

Breaking Down the Barriers to Efficiency Improvements in the Rental Housing Market: One Utility's Approach

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ABSTRACT

How\$martSM is an energy efficiency program designed to overcome market barriers to efficient investment in energy conservation. As an electric and gas cooperative in central and western Kansas, Midwest Energy, Inc (Midwest Energy) has been active in providing energy efficiency services to its members for decades and has particular expertise in the provision of comprehensive energy audits for smaller customers. Despite efforts to advise customers on ways to improve the energy efficiency of homes and small businesses, Midwest Energy consistently witnessed “failure to respond” to its efficiency recommendations due to market barriers.

The development of the How\$martSM program is the result of a collaborative effort between regulators, contractors, social service agencies, and the company to overcome many of the common barriers observed: up-front costs, capital constraints, long-term payback, split incentives (i.e. conflicting landlord/tenant motivations), and consumer education. How\$martSM essentially creates an energy services company (ESCO) for small customers similar to the concept developed by PaysAmerica with its Pay-As-You-Save® (PAYS®) programs.

How\$martSM is being offered on a pilot basis in four counties. The pilot received approval on August 16th, 2007. Interest in the program is strong particularly from landlords who see this as a way of improving their rental properties without raising rent to their tenants. Similarly, social service agencies see the program as a means of lowering the need for utility bill assistance from low-income households. Midwest Energy anticipates minor adjustments to the program and opening it to the full 41 county service area by the end of July 2008.

Introduction

Midwest Energy, Inc. (Midwest Energy) is an electric and gas cooperative that serves 47,000 electric and 41,000 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.

Table 1: Electric Sales Profile

Electric	2006	2005
Number of Meters	46,243	45,700
Peak Load, MW	338	322
Retail Energy Sales, kWh	1,191,749,255	1,160,247,766
Total Energy Sales, kWh	1,370,957,813	1,332,575,806

Source: <http://www.mwenergy.com>

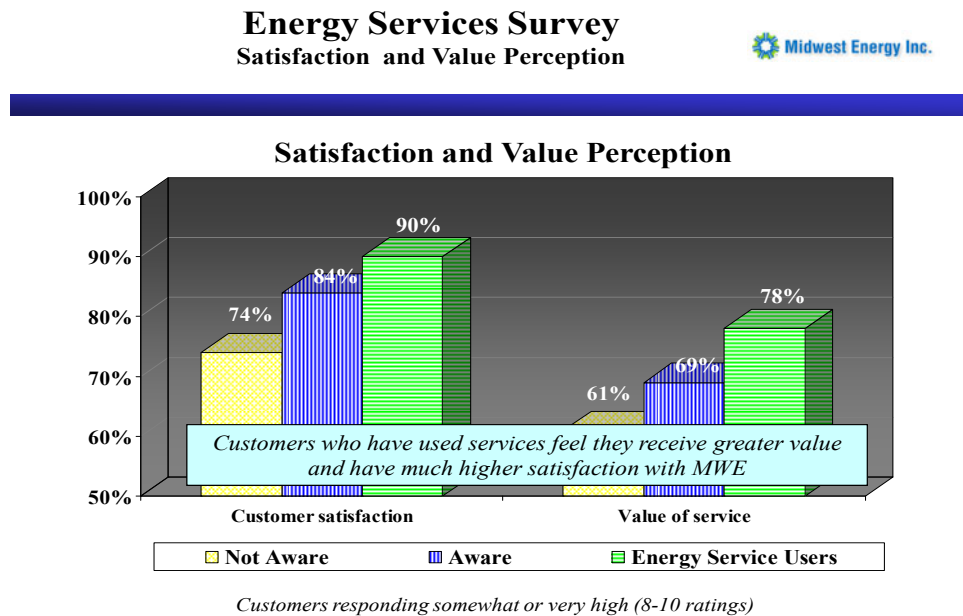
Table 2: Natural Gas Sales Profile

Natural Gas	2006	2005
Number of Meters	41,340	41,645
Total Deliveries, MMBtu	10,646,518	9,981,110

Source: <http://www.mwenergy.com>

Despite the rural nature of the service area, Midwest Energy is an aggressive provider of energy efficiency services compared to most utilities. Like many utilities, Midwest Energy began providing efficiency services in the early 1980s. However, the company has always viewed the provision of energy efficiency services as a way to effectively manage high bill complaints and improve customer satisfaction - so it never stopped offering these services. Studies conducted by the company support this view (Figure 1). Indeed, even being aware that the services are available from the company results in significantly higher customer satisfaction and perceived value.

