ENERGY MANAGEMENT SERVICE - SHARED SAVINGS FINANCING
IS IT WORTH ALL THE HASSLE?

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INTRODUCTION

For the past three years the Energy Resource Center has operated a Shared Savings - Energy Management Service Program for financing energy improvements in residential rental property. The program was designed to overcome the traditional barriers to conservation investment in rental property: financial , technical, and tenant/ landlord incentives. Now that our investment portfolio has operated through at least one complete heating season, we are prepared to evaluate our success and comment on the complications and additional costs incurred to overcome the barriers.

FINANCIAL BARRIERS

To overcome the financial barriers, ERC provided investment capital and guaranteed principal repayment through energy savings. In return, the owner agreed to pay the ERC an amount equal to their fuel cost had no work been done, over the term of the service agreement (average = 6 years). With the customer payment ERC pays the fuel bill and retires the debt at 10% interest. If the predicted dollar savings are not realized our return is something less than 10%. The owner suffers no change in cash flow as a result of our investment and realizes the energy savings and improved cash flow when the service agreement expires.

Figure 1. illustrates the actual rate of return for a sample of buildings, accompanied by their predicted vs. actual savings data. Overall, we earned close to a 10% return which will allow us to successfully retire our debt this year.

Following are the underlying costs incurred to operate the Shared Savings financing segment of the program and achieve the projected rate of return on investment:

- The first major cost is an additional investment to date of $6,000. in seven (7) buildings to maintain predicted savings.

- The second cost is the amount of unanticipated staff time needed yearly to: 1.) convert energy savings into economic (dollar) terms in order to determine the rate of return; 2.) amortize each investment separately at year end to recognize interest earned for accounting purposes; 3.) annually recalculate customer payments to account for actual rates and weather; and 4.) make utility payments for customer accounts several times each month. These administrative costs require at least 1/2 of a staff person's time each year.

- The third cost to ERC may be reflected in a lower than projected rate of return on our investment. ERC made an initial assumption that fuel rates would increase at least 5% per year. This fuel escalation assumption was incorporated into our investment analysis, and our rate of return will suffer as long as the downward trend in fuel prices continues.

TECHNICAL BARRIERS

Typically, the range and pace of energy conservation technology have made it difficult for an owner to package a cost effective energy improvement work plan on their own.

The combination Shared Savings financing - Energy Management Service approach provides ERC with the incentive to install effective packages of conservation improvements in order to recover the investment through energy savings. ERC is highly motivated to implement innovative technology and work closely with reliable contractors. This attention to equipment and workmanship has paid off; our savings as shown in Figure 1. are (on average) within 2-3% of predicted savings estimates. It is important to note that additional investment in equipment and staff time for monitoring were necessary to maintain this high level of savings. A portion of the additional monitoring costs were anticipated and were to be paid for with the proceeds from energy savings. However, because fuel prices are not increasing at projected rates, the savings just cover our anticipated 10% rate of return on investments. A monthly maintenance fee independent of savings would have reduced this unexpected expense.

LANDLORD - TENANT SPLIT INCENTIVE BARRIER

The final barrier addressed by the Shared Savings - Energy Management Service program was the divergence in landlord and tenant incentives to invest in energy improvements. Investment incentive is dependent on who pays the fuel bills and their control over energy consumption in the property. ERC planned to overcome this incentive and control barrier by guaranteeing the return on investment. However, we have learned that while we now hold all the incentive to reduce energy consumption in the property , we have little control over usage. Tenants can alter energy consumption through thermostat settings and open windows. In addition, owners need to exercise some responsibility for equipment and miscellaneous repairs that will affect energy savings over the service agreement term. We have found that owners either are not willing or do not have the financial capacity to maintain the property as problems develop. As maintenance problems go unrepaired, the energy savings and our rate of return suffer .

In conclusion, we feel confident that the Shared Savings financing - Energy Management Service approach overcame the three barriers to conservation in rental property housing. However, we have also identified several costs beyond the original projected cost of the investments, and it is necessary to quantify and incorporate these costs in future investments. If all additional administrative and equipment repair costs were included in a payback analysis, it is possible that the payback would be too long to warrant this type of investment program.

Despite the lengthy payback given the inclusion of the "true" cost of investment, there are many benefits to be achieved through the program. ERC succeeded in achieving a high level of energy savings, preservation of the low income housing stock, development and application of new technology and auditing techniques, and the training and education of contractors, owners, and maintenance personnel. Unfortunately these benefits are difficult to quantify and cannot be accounted for in the company's general ledger to help us achieve self-sufficiency. Rather, we provide these benefits as part of our mission to serve the public good.

Our challenge now is to modify the program to reduce risk and costs while addressing those barriers that make conventional investment impossible. Some modifications may be: a guaranteed savings plan whereby the ERC predicts the amount of energy to be saved and agrees to share the risk of achieving the savings with the owner; the development of low interest loan pools with flexible underwriting criteria in combination with a comprehensive energy management service on a fee for service basis; the provision of post retrofit analysis of fuel consumption as well as on site monitoring if the savings start to deteriorate on a fee for service basis. All of these techniques ensure that energy savings will be achieved while reducing financial risk.

Building Label	Percent Savings Predicted	Percent Savings Achieved	+/- Percent Difference	Rate Of Return
Marshall	26.80	22.45	-4.35	5.20
Summit	26.20	22.50	-3.70	5.43
Holly -590	48.45	42.33	-6.12	9.88
Goodrich	29.12	15.07	-14.05	-0-
Grand	27.50	20.06	-7.44	4.16
Linwood	29.80	20.73	-9.07	5.94
Montrose	51.18	42.79	-8.39	6.03
Birmingham	24.00	23.94	- .06	11.76
Ashland	44.87	34.20	-10.67	7.48
St. Clair	20.00	25.70	+5.70	15.87
Hague	46.40	47.95	+1.55	13.90
Arundel	16.00	4.68	-11.32	-0-
Holly-446	57.00	48.63	-8.37	9.46
Virginia	48.00	32.44	-15.56	4.91
Laurel	54.00	57.54	+3.54	14.14
Scudder	39.20	59.19	+19.99	20.66

Figure 1. Rate of return on Shared Savings Investments.