REDUCING ENERGY DISTRESS:

"Seeing RED" Project Evaluation

Prepared For:

Iowa Department of Human Rights
Iowa REACH Project
Des Moines, Iowa

January 2002

REDUCING ENERGY DISTRESS:

"Seeing RED" Project Evaluation

Prepared By:

Roger D. Colton
Fisher, Sheehan & Colton
Public Finance and General Economics (FSC)
34 Warwick Road, Belmont, MA 02478-2841
617-484-0597 (voice) *** 617-484-0594 (fax)
roger@fsconline.com (e-mail)
http://www.fsconline.com

January 2002

INTRODUCTION

The Iowa Residential Energy Assistance Challenge (REACH) program is a research and demonstration project funded by the Office of Community Services in the Administration for Children and Families of the U.S. Department of Health and Human Services. The Office of Community Services has stated the over-arching goal of the REACH program to be to "demonstrate the long-term cost effectiveness of supplementing energy assistance payments with non-monetary benefits that can increase the ability of eligible households to meet energy costs and help them achieve energy self-sufficiency."

REACH grants are made to the state offices which administer the federal home energy assistance program. These offices are, in turn, required to carry out their programs through community-based organizations. In Iowa, the Bureau of Energy Assistance, within the Iowa Department of Human Rights, contracted with Mid-Iowa Community Action (MICA) (Marshalltown, IA) to manage the Iowa REACH project. Other sites involved with Iowa REACH have been staffed by the Woodbury County Community Action Agency (Sioux City, IA), and Mid-Sioux Opportunity (working with rural families in Plymouth and Cherokee Counties).

SEEING RED: REDUCING ENERGY DISTRESS

States may pursue a variety of types of demonstration projects through REACH. The Iowa REACH project tests a single intervention design through multiple sites. The specific goal of the Iowa REACH program was to "increase the sustainability of residential energy costs for low-income households." In furtherance of that goal, the Iowa REACH program adopted a three-part strategy, including: (1) identifying where the opportunities for sustainable change lie, (2) developing family understanding of where the greatest opportunities for positive change exist, and (3) assessing the behavioral and financial efforts required to achieve those opportunities.

Implementation of the Iowa REACH project -- known as *Seeing RED* for Reducing Energy Distress -- involved recruiting high energy burden LIHEAP households in each of two project years at three sites: a metropolitan neighborhood, an urbanized county, and two rural counties.

Seeing RED incorporated several explicit assumptions about low-income payment-troubled households into its project design. Amongst the household characteristics that *Seeing RED* expected to find in its target population were:

- A lack of understandable feedback information about household energy usage;
- A lack of skills which households could use to connect their behavior, their housing stock, their energy end-uses (appliances), and their energy usage behavior to their energy bills;
- A lack of critical thinking and planning skills to use in establishing and achieving realistic energy use and cost goals;
- A use of money reflecting a short-term, reactive, problem-avoidance orientation rather than an asset accumulation and long-term investment orientation;
- A failure to exhaust all opportunities to reduce expenses, to increase income, or to use income in the most beneficial ways; and
- A lack of capital assets to invest in measures that would reduce base energy usage or eliminate unusual arrears.

In response to these assumptions, *Seeing RED* was established to deliver a package of services to project participants. These services included:

1. Risk assessment and identification;
2. Energy information;
3. Goal setting assistance;
4. Family budgeting assistance; and
5. Energy efficiency investments.

In addition, amongst the services the project committed to delivering were:

- Conducting comprehensive family assessments and identifying non-energy services and resources that families could access through the information and referral capacities of the community resource clearinghouses operated by each of the Community Action Agencies implementing *Seeing RED*.

- Enrolling families in programs such as WIC (to obtain nutritional supplements for women and children from birth to age five); maternal and child health programs to defray medical expenses; preschool Head Start programs to help defray child care expenses; job preparedness services to promote employment; and area agencies on aging to deliver meals and transportation for the aged.

To deliver these services, the project called for *Seeing RED* field staff to conduct home visits with participant households to identify where and how the households use energy, what the current and potential source of income (and income supplements) are, and what budgeting strategies are or might be used to help meet household living needs. The project also called for the performance of energy audits to determine the potential for investments to improve the efficiency of the housing envelope.

A central element of *Seeing RED* involved project staff meeting with participant households to develop an Energy Burden Reduction Plan. Through that Plan, project participants would select the three to five strategies that the household determined to: (1) be most feasible; (2) have the greatest impact on energy costs, income, and expenses; and (3) produce the longest lasting effects.

Since "energy burdens" are simply energy bills as a percentage of household income, energy burden *reductions* could occur through either reductions in energy bills or through an increase in household income.

Seeing RED designed as a comprehensive holistic approach to participant energy self-sufficiency. The project identified multiple factors that interact with each other in influencing energy self-sufficiency. These factors included:

- Household specific "generators" of energy costs, including building shell, energy using appliances, furnaces, and occupant behavior;

- Factors which condition ability to pay, including both income (and its potential for increase) and non-utility household expenses (and their potential for decrease);

- Housing stock and the impact of income on constraining housing options; External events, such as loss of job, sudden illness, divorce or separation, or extreme weather;[1] and

- Community services and support systems.

Because of these multiple factors, Seeing RED was designed as more than an energy efficiency or weatherization program. Amongst the activities the project committed to doing were:

- Conducting comprehensive family assessments and identifying non-energy services and resources that families could access through the information and referral capacities of the community resource clearinghouses operated by each of the Community Action Agencies implementing Seeing RED.

- Enrolling families in programs such as WIC (to obtain nutritional supplements for women and children from birth to age five); maternal and child health programs to defray medical expenses; preschool Head Start programs to help defray child care expenses; employment services and job preparedness to promote employment; area agencies on aging; and count-based entities to deliver meals on wheels and transportation for the aged.

The Iowa REACH proposal indicated that it would work with customers having arrears to get arrears paid, including using project funds to make such payments where necessary.

The sections which follow look at both the operation and outcomes of the *Seeing RED* project.

[1] "Events" were distinguished from "systematically created energy burdens" resulting from building structure, appliance and heating system efficiency, family income, or patterns of behavior.

PROCESS EVALUATION

This section presents a process evaluation based on the first year of *Seeing RED* operation. The process evaluation presented below is directed toward three narrow questions:

- Ë Was the project implemented in an appropriate and timely fashion and as proposed?

- Ë Did the project comply with the broad parameters of the "logic model" of problem identification and intervention, the implementation of which lies at the heart of the REACH process?

- Ë Was the overall Iowa REACH design appropriate, given what was learned during the course of the project?

This section is *not* designed to consider the effectiveness of the Iowa REACH efforts in achieving its goal.

This process evaluation is based on four lines of inquiry:

1. Personal interviews were performed with several sets of staff, including: (1) managers responsible for the design and implementation of the program as a whole; (2) project managers responsible for implementation of the program at the agency level; and (3) field personnel responsible for actual client contact and service delivery. Ten interviews were completed overall.

2. A series of project staff meetings was attended. Project staff meetings were held on a monthly basis to discuss project activity and to engage in problem-solving. Attendance at project staff meetings was designed to observe actual project implementation.

3. Program documentation was collected and reviewed, including training materials, forms, the staff manual, internal communiqués, and project newsletters.

4. Finally, written staff work products were reviewed from each field staff with respect to *Seeing RED* participants. Staff work products included items such as energy burden reduction plans, staff activity reports, staff intake interview forms, and energy burden reduction priorities.

The discussion, conclusions and recommendations below are based upon the interviews, personal observations, and document review.

This process evaluation examines the implementation of *Seeing RED* on a task-by-task basis. The *Seeing RED* project can be broken down into seven specific activities as follows:

Activity #1: Identifying and assessing participant risks

Activity #2: Enrolling program participants

Activity #3: Generating energy information

Activity #4: Setting participant goals

Activity #5: Establishing household budgets

Activity #6: Delivering non-energy services

Activity #7: Delivering energy efficiency investments.

The implementation of each of these activities will be separately reviewed.

ACTIVITY #1: RISK ASSESSMENT AND IDENTIFICATION

Seeing RED posited in its overall design that certain low-income customers were "particularly vulnerable" in their ability to meet their energy costs. This vulnerability would be deduced from the presence of a combination of low-income status with one of three alternative energy usage characteristics:

Ë below average energy usage; *or*

Ë above average energy usage; *or*

- arrearages larger than twice the household's monthly budget billing amount and older than the current heating season.

