Promoting High Efficiency Residential HVAC Equipment: Lessons Learned from Leading Utility Programs

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ABSTRACT

The Consortium for Energy Efficiency recently sponsored a study of leading electric utility efforts to promote high efficiency residential HVAC equipment. Given growing concerns from some utilities about the level of expenditures associated with rebate programs, special emphasis was placed on assessing the success of financing and other non-rebate options for promoting efficiency. Emphasis was also placed on review of efforts -- rebate or otherwise -- to push the market to very high levels of efficiency (i.e., SEER 13).

This paper presents the results of the study. It includes discussion of key lessons from the utility programs analyzed. It also examines program participation rates and other potential indicators of market impacts. One notable conclusion is that several utility programs have pushed market shares for SEER 12 equipment to about 50% (the national average is less than 20%). At least one utility program has achieved a 50% market share for *SEER 13* equipment (the national average is less than 3%). In general, financing does not appear to have as broad an appeal as consumer rebates. However, one unique utility program which combines the offer of customer financing with modest incentives to contractors -- in the form of "frequent seller" points that can be redeemed for advertising, technician training, travel and other merchandise -- offers some promise that high participation rates can be achieved without customer rebates.

Introduction

Each year, the Air Conditioning and Refrigeration Institute (ARI) compiles data on the efficiency of domestic shipments of residential-sized central air conditioners and heat pumps. In 1997, the national average efficiency of unitary central air conditioners was SEER 10.66; the national average efficiency of unitary heat pumps was SEER 10.97 (Martz 1998). These values include the effects of utility DSM programs promoting high SEER equipment in some parts of the country. As Table 1 illustrates, there has been only a very modest increase in average efficiency (1.8% for central air conditioners and 3.4% for heat pumps) since 1992, when the minimum federal efficiency standard of SEER 10 went into effect. The national average efficiency actually declined between 1996 and 1997. This is the first decline since ARI began compiling national statistics in 1976.

Table 1. Average SEER of Unitary Residential HVAC Equipment

Year	Central A/C	Heat Pumps
1992	10.46	10.60
1993	10.56	10.86
1994	10.61	10.94
1995	10.68	10.97
1996	10.68	11.00
1997	10.66	10.97

In the past, ARI has also made available state-by-state efficiency data on equipment shipments. As Table 2 shows, in 1994, the most recent year for which such data are available, several states had achieved market shares of greater than 30% for SEER 12 equipment; the leading states had market shares of between 7% and 10% for SEER 13 equipment. By comparison, only 16.1% of all shipments in the U.S. were SEER 12 or greater; only 2.3% were SEER 13 or greater (ARI 1995).

Table 2. 1994 State Rankings by Percentage of High Efficiency Central A/C and Heat Pump Shipments[1]

% of Market at SEER 12 or Higher		% of Market at SEER 13 or Higher	
State & Ranking	Market Share	State & Ranking	Market Share
1. Iowa	37.7%	1. New Jersey	10.0%
2. New Jersey	34.9%	2. Delaware	8.4%
3. Maryland	33.8%	3. Iowa	7.5%
4. Minnesota	28.6%	4. Maryland	7.2%
5. South Carolina	27.7%	5. District of Columbia	4.7%
6. California	21.3%	6. Pennsylvania	3.6%
U.S. Average	16.1%	U.S. Average	2.3%

More recent state-by-state data are not available. However, national market shares for high efficiency equipment have not increased much. In 1997, 18.4% of all residential central air conditioners and heat pumps shipped had SEER ratings of 12 or higher; 2.9% had SEER ratings of 13 or higher (ARI 1998). It is possible that market shares in some individual states have increased more dramatically.

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[1] ARI data cover both existing homes and new construction. Data for just the existing home market are not available.

Study Methodology

This study involved detailed interviews and analysis of data from the residential HVAC programs of eight electric utilities:

- Austin (Texas) Municipal Utility
- Carolina Power and Light (CP&L)
- Florida Power and Light (FP&L)
- MidAmerican Energy Corporation (MEC) in Iowa
- Pacific Gas and Electric (PG&E) in California
- Potomac Electric Power Company (PEPCO) in Maryland and the District of Columbia
- Public Service Electric and Gas (PSE&G) in New Jersey
- Sacramento Municipal Utility District (SMUD)

These utilities were selected after analysis of available data on sales of high efficiency equipment (described above) and canvassing of leading efficiency experts across the country for suggestions regarding successful utility programs. This study's principal definition of success was achievement of market shares for high efficiency central air conditioners and heat pumps that were significantly higher than the national average.

