

Breaking down the barriers to efficiency improvements in the rental housing market: a comparison of two utility approaches

Katherine Johnson
Johnson Consulting Group
kjohnson@johnsonconsults.com

Michael Volker
Midwest Energy
mvolker@mwenergy.com

Wade Shimoda
Hawaii Electric Company
wade.shimoda@heco.com

Dr. George Willoughby
Hawaii Electric Company
george.willoughby@heco.com

Keywords

renters, landlords, energy efficiency improvements, financing

Abstract

The rental market is a difficult segment to target for residential energy efficiency improvements. This is primarily due to 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.

This paper compares the approaches used by Midwest Energy and Hawaiian Electric. Midwest Energy debuted its How\$martSM Program in 2007 to provide renters and landlords a mechanism to pay for a variety of energy efficiency improvements. Hawaii Electric developed the SolarSaver Pilot Program in 2007 to encourage installations of solar water heaters.

In both programs, the utility provides the upfront capital as a way to encourage the investment in these energy efficiency improvements. Other program features include:

- No upfront capital required by customer;
- Efficiency improvements are paid for through a surcharge on the utility bill;
- The surcharge is tied to the location, not to the individual customer;

This paper compares the results from both programs based on their first-year program evaluations, and includes the following key metrics:

- Number of residences reached

- Value of home improvements
- Estimated energy savings
- Strategies for targeting home improvement contractors
- Lessons Learned

On-the-bill financing can be a successful program strategy to reach the underserved rental market.

Introduction

The rental market is a difficult segment to target for residential energy efficiency improvements. This is primarily due to 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 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. This paper summarizes the approaches used by these utilities and also illustrates the “lessons learned” during the first year of program implementation.

Table 1. Comparison of Utility Program Approaches

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

HECO

For more than 100 years, Hawaiian Electric Company has provided the energy that has fueled the islands' development from a Hawaiian kingdom to a modern state. Hawaiian Electric Company, Inc. (HECO), and its subsidiaries, Maui Electric Company, Ltd. (MECO), and Hawaii Electric Light Company, Inc. (HELCO), serves 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 solar water heaters (SWH) to its residential customers, through its SolarSaver Pilot Program (SSP).

MIDWEST ENERGY

Midwest Energy, Inc. (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 different than a typical electric distribution cooperative in that it is vertically integrated – Midwest Energy has its own transmission system and either generates electricity from owned sources or procures it contractually for its members. In contrast, Midwest Energy's gas system is not vertically integrated, containing no upstream transmission "pipes" or gas production. It is a local distribution company (LDC) in the traditional sense. The economy of the area is driven by agriculture and oil and gas production with recent growth from grain-based ethanol production. 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. Internal growth of the company has been driven by a series of acquisitions of cooperative, municipal, and investor-owned utility properties.

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) in 2001, and has been implemented in several pilot programs in New Hampshire during 2001. The purpose of these pilot programs, which have since been concluded, was to determine if having customers finance energy efficiency improvements on their bill would be a successful strategy. One appealing aspect of this model is that it focuses on reducing a common market barrier: Split incentives for

landlords and property developers¹. As the EEI explained in its program materials:

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 http://www.paysamerica.org/PAYSFiling_Final_2.pdf

Two key features of the pilot programs implemented in other utility service territories were that these programs:

1. Specifically targeted the rental housing market and
2. Limited program participation to specific consumer groups.

Table 1 compares the approaches used by both HECO and Midwest Energy in developing their own version of on-the-bill financing programs.

HECO'S PROGRAM

HECO's SSP Program is a 3-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. This program was implemented across HECO's subsidiaries: Hawaiian Electric Company, Inc. (HECO), and its subsidiaries, Maui Electric Company, Ltd. (MECO), and Hawaii Electric Light Company, Inc. (HELCO), and the pilot focused on the islands of O'ahu, Maui and Hawai'i Island (Big Island).

