"Breaking Down the Barriers to Efficiency Improvements in the Rental Housing Market: A Comparison of Two Utility Approaches"

Katherine Johnson, Johnson Consulting Group, Frederick, MD Michael Volker, Midwest Energy, Hays, KS Wade Shimoda, Hawaii Electric Company, Honolulu, HI Dr. George Willoughby, Hawaii Electric Company, Honolulu, HI

ABSTRACT

Obtaining rental sector participation in energy efficiency and renewable energy programs has proved challenging. Building owners have little interest in capital investment in these measures when tenants reap the benefits of lower utility bills. Two US utilities recently offered on-the-bill financing programs patterned after the Pay-As-You-Save® Program Model. This program model addresses the split incentive problem in the rental sector through up-front financing of the capital investment and recouping of costs (plus interest) from the rate payer.

This paper compares program results from two different utilities: a small Midwestern rural electric cooperative (co-op) and a large investor-owned utility (IOU). These utilities are the first in the US to debut this type of Pay-As-You-Save® Program, and the results have been markedly different. The co-op debuted its version of this program model in 2007 to provide renters and landlords a mechanism to pay for a variety of energy efficiency improvements. The IOU developed a pilot program in 2007 to encourage installations of solar water heaters targeting both renters and home owners. Both programs share the following characteristics in promoting investment in energy efficiency and renewable energy:

- Financing so that there are no customer upfront capital requirements;
- Loans paid through a surcharge on the utility bill; and
- The surcharge is tied to the location, not the individual customer.

Another distinguishing feature regarding these approaches is the regulatory role in program development. The Midwestern utility launched this program voluntarily. State regulators have been so pleased with the initial results that they are encouraging other utilities to implement similar programs throughout the state. The IOU was required to implement this program; however the regulatory requirements created additional obstacles for this utility to overcome. This paper includes a discussion of the policy implications for launching these types of on-the-bill financing programs. It suggests a regulatory approach that encourages installations within the rental housing market.

This paper compares the results based on program evaluations conducted in 2008, which include documenting the following key metrics:

- Value of home improvements;
- Estimated energy savings of the home improvements;
- Effectiveness of strategies for targeting home improvement contractors; and
- Lessons learned from program implementation for both regulators and utility staff.

As a result of these evaluations, program staff identified ways to streamline the application process and minimize free ridership rates.

Introduction

The rental market is a difficult segment to target for residential energy efficiency improvements. One major barrier is the split-incentive in which the landlord has little interest in paying for energy

efficiency improvements because the tenant pays the utility bills. However, that is changing since several utilities have implemented on-the-bill financing programs, patterned after the Pay-As-You-Save® Program Model. Two utilities, Hawaiian Electric Company (HECO) and Midwest Energy Inc. (Midwest Energy) are on the forefront of developing and deploying these programs. While both utilities have experienced some challenges in implementing these programs, the overall conclusion is that this approach can be an effective way to reduce market barriers in the rental housing market, encourage customers to invest in high efficiency energy improvements, and expand the reach of traditional energy efficiency programs beyond home owners. These programs are designed to help "close the loop" between tenants and landlords by providing them strategies that encourage the installation of long-term energy efficiency measures. This paper summarizes the approaches used by these utilities and also illustrates the "lessons learned" during the first year of program implementation.

HECO

HECO and its subsidiaries, Maui Electric Company, Ltd. (MECO), and Hawaii Electric Light Company, Inc. (HELCO), serve 95% of the state's 1.2 million residents on the islands of O'ahu, Maui, Hawai'i Island, Lana'i and Moloka'i. This paper summarizes the company's efforts to promote the installation of residential solar water heaters (SWH) through its SolarSaver Pilot Program (SSP).

Midwest Energy

Midwest Energy is an electric and gas cooperative that serves 48,000 electric and 42,000 gas customers in central and western Kansas. Midwest Energy is vertically integrated – Midwest Energy has its own transmission system and either generates electricity from owned sources or procures it contractually for its members. The largest city served is Hays, Kansas with a population of roughly 20,000. The service area population is expected to stabilize after declining for years.