The design of *Seeing RED* was based on its ability to identify at-risk households, enroll those households in the *Seeing RED* project, and enlist the members of those households in a cooperative venture through which the Project's services could be delivered. In Year 1, *Seeing RED* engaged in a centralized risk assessment and identification process.

Seeing RED was designed to consider information obtained from the local utility companies serving the project counties. *Seeing RED* indexed all LIHEAP households in the three project sites (Sioux City, Marshalltown, and Plymouth/Cherokee counties). The index was computed by dividing the sum of each household's January energy (electricity) cost and outstanding arrears by one-third of the Quarterly Gross Income contained on the LIHEAP household's LIHEAP application. The households from each site were then ranked from highest energy burden to lowest.

Households in the top and bottom quartile of energy burdens were considered for *Seeing RED* participation. The households identified through this analysis were supplemented with households that had requested energy or crisis assistance after the end of LIHEAP and the end of the winter shutoff protection moratorium. A third list of households known to be experiencing difficulty in sustaining payments for energy costs on a consistent basis was developed from agency files.

The risk assessment process, as implemented, was less helpful than had been anticipated. A reliance on January bills as the basis for risk assessment bore little relationship to the time at which customers actually entered the *Seeing RED* program. Of the 38 Year 1 participants, only three were enrolled as early as May or before. An additional 20 were enrolled in July or August, while seven were not enrolled until September or later. The January-based risk assessment was thus substantively out-of-date by the time program participants began their participation.

Date of Enrollment: Year 1 Participants	
	No. of Participants
April-May	3
June	8
July	13
August	7
September or later	7

Reliance on January arrears illustrates the changing circumstances. January 1999 would have been a billing month exactly at the time (or shortly after) that annual LIHEAP payments were posted to customer accounts. All other things equal, it would be a month in which arrears are at a minimum. Indeed, of the 38 Year 1 participants, 22 had either $0 balances or credit balances on their January 1999 bills. (Two more, having entered the program through other than the risk assessment process, had no information about arrears.) Only three Year 1 participants had balances over $400 and only six had balances over $200.

In contrast, in the months in which they actually began *Seeing RED* participation, eight customers had balances over $400 and 13 had balances over $200. A more timely risk assessment would thus have generated substantially different results than that used by the *Seeing RED* project.

It is not clear what function the risk assessment played in the *Seeing RED* project. *Seeing RED* participants were not treated differently based on their risk assessment. The same intake was used. The same interactions occurred. The same services were delivered. For example, staff activity reports for the seven *Seeing RED* participants who entered the program with arrears of $400 or more were reviewed. No indication is given that particular attention was given to the fact of those arrears, or to mechanisms for retiring the existing arrears or preventing further build-up of arrears.

ACTIVITY #2: PROGRAM ENROLLMENT

From the lists generated of at-risk customers, half of the households were randomly selected and sent a letter indicating they had been identified as an at-risk household and explaining the assistance that was available through *Seeing RED*. The other households were retained as a "comparison group." A reply postcard was enclosed with each letter.

Families were asked to indicate their interest (or lack thereof) by returning the postcard to the energy specialist at each project site. Customers not responding to the letter within a brief time were contacted by telephone if a number was available, or by a home visit if not. If multiple attempts to make contact were unsuccessful, the household would be considered "inactive" and dropped from further outreach efforts.

The efforts to solicit project participation in this fashion were "spectacularly unsuccessful," according to the *Seeing RED* project director. The project director attributed the lack of recruitment success to a combination of three factors:

1. The recruitment process depended on the timely receipt by *Seeing RED* of billing and consumption data from the local utilities. In fact, however, that information was not provided in a timely fashion. *Seeing RED* staff did not receive information expected in March 1999 until July 1999. By that time, however, *Seeing RED* staff were making contacts during warm weather months (July/August) when high January bills (and unaffordable home energy burdens) were often a distant memory for the prospective participants.

2. The written recruitment process failed to motivate customers to affirmatively respond to requests for program participation. Many customers were skeptical/cynical about the ability and willingness of the project to deliver meaningful benefits. Much of that skepticism was driven, field staff reported, by a desire simply to receive a distribution of benefits to "solve the problem" which the household faced (*e.g.*, high arrears, pending shutoff, unaffordable bill). The notion of *Seeing RED* staff working with the family in a process of priority-setting and family budgeting was not seen as a way to achieve those results. In addition, much of the skepticism was, as the project anticipated from the beginning, a result of the crisis orientation of the potential program participants. The promise of help with long-term priority-setting was less efficacious in the face of immediate short-term crisis needs.

3. The connection between the energy burden analysis performed at the agency level and the invitation for a household to participate in the *Seeing RED* project was too tenuous to be meaningful. The timing of the invitation (*vis a vis* when the high energy burden was experienced many months previous) was only part of the problem. In addition, "energy burden" is a concept that is most meaningful to energy professionals. The explanation of the reason for participation -- "your family was one of those with the highest energy burden. Energy burden is the amount of your utility bills compared to your monthly income" -- did not provide meaningful motivation to the households receiving invitations.

In addition to the low numbers of households responding to the written invitations, *Seeing RED* field staff reported difficulties in generating program interest as well. Soliciting the initial commitment to participate in the project was reported by field staff as the most difficult step in the first year of the project.

The problems with soliciting program participation led to major revisions in this aspect of *Seeing RED* for the second year. Starting with the Year 2000 participation

group, households were categorized as being "at risk" or not at the time they applied for LIHEAP. Under the new procedures, a household was considered at-risk if the household exhibited one of the following characteristics:

- Ë The household had an electric bill that was above or below designated levels, predetermined on a county-by-county basis to place them in a "high" or "low" category; or

- Ë The household had a natural gas bill that was above or below designated levels, predetermined on a county-by-county basis to place them in a "high" or "low" category; or

- Ë The household currently had an outstanding notice of a pending disconnection of service for nonpayment; or

- Ë The household had an outstanding arrears that was greater than the average monthly bill.

If a household exhibited any one of these at-risk characteristics, it was placed on a list of potential *Seeing RED* participants. A sampling scheme for selecting program participants then dictated the process for choosing which LIHEAP recipients were contacted to solicit their *Seeing RED* participation.

The lack of timely data was exacerbated even further by this change in program procedures for Year 2 participants. While LIHEAP applications were generally taken in November and December of 1999, most Year 2 *Seeing RED* participants did not begin their program participation until July of 2000 or later. As a result, more than 20 Year 2 participants had a time lapse of eight or more months between their risk assessment and the time they entered the program. More than 25 had a time lapse of more than seven months.

Even then, as with Year 1 participants, the risk assessment was never used in the identification of which *Seeing RED* services were necessary or in deciding whether or how to deliver such services.

One key process issue that was never resolved for *Seeing RED* was achieving a timely risk assessment of potential participants and converting that assessment into program enrollment. Moreover, one key process issue that was never resolved was answering questions such as: why did we collect this information? and how are we going to use it?

ACTIVITY #3: GENERATING ENERGY INFORMATION

The third primary activity of *Seeing RED* was to assist families obtain feedback and information regarding their existing energy usage. This information was developed through a four-step process:

- Reviewing the past 18 months of actual energy bills (if available--fewer if fewer were available) to determine patterns and anomalies;
- Performing a Home Energy Rating energy audit where appropriate;
- Undertaking a household appliance and lighting inventory with the customer; and
- Completing a housing and household survey about energy behavior and management practices.

Seeing RED was designed to engage families in collecting as much objective information as possible which connect family actions to dollar amounts on their energy bills. Families would examine that information to determine what appears to be trustworthy and what appears to be based on impression and opinion. Families would assess their savings priorities for the effort required and how long the savings would persist. Families would be guided through processes which ask them to make their assumptions explicit and available for reconsideration.

In fact, actual energy bills were not generally obtained for *Seeing RED* participants. In zero cases did *Seeing RED* staffpersons review past electric or natural gas bills, let alone review past energy consumption "to determine patterns and anomalies." Because this analysis did not occur, no remedies based upon the analysis could be developed or explored with the project participants.

One reason for this lack of individualized attention to past energy bills was because the entire process of developing energy information had operational implications not anticipated by the project design team when the project began. During actual program operation, one manager said, her staff always wanted to "hurry up and get to the point where they gave a refrigerator so they could feel good." One manager indicated that her staff "wanted to be able to jump to the end of the book to see the final results." It now appears that the project staff never did fully learn "all the connections," in the words of this project manager, between the *Seeing RED* visits, the education, and the long-term empowerment flowing from breaking the "there's-nothing-I-can-do" attitude by project participants.