The program is marketed through the company's existing base of approved residential water heater contractors. Participating customers incur no upfront cost but rather are able to finance the cost of a solar water heater on their monthly bill.²

1. Eliminating Split Incentives. When developers, property owners and managers make equipment decisions for premises for which they do not pay energy costs, there is a split incentive. The developer, property owner or manager has an interest in keeping his or her costs as low as possible and energy efficiency or life-cycle cost impacts are often not considered, despite the fact that more efficient equipment can result in lower energy costs to the occupants. ©2001, Energy Efficiency Institute, Colchester, VT http://www.paysamerica.org/PAYSFiling_Final_2.pdf
2. The SolarSaver Fee shall be equal to 80% of the estimated monthly energy

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 (REWH), free maintenance and insurance on the solar water heater, and 12 year warranty.

The SSP Program was created in order to satisfy the requirements of Act 240 (SB2957), which mandated that the utilities shall establish a "pay-as-you-save" type program similar to the nationally recognized Pay As You Save³ trademarked financing program. The focus of the SSP Program are tenants and landlords and home owners of existing homes requiring water heating retrofits, especially those who have received previous bids for Solar Water Heater (SWH) installations³. However, the Commission decided to expand the program beyond the original rental target market to all eligible existing residential home owners.

This requirement meant that HECO had to develop internally all of the necessary 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 application process is also tied to contractor payments. For example, the contractor receives payment for the cost of the SWH system, less the \$1,000 REWH rebate, immediately upon completion of the "Installation Completion Certificate & Customer Warranty" form. The balance of the remaining cost is paid once all the documents have been received while the \$1,000 rebate is paid through a different rebate approval process. The multiple payment streams add to the complexity of the overall program and have led to some contractor dissatisfaction, as illustrated in Figure 1.

Developing this application process was challenging for HECO staff, since it required them to develop new types of accounting and billing systems that matched the monthly SSP payments with the "regular" monthly utility bills. This process also required the utility to also develop systems and responses to handle all aspects of loan financing and defaults, which was unfamiliar territory for 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 O'ahu. Figure 2 provides a simplified view of this program's operation.

In the SSP Program, the utility pays for the up-front cost of the installation and then the customer repays this amount on the utility bill for a period of 12 years. Table 2 compares the average monthly savings, the monthly program fees and the

maximum amount available for financing a solar water heater installation across all three utility service territories.

As Table 2 shows, customer savings from this installation are much higher than the monthly fee charged. The amount available for customers to finance this installation also varies depending upon the island as there are higher installation costs in HELCO and MECO's service territories compared to HECO's.

Table 3 displays the average costs of the solar water heater installations for all three participating companies, along with the actual number of household occupants compared to the program assumption of 4 family members.

This is a contractor-driven program, in that HECO relies on its existing base of solar water heater contractors to promote the program to customers. In this approach, HECO pays the solar water heater contractors directly for the installation, and this amount is then financed on the customer bill. The participating contractors also participate in a related program-the Residential Electric Water Heater program, which encourages the installation of energy efficient water heaters. As part of this program, all water heaters installed under these programs are subject to a post-installation inspection by the third-party contractor. In this way, HECO is assured that the water heaters are installed correctly. These contractors are also familiar with HECO's installation and inspection requirements.

MIDWEST ENERGY'S PROGRAM

Midwest Energy used a different approach to implementing its on-the-bill financing program, but it shares several characteristics with HECO's program (See Table 1). Midwest Energy's How\$mart SM 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\$martSM 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 also takes a much broader view by focusing on a range of home improvements, rather than just one measure (i.e. solar water heaters). However, 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.⁴ The company's roles include:

- Conducting a comprehensive energy audit: The audit includes any or all of an air infiltration test, infrared scan, duct leakage test, and HVAC system analysis.
- Developing recommendations for improvements: Using energy modelling software, estimates of energy savings are calculated and calibrated back to actual usage history for the structure. Typically, several options for improvements are available.

bill savings for a family of four at the time that the SolarSaver Fee is set by the utility.

