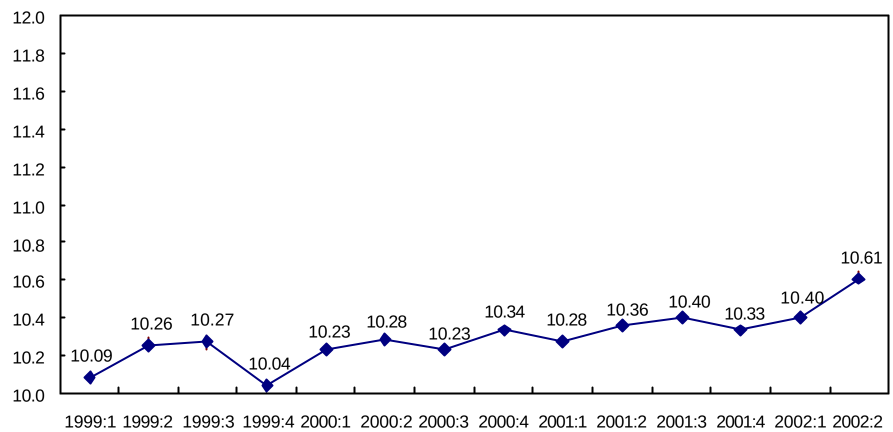
Figure 5: California CAC Sales, Average SEER of Units Sold, by Quarter



Average SEER of Heat Pumps Sold in California

Figure 7 illustrates the average SEER of heat pump units sold throughout California on a quarterly basis. Heat pumps appear to have a general increase in average SEER during the middle two quarters of all years analyzed. However, during the last quarter of 2000, there is an increase in the average SEER of heat pumps sold. It is unclear what may have led to this behavior, especially as it was not repeated in 2001. During 1999, the lowest average SEER was 10.04 during the fourth quarter. In 2000, the lowest average SEER was 10.23 in the first and third quarters. In 2001, the lowest average was 10.28 in the first quarter. The highest average SEER throughout the four years occurred during the second quarter of 2002 at 10.61.

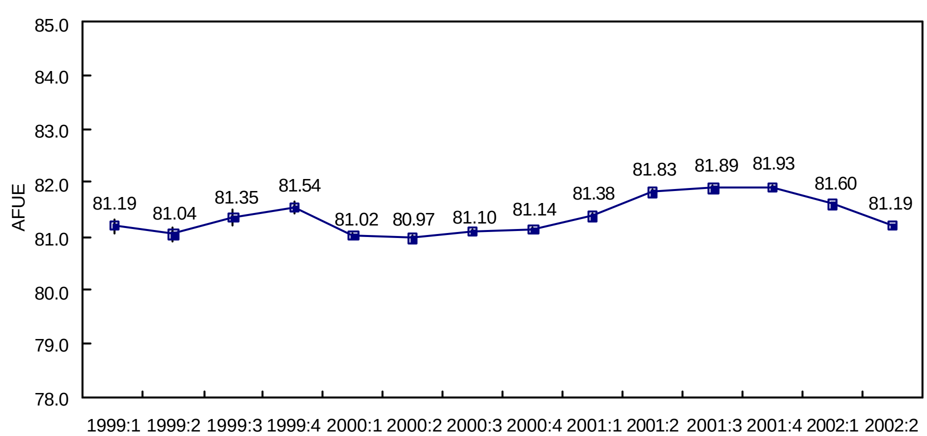
Figure 7: California HP Sales, Average SEER of Units Sold, by Quarter



Average AFUE of Gas Furnaces Sold in California

Figure 6 presents the average AFUE of all gas furnaces sold in California from 1999 through the first half of 2002. Over the past four years, the lowest average AFUE of 80.97 occurred in the second quarter of 2000. The highest average AFUE throughout the same period was 81.93 in the fourth quarter of 2001. In 2000, there are fewer overall fluctuations in comparison to 1999, 2001 and 2002. The sample size in 2000 and 2001 was the same. Due to this, the increase in the average AFUE of gas furnaces in 2001 is particularly interesting. Additionally, it is of interest due to the decrease which occurred during the first two quarters of 2002.