The resources available for assessing such success were limited. As a result, the study focused on estimating program participation rates, which were assumed to be reasonable proxies for market shares for high efficiency equipment in each utility's service territory.[2] A program participation rate was defined as the number of customers who both bought high efficiency equipment (e.g., SEER 12 or higher) *and* participated in the program (i.e., taking a rebate, taking a loan, or buying equipment for which a dealer receives program credit),[3] divided by the total number of residential central air conditioners and/or heat pumps sold in the existing home market within the service territory.

In virtually every case, the authors were able to get good data on the number of utility program participants who installed high efficiency equipment in the most recent program year (typically 1996). Thus, the difficult part of estimating program participation rates was developing a reasonable assumption for the size of the central air conditioner and/or heat pump markets in the utility's service territory during the same year. This was done by first multiplying the size of the utility's residential customer base by the utility's estimated saturation rates for central air conditioners and/or heat pumps (usually derived from recent appliance saturation surveys) to develop an estimate of the total number of central air conditioners and heat pumps in use in the service territory. This product was then divided by an estimate of the average useful life of central air conditioners and heat pumps (i.e., 15 years) to approximate the number of existing units that get replaced each year.

This approach is imperfect for two reasons. First, it is does not account for the portion of the existing home market which is comprised of customers installing central air conditioners or heat pumps in their homes for the first time. Second, it does not account for the fact that saturation of central air

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2 Participation rates are conservative proxies for market share. Although one would expect that most customers who buy high efficiency equipment within service territories of utilities offering rebates would take the rebate, there are undoubtedly some who do not. It is even more likely that loan programs are not capturing all purchases of high efficiency equipment.

3 Three of the utility programs studied (CP&L's, FP&L's and PG&E's) have a minimum efficiency standard of SEER 11 for at least some types of equipment. However, the vast majority of participants in all three of these programs were at or above the SEER 12 efficiency level.

conditioners and heat pumps has been increasing over time in many places.[4] These trends suggest that an existing air conditioner or heat pump is more likely to be newer than older, so the assumption that one-fifteenth of all units currently in use are being replaced each year is likely to result in an overstatement of the size of the replacement market. Fortunately, more sophisticated analyses of market sizes suggest that these two imperfections tend to offset (or come close to offsetting) each other (Neme et al. 1995).

As a check on this analytical approach, the authors also asked each utility program manager to estimate program participation rates based on their understanding of the local market, feedback from HVAC dealers, other anecdotal evidence, and/or the results of evaluation work. In most cases, the program participation rate estimates provided by the program managers were fairly close to the estimates developed from the analysis of equipment saturation rates described above.

Study Results

The eight programs analyzed used a variety of incentive strategies for promoting high efficiency equipment. Two offered only rebates. Four offered both rebates and loans. In some cases, customers could take a rebate and a loan; in others the customer had to choose between the rebate and loan. Loan terms varied, with one utility (Austin) offering a zero interest rate, others offering rates a couple of points below the market rate, and one utility (SMUD) offering market rates. Among the two utilities that did not offer any customer rebates, one (PG&E) offered only loans. The other (CP&L) has a unique program that both offered customers loans and ran a "frequent seller" program for HVAC contractors under which points are awarded for each heat pump sold, with the number of points awarded increasing as the efficiency of the equipment sold increases. The points are redeemable for business equipment, advertising, training, travel and other merchandise. A brief description of each utility's program is provided in Appendix A.

Participation Rates of Utility Programs Studied

As Table 3 shows, the limited data available for this study suggest that most of the utility programs analyzed have achieved participation rates for equipment rated SEER 12 or higher of 40% or more. One notable exception was PG&E's loan program. Most of the programs also appear to have achieved participation rates for SEER 13 equipment of at least 10%. PEPCO's program is particularly noteworthy, as it has achieved participation rates of 50% for SEER 13 equipment.

[4] The number of homes in the United States with central air conditioning more than doubled between 1978 and 1993 (EIA 1995).

Table 3. Estimated Participation Rates for Leading Utility HVAC Programs[5]

Utility	Program Type	Participation SEER 12 or Greater	Participation SEER 13 or Greater[6]	% of Participants Using Loans
FP&L	Rebate	35% to 50%	10% to 20%	0%
PSE&G	Rebate	25% to 35%	20% to 25%	0%
PEPCO	Rebate and Loan	50%	50%	10%
SMUD	Rebate and Loan	50%	10% to 15%	n.a.
MEC	Rebate and Loan	35% to 60%	10% to 15%	10%
Austin	Rebate and Loan	45% to 55%	10% to 15%	40%
CP&L	Loan and Contractor Bonus	40% to 60%	n.a.	50%
PG&E	Loan	10%	n.a.	100%

Are Customer Rebates Necessary?