3. HECO SSP Program Request for Proposal

4. The biggest difference between How\$martSM and PAYS[®] is that Midwest Energy found it untenable to suspend How\$mart charges to customers in the event that a How\$martSM measure fails to work at any point in time during the period of time when How\$mart charges apply.

SolarSaver Pilot Program Paperwork flow

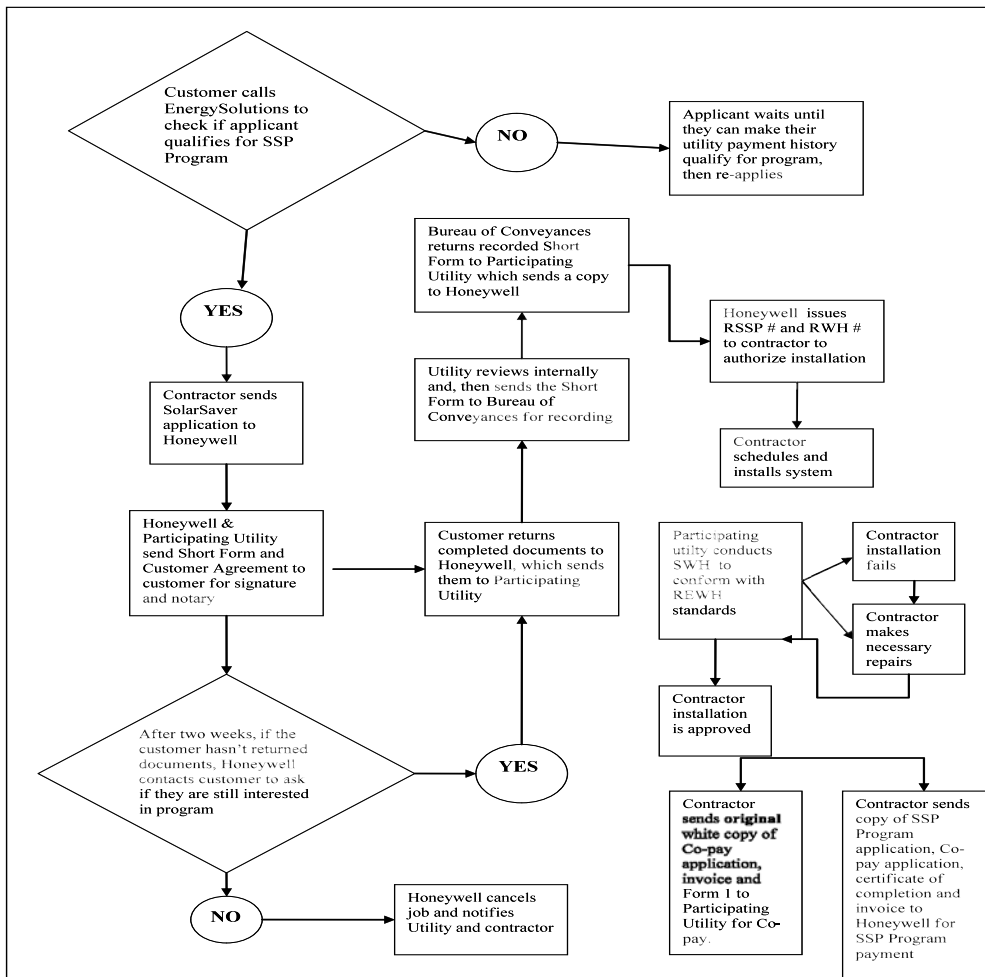


Figure 1. Simplified Flow Chart for SSP Program Application Processing

INTERNAL SSP PROGRAM PAPER WORK FLOW

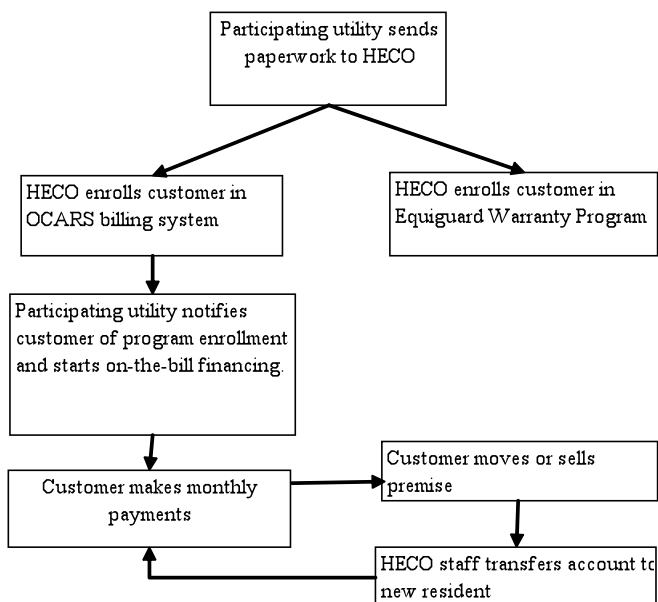


Figure 2. Simplified Flow Chart for SSP Program Application Processing

Table 2. Solar Water Heating System Average Monthly Savings, SolarSaver Fees, and Maximum Cost*

	Monthly Savings (\$)			SolarSaver Fee (\$)			Max. System Cost (\$)**		
Electricity	HECO	HELCO	MECO (All Div.)	HECO	HELCO	MECO (All Div.)	HECO	HELCO	MECO (All Div.)
Price	Family Size			Savings Factor			Loan Term: 12 years		
cents/kwh	4	4	4	80%	80%	80%	Interest Rate: 0%		
10.0	20.04	23.35	21.76	16.03	18.68	17.41	3,308	3,689	3,507
11.0	22.04	25.68	23.94	17.63	20.54	19.15	3,539	3,958	3,757
12.0	24.04	28.01	26.11	19.23	22.41	20.89	3,770	4,227	4,008
13.0	26.05	30.35	28.29	20.84	24.28	22.63	4,001	4,496	4,259
14.0	28.05	32.68	30.46	22.44	26.15	24.37	4,231	4,765	4,509