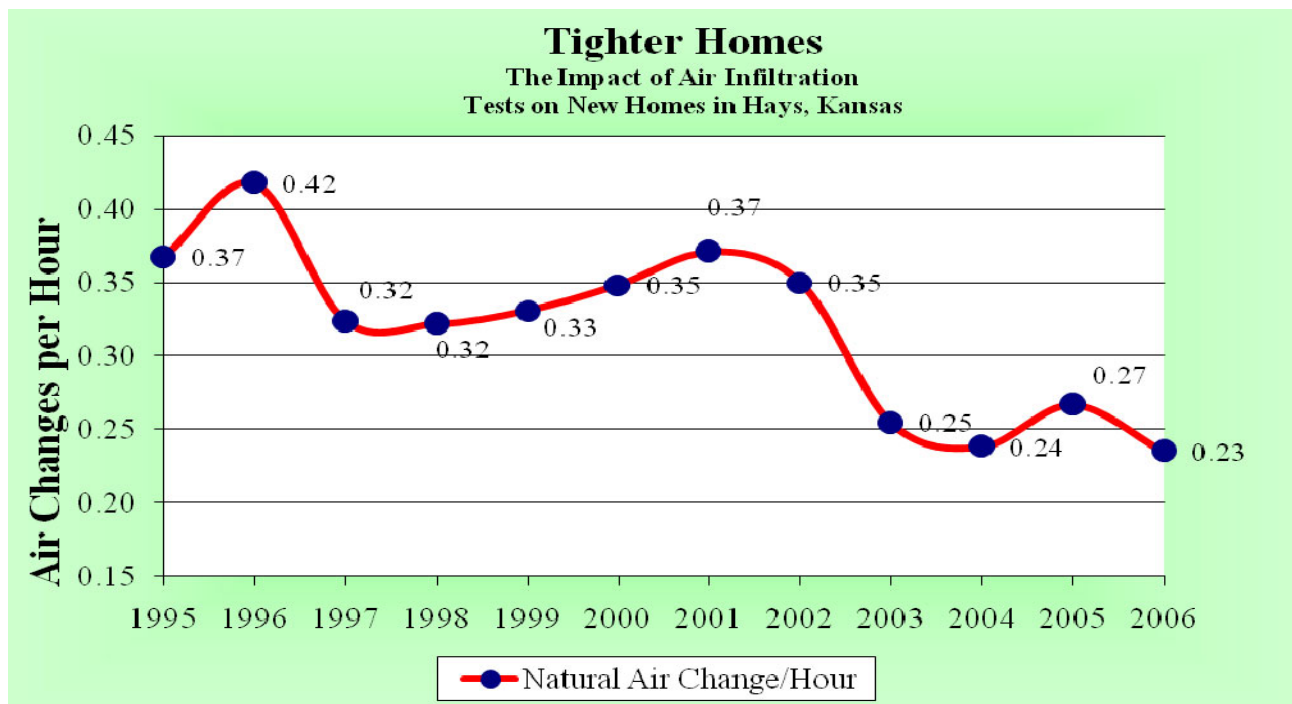
Figure 1: Impact of Energy Conservation Services on Customer Satisfaction



Midwest Energy has developed specialized expertise in providing energy audits for residential and small commercial customers. The company employs the only certified energy raters in western Kansas who conduct a full range of home and small business auditing services. These include: walk-through inspections, air infiltration studies, infrared scans, duct leakage tests, and heating, ventilation, and air conditioning (HVAC) sizing analysis.

The staff also conducts air infiltration tests for all new homes in the City of Hays as a requirement for the City’s certificate of occupancy. Originally, the audits were intended to ensure combustion safety associated with new home HVAC systems. Over time, more emphasis has been placed on energy efficiency. A side effect of conducting the air infiltration tests has been the development of a strong relationship with contractors. Most building and HVAC contractors in the Hays area view Midwest Energy as a partner and often utilize company HVAC sizing services for their customers. The result has been tighter, more comfortable, safer, and more energy efficient new homes in the Hays area. Figure 2 illustrates the decreasing air infiltration in new homes tested Hays since 1995 – the year Hays began requiring the air infiltration tests on new homes.

Figure 2: Improving Efficiency of New Homes in Hays, Kansas



Despite Midwest Energy’s efforts, inefficient residential and small commercial structures still exist in the service area. The average age of homes in the service area is 34 years, meaning most homes were built long before energy efficiency was a priority. In addition, company employees often audited the same structure more than once, making the same efficiency improvement recommendations without implementation of the measures.¹ Unfortunately,

¹ Beginning in 2005, the City of Hays began allocating above budget utility franchise fees – due mostly to high gas commodity costs – to a special fund to aid low-income households with their utility bills. Benefactors were required to have an energy audit from Midwest Energy. This policy, while leading to the recognition of how energy

although audits were conducted, the rental and low income households often faced barriers preventing them from making the recommended improvements. Major impetus for the creation of the How\$martSM program came about because of the need to overcome market barriers often faced in rental and low income markets.

Midwest Energy's How\$martSM Program

How\$martSM is a program that ties investments in energy efficiency to basic utility service. The basis of the How\$martSM program is the Pay-As-You-Save® (PAYS®) concept marketed by Pays America.² The idea is for the utility to create an ESCO for residential or small commercial applications. According to Howard Lachman, President of the Energy Efficiency Institute that developed PAYS®, Midwest Energy is the first utility in the world to voluntarily adopt the Pay-As-You-Save® concept. Although conceptually similar to PAYS®, How\$martSM has been tailored to fit Midwest Energy's unique service area characteristics.³ The essential elements of How\$martSM however, are similar to PAYS®:

1. No upfront capital required by customer;
2. Efficiency improvements are paid for through a surcharge on the utility bill;
3. The surcharge is tied to the location, not to the individual customer;
4. How\$martSM is a tariffed utility service giving the utility the ability to disconnect for non-payment.

Energy Efficiency Bank?

Under How\$martSM, Midwest Energy provides capital for investment in efficiency improvements. Some suggest this makes the utility a bank, and How\$mart is simply a financing program. Midwest Energy views How\$mart as a logical extension of rate base beyond the customer meter. 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: Utilizing energy modeling software, estimates of energy savings are calculated and calibrated back to actual usage history for the structure. Typically, several options for improvements are available.

inefficient low-income housing is, has not yet led to efficiency improvements.

² PAYS® or Pay-As-You-Save® are registered trademarks of the Energy Efficiency Institute (EEI), of Colchester Vermont. PAYS® was developed by EEI in 1999 as a market-based response that would encourage customer investment in energy efficiency at a time when national funding in efficiency began to diminish.

³ In particular, How\$martSM is different than PAYS® in 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.

- Economic analysis: The company models the economic efficiency of the improvements by entering the energy savings of energy efficiency options into a financial model.
- Control contractors: Midwest Energy ensures that contractors participating in the program agree to certain standards.
- 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.

The company has allowed 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.

How\$martSM Utility Service

How\$martSM is a tariffed utility service. Like energy sales and delivery, How\$mart charges are included as a line item on the utility bill. Like other utility services, the company has the right to disconnect customers for non-payment of How\$martSM charges subject to the Terms and Conditions of the Company and Billing Standards of the Kansas Corporation Commission.⁴

How the Program Works

The How\$martSM program depends on strong symbiotic relationships between participating contractors and the utility. For a number of years, contractors have used Midwest Energy for HVAC system sizing calculations, technical aid, and as a trusted third party to recommend efficiency savings to end-use customers. Contractors have also consistently asked Midwest Energy to develop finance options particularly for sales of high efficiency equipment and services.

This is a customer-initiated program. Customers contact the company regarding bill concerns or complaints. According to its recently completed Residential Appliance Saturation Study, customers view Midwest Energy as the preferred provider of energy efficient information.⁵ Contractors and social service agencies also often refer customers to the program, especially when financing high efficiency is an issue.

⁴ In particular, the “Cold Weather Rule” – The Kansas Corporation Commission, Electric, Natural Gas, and Water Billing Standards, Section V. The Cold Weather Rule prohibits the utility from disconnecting customers between November 1 and March 31 if outside temperatures are expected to drop to less than 35 degrees anytime within the next 48 hours. Essentially, this means disconnecting for non-payment does not occur during the winter months.

⁵ The Midwest Energy Residential Appliance Saturation Survey was conducted in April, 2007. Results showed that

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, which may include the following:

- an air infiltration test,
- infrared scan,
- duct leakage test, and
- furnace combustion test.

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. The How\$martSM charge is the payment stream required for full recovery of the company's investment in the efficiency measures discounted at the company's cost of capital. The maximum duration of How\$martSM is limited to 15 years or 75 percent of the expected life of the measure – whichever is less. The maximum amount of the How\$martSM charge is limited to 90 percent of the estimated energy savings during the duration of the charge. It is worth noting that the How\$martSM charge – like the energy efficiency savings – is tied to the structure and not to the customer. If the customer is a tenant, the charge will likely continue on to the succeeding tenant until it is paid in full. If the structure owner sells the structure, the acquiring customer will benefit from the installed efficiency measures and assume the How\$martSM charge for the remaining duration of the agreement.

At this point, the customer must decide whether to proceed with the How\$mart program. Forms specifically designed for building owners, tenants, and landlords must be completed as applicable. 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.

Once forms are completed, the selected contractor(s) will complete the prescribed work. Midwest Energy will pay 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, is essential for settling disputes and for quality control. Since a third party is involved, there is a check and balance to ensure that projects have been completed as contracted and that resulting efficiency savings will be achieved. In the month succeeding contractor payment, a How\$martSM charge will appear on the customer's utility bill.

over 37 percent of respondents said Midwest Energy was the first contact they would make for energy efficiency information. The second most highly rated source was the internet at 25 percent.

Contractor Recruitment Strategies

Midwest Energy has 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. Recent training sessions have included:

- Building Envelope (Doug Rye – “The King of Caulk and Talk”),
- New Home Building Strategies (Mark LaLiberte, the Energy and Environment Building Association),
- Furnace Safety (John Krigger), and
- House Pressures (Doug Walter).

Typically, these training sessions are attended by 50-100 contractors. In addition, Midwest Energy sponsors annual lunches with broad topics from building codes to equipment sizing. Midwest Energy takes every opportunity these sessions bring to “spread the word” regarding its efficiency service offerings.

Results

Approval of the How\$martSM four-county pilot program occurred on August 16th, 2007. Since that time, the following results have been achieved (May 15, 2008):

- 163 comprehensive energy audits completed requests,
- \$102,330 of How\$martSM home improvements to date,
- \$11,674 estimated annual energy savings (based on projected rates and fuel costs),
- 55,454 kWh and 466 MMBtu per year in annual energy savings.

Estimates of energy savings only include the 25 customers who had completed the program as of May 15, 2008. The estimated savings volumes are based on the comprehensive audit results with the completed efficiency measures installed at projected rates and fuel costs. Approximately 50 customers received a comprehensive audit, but elected to not use the How\$martSM program to finance efficiency measures. It is not known how many of those customers elected to pay for some or all of the recommended measures through their own investment. The estimated savings do not include any savings attributable to efficiency improvements made by these non-participants.

Lessons Learned

As a result of this pilot program, the Midwest Energy has gained valuable insights into ways to improve the program for the full launch. These “lessons learned” include the following:

- **Freeridership potential is high:** Energy audits are expensive – particularly comprehensive audits that include air infiltration and or infrared scans. Currently, Midwest Energy provides walk-thru audits free but charges for the more comprehensive analysis. In the How\$martSM program, a comprehensive audit is completed without charge before the customer decides whether or not to participate in the program. As a way to minimize the potential for free ridership for the more comprehensive audits, the company believes it must charge customers that request the comprehensive audit, but elect to not participate in the program. In this way, non-participants will not be as likely to utilize services (for free) while those customers that elect to participate will not be unfairly burdened with non-participant costs. The company will continue to waive any audit charges for customers that end up participating in the program.

The company will continue to provide walk-thru audits as a customer service. With the option of a walk-thru audit, a customer that is screened as a less than likely candidate for the How\$martSM program may still be provided personal customer service but at a lower cost. Further, even customers with relatively little savings potential are provided efficiency advice.

- **Eliminate the pre-payment penalty:** The original program design penalized those customers who opted to pay off the energy efficiency financing early. Therefore, Midwest Energy plans to change the tariff before full program roll-out.
- **Encourage the installation of high efficiency improvements:** As another way to minimize the free ridership potential of this program, Midwest Energy staff will continue to promote the installation of high efficiency equipment. The company will continue to encourage all program participants to implement easy and low-cost thermal measures, such as caulking and sealing, with their other energy efficiency improvements.

Conclusion

The How\$martSM program is an innovative new program idea that should be shared at the ACEEE conference attendees since it demonstrates an effective way to reduce the first cost barrier and reach out to a critical, but often overlooked, target market – rental property. The program seeks to provide long run energy savings paid for thru utility bill savings. The proof will be in the pudding: Midwest Energy will evaluate and compare energy consumption results for program participants to evaluate if modeled savings reflect actual experience. The company also plans to measure participant satisfaction to both improve and market the program.

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