The *Seeing RED* project methodology for energy education can be viewed as a four-step process:

Identify ----< measure/quantify ----< cost out ----< select high value opportunities

In the absence of the review of past energy bills anticipated at the inception of the project, the process for self-discovery on the part of the family devolved to two tactics. First, during the first visit, field staff took a "light bulb inventory" with family members. The cost of energy for each light bulb/fixture was calculated for a month. This was then compared to the monthly electric bill to determine what percentage of costs had been accounted for. Also, the one or two (sometimes more) highest cost bulbs were identified. The savings from replacing these bulbs with high efficiency units was calculated and the bulbs were replaced. Savings typically ran from $1.50 to $5.00 per month: $15 to $60 per year.

Project field staff reported that the light bulb inventory and replacement process accomplished several objectives. The process demonstrated that real -- sometimes strikingly large -- savings were readily accessible, something families do not tend to believe possible at the beginning. In addition, the process demonstrated that fairly modest investments could drive substantial savings.

The second step in the process of self-discovery respecting energy use involved asking family members to identify what they believed to be the highest cost energy using items in their home. The families were then provided with a meter to measure the actual electricity use of three to five key appliances. Typically these included the television, microwave oven, hair dryers, refrigerators and freezers.

After usage data was collected, the *Seeing RED* field staff worked with the family to calculate the cost of a month's usage for each of these items and to assess what portion of the monthly electricity bill had been accounted for. The results were generally shocking. Nearly universally, for example, families initially pegged televisions as the biggest energy consumer. This was, however, rarely the case.

Seeing RED's field staff reported that their experiences with investigating energy consumption confirmed an initial project hypothesis. Energy use is invisible to nearly all families. The most effective way to engage families in energy saving behavior is to actually demonstrate energy consumption and to identify ways to change it.

Despite this confirmation, the process of consumer education in the Iowa REACH program did not work as intended. *Seeing RED* was supposed to be more than simply an energy efficiency delivery project. It was designed as a mechanism through which to test how to help families through a process of self-discovery.

Seeing RED field staff were repeatedly counseled:

> Learning, learning, learning. This is our goal for the project. What are the families learning? How? What are *you* learning? Capture the learning! Be creative. Make mistakes.

No single mechanism works, field staff were told. The difference between "helping families learn" and "identifying energy efficiency improvements" was never fully resolved.

As *Seeing RED* progressed, the mechanisms used to collect information changed as well. The initial "collect as much information as possible" approach evolved into a more limited data collection scheme. This approach revolved around answering a small number of questions, but always answering the questions based on information supplied by the family. *Seeing RED* managers decided the relevant questions included:

- Where is my money going for energy costs?
- Are my expenses "abnormal"?
- What would it take to make a significant reduction in my expenses (usage patterns)? For this question, "significant" was equated to "worth the effort."
- What resources would be needed to make a significant change?

To operate in this model, field staff were told that they had to approach families in a very open-ended way. They needed to teach families a decision-making process and lead them through it. The *process* of asking the questions and having the families develop answers was just as important, if not more so, than the precise answers the family provided.

The process of seeking out energy savings in the home in this fashion did not operate effectively. The major problem was the fluidity of the project. Some field staff complained of the unstructured approach to client service delivery. The attitude, one staffer said, is "if it works, do it. That approach creates so much deviation, I don't know if I'm doing it correctly or not."

Another field staff said that "nothing in REACH is ever static. It is ever-changing. I don't know what the process is day-to-day." Program managers confirmed that they emphasized to field staff, "if something you're doing isn't working, do something else."

This fluid process, however, did not work well with staff for whom procedures needed to be spelled out. One local project manager said, for example, that one of her field staff will "do the procedures without deviation." In contrast, *Seeing RED* did not provide such procedural guidance. "We would ask for detailed procedures and it comes back very abstract," a field staffperson complained. In addition, one field staff observed, "the procedures change so fast, I can't keep up with them." It wasn't the nature of the changes that was so bothersome, this field staffperson said, as it was the extent and quickness of the change.

Unfortunately, the fluidity of the program revolves around the perception of program goals. The goal of *Seeing RED*, this staffperson incorrectly said, was to look at households with high natural gas and/or electric consumption and to find ways to lower the usage and, therefore, the energy burdens. The process was designed to get her that answer: where can energy usage be reduced?

In contrast, the local project manager was able to correctly articulate the basic approach of *Seeing RED* and how it differs from this energy reduction framework in two ways.

> First, *Seeing RED* was as much a family development program as it was an energy efficiency program, the manager said. Family development involves intensively working on barriers and problems. This may involve not only energy use but also problems with getting to work or obtaining child care. If a person is REACH-eligible, the field staff must find out about all aspects of a family's life: *e.g.*, education, domestic abuse, and housing. You never know what you'll find. . .but the question "how are you going to pay your bills" is different from the question "how can you reduce your energy costs."

> Second, the purpose of the *Seeing Red* project was not so much to allow the staff to find the energy savings potential in a home, but to instill in the family a feeling of self-discovery. The search for energy savings was a means to demonstrate to the family the potential benefits of that self-discovery. As the field staff were told, "give it some thought. Infect households with curiosity."

The effectiveness of this process of generating energy usage data is further discussed in detail below in the section examining goal-setting.

ACTIVITY #4: GOAL SETTING

The fourth primary activity of *Seeing RED* was to facilitate a household goal-setting process. This process was directed toward both household income and expenditures. In turn, household expenditures included both energy and non-energy expenditures. The goal-setting process was designed to help the family:

- identify where the biggest opportunities to reduce energy and other household costs might lie;
- identify realistic opportunities to increase household income;
- decide what level of energy cost the household could sustain;
- assess the nature and size of investment (both money and household effort) needed to produce change;
- assess the degree of motivation required to make changes;
- estimate the likely persistence of changes produced.

The *Seeing RED* project was based on the concept that the provision of services leading low-income households toward self-sufficiency involves a process of facilitated self-discovery and empowerment. Ultimately, self-sufficiency is the ability to see and make choices, rather than to react passively to external events and forces.

In its design, the *Seeing RED* project would not tell families how to achieve energy self-sufficiency; it would instead ask them to answer the following questions, and then to act on those answers:

- How much difference in my energy costs would I have to see to get me really interested in making that change happen?
- What three to five things could I do to achieve the level of change in my energy burden I have defined as necessary?
- What support could the *Seeing RED* project and its staff give me?

In this respect, *Seeing RED* was intended to be as much or more a family development project as it was an "energy affordability" project. Not all staff were qualified to treat the project as such. One of the major flaws in the program was the view of some field staff that the *primary* program goal was to lower the energy bills of *Seeing RED* participants. Several actions flowed from this mis-specification of the program goal, including:

- The focus of home visits was often on identifying energy efficiency potential rather than on consumer education;

- Home visits became energy audits rather than the process of goal-setting and priority setting;

- Staff interactions with clients focused on "teaching" rather than on a process of facilitated self-discovery;

- Forms become an end unto themselves rather than a tool to use in inquiry and discovery;

- The "familiar" (and thus "easier") tasks (*e.g.*, energy efficiency auditing) tended to crowd out the unfamiliar and not-so-easy tasks (*e.g.*, family finance discussions and household priority-setting);

- Work with particular families became more limited in scope, more superficial, and easier to bring to a close. "I've done my audit and delivered my refrigerator" compared to "I need to stay in touch to see how she's doing."

- There was a rush to complete the "bricks and mortar" help as opposed to the more amorphous self-discovery.

The difference in approach can be tangible. One field person listed the three most substantial accomplishments in her first year of the program as including:

- Insulating an unfinished attic;

- Replacing a furnace; and

- Insulating the underbelly of a home.

The most difficult aspects of the project for this staffperson were things such as getting expressions of interest, getting people to call back, and similar scheduling issues.

This problem was pervasive. A review of the energy burden reduction plans, for example, found that 28 of the 38 *Seeing RED* participants completed such a plan. Of the various “action steps” identified on the various plans, 26 involved either

replacing an appliance or furnace,[2] while 11 called for the action step being REACH-provided weatherization services. Out of the 28 plans, there were only two mentions of an action step (such as finding fulltime work) other than replacing appliances or light bulbs, obtaining weatherization, or similar tactics. Outside of REACH-provided, REACH-funded services, the action plans were devoid of participant burden reduction goals.