15.0	30.05	35.02	32.64	24.04	28.01	26.11	4,462	5,034	4,760
16.0	32.06	37.35	34.81	25.65	29.88	27.85	4,693	5,303	5,011
17.0	34.06	39.69	36.99	27.25	31.75	29.59	4,924	5,572	5,261
18.0	36.06	42.02	39.17	28.85	33.62	31.33	5,155	5,841	5,512
19.0	38.07	44.36	41.34	30.45	35.49	33.07	5,385	6,110	5,763
20.0	40.07	46.69	43.52	32.06	37.35	34.81	5,616	6,379	6,013
21.0	42.08	49.03	45.69	33.66	39.22	36.56	5,847	6,648	6,264
22.0	44.08	51.36	47.87	35.26	41.09	38.30	6,078	6,917	6,515
23.0	46.08	53.69	50.05	36.87	42.96	40.04	6,309	7,186	6,765
24.0	48.09	56.03	52.22	38.47	44.82	41.78	6,540	7,455	7,016
25.0	50.09	58.36	54.40	40.07	46.69	43.52	6,770	7,724	7,267
26.0	52.09	60.70	56.57	41.67	48.56	45.26	7,001	7,992	7,517
27.0	54.10	63.03	58.75	43.28	50.43	47.00	7,232	8,261	7,768
28.0	56.10	65.37	60.93	44.88	52.29	48.74	7,463	8,530	8,019
29.0	58.10	67.70	63.10	46.48	54.16	50.48	7,694	8,799	8,269
30.0	60.11	70.04	65.28	48.09	56.03	52.22	7,924	9,068	8,520
31.0	62.11	72.37	67.45	49.69	57.90	53.96	8,155	9,337	8,771
32.0	64.12	74.71	69.63	51.29	59.76	55.70	8,386	9,606	9,021
33.0	66.12	77.04	71.81	52.89	61.63	57.44	8,617	9,875	9,272
34.0	68.12	79.37	73.98	54.50	63.50	59.19	8,848	10,144	9,523
35.0	70.13	81.71	76.16	56.10	65.37	60.93	9,078	10,413	9,773

Table 3. SSP Program Demographics and Characteristics by Operating Company

	HECO	MECO	HELCO	PY1 Weighted SSP Program Average
Average Household Size	3.7	4.2	4.1	3.9
Average Approved System Cost	\$4,667.65	\$5,161.09	\$6,204.66	\$5,217.12
Average Loan Term (number of months)	136.2	98.3	103.6	122.2

- Economic analysis: The Company models the economic efficiency of the improvements by entering the energy savings of energy efficiency options into a financial model that calculates both program costs and benefits.
- Control contractors: Midwest Energy ensures that contractors participating in the program agree to certain standards, such as post-installation inspections.
- Quality control: Midwest Energy is responsible for follow-up and selective inspection of completed efficiency measures. Ultimately, Midwest Energy will not come between

the customer and the contractor other than as an informal arbiter. However, Midwest Energy will prevent contractors from further participation for shoddy or improper work that doesn't deliver the recommended work scope projected energy cost savings.

- Intermediary: Without taking a position or playing the guarantor, Midwest Energy believes the role as a first intermediary between parties minimizes disputes and maximizes the potential for dispute resolution at least cost.

Unlike HECO's strategy, Midwest Energy's program is customer-initiated program. Customers contact the company regarding bill concerns or complaints. Contractors and social service agencies also often refer customers to the program, especially when financing high efficiency is 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 results of the audit lead to the development of a preliminary Conservation Plan which includes recommended efficiency improvements, estimated costs of those improvements, and energy savings. Next, 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.

At this point, the selected contractor(s) will complete the prescribed work. Upon completion, building owners and tenants must sign off on the completed work. Forms specifically designed for projects when the property is owned or rented must be completed. These include required notification of new tenants or owners that How\$martSM charges exist and will be included on their utility bill. In addition, 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. Midwest Energy's role, as a neutral third party to the contractor and customer, has been essential for settling disputes and for quality control.

Initially, the company had a policy discouraging early payoff of How\$martSM obligations by including an interest penalty for early payoff. But this was one of convenience and the company did not anticipate landlords (or other customers) would want to pay off early when the interest rate embedded in the How\$martSM charge was favourable (currently 4 percent). Further, the Company's billing system has some quirks, including its ability to manage early payoffs without interest penalty. However, this policy was changed once customers asked for this option.

In an interesting twist, Midwest Energy has also used 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\$martSM 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.

Contractor Recruitment Strategies

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

All three HECO operating companies held contractor informational meetings when the program was first introduced last year in which they informed all participating REWH contractors about the program. The operating companies also contacted the local low income housing agencies, property management companies, Maui County Housing Commissioner, the U.S. Department of Agriculture, and the Department of Hawaiian Home Lands to inform them about this program.

However, it is interesting to note that not every water heater contractor currently participating in the REWH program wanted to also participate in the SSP program. The major reasons for this were the long application and rebate processing time and the initial difficulties in explaining to customers the concept of on-the-bill financing.

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 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\$martSM 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\$martSM program to the allies, the company has not needed to market the program directly to customers.

Results

Both programs have led to substantial energy savings reductions for the participating customers, as shown in Table 4. 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.

Midwest Energy has invested \$464,000 (342,759 Euro) toward the installed efficiency measures (not including program fees). This understates the value of these improvements. One provision of the program allows for customers to fund part of a How\$martSM project not justified by the energy savings alone. In this way, Midwest Energy has "unbundled" improvement projects into energy efficiency (funded by Midwest Energy) and non-efficiency construction projects. On average, customers have funded almost 22 percent of the cost of the projects. Total cost of the projects completed including the customer contribution to the project cost (but not including program fees) is over \$595,000 (439,508 Euro).