Figure 6: California Furnace Sales, Average AFUE of Units Sold, by Quarter



Key Findings

- By the beginning of 2002, ENERGY STAR qualified CACs made up one-third of all CAC sales in California.
- ENERGY STAR qualified heat pumps constituted approximately one-fifth of all heat pump sales in California during the second quarter of 2002.
- ENERGY STAR qualified gas furnaces comprised more than 14% of all gas furnaces sold in California during the first two quarters of 2002.
- Low-rise residential new construction standards (Low-Rise Title 24) went into effect for custom homes in July 2001, and for production homes in July 2002. (See the full New Construction report for more details.)
- The average SEER for CAC units sold throughout California is significantly increasing. This is also true for the CAC units sold for the retrofit/replacement market.
- The availability of high efficiency CACs, heat pumps, and gas furnaces continues to improve over time.

Other Available Residential Market Share Tracking Reports

The RMST study also tracks market shares of equipment in new construction, lighting, appliances, and water heaters in California. The following is a sample of the key findings from these reports.

Appliances

Figure 8 illustrates the average energy factors of refrigerators sold in California by independent retailers from 1999 through 2001.

- The overall market share of ENERGY STAR qualified appliances in California has doubled since 1998.
- ENERGY STAR dishwashers, in particular, have experienced substantial increases in market share.

Lighting

Figure 9 illustrates the share of medium screw-based CFLs as a percentage of total medium screw-based lamps sold by quarter for California and the rest of the U.S.

- In the second quarter of 2001, CFLs have more than eight times the market share of medium screw-based lamps in California than nationwide.
- The market shares of CFLs in California increased to nearly 9% in the second quarter of 2001, then dropped to 6% during the last two quarters.

Figure 8: Average Energy Factors of Refrigerators Sold By Quarter

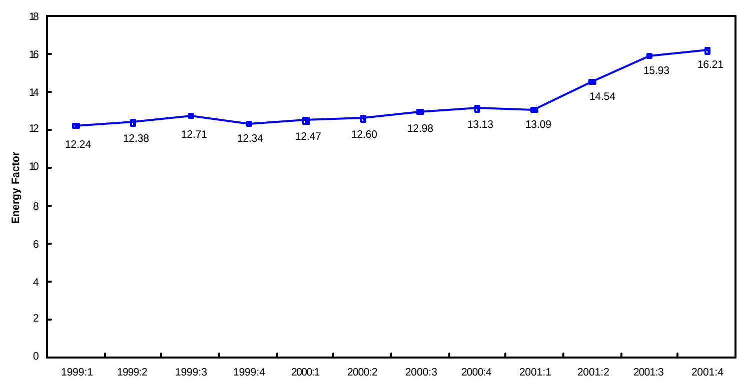
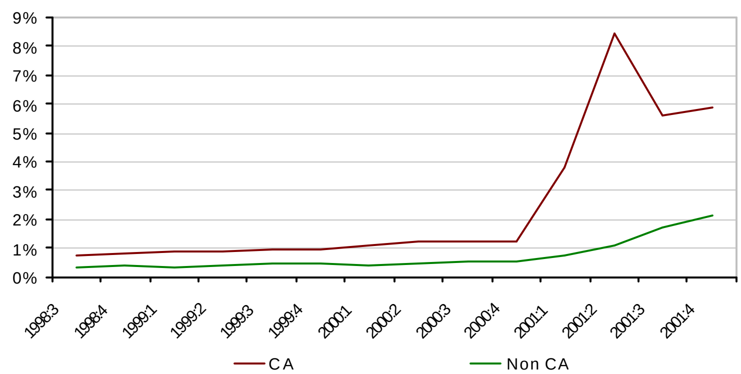


Figure 9: CFL Share of Medium Screw-Based Lamps - California and the U.S. (non-California)



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