This result is not surprising. Many staff exhibited a continuing confusion over the goals and operation of the *Seeing RED* project. Of the three days of training, one staffperson said, fully one and a half days was devoted to family development. This aspect of the training, the staffperson said, "wasn't helpful" and "didn't tell anything about REACH." Overall, the staffperson said, the program training was ineffective because there was no relationship between the training and the *Seeing RED* project.

Additional training that "would have been helpful," the staffperson said, included additional instruction on the operation of the appliance meters, added training on calculating monthly bills based on individual appliance metering, and additional training on comparing actual usage to what could be expected as normal or typical.

AN ASIDE: PROJECT FORMS

One problem experienced during the *Seeing RED* project involved the tendency of some staff to view the completion of a form as an end unto itself in the family budgeting and priority-setting process. *Seeing RED* used a myriad of forms in its interactions with clients, including but not limited to:

- A lighting inventory;
- An energy consumption survey;
- An energy reduction plan;
- An energy burden reduction priorities form;
- A household budget form.

To appropriately use these forms required both staff skills and training. One staff person described the forms as "intrusive" and "off-putting." One management staff indicated that the forms became a barrier to accomplishing *Seeing RED* goals because filling out the forms became an end unto itself. Field staff did the forms

[2] Some plans called for replacing more than one appliance. For example, the action step could involve (1) replacing a refrigerator, and (2) replacing an electric range with a gas range.

just to do them, the manager observed, rather than using them as a tool in the education process. She observed that her field staff "weren't comfortable" in delving into family finances and budget-setting priorities, so they focused instead on making sure the forms were completed correctly.

Several problems led to the mis-reliance on the forms. First, the process of family development is a "squishy" process for those not having family development education and skills. Directions given to staffpeople included statements such as:

- Become involved with the client;
- Help the clients understand;
- Make the clients figure out themselves how to change habits and what they can afford.

In contrast, completing forms is a concrete and specific thing that can be "done" and "handed in." Eventually in one *Seeing RED* office, weekly staff meetings began to address some of the underlying staff issues. Discussions on levels of staff production were set aside. Instead, discussions focused on questions such as: how did the family feel? what did you talk about? what did the family decide?

ACTIVITY #5: FAMILY BUDGETING

Coupled with the goal-setting activity of *Seeing RED* was work to facilitate a household's budgeting process. This process was intended to help the family determine:

- whether members have any potential to increase income to the household;
- whether the family could qualify for additional programs or services which would reduce the demand on their income to meet basic needs; and
- whether family members could use their limited income in more efficient ways.

One key aspect of *Seeing RED* was to work with project participants on their household finances. Project staff were told that the work takes place at four levels "and can't skip steps."

- Ë Getting families to open up on the subject of finances, of getting this information out in conversation;

- Ë Working to discover whether information families give is complete and accurate, given the tremendous temptation of denial and avoidance;

- Ë Helping families develop skills in tracking and organizing financial information;

- Ë Helping families set priorities and make budgeting choices.

Finances are difficult for all families to talk about. This is even more true when project staff feel ill-equipped (or unequipped) to deal with them. Some of the "hot button" topics *Seeing RED* team members identified included:

- Ë Unofficial (undeclared, illegal, etc.) income;

- Ë Unpaid bills, loans, medical expenses;

- Ë Presence in the home of persons who may not have been declared on assistance applications;

- Ë Money spent on tobacco and/or alcohol;

- Ë The idea that low-income families can "control" their spending or that they can make choices.

One principal component of the *Seeing RED* household budgeting process was the home visit. Like the various forms used in *Seeing RED*, the home visit could be used correctly or incorrectly. On one end of the spectrum, the home visit could be task-directed. In this sense, the visit is viewed simply as the scheduled time and place to do the designated *things* that are on the *Seeing RED* checklist of services, *e.g.*, fill in lighting inventory, complete client survey, install/read/collect appliance meters. Viewed in this light, the home visits frequently are more mechanistic, more limited, and less helpful than they might otherwise be. One field staffpersons, for example, reported that she had four visits with each client, as follows:

- Ë During the first visit, this staffperson did the lighting inventory, the client interview, and the walk-around energy survey.

- Ë During the second visit, this staffperson introduced the appliance meters, showed the family how to use the meters, and scheduled a third visit one week later.

- Ë During the third visit, this staffperson used the metering data to calculate home energy costs and left the required forms for families to fill out to describe their financial picture.

- Ë During the fourth and final visit, this staffperson developed suggestions on how to cut costs and discussed the family's finances generally.

On the other end of the spectrum, the home visits could be goal-directed. One field staff indicated that she made contact (or attempted contact) with her *Seeing RED* participants at least once a week. This staffperson found new housing for two of her *Seeing RED* clients as an energy burden reduction strategy. She helped her clients apply for additional public assistance (such as disability benefits, Medicare, and pharmaceutical assistance to help pay for medications). She noted in her activity reports follow-up conversations about specific steps she and her clients had agreed the client would take (such as making a utility bill payment by the next week). The goal, this staffperson said, was to help the family problem-solve, not to fill out forms. The "problems," she noted, could differ week-to-week, even within the same family.

ACTIVITY #6: COMMUNITY SERVICES

In a failing similar to the household budgeting project component, the *Seeing RED* project never seriously undertook to deliver the comprehensive non-energy community services which it had initially contemplated. Those community services included things such as connecting participants with non-energy programs such as Women, Infants and Children (WIC), Head Start, job services/employment readiness, and elder services.

In addition, the *Seeing RED* project had initially indicated that it would make recommendations on non-energy "expense and income strategies" that households could use when reductions in energy usage could not deliver improvements in self-sufficiency.

A review of *Seeing RED* records reveals a striking lack in these regards. For example, the basic intake form develops no information whatsoever on sources of public assistance utilized by *Seeing RED* participants. While one question asks for the households' "source(s) of income," there is no inquiry into what programs the *Seeing RED* participants access.

This failure comes, however, despite the presence of information that could have been used to guide the process. The *Seeing RED* application takes extensive information on whether program participants have difficulties in paying designated expenses each month. The application asks whether participants are able to pay these expenses "all the time," "pay something," or only pay "when I can."

The applications revealed extensive financial troubles in the various non-energy aspects of *Seeing RED* participant lives. For example:

- 13 of the 16 *Seeing RED* participants who said they had medical expenses said they could pay those expenses only by "paying something" or paying "when I can." Ten of those 13 said they could pay only "when I can." Despite this, no inquiry was made in any REACH household about participation in Iowa's state Children Health Insurance Program (CHIP).

- 25 of the 30 *Seeing RED* participants indicated that they paid their telephone bill "all the time." In no case, however, did the *Seeing RED* inquire into participation in the federal telephone Lifeline program providing discounted service on basic local service.

- 19 *Seeing RED* participants indicated that they paid their property taxes "all the time." In no case, however, did the *Seeing RED* staff inquire into participation in Iowa's circuit breaker program, which provides property tax credits for low-income seniors and the disabled.

- Nine *Seeing RED* participants indicated they had both earned income (wages from employment) *and* dependents. In no case, however, did *Seeing RED* staff inquire into whether these households applied for the federal Earned Income Tax Credit (EITC) for which they might be eligible.

- Eight *Seeing RED* participants with children indicated that they could not pay for food "all the time." In no case, however, did *Seeing RED* staff inquire into participation into the Free and Reduced School Lunch (School Breakfast) program.

Successful Implementation

The community services aspect of *Seeing RED* was implemented to a greater extent in only one office of the *Seeing RED* project. The ability to identify needs, to match those needs with available resources, and to make appropriate

referrals, appears to be highly dependent on the ability and willingness of staff to engage in this inquiry.

The staff person addressing community services assisted her *Seeing RED* clients apply for Veteran's benefits, apply for Qualified Medicare Beneficiary Assistance (QMB), and apply for Social Security disability benefits.

This staffperson also helped two clients move from their high-energy-cost houses into lower-energy-cost apartments. In one instance, she arranged for the local community action agency to pay the rental deposit for one of these new rental units in order for the move to happen.

With every other *Seeing RED* client, however, the staff activity report documents the completion of the energy cost calculation forms, the delivery of efficiency services, and the delivery of new appliances (as appropriate). None of the community service counseling was provided.

Having found the lack of this community service counseling with respect to the potential public assistance, it then comes as no surprise that *Seeing RED* also failed to provide the counseling services on "income and expense strategies" that could be used as a self-sufficiency strategy in circumstances where reductions in energy could not be helpful.