One of the goals of this study was to assess whether significant market shares could be achieved for high efficiency equipment (i.e., at least SEER 12) without the use of customer rebates. The evidence on this question is mixed, at best.

Financing as an Option. Financing is the most commonly considered alternative to rebates. However, data and information collected for this study suggest that loan programs do not appeal to nearly as many consumers as rebates. Six of the eight utility programs that were analyzed offered loans for high efficiency equipment. In no case did more than about 25% of the customers purchasing air conditioners or heat pumps in a utility's service territory use the loans. The one "loan only" program that was analyzed (PG&E's) achieved a participation rate of only about 10%. When both loans and rebates were available, the number of program participants taking the loan was generally significantly smaller than the number taking rebates. Even when the City of Austin offered loans with a zero interest rate -- where the buy-down on the loan ($600 to $700) was worth 50% to 100% more than the direct rebate alternative -- more customers preferred direct rebates.

It appears that loans, by themselves, are less effective than rebates because most customers do not purchase new HVAC equipment on credit. Indeed, market research by PEPCO suggested that 75% of all

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[5] Seven of the eight utility programs studied were promoting both high efficiency central air conditioners and high efficiency heat pumps in the existing home market. The one exception was CP&L, which was promoting only high efficiency heat pumps.

[6] Note that the participation rate for equipment rated SEER 13 or higher is a subset of the participation rate for equipment rated SEER 14 or higher.

customers in the market for a new air conditioner or heat pump in its service territory purchased the equipment outright upon installation. Only about 25% used any form of credit. Moreover, there are a number of credit options already available to those who want them, including credit cards, manufacturer credit programs, and local banks. In addition, some customers who may want credit will not be credit-worthy. This doesn't leave much room for utility loan programs to influence the market.

Having said that, it is important to note that experience with loan programs is not as long or extensive as experience with rebates. As a result, there is room to learn and improve the products being offered. Several utilities offering loans have made significant improvements in recent years. Some key lessons for those interested in loan programs are as follows:

- Quick turn-around on loan approval is critical. Several program managers emphasized this point. If customers have to wait for loan approval, they are much less likely to use the program, particularly if they have an air conditioner or heat pump that needs immediate replacement. PG&E shut down its program during its first year (1994) to redesign it so that turn-around time could be accelerated. MEC now encourages customers to get pre-approval from the bank and then send the paper-work to the utility as a way of expediting the process. PEPCO has a telephone hot-line which can be called 24 hours a day, 7 days a week. The contractor or customer can get instant pre-approval electronically by punching in necessary information, starting with the customer account number, on a touch-tone phone. Pre-approval is based on bill payment history. Customers not eligible for pre-approval over the phone can submit to a full credit check by the local bank which processes the loans. The current PEPCO loan default rate is about 2%.
- Ease of loan-processing is also critical. To maximize the potential for customer participation, loan processing needs to be easy as well as quick. Offering customers and contractors a single contact point for all information -- "one-stop shopping" -- is one way to accomplish this objective. The PEPCO and MEC approaches discussed above are good examples. Operating the entire loan program in-house, as CP&L does, is another way to ensure that the number of entities a customer needs to deal with are minimized.
- Make loan products as close to cash as possible. MEC has conducted market research which suggests that customers want loan offerings to be as close to cash as possible. PG&E reported similar findings from conversations with contractors and customer service representatives. For example, they prefer zero interest for the first several months to a small rate reduction over the full loan term. Another option may be to offer no payment requirements for the first few months and collect at a higher rate in succeeding months.

Other Non-Rebate Options. The most unique of the programs examined in this study was CP&L's Heat Pump program. CP&L offers customers loans. However, the offer of incentives to contractors -- in the form of "frequent seller" points -- is perhaps an even more important factor in its success. Perhaps most importantly, the program creates a continuous feedback loop between the utility and the heat pump contractor.

CP&L's program provides an incentive for contractors to both participate in the program and sell high efficiency equipment, with contractors earning 75 points (redeemable for $75 worth of advertising, training, travel or other merchandise) for each SEER 12 heat pump sold. Fewer points are provided for less efficient heat pump sales. This approach gives the company constant feedback on what is being sold. By requiring training to participate in the program, allowing "frequent seller" points to be redeemed for

additional training and offering bonus points for high customer satisfaction and inspection ratings, the program also has several built-in mechanisms for promoting quality installation and maintenance practices.

Although precise data on participation in CP&L's program is not available, estimates provided by the program manager suggest that it has succeeded in achieving a relatively high market share for SEER 12 equipment in the replacement (i.e., retrofit) market. This success may be partly attributable to the nature of CP&L's service territory, which is dominated by smaller, "mom and pop" HVAC contractors who may be more likely to benefit from the utility-sponsored loan program, training, and other services than larger contractors who can more easily obtain such services elsewhere. It should also be emphasized that the program is limited to heat pumps. It may be easier to sell customers on high efficiency heat pumps, which reduce both heating and cooling energy consumption, than on high efficiency air conditioners. Nevertheless, CP&L's program is noteworthy as the only non-rebate program achieving significant SEER 12 market shares.

Pushing the Market to SEER 13

The key to achieving high market shares for SEER 13 equipment appears quite simple: scale your rebate structure so that rebates are substantially higher at that level. Several utilities have had remarkable success with this approach:

- In March 1996, FP&L modified its rebate schedule so that less money was available at the SEER 11 and SEER 12 levels (currently $125 and $254, respectively, for a 3-ton unit) and more was available at SEER 13 (currently $414 for a 3-ton unit). Within three months, the fraction of program rebates going to SEER 13 equipment increased from 4% to 28%; within a year or so, it was up to 36%. We estimate that between 10% and 20% of all central air conditioner and heat pumps sales to existing homes in FP&L's service territory are now SEER 13 or higher.
- PSE&G has historically offered much higher rebates for SEER 13 central air conditioners (currently $370) than for SEER 12 units (currently $210). As a result, approximately 80% of all rebates are for equipment rated SEER 13 and higher. The result in the market is that 20% to 25% of all central air conditioners sold to existing homes are SEER 13.
- Over 90% of all PEPCO rebates in 1996 went to equipment rated SEER 13 or higher (14% went to equipment rated SEER 14 or higher). That represents 50% of all central air conditioner and heat pump sales to existing homes in its service territory. Beginning in the spring of 1997, PEPCO made SEER 13 the minimum requirement for any rebate. PEPCO's success in promoting SEER 13 equipment also appears to be largely driven by its rebate structure which was designed to cover increasing larger fractions of incremental cost at higher efficiency levels. The current structure is designed to cover approximately 75% of the incremental cost from baseline to SEER 13 and 100% of the incremental cost from SEER 13 to SEER 14. Customers can receive $320 for a SEER 13 central air conditioner and $410 for a SEER 13 heat pump.

A couple of years ago, the number of SEER 13 models on the market was limited. Indeed, in 1994 CEE estimated that only about 2% of all central air conditioners and heat pumps in the ARI directory met its Tier 2 efficiency criteria, which include a minimum SEER of 13 (see Appendix B for details on CEE's efficiency tiers). By 1996, nearly 15% of all models on the market met those criteria (CEE 1996). In addition, the costs of these units are now much more reasonable. PEPCO estimates that incremental costs of SEER 13 central air conditioners and heat pumps have declined by 40% to 50% over the past few years. Similarly, a recent California study found that the difference in cost between SEER 10 and SEER 13 central

air conditioners fell by about one-third -- from nearly $1200 to less than $800 for a 3-ton unit -- between 1994 and 1996 (Xenergy 1996). Thus, as the examples above make clear, the market can now be moved to SEER 13 if the right incentive structure is used.

Other Lessons

The research conducted for this study also revealed a number of lessons regarding successful promotion of high efficiency residential HVAC equipment:

- Strong relationships with HVAC contractors are critical. The importance of this point cannot be emphasized enough. Virtually all of the programs analyzed in this study placed the highest priority on developing good relationships with their contractors. In many of the leading programs, the utility holds regular (e.g., quarterly) formal meetings with their contractors. In some cases (e.g., SMUD's), contractors are required to attend at least one meeting in order to participate in the program. Some utilities also meet regularly on a one-to-one basis. For example, PEPCO has four sales representatives whose job is to work directly with the 400 contractors in its service territory. Most contractors are contacted quarterly; the biggest (20% do 80% of the business) are met with more often. Similarly, CP&L has assigned a sales representative to each dealer participating in its program and has recently formed a dealer council to increase effective communications between dealers and the company. Several utilities also regularly participate in trade events, such as meetings of local chapters of the Air Conditioning Contractors of America (ACCA). Several also offer training on key installation issues; some require it.
- Give contractors ample notice of program changes. This is related to the point raised above. Contractors often order equipment many months in advance. For example, equipment to be sold in the spring is often ordered the preceding fall. Utilities need to consider these time schedules when making changes to their programs, particularly regarding either efficiency standards or incentive levels.
- Continuity in programs is important. Virtually all of the successful programs examined in this study started at least five years ago. Some utilities (e.g. PSE&G and the City of Austin) have had programs promoting high efficiency equipment for 10 to 15 years or more. Continuity is important to contractors because it allows them to hone their marketing message and makes forecasting business needs in the future easier. This does not mean that programs cannot change over time -- only that the utility must be committed to more than a short-term presence in the market.
- If done carefully, rebates can be gradually cut over time without adversely affecting program participation. Both available data and anecdotal evidence suggest that as demand for high efficiency equipment increases, the incremental cost of the equipment declines. Thus, programs that are successful in achieving significant market penetration are able to gradually reduce incentives over time without experiencing adverse impacts on program participation. For example, PEPCO has cut its rebate levels by approximately 50% over the past two years without experiencing significant changes in program participation.
- Utilities interested in peak demand savings need to carefully consider promotion of multi-speed equipment. Multi-speed air conditioners and heat pumps generally have very high SEER ratings because they operate at low speed during much of the summer. However, their efficiency benefits decrease significantly during times of system peak when they are likely to operate at

high speed. To address this concern, FP&L limits eligibility for its rebates to single-speed equipment. Other utilities, such as PSE&G, address the issue by requiring that equipment meet minimum EER_{95} requirements in addition to minimum SEER requirements (as recommended by CEE). As programs increasingly promote very high SEER equipment, this will become an issue of greater importance.

Conclusions

The experience of several leading utilities suggests that it is possible to achieve large market shares for high efficiency, residential HVAC equipment. Indeed, PEPCO's experience suggests that it is possible to achieve very large market shares -- as high as 50% -- for SEER 13 equipment. Among the keys to such successful efforts are incentive structures that strongly encourage customers to move to the highest efficiency levels and strong relationships with the HVAC contractors who must ultimately sell the program.

In general, it appears that rebates have been particularly effective as a tool for promoting high efficiency because they appeal to a broad segment of the market and are easy to process. Financing is likely to be most appealing to customers who do not currently have the capital necessary to make an HVAC purchase. These customers are an important part of the market. However, they do not dominate the market. As a result, financing seems to be most effective in promoting high efficiency when it is a component of a larger program strategy, such as in CP&L's approach of coupling easy customer financing with direct incentives and training to contractors.

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Appendix A: Descriptions of Selected Residential HVAC Programs for the Existing Home Market

City of Austin

The City of Austin has been promoting high efficiency residential HVAC equipment for approximately 15 years. The current program offers customers the choice of either a rebate or a discounted loan for the purchase of high efficiency heat pumps or central air conditioners. To qualify, equipment being purchased must have a SEER of 12 or greater. The rebate for a SEER 12 installed in an existing single-family home is $200; rebate amounts increase as SEER increases (e.g., $415 for SEER 13). The interest rate on the loans varies depending on the loan term -- 0% for 3-5 years and 2.9% for 7 years or longer. The City facilitates the loan processing, but the loans themselves are originated and administered by the private sector. All installations are inspected by the City to ensure that program standards are met and that the equipment is installed properly.

Carolina Power and Light (CP&L)

Since it stopped offering rebates in the first quarter of 1996, CP&L has relied on a unique two-pronged strategy for promoting the sale of heat pumps, including high efficiency models. First, customers are offered loans for equipment that is at least SEER 11. A lower interest rate is offered for SEER 12 heat pumps (6%) than for SEER 11 (9%). In addition, CP&L runs a "frequent seller" program under which HVAC dealers receive points for each heat pump sold. The number of points increases with the efficiency of the heat pump (25 points for SEER 10, 50 points for SEER 11, and 75 points for SEER 12). Bonus points are offered for high customer satisfaction and inspection ratings. These points can be accumulated and redeemed for business equipment, technician training, advertising, travel and other merchandise offered by CP&L on a dollar per point basis.

Florida Power and Light (FP&L)

FP&L has run a rebate program to promote high efficiency residential HVAC equipment since 1992. Rebates are currently available for any central air conditioner or heat pump with a SEER rating of at least 11. Rebates increase with both the capacity and efficiency of the equipment. For a 3-ton unit, customers receive $125 for SEER 11; $254 for SEER 12; and $414 for SEER 13. Only single-speed equipment are eligible for rebates. Rebate levels are the same for central air conditioners and heat pumps.

MidAmerican Energy Corporation (MEC)

MEC has been promoting high efficiency residential HVAC equipment since 1989. Under the current program, customers are offered the choice of either a rebate or financing for the purchase of either a central air conditioner or heat pump that has a SEER rating of at least 12. The current (1997) rebate for a SEER 12 unit is $150; higher rebates are no longer offered for SEER 13 equipment. Customers selecting financing receive a rate of 6.95% (2-3% below market rates) for a 3 to 5 year term. MidAmerican pays the application fee, approves equipment, and provides training and information. Private lenders perform the credit checks, originate the loan and administer the loan.

Pacific Gas and Electric (PG&E)

PG&E has been promoting high efficiency residential HVAC equipment for many years. In 1994, the company began offering unsecured loans instead of rebates. To receive a loan, a customer must purchase a split system air conditioner or heat pump with a SEER of at least 12 or a packaged unit with a SEER of at least 11. Loans are also available for window and insulation up-grades. The interest rate varies depending on the total amount of the loan and the prime rate. In August 1997, the rate varied from 9.18% to 13.55%. The maximum loan term is 10 years; the average is 7 years. PG&E's primary role is as an energy advisor. It also performs random inspections on 25% of all units receiving loans to ensure that they meet program requirements. Fannie Mae administers the loans.

Potomac Electric Power Company (PEPCO)

PEPCO has run programs promoting high efficiency residential HVAC equipment since the early 1990s. Currently, customers purchasing central air conditioners or heat pumps with a minimum SEER of 13 are eligible for a rebate. They may also participate in PEPCO's loan program. Rebates for SEER 13 central air conditioners and heat pumps are $320 and $410, respectively. Higher rebates are available for SEER 14 equipment. A local bank provides the capital for the loans. However, PEPCO serves as the loan officer and guarantees the loans. As a result, the bank offers rates that are 1.0 to 2.5 points below market rates. The maximum loan amount and loan term are $10,000 and 10 years, respectively. A minimum monthly payment of $75 is required.

Public Service Electric and Gas (PSE&G)

PSE&G has run programs promoting high efficiency residential HVAC equipment for nearly 15 years. Under the current program, rebates are offered to customers purchasing a high efficiency central air conditioner or heat pump with a minimum SEER of at least 12 (minimum EERs and HSPFs, consistent with the Consortium for Energy Efficiency program standards, are also required). Rebates increase as the efficiency of the equipment increases. Customers currently receive $210 for a SEER 12, $370 for a SEER 13 and $550 for a SEER 14 central air conditioner.

Sacramento Municipal Utility District (SMUD)

SMUD has run a program to promote high efficiency residential HVAC equipment since 1991. It currently offers both rebates and financing. Rebates are available for the purchase of either a packaged central air conditioner or heat pump with a minimum SEER of 12, or split systems with SEERs of at least 13. All equipment must also have minimum EERs consistent with CEE's program. Heat pumps must also have an HSPF of at least 8. The rebate for a 3-ton packaged central air conditioner with is $225 for SEER 12, $300 for SEER 13 and $405 for SEER 14. Rebates for heat pumps are equal to those for central air conditioners, plus bonuses for achieving high HSPFs. The total rebate for a SEER 13, HSPF 8 heat pump would be $525. The HVAC efficiency requirements for participation in the financing component of the program are somewhat less stringent than for rebates (minimum SEER of 11.5 for packaged units and 12.0 for split systems, minimum HSPF of 7.0 for packaged heat pumps and 7.2 for split systems). The interest rate for SMUD's loan program is currently 9.7%. The loan term can be as long as 10 years (average is 5), but there is a minimum monthly payment of $10.

Appendix B: Consortium for Energy Efficiency Energy Efficiency Levels for Residential Central Air Conditioner and Heat Pump Program

	Cooling Performance[7]		Heating Performance
Tier	**SEER**	**EER**	**HSPF**
1	12	10.5	7.0
2	13	11	8.0
3	14	12	8.5
Advanced	15 & above	12.5 above	9.0 & above

[7] EER data are not widely available on all models. Therefore, use of this specification, while encouraged to promote continued improvement in demand performance, is at the discretion of participating utilities until such time as certified EER information is available for most potentially qualifying models.