HECO implemented this program to meet the regulatory requirements for its Demand Side Management (DSM) program.

Table 4. Comparison of HECO 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	1900
Gallons of Propane	NA	575
Estimated Annual Energy Savings	NA	\$58,000

The initial results are that this program is not cost-effective because of the long payback required for solar water heaters and the high up-front program costs required to implement this pilot. So, from a “profitability” point-of-view, this program is not expected to be cost-effective. But there were other, over-riding considerations that led to the development of this program, primarily as a strategy to reduce peak hour electric usage for HECO customers and to promote the benefits of using energy efficient equipment.

Midwest Energy developed this program as a way to expand both its overall market reach as well as to renovate the existing housing market. The biggest appeal of these programs, for both utilities, was that on-the-bill financing programs 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 has been by home-owners in single family homes, even though the only slightly more than half of all Hawaii residents (57%) own their own homes⁵. 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 energy efficiency improvements.

Midwest Energy has been more 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 homes⁶.

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. This bothered several landlords. One stated “we don’t want a How\$martSM obligation preventing us from turning over a property.” Although they understood that the obligation passes

on to the purchasing party (with notification), they were hypersensitive to obligations of any sort tied to a property. In short, they wanted to be able to pay off the How\$martSM obligation without interest penalty.

Upon meeting with landlords, the company learned that the policy was an issue to them and negatively impacted their decision on whether to participate in the program. The company has overcome the billing system issue and now allows customers to pay off the principal balance at any time without interest penalty. The end result is that more landlords are now more willing to participate.

To date, the 13 How\$martSM 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 are becoming 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. It is interesting to note that all 13 rental property projects were initiated by the landlords rather than the tenants. Still, no tenant has refused a How\$martSM project proposal yet.

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. That concept, however, works for low cost measures that have a short payback, such as compact fluorescent lamps (CFLs). 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 because of its focus on lower-cost shell and heating measures.

HECO’s was directed to expand the program to include the entire existing housing market, which subsequently diluted the focus of the program. Though it is important to offer financing

5. <http://www.census.gov/hhes/www/housing/census/historic/ownerchar.html>

6. The Midwest Energy Customer Satisfaction Tracking Study, results for the first half of 2008. Data for this on-going tracking study was gathered between January and June of 2008. Results showed that over 14.6 percent of customers that responded said they rented their home.

to help to defer the cost of energy efficiency improvements, this program is most successful when it stays close to its original target market—tenants and landlords.

KEEP THE APPLICATION PROCESS SIMPLE FOR CUSTOMERS AND CONTRACTORS

Midwest Energy was able to leverage its existing skills and capabilities into the How\$martSM 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 RATHER THAN MANDATED UTILITY 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 the outside rules or constraints.

CONTRACTOR RELATIONSHIPS ARE CRITICAL FOR PROGRAM SUCCESS

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. But as this paper demonstrates, these programs are most effective when they are narrowly focused on the rental housing market rather than all home owners and when they focus on installing measures that have short paybacks. The biggest challenge with HECO's SSP program is that it focused on an expensive energy efficiency measure, a solar water heater, with a very long payback—up to 12 years. It also did not just focus on the rental housing market, but rather

expanded to include home-owners—many of whom could have afforded to install these measures on their own. Therefore, the SSP program was effective in increasing the total number of solar water heater installations for HECO, but it has not yet demonstrated that this is a cost-effective way to encourage these types of installations.

These programs are just beginning to live up to its 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

- The Energy Efficiency Institute, PAYS[®] and Pay-As-You-Save[®], 2007, Colchester, Vermont.
- The Climate and Energy Project, Take Charge Program, see <http://www.climateandenergy.org/Index.htm>
- 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.
- 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>

Acknowledgements

I wish to thank my co-authors for their insights and contributions to this paper and for their willingness in sharing the “lessons learned” with others in the energy efficiency community.