One *Seeing RED* staffperson contacted participants to make referrals to "cold weather" services ranging from the local food pantry to local crisis assistance programs (and county relief). No other staffperson made contacts during the colder-than-normal winter months experienced during the *Seeing RED* project, let alone made referrals or recommendations on "income and expense strategies" that the household might wish to consider in response to high energy bills during those extraordinary times.

ACTIVITY #7: ENERGY EFFICIENCY INVESTMENTS

The final activity of *Seeing RED* was to make actual energy efficiency investments in the homes of *Seeing RED* participants. The goods or services that were purchased on behalf of participants are those which would produce persistent changes in participant circumstances, but which would be beyond the financial ability of the participants to acquire. Traditional envelope weatherization measures, new electric appliances, and repairs to heating systems all represent energy efficiency investments that the *Seeing RED* program made.

The energy efficiency aspects of the program worked as expected. Once staff became sufficiently comfortable with the line loggers, and in making the

calculations to translate appliance usage data into energy billing components, the delivery of replacement appliances, home energy audits, and weatherization services proceeded without a significant problem.

If anything, the ease with the offer of energy efficiency investments contributed to the existence of the "last chapter syndrome." The problem arose, one manager observed, from a reliance on former weatherization staff to deliver *Seeing RED* services.

The immediate output from a weatherization visit, the manager said, is the completion of an energy audit, the identification of cost-effective energy efficiency measures, and the delivery of energy efficiency services. "The focus of weatherization is on why is your bill high. With weatherization, you come in, do it, and bam, you're done." In contrast, family development takes a look at the whole family and its structure. It involves a continuing involvement with issues that may or may not ever be fully "resolved."

One issue that did arise from a project design perspective involved the relationship between high energy bills and high energy burdens. The *Seeing RED* project found that high burden families appeared to stand out from the LIHEAP population as a whole by virtue of their lower income. A lack of income rather than the existence of high energy bills was the primary determinant of high home energy burdens. Of the 31 Year 1 participants with data, more than 20 had incomes below $600 a month. Indeed, eight of those 31 had incomes of less than $300 per month.

The seven households with the highest January home energy burdens (electric plus natural gas bills divided by income) included seven of the eight households with the lowest incomes. The ten households with the lowest incomes all fell within the 14 highest January home energy burdens.

With these households, relatively modest home energy bills resulted in substantial energy burdens. Within these extremely low-income households, January energy bills (gas plus electric) could be reduced by 40% and still yield January home energy burdens of 30% of income or more. Within the 14 households with the highest January burdens, January home energy bills could be reduced by 40% and still yield burdens of 25% or more in every instance.

Seeing RED's home energy data makes clear that while energy efficiency is one tool to promote energy self-sustainability, it cannot be the only tool. It perhaps cannot even be the *primary* tool in a self-sufficiency project.

CONCLUSIONS AND RECOMMENDATIONS

Two distinctly different ways exist to operate a program such as *Seeing RED*. The first involves setting the staff off on a problem. This approach involves the philosophy "go do it, and then tell me about what you did." It involves providing staff the instruction: "if it works, do it and then come back and tell me what worked and why so we can tell others."

The second approach involves spelling out a process of intervention. This approach involves telling staff to do specific activities (such as weatherizing a home or installing other energy efficiency measures) and then coming back to report what impacts those activities generated.

The differences in these guiding philosophies affects a range of program implementation activities, including:

- The choice of staff both from the perspective of personal skills and from the perspective of education and training;
- The nature and intensity of training; and
- The nature of administrative oversight.

Many factors affect the nature of a pilot project such as *Seeing RED*. Funds are rarely sufficient to add new project-specific staff. Projects are temporary, making it difficult to recruit new staff and even more difficult to train new staff in technical skills. The tendency is thus to take existing staff and "add" the project responsibilities onto their existing workload.

Given these observations, two over-arching "process-level" lessons arise from *Seeing RED*. First, for permanent programs, hiring staff to work exclusively on the family development project is crucial. Second, weatherization should be a tool that the family development staff can call upon (just as they might call upon information and referral services, Head Start, LIHEAP, or other projects within the agency). Energy usage reductions should not be the focus of the initiative.

Hiring, training, and supervising staff are all critical elements to a family-development-based program such as *Seeing RED*. Based on the problems experienced by *Seeing RED*, recommendations for future programs, or for expansion of *Seeing RED*, include:

- Hire the right people. A project such as *Seeing RED* requires staff with good people skills and more. It's a difficult task to work on family budgets. Unfortunately, if the staff is uncomfortable with the process, the family will be uncomfortable also. Moreover, as one field staff said, you have to know

when you've been in the home too long, whether you can spend one-half hour or three hours, whether you need two visits or eight.

- Family development should be viewed as a specific educational discipline involving specific technical skills. Having staff trained in "family development" involves more than having "good people skills." Staff education and skills in family development and social work are more important than a background in fuel assistance or weatherization.

- Immediate and continuing family development training is critical. This family development training needs to focus on working with families as much or more than the bricks and mortar energy skills.

- Many project skills are best taught through mentoring. Training, no matter how extensive or frequent, cannot serve the function of an experienced on-site mentor.

- Training must emphasize time and again that the family development work often seeks to address behavior that the staff can only influence, not directly control.

- Staff has to devote all or substantially all of their job to family development. Otherwise, the specific short-term concrete tasks crowd out the long-term, but more amorphous, empowerment tasks.

- Very specific week-to-week staff guidance is necessary. Who did you talk to? What did you talk about? Where will you go with that? What gave rise to that conversation? Extensive participatory debriefings, role-playing and problem solving, is helpful.

- Pilot projects need to be narrowly circumscribed. Energy agencies frequently will not have the appropriate staff skills and education within their existing staff. Hiring from the outside, however, is constrained by limitations on staff budget; by the fact that pilot projects frequently represent part-time work; and by the fact that staff positions for pilot projects are, by definition, temporary in nature.

- Appropriate case loads are essential. When the number of clients per worker becomes too great, the worker presses to finish the specific tasks yielding specific outputs rather than to engage in the less focused process of education and self-discovery with less evident outputs.

- Fewer discrete tasks should be provided that are "required" to be accomplished. Training should focus on providing staff with tasks that can be used as tools to address problems as appropriate, rather than tasks that are part of a prescribed process that is expected to be completed.

- Continuous client contact should be expected. While contact should not become an end unto itself, it is the *sine qua non* of successful interventions. Familiarity and trust flow from building a relationship, not from having a series of "meetings" or "appointments."

The *Seeing RED* PROJECT successfully delivered considerable energy efficiency services to low-income households that were in need of such services. Unfortunately, the *Seeing RED* project was not intended to be an energy efficiency project. From a process perspective, and for all the reasons and in all the ways identified above, the *Seeing RED* project did not deliver the comprehensive, holistic services that it had originally promised in furtherance of household energy self-sufficiency.

PERFORMANCE OUTCOMES

A family's energy self-sufficiency was the outcome sought by the Seeing RED project. Energy self-sufficiency can be measured in terms of acquiring reasonable energy consumption without the threat of large arrears or loss of service or the need to make unreasonable budget choices between competing life necessities.

Self-sufficiency is not an outcome that "just happens." Intermediate steps must be reached along the way. The intermediate impacts projected for *Seeing RED* participants included:

- Understanding the source of energy costs and the relative contribution of various uses;
- Learning "income and expense strategies" to use as alternatives to reductions in energy bills as mechanisms to improve self-sufficiency; and
- Paying energy costs more completely and more promptly.

One key aspect of Seeing RED was its emphasis that it was not merely a weatherization program. Reducing energy usage is a tool to be used, one means to the desired end. A reduction in energy consumption does not necessarily connote program "success" nor does a failure to reduce usage and/or bills connote "failure."

To evaluate the outcomes of the *Seeing RED* project, data was obtained for Year 1 *Seeing RED* participants. This data documents the home energy bills and payments from mid-1998 to early 2000. Not all data is available for all participants. Because "Year 2" participants did not enter the program until mid- to late-2000, it was not possible to obtain information on those customers.

Home energy bills and payments were considered from several different perspectives:

- The number of occurrences irrespective of dollars (*e.g.*, the number of payments made with each payment being of equal weight irrespective of size);

- The number of accounts (*e.g.*, each account with at least one payment made in a particular month with accounts having two payments undifferentiated from accounts having one payment;

- The number of dollars (*e.g.*, the dollars of payments made on an account in a given month irrespective of whether those dollars were made in one payment or in more than one payment).