Description of On-The-Bill Financing Programs

The concept of on-the-bill financing was formalized in the Pay-As-You-Save® Program Model developed by the Energy Efficiency Institute (EEI). The purpose of these pilot programs was to determine the success of financing energy efficiency improvements on utility bills. One appealing aspect of this model is that it focuses on reducing a common market barrier: split incentives for landlords and property developers. The program theory is summarized as follows:

PAYS products eliminate any disincentive to invest in energy efficiency for developers and landlords who do not pay the energy bills. With PAYS products, these decision makers can approve installation of measures they know improve the value of their buildings and that will reduce occupants' energy bills without incurring any financial obligation themselves © 2001, Energy Efficiency Institute, Colchester, VT (Source: http://www.paysamerica.org/PAYSFiling Final_2.pdf)

Table 1 compares the HECO and Midwest Energy program approaches for on-the-bill financing programs.

Table 1. Comparison of Utility Program Approaches

	HECO	Midwest Energy	
Targeted Equipment	Solar Water Heaters	Space and Water Efficiency	
Marketing Approach	Contractor Driven	Customer Driven	
No Customer Down Payment	V	$\sqrt{}$	
On-the-Bill Financing of Efficiency	$\sqrt{}$	$\sqrt{}$	
Utility Tariff Service		$\sqrt{}$	
Installation Tied to Location	V	$\sqrt{}$	
Implemented thru Approved Contractors	$\sqrt{}$	$\sqrt{}$	
Required Post Inspection/Verification	V	$\sqrt{}$	
Term of Loan (Maximum)	12 years	15 years	
	• \$1,000 rebate	• Comprehensive Energy Audit	
Additional Features	• Equipment Warranty	 Economic Analysis 	
	• Free Maintenance	Contractor Management	

HECO's Program

HECO's SSP Program is a three-year pilot program (June 30, 2007 - June 30, 2010) designed to overcome the barrier of up-front costs in the residential solar water heating market. The original focus of this program was on the rental market. This program was implemented across its subsidiaries: HECO, MECO, and HELCO and the pilot focused on the islands of O'ahu, Maui and, Hawai'i Island (Big Island). The program targets the electric water heating market, a significant end use for this utility.

The program is marketed through approved residential water heater contractors, who already specialize in installing solar water heating. Hawaii's climate and location make solar water heating a cost-effective option for residential customers. Participating customers incur no upfront cost but rather are able to finance the cost of a solar water heater on their monthly bill. However, the energy savings from this installation more than offset the monthly fee. Participants also receive a \$1,000 rebate for participating in HECO's Residential Water Heating Program, free maintenance and insurance on the solar water heater, and 12 year warranty.

The SSP Program was a direct result of the Hawaiian State Legislature's desire to use this approach to reduce the upfront cost associated with the installation of solar water heaters for tenants and home owners who needed to replace their water heaters. The legislature believed this additional financing program was necessary because the current renewable energy technologies income tax credits and electric utility rebates had not been sufficient to increase installations of this technology. This was especially true for those customers living in rental housing and homes needing retrofits (Commission Docket, June 2007). While HECO complied with this modification, it wanted to focus only on tenants and those home owners who had previously considered SWH installations. However, the legislature opened this program up to *all* home owners, without setting any income qualifications or requirements. Instead, a customer only had to be in "good standing" with the utility and have six months of good payment history in order to qualify for the program.

Given the nature of the program, in that it focused on financing a solar water heater for a term of 12 years, HECO had to rely on internal funds to cover the financing portion of this program. Therefore, HECO had to "become a bank" and develop the internal forms and processes to manage these long-term loans.

-

¹ Commission Docket 2006-0425, June 29, 2007. p. 2.

The program requirements also meant that HECO had to develop internally all of the forms, documents, and program information to be sure that the program satisfied all necessary legal requirements. The legislative order also required that the utility properly document the installation on the deed. While this notation would not prevent the property from being sold, it did tie the installation of the solar water heater to the *property* rather than to a *property owner*.

The program evaluation identified some of the challenges that HECO faced as it tried to comply with the required program elements while also developing a program "from scratch."

Midwest Energy's Program

How\$mart[™] began in August of 2007 as a pilot program offered in four counties. Midwest Energy has made minor adjustments to the program and has begun its first marketing efforts to the full 41 counties. There has been strong interest in this program from several landlords who view this program as a way to improve their rental properties without raising rent to their tenants. Most of these units are small multi-family buildings with two to four units.