At times, information was examined for individual *Seeing RED* participants. At other times, aggregate data for all *Seeing RED* participants for which data was available was considered.

Data is generally indexed to control for the time of year. Since some customers entered *Seeing RED* in March, while others entered in August, to compare data in the sixth month after participation began would compare September bills and payments to March bills and payments. The use of indexes for the payment measures avoids this pitfall.

These results have not been adjusted for weather. It would be inappropriate to do so. The outcome sought by the REACH program was energy self-sufficiency for REACH participants. One of the tendencies that must be resisted in results-oriented analysis is to dismiss outcomes with the observation that "I couldn't control that." As the U.S. Government Accounting Office (GAO) has said about outcome-based program evaluation:

> Many agencies have a difficult time moving from measuring program activities to establishing results-oriented goals and performance measures. The fundamental reason that this is so difficult is that, to manage on the basis of results, agencies must move beyond what they control--that is, their activities--to focus on what they merely influence--their results.[3]

[3] James Hinchman (Acting Comptroller General). (June 24, 1997). ***Managing for Results: The Statutory Framework for Improving Federal Management and Effectiveness***, at 8, Testimony before U.S. Senate Committee on Appropriations and Committee on Governmental Affairs (GAO/T-GGD/AIMD-97-144).

Households do not face weather-normalized bills. Nor are either LIHEAP benefits or customer incomes weather-normalized. If a heating bill increases as a result of either colder weather or high prices, the customer must pay that higher bill with its existing resources.

Quarterly income is obtained from the LIHEAP application form for the first year of participation. Annual income is the quarterly income multiplied by four, while monthly income is the quarterly income divided by three.

Data on non-energy expenditures is taken from the initial interview form. Data on project satisfaction and non-consumption/non-billing factors is taken from project exist interviews.

ENERGY BURDEN OUTCOMES

Multiple ways exist to measure a household's energy self-sufficiency from a household budget perspective. Clearly, whether the household pays or fails to pay its bill on a full and timely basis, standing alone, cannot be the exclusive measure of a sustainable home energy bill. The paid-but-unaffordable bill is a well-recognized phenomenon.

Because of unaffordable burdens, low-income consumers are frequently forced to make unreasonable budget decisions between competing household necessities (*e.g.*, heat or eat), and be forced to engage in a wide variety of dangerous and/or unhealthy activities in an effort to keep paying their utility bills. In addition, these energy burdens have been found to represent an impediment to low-income consumers taking constructive actions to address their inability-to-pay.

The Iowa State Department of Human Rights has documented the impacts of excess home energy burdens. According to a study performed by DHR, Iowa's LIHEAP recipients exhibited the following characteristics in the 1999/2000 winter heating season as a result of unaffordable home energy bills:

- Over 12 percent went without food to pay their home heating bill. Nearly one-in-ten Iowa low-income households with children under the age of 6 went without food at times in order to have sufficient funds to pay their home heating bills. More than one-in-ten households with at least one person over age 65 went without food;

- More than one-in-five went without medical care to pay for heating bills. This included not seeking medical assistance when it was needed, not filling prescriptions for medicine when a doctor has prescribed it, and/or not taking prescription medicines in the dosage ordered by the doctor;

- Almost 30 percent reported that they did not pay other bills, but did not elaborate as to which bills were not paid. In addition to not paying other bills, many low-income households incurred debt in order to pay both their home heating bills and other basic necessities: borrowed from friends and/or neighbors; used credit cards to pay for food and other necessities, or did not pay the heating bill.[/4/]

The energy self-sufficiency of a household must thus be measured, in part, by the burden the household energy bill places on the household's income. If a household's energy burden is too high, the household must be deemed to be not self-sufficient. Inherent within the concept of self-sufficiency is the ability to make home energy payments without "robbing" other aspects of the household's economic well-being.

In reaching this conclusion about self-sufficiency, it thus becomes clear that the direction of movement in a household's energy burden, without more, provides no insight into the improvement or degradation of a household's energy self-sufficiency. A household with an energy burden of eight percent of income, for example, cannot be said to be self-sufficient if the home energy bill is achieved only through substantial deprivation (*e.g.*, maintaining temperatures of less than 65°). Similarly, if by weatherizing a home, a household is enabled to open up all rooms of a house rather than closing off all but one or two, the household's energy self-sufficiency can be said to have improved, even if the home energy burden increases as a result.

The self-sustainability of home energy may take on different textures at different times of the year. While home energy burdens are often measured exclusively on an annual basis, it is not clear that this measure completely captures self-sufficiency. Home energy burdens not only may, but can reasonably be expected, to vary on a seasonal and monthly basis. Burdens will vary based not only on changes in the level of the home energy bill, but on changes in household income as well.

[/4/] Joyce Mercier, Cletus Mercier and Susan Collins (June 2000). ***Iowa's Cold Winters: LIHEAP Recipient Perspective***, Iowa Department of Human Rights: Des Moines (IA).

Given this discussion, the assessment of energy self-sufficiency of *Seeing RED* participants, using other than payment metrics, is based on the following measures:

- Annual home energy burdens in relation to generally accepted measures of sustainable burdens;
- Maximum monthly burdens over the course of the first year of *Seeing RED* participation;
- Household resiliency in response to temporary nonpayment.

Annual Home Energy Burdens

The self-sufficiency of home energy for *Seeing RED* participants can be measured in terms of the sustainability of home energy bills. A home energy bill (for both heating expenditures and base load electric (non-heating) expenditures should be no more than six to eight percent of household income for it to be sustainable.

Concluding that a home energy burden should not exceed between six and eight percent of household income is supported by a variety of observations. First, according to the U.S. Department of Housing and Urban Development (HUD), a household experiencing total shelter costs in excess of 30 percent of income is likely to be over-extended. HUD defines total shelter costs to include housing (rent or mortgage) plus the cost of all utilities except telephones.

Second, home utility costs should be a sustainable portion of those total shelter costs. According to the Federal National Mortgage Association (FNMA or Fannie Mae), for example, utility bills should not generally exceed 20% of total shelter costs. In addition, the Consumer Expenditures Survey of the U.S. Department of Labor's Bureau of Labor Statistics reports that home energy expenditures average roughly 20% of total shelter costs. This is true both nationally and for each region of the country.

Accordingly, if total shelter costs for *Seeing RED* participants are in the range of 30% (or even 40%) of income, this would yield sustainable utility burdens of from 6% (30% x 20%) to 8% (40% x 20%) of income.

Despite their participation in *Seeing RED*, 23 of the 26 participants[5] had annual home energy burdens which exceeded a sustainable 8% level. The excess energy

[5] Income and energy bill information was available for 26 of the 38 Year One *Seeing RED* participants.

burden was not by a little. Even setting aside the participants reporting nearly zero income, more than one-fifth of *Seeing RED* participants had annual energy burdens of higher than 40%. An additional eight had home energy burdens of between 20% and 40%, and an additional three had home energy burdens of between 15% and 20%.

Home Energy Burdens after *Seeing RED* Participation	
8% or less	3
9% to 15%	5
16% to 20%	3
21% to 40%	8
40% to 100%	5
100% or more	2
Total	26

Maximum Monthly Energy Burdens

One problem with measuring home energy burdens as a percent of annual income is that this measure assumes both a constant monthly home energy bill and a constant monthly income. Neither will necessarily be true.

A reliance on levelized monthly budget billing will help utility customers spread their annual home energy bills evenly over the year. Levelized budget billing takes much of the volatility out of a household's home energy bill. (Not all volatility will be eliminated, since most budget billing plans are subject to mid-year revision if weather or prices make clear that the original budget billing amount will be substantially in error.)

Seeing RED did not move a substantial number of participants to the use of levelized budget billing. Of the 26 *Seeing RED* participants with billing data, 11 used levelized budget billing at the end of their first year of *Seeing RED* participation. All 11 of these customers, however, also used budget billing *prior* to their *Seeing RED* participation. No new budget billing participation arose within these first year participants.

Seeing RED participation almost universally began during warm weather months. One attribute of levelized budget billing is that bills tend to be higher than they otherwise would be during the warm weather months and lower during the cold weather months. Budget billing involves a redistribution of billed amounts.

Given the warm weather at the time of *Seeing RED* enrollment, and the fact that a corresponding enrollment in budget billing would have actually *increased* bills at

that time, the failure to move *Seeing RED* participants to levelized budget billing is not surprising.

Given the failure to enroll in levelized budget billing, however, one aspect of energy self-sustainability that must be considered involves the maximum monthly energy burden a household experiences. The maximum monthly home energy burden is the highest monthly bill in a year divided by one-twelfth of the household's annual income.

Seeing RED participants experienced maximum monthly home energy burdens well above sustainable levels. Of the 26 first year participants with data, 15 had maximum monthly burdens of 40% of income or more. Five of those 15 *Seeing RED* participants had maximum monthly burdens of 100% of income or more.

Maximum Monthly Home Energy Burdens after *Seeing RED* Participation	
8% or less	0
9% to 20%	6
21% to 40%	5
41% to 100%	10
101% to 140%	3
141% or more	2
Total	26
With some households, the "maximum" is also the levelized monthly budget billing amount.	

The non-sustainability of home energy burdens at these levels is cushioned by the receipt of benefits through LIHEAP. By definition, *Seeing RED* participants were also recipients of winter heating assistance through the LIHEAP program.

Of the 15 customers not on levelized budget billing, twelve experienced their highest monthly bill in the months of December, January or February. Of these twelve customers, eight received their annual LIHEAP payment either the month before their highest bill (n=1), the same month as their highest bill (n=4) or the month after their highest bill (n=3).

While the maximum monthly burden indicates an exposure to risk, therefore, *Seeing RED* participants had substantial public assistance dollars to help pay those high winter home energy burdens. This assistance, of course, was not a result of *Seeing RED* participation. Instead, *Seeing RED* participants were drawn from LIHEAP recipients with which to begin due to the nature of the program.

Winter Home Energy Burdens

If expanded to the entire winter period, *Seeing RED* participants had a seasonal unaided inability to pay their home energy bills, notwithstanding their *Seeing RED* participation. None of the program participants had winter home energy bills that would have been sustainable in the absence of some form of outside assistance. While nine of the 26 *Seeing RED* participants with data had winter home energy burdens of less than 20% of income, 13 had burdens –again before LIHEAP—of 40% of income or more.

Unaided Winter Home Energy Burdens after *Seeing RED* Participation	
8% or less	0
9% to 20%	9
21% to 40%	4
41% to 120%	11
121% or more	2
Total	26
"Unaided" means before subtracting LIHEAP benefits.	

As discussed above, however, home energy bills for *Seeing RED* participants were not "unaided." These customers received substantial LIHEAP assistance to help pay their home energy bills. The 26 *Seeing RED* participants with data received $14,005 in bills during the months of December 1999 through March 2000. During that same time period, *Seeing RED* participants received $5,080 in LIHEAP benefits. The customers receiving LIHEAP benefits during those months received an average of $220 in LIHEAP dollars to help offset their winter bills.

The failure to achieve sustainable home energy burdens comes as little surprise. As discussed in more detail above, *Seeing RED* found early on that the distinguishing characteristic of high energy burdens amongst *Seeing RED* participants was low-income, not high energy bills. Despite this, *Seeing RED* staff did not perform the comprehensive, holistic, services that could contribute to home energy self-sufficiency.

PAYMENT OUTCOMES

A second attribute of the self-sustainability of home energy within *Seeing RED* participants is achieving an ability to make utility bill payments in a full and timely fashion. This section of the impact evaluation examines billing and payment data to determine the extent to which full and timely payments have been made. The *Seeing RED* project generated mixed results in this regard.

Payment outcomes have been measured using the following metrics:

- **Complete payment:** If the customer is billed $100, the company wants to collect $100.

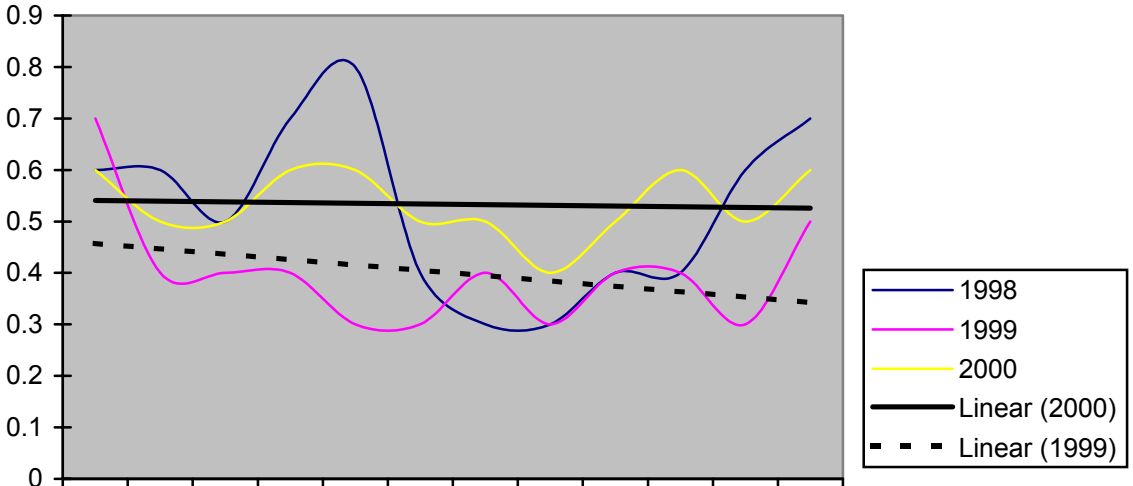
- **Prompt payment:** If the customer receives a bill that is due on the 20th of the month, the company wants its payment no later than the 20th of the month.

- **Regular payment:** If the customer receives 12 bills in a year, the company wants 12 payments in a year, one in response to each bill.

Payments Resulting in $0 Balances

Despite the combination of LIHEAP benefits and REACH services, a relatively small number of REACH participants were able to make monthly payments that reduced their account balance to zero dollars, even when monthly payments were made. Figure 1 below shows an index of the number of accounts on which monthly payments were made to the number of accounts on which such payments reduced the account balance to $0. If the index is 1.0, 100% of the payments reduced the balance to $0. If the index is 0.5, 50% of the payments reduced the account balance to $0. Accounts on which no payments were made in a month are not included in this analysis. A $0 balance includes those accounts having credit balances.

Index: Payments Resulting in $0 Balance to Total Payments



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	0.6	0.6	0.5	0.7	0.8	0.4	0.3	0.3	0.4	0.4	0.6	0.7
1999	0.7	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.5
2000	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.5	0.6	0.5	0.6

The data shows that while Year 2000 performance is a marked improvement over Years 1998 and 1999, the population of REACH participants does not regularly zero out its account balance.[6] In the best performance year (Year 2000), the trend among Seeing RED participants involved just over half of all customers who made payments, making payments sufficient to bring their account balance to $0.

The failure to bring their accounts current through a monthly payment in a particular month is not necessarily bad news from the perspective of a utility. The Iowa REACH participants demonstrate that they will make "some" payment on their accounts, even if the payment is only in partial satisfaction of their total outstanding arrears. The total number of payments made is discussed in more detail below.

Dollars of Monthly Payments to Dollars of Monthly Bills

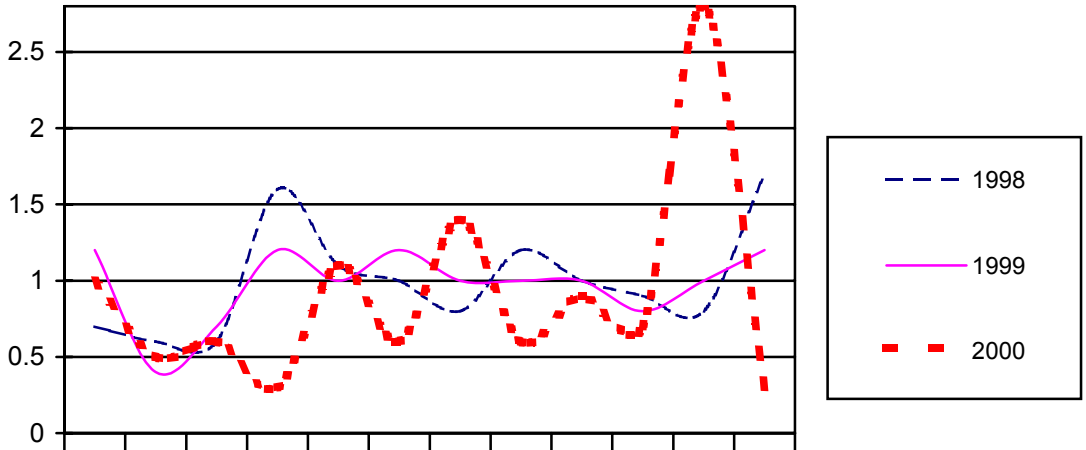
If a REACH participant is not generating a $0 balance in a particular month, the next question which marches forward is whether the customer is at least "catching up," or whether that customer is falling further behind. In order to maintain the status quo relative to outstanding arrears, the customer must at least make payments equal to the total bill.