Midwest Energy's How\$mart[™] program ties investments in energy efficiency to basic utility service. Unlike HECO and the pilot programs in New Hampshire (which were required to implement the program), Midwest Energy is the first utility in the world to *voluntarily* adopt the Pay-As-You-Save® concept; however it has been tailored to fit Midwest Energy's unique service area characteristics. The company has allowed investment in efficiency measures that result in How\$mart[™] charges equal to 90 percent of the estimated savings rather than just 75 percent under PAYS® or 80 percent in the HECO's program. Midwest Energy only allows efficiency measures that are permanently attached to the foundation meaning virtually all the improvements are related to space or water conditioning.

Customers find out about the program through contacts with bill concerns or complaints. Contractors and social service agencies also often refer customers to the program, especially when financing high efficiency equipment has been an issue. After the initial contact, the customers receive a description of the How\$martsM program and a high-level screening of energy usage. In most cases, this leads to a comprehensive onsite audit.

The audit results lead to the development of a preliminary Conservation Plan which includes recommended efficiency improvements, estimated costs of those improvements, and energy savings. Customers solicit participating contractors to provide binding bids for recommended improvements in the preliminary Conservation Plan. Once estimates are received, the Conservation Plan is finalized with total costs of the improvements, estimated utility bill savings, and the required How\$martSM monthly charge to be added to the utility bill.

Upon completion of the prescribed work, the building owners *and* tenants must sign off on the completed work. These forms include required notification of new tenants or owners that How\$martsm charges exist and they will be included on their utility bill. The selected contractor must also be in good standing and have a signed Master Contractor Agreement on file with the Company. Midwest Energy pays the contractor upon sign-off by the customer that work has been satisfactorily completed.

Evaluation Activities

The evaluation activities were more formalized for HECO relative to Midwest Energy. For the SSP pilot program, the program evaluation consisted of the following activities:

- Document Review: including program database and all supporting materials
- 14 in-depth interviews with program staff and third-party implementers

- 17 telephone interviews with participating and non participating solar water heater contractors
- 57 telephone interviews with participating customers.

For Midwest Energy's How\$mart[™] Program, the evaluation activities included:

- Impact evaluation of estimated savings for measures
- Document review of the pilot program
- On-going assessment of program progress based on feedback from staff and participating contractors.

Key Findings from the HECO Evaluation

This section summarizes the key findings from the program evaluation completed after the first year of program operation.

Program Participation

The SSP Program received a total of 203 applications of which 185 were approved during Program Year 1. This was slightly lower than the goal of 200 across the three service territories. Program participation is dominated by home owners rather than renters and landlords, as shown in the Table 2.

Table 2. Summary of HECO SSP Program Participants

Applicant Type	Count	% of PY1 Goal
Owner Occupants	203	102%
Renters	3	2%
Landlords	2	1%

Program Administration

Developing the application process was challenging for HECO staff. This process required the utility to also develop systems and responses to handle all aspects of loan financing and defaults, which were unfamiliar territory for this program staff. However, the HECO staff was successful in developing an internal system that accurately tracked the current status of all applications and addresses other billing issues such as "transferring" the account from one customer to another when there is a change in the residence. It is important to note that this process begin at the individual utility, such as Maui Electric, HECO or HELCO, and then is merged into a common billing approach at the company headquarters on Oahu. Figure 1 provides a simplified view of this program's operation.

INTERNAL SSP PROGRAM PAPER WORK FLOW Participating utility sends paperwork to HECO HECO enrolls customer in HECO enrolls customer in OCARS billing system Equiguard Warranty Program Participating utility notifies customer of program enrollment and starts on-the-bill financing Customer moves or sells Customer makes monthly premise payments HECO staff transfers account to new resident

Figure 1. Simplified Flow Chart for SSP Program Application Processing

The application process is viewed as burdensome for staff, contractors, and customers. The SSP application process must be coordinated among several entities: the utility, the customer, the contractor, the notary public, the State Bureau of Conveyances and in some cases, the Department of Hawaiian Home Lands and/or other government assisted housing agencies. Even satisfied customers complained about the lengthy processing time. Moreover, applicants who are most likely to be living in government-owned low income housing have the biggest administrative burden when participating in the SSP Program.

Free Ridership

The findings from this process evaluation, which included interviewing program staff, contractor, and participants, revealed that free ridership was a concern for this program. The majority of participating customers (57%) had not considered purchasing a SWH *prior* to enrolling in this program. The program database indicated that approximately one-quarter (22%) of all program applicants had received bids previously regarding the installation of the SWH while 16 percent of the survey respondents received a previous bid. Among the small minority of customers who received previous bids, most received between two and three bids; the amounts ranged between \$4,994.44 for HECO customers to a high of \$6,740 for HELCO customers. Consistent with the previous findings, most customers did not consider alternative financing options prior to considering the SSP Program option, as shown in Table 3.

Table 3: Financing Options Considered Before HECO SSP Program*

Financing Options Considered	Number Responding	% of Responses
Did not consider other	39	62%
Savings	8	13
Loan from bank/credit	6	10
Home equity line of	5	8
Loan from contractor	2	3
Other (not specified)	3	5
Total	63	100%

^{*}Multiple response question-so totals will not add up to 100%

The process evaluation findings suggest that this program may have a high free ridership level. This finding is further suggested by the high level of participation of home owners compared to the participation rates among renters, and the fact that most of these respondents had not considered this type of installation prior to program enrollment.

Water Heater Contractor Satisfaction

The participating contractors registered higher dissatisfaction with their electric utility compared to non participating contractors. This dissatisfaction is driven by the application process. Moreover, non participating SWH contractors have little interest in participating in this program, given their perception of the application process.

Customer Satisfaction

Overall, customer satisfaction is high among program participants, and all of the current participants would recommend this program to someone else. Customers are very satisfied with the participating contractors and would recommend their contractors to others. This finding suggests that the SSP Program has an excellent contractor base that is knowledgeable about SWH installations and the contractors have been good "Program ambassadors."

Program Cost-Effectiveness

This program is not likely to be cost-effective given the high administrative burden, high financing caps, and participation among customers who may qualify for other financing options instead of the SSP Program.

Barriers to Participation

The utility staff identified that the application processing time and requirements were the biggest barriers to program participation. Furthermore, non participating contractors would prefer to use alternative financing methods or no financing methods at all, rather than comply with the SSP Program requirements.

Program Recommendations:

Currently, the largest group of program participants is those who did have ready access to other funding sources—and were not the primary target markets for this program. Therefore, the program should be refocused to target landlords and tenants more directly, as a way to minimize free ridership, enhance overall cost-effectiveness of the program, and finally "close the loop" by reducing barriers to improvements in the rental market.

Key Findings from Midwest Energy's Evaluation

Table 4: Summary of Midwest Energy'S Program Participants

Applicant Type	Count	% of PY1 Goal
Owner Occupants	163	88%
Renters	13	7%
Landlords	9	5%

Program Participation

Midwest Energy has invested \$464,000 toward the installed efficiency measures (not including program fees). Total cost of the projects completed including the customer contribution to the project cost (but not including program fees) is over \$595,000. The total number of projects completed to date is 185.

Midwest Energy has been successful in attracting participating tenants and landlords 14 percent of the completed jobs for Midwest Energy are rental homes. While this may seem low, it is consistent with the demographic make-up of the service area where approximately 14.6 percent of customers rent their homes (Midwest Energy Customer Satisfaction Study, 2008)

Program Administration

The program is delivered to all 41 counties of the service area by five employees. All five are certified energy raters who complete roughly three How\$martsm energy audits and the accompanying Conservation Plan each week. These same employees provide the field support for all other energy service offerings of the Company. There are no explicit audit fees for program participants.

Free Ridership

Free ridership potential is high and comprehensive energy audits are expensive. Currently, Midwest Energy provides walk-thru audits free but the utility charges for more comprehensive analysis such as air infiltration tests or infrared scans. To minimize the potential for free ridership for the more comprehensive audits yet not discourage customers that are serious about making energy efficiency improvements, a limited audit charge policy has been adopted. If the customer follows-up on the audit and participates in the program, there is no audit fee. If Midwest Energy cannot find improvements that result in a net lower bill with no upfront capital required, no audit fee is charged.

Contractor Satisfaction

The How\$mart[™] program is well accepted among contractors. The company's marketing efforts have focused on contractor training and education. For the most part, contractors have sold the program for the company. Midwest Energy is continuing to nurture relationships with trade allies.

Customer Satisfaction

Overall, customer satisfaction is high, especially among the primary target market-landlords. To date, the 13 How\$mart[™] rental properties are owned by nine different landlords. Each landlord has multiple properties increasing the potential for more rental projects. A few of the landlords have become ambassadors for the program by completing projects on their personal properties as well. In general, landlords have indicated that the program is appealing to them because it allows them to preserve their own capital while improving their property as the motivating factor for them to participate in the program.

Program Cost-Effectiveness

The program focuses on financing cost-effective improvements for the customer. However, Midwest Energy has gone one step further and is now using this program to "leverage" additional dollars for energy efficiency improvements. The company does allow for contributions by building owners to the overall cost of the project if the improvement is not deemed "economic." For example, the replacement of a 60 percent efficient furnace with 96 percent efficient furnace may not be paid for completely by the energy savings in a particular application. But, if the building owner contributes additional funds, then the savings on the energy bill can become at least 10 percent greater than the required How\$mart™ charge. This approach has proven successful in convincing building owners to upgrade their equipment to high efficiency HVAC rather than simply replacing installations with standard efficiency equipment. Of the 95 projects completed through November 30, 2008, building owners on average had contributed approximately 22 percent toward the total cost of the efficiency measures.

Barriers to Participation

Initially, the company had a policy discouraging early payoff of How\$martsm obligations by including an interest penalty for early payoff. The company simply did not anticipate landlords (or other customers) would want to pay off early when the interest rate embedded in the How\$martsm charge was favorable (currently 4 percent). The company has addressed the challenges with the billing system issue and now allows customers to pay off the principal balance at any time without interest penalty. As a result, more landlords are willing to participate.

Program Recommendations

Midwest Energy found out the hard way those customers owning properties with How\$martsM obligations will likely not provide notification of the obligation to the succeeding owner of the property. Often the obligation is not discovered until the utilities are transferred to the buyer. Midwest Energy is also required to provide notification to the buyer that the obligation exists. To address this issue, Midwest Energy has taken the following actions: Uniform Commercial Codes (UCCs) are being filed with the local County Register of Deeds. In this way, when a title search is done on a How\$martsM

property, notification of the obligation will be recognized before completion of the sale. Now, Customer Service Representatives (CSRs) will immediately recognize that a property has a How\$mart\$SM obligation. In addition, the program forms have been updated so the company has the right to share How\$mart\$SM obligation information when it is allowed to share other utility data with interested parties. Finally, the company has worked with local and state realtor organizations to change their Seller Disclosure Forms to include How\$mart\$SM information.

Summary of Evaluation Results

Both programs have led to substantial energy savings reductions for participating customers, as shown in Table 5. Midwest Energy can claim energy reductions beyond electricity since they target heating equipment which may use natural gas or propane. HECO's program is only focused on electric savings.

Table 5.	Comparison	n of HECC	and Midwest	Energy	Programs

2007-2008 Program Year Results			
	HECO	Midwest Energy	
Number of residences reached	185	98	
Value of home improvements	\$417,048	\$464,000	
Estimated energy savings(kWh)	454,650	221,000	
Mmbtu	NA	1,900	
Gallons of Propane	NA	575	
Estimated Annual Energy Savings	NA	\$58,000	

Midwest Energy developed this program as a way to expand both its overall market reach and to renovate the existing housing market. The biggest appeal of these programs, for both utilities, was that on-the-bill financing programs are to remove barriers in the rental housing market. Although both programs target the rental market, HECO has not been as successful in reaching out to renters and landlords compared to Midwest Energy. To date, nearly all of the program participants for HECO's SSP program have been by home-owners in single family homes, even though the only slightly more than half of all Hawaii residents (57%) own their own homes². Moreover, Hawaii is known for its high cost of living and relatively low annual household incomes, making these types of programs even more important for renters who are not able to afford these types of energy efficiency improvements.

As these programs both illustrate, the rental market is slow to embrace these types of programs. For example, Midwest Energy learned that many landlords in the service area invest and divest in rental properties relatively quickly. Customers wishing to pay off their How\$martsm balance early could do so but their payoff would be the monthly payment amount times the remaining number of payments, not just the remaining principal.

Both HECO and Midwest Energy rely on their strong contractor relations to develop these onthe-bill financing programs. HECO leveraged its network of existing water heating contractors, cultivated through its successful REWH program, and further nurtured though its support of the solar industry trade groups throughout the Hawaiian Islands.

Midwest Energy has also developed strong relationships with contractors over time. The primary strategy in developing relationship has been to offer local training opportunities, thereby increasing the

_

² http://www.census.gov/hhes/www/housing/census/historic/ownerchar.html

competence of the contractor as well as reducing training costs. Typically, Midwest Energy has brought in a well- known speaker for training on specific topics such as the building envelope, building strategies, and furnace safety. Typically, these training sessions are attended by 50-100 contractors. In addition to training, Midwest Energy has provided for at least three informational luncheons regarding the How\$mart program in locations across the service area. Invitees include HVAC contractors, builders, housing inspectors, and other potential trade allies. By explaining the benefits of the How\$mart program to the allies, the company has not had much need to market the program directly to customers.

Lessons Learned

The experiences from both these utilities have led to the following "lessons learned" regarding the best way to develop and implement these types of on-the-bill financing program.

Keep the Focus on the Rental Housing Market

The original PAYS design was to offer a program that would reduce the high up-front cost of installing energy efficiency improvements so that the energy savings would pay for the cost of the installation. However, this approach becomes less effective as it tries to expand beyond the traditional rental housing market, or include measures that have longer paybacks. As this paper shows, while both utilities developed successful programs, Midwest Energy has been more successful in tapping into the rental market.

In contrast, HECO had to expand the program to include the entire existing housing market, which diluted its original focus on the rental market. Therefore, one recommendation was to encourage tenants and landlords to participate more fully in this program by establishing specific goals for this customer segment. In that way, this program will achieve its original goal by offering financing to those customers who really need it — tenants. Tenants qualify if they six months of good payment history.

Keep the Application Process Simple

Midwest Energy was able to leverage its existing skills and capabilities into the How\$mart Program while HECO had to develop this entire program from the ground up. This issue, combined with the unique nature of the housing market in the Hawaiian Islands, added a layer of complexity for HECO to address. These programs are most successful when the application process is simple and straightforward and the contractors receive prompt payment for their services. Despite the challenges associated with the application processing, HECO has found ways to streamline its application process and accelerate payments to the contractors. All of these are critical determinants for program success.

Voluntary Programs Offer More Flexibility and Increase the Potential for Long-Term Success

Another reason for Midwest Energy's success is that it was a utility-initiated rather than a government-mandated program. The utility saw this program as a way to improve the overall housing stock in its service territory, ultimately benefiting both its customers and the utility. Since this was also a voluntary program, the utility had the flexibility to determine the terms and conditions of this program rather than having to comply with outside rules or constraints. In contrast, HECO spent a lot of time and effort getting the program "up and running," which increased the overall program costs.

Contractor Relationships Are Critical

These programs also demonstrate the importance and value that a strong contractor network has in delivering utility programs. Both companies were able to successfully implement these programs because they worked within the contractor community. Moreover, they demonstrated a strong sense of commitment to these contractors by offering them training and by treating them an essential partner in this process. The utility needs the contractor to install the equipment and the contractors benefited by being able to expand into a new customer group that may not have participated previously- those customers who did not have the money for equipment installations and could not finance it on their own. Moreover, because the program provides mutual benefits to both the contractor and the utility, this makes it easier for utilities to require post-equipment installations.

Conclusion

Both utilities believe that the concept of the on-the-bill financing program is an effective one. The biggest challenge with HECO's SSP program is that it focused on an expensive energy efficiency measure, a solar water heater, with a long payback—up to 12 years. It also did not focus on the rental housing market, but included home-owners—many of whom could have afforded to install these measures on their own.

These programs are just beginning to live up to the promise of tearing down market barriers to energy efficiency. While HECO and Midwest Energy were the first two utilities to implement these types of programs, it is clear that more utilities will start considering them. For example, Midwest Energy has received more than 100 inquiries from every region of the country, while HECO's program continues to be a model for utility-financed efficiency improvements. While the rental market can be hard to reach, these two utilities are demonstrating that with innovative program design, patience, and the ability to make program adjustments as needed, the demand and interest in these types of programs will continue to grow.

References

Commission Docket 2006-0425, June 29, 2007. p. 2.

The Energy Efficiency Institute, PAYS® and Pay-As-You-Save®, 2007, Colchester, Vermont.

- Dreiling, B & Volker, M. 2004, Midwest Energy, Inc., Energy Services Evaluation Study, Hays, KS June
- Johnson, K. 2008. Process Evaluation Report for the Solar Saver Pilot Program, for Hawaiian Electric Company, Maui Electric Company, and Hawaii Electric Light Company, Market Development Group, December.
- Midwest Energy Customer Satisfaction Tracking Study, January through June of 2008. Results showed that over 14.6 percent of customers that responded said they rented their home.
- U.S. Census Bureau, Housing and Household Economic Statistics Division, Last Revised: December 02, 2004 http://www.census.gov/hhes/www/housing/census/historic/ownerchar.html