In Figure 2 below, customer bills are indexed to customer payments (lagged by one month).[7] If the index is 1.0, the total dollars in payments exactly equaled the total dollars in bills from the prior month. If the index is 0.5, the payments equaled 50% of the bills, while if the index is 1.2, the payments equaled 120% of the prior month's bills. A payment of more than 100% of the bill indicates that the customer not only paid the entire current bill, but made some payment towards arrears as well.

[6] May 1998, a month in which 80% of the payments resulted in $0 balances, represents a month in which few payments were made at all, rather than a month where a substantial number of accounts were current.

[7] Thus, for example, March payments are compared to February bills.

Index: Dollars of Payments to Dollars of Bills



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	0.7	0.6	0.6	1.6	1.1	1	0.8	1.2	1	0.9	0.8	1.7
1999	1.2	0.4	0.7	1.2	1	1.2	1	1	1	0.8	1	1.2
2000	1	0.5	0.6	0.3	1.1	0.6	1.4	0.6	0.9	0.7	2.8	0.3

The REACH participants as a group fell further and further behind on their utility account balances, as shown in Figure 2. Only in November of 2000, when the REACH participants received substantial LIHEAP payments, did the total payments substantially exceed the prior month's bill. This month's data, however, should be somewhat discounted. The December LIHEAP payments are not designed to pay the November bill –remember that the November bill reflects October usage-- but rather the larger heating bills that would face the REACH participants in the winter heating months. Indeed, the extremely low coverage ratio in December confirms that the REACH participants did *not* make payments to cover those bills in that month. (In effect, those bills had been prepaid the prior month.)

The fact that REACH participants as a whole were falling further and further behind is not inconsistent with the observation that customers making payments, were increasing the number of times that they zero out their account balance to their respective utility companies. The zero dollar balance discussion relates only to customers who made payments in a month. In contrast, the discussion above examining the aggregate dollars of payments made against the aggregate dollars of bills considers the entire REACH population for which data is available each month.

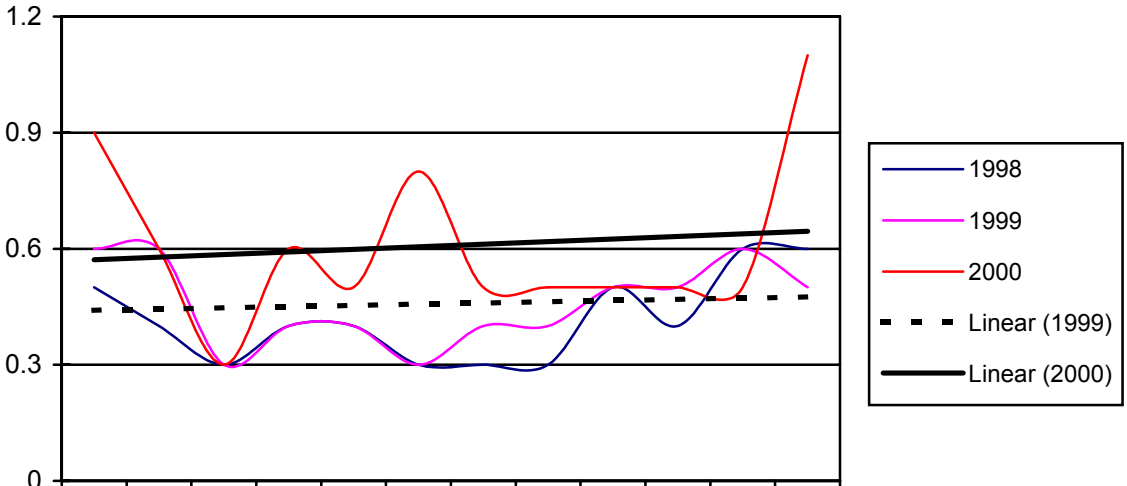
Total Number of Payments vs. Total Number of Bills

The increase in the number of Year 2000 payments resulting in a $0 balance is not the result of an increase in the total number of payments made relative to the total number of bills issued each month. If an increase occurs in the number of payments made, there is an increase, also, in the likelihood that any given payment will reduce the account balance to $0. The July bill is easier to pay, in other words, if the customer has made *some* payment toward the June bill, even if the June payment is only a partial payment.

Figure 3 shows that about six REACH customer payments were made each month for every ten REACH customer bills that were issued in the year 2000. The number of payments peaks in December and January when LIHEAP payments are applied to customer accounts. A secondary peak is reached in June when bills do not reflect significant heating consumption.

The annual dips in the number of payments made by REACH customers in February and March does not necessarily reflect a nonpayment toward outstanding accounts. Instead, the LIHEAP payments that are made in December and January often leave credit balances on customer accounts. These credit balances do not call for a customer payment in order for the customer to remain current on his or her account.

Index: Payments Made to Bills Rendered



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.4	0.6	0.6
1999	0.6	0.6	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.6	0.5
2000	0.9	0.6	0.3	0.6	0.5	0.8	0.5	0.5	0.5	0.5	0.5	1.1

While the customer may be well-served to make a payment of *any* amount even in those winter months when LIHEAP has left a credit balance –this means that a lower dollar payment will be required on some future bill when there is no LIHEAP offset—this rarely occurs. Accordingly, the LIHEAP payment has the impact of completely paying one month's bill for winter heating consumption while leaving future bills to be absorbed completely out of the REACH participant's monthly income at that time.

Winter Payments

Iowa REACH participants routinely made payments during the 1999/2000 winter heating months notwithstanding the service termination protections they would receive through Iowa's winter shutoff moratorium. Data was available for 29 of the 38 Seeing RED participants. The winter heating months were defined to include December 1999 through March 2000.

More than 40% (12 of 29) of the *Seeing RED* participants made four payments during the four months of the 1999/2000 winter heating season. Of these 12 participants, ten made payments that were equal to 100% of the bills rendered during the four winter months.

In addition, seven other *Seeing RED* participants made payments equal to 100% of the bills rendered in the four winter months, even though they made fewer than four payments. Particularly when LIHEAP payments represent a large part of the winter heating bills, fewer than four payments are needed to completely pay the winter bills.

Only five of the 29 Seeing RED participants made one payment during the four winter months. These payments ranged from 30% to 100% of the total winter bills. The five *Seeing RED* participants that made only one payment were billed $2,609 and made $1,392 in payments (53%).

In the aggregate, *Seeing RED* participants were billed $16,118 in the four months of the 1999/2000 winter heating season and made $14,495 in payments. Iowa utilities collected 90% of the revenue billed during the winter months through winter month payments. Twelve *Seeing RED* participants made payments in excess of their winter bills, meaning they not only paid their current bills but paid part of their arrears as well. Even excluding the excess payments over the current bill from the aggregate revenue collected, *Seeing RED* participants paid 82% of their winter bills during the winter months.

High-Arrears Participants

The performance of high arrears Iowa REACH participants did not yield positive account payment results. Of the original 36 Iowa REACH participants, seven had arrears of greater than $400 in the month in which they entered REACH. By the sixth month of REACH participation, only three of those participants had reduced the balance on their accounts. These three did so only with the help of substantial LIHEAP payments made before high winter heating bills were incurred.[8] Others had seen their arrears increase during their REACH participation.

The high arrears customers did not increase the number of utility bill payments made. These REACH participants made 27 monthly payments (out of a potential 42) in the six months after entering REACH, compared to 27 payments in the six months prior to entering REACH. Since these REACH participants entered the program primarily in warm weather months –six of seven entered the REACH program in either June or July-- it was not high winter heating bills that prevented bill payments from being made.

Moreover, payments were "counted" in this analysis irrespective of the size of the payment or the extent to which the payment represented a full or complete payment toward the current month bill. Any dollars paid on behalf of the account was counted as a "payment." Indeed, three of the 27 monthly payments that were made involved $40 LIHEAP benefits that were made in November 1999.[9]

[8] Most Iowa REACH participants entered REACH in June and July of 1999. The sixth month of participation thus occurred in December and January, after LIHEAP payments were made but before high winter consumption was reflected on customer bills.

[9] In other months, there may have been LIHEAP payments, but customers made their own payments in addition to LIHEAP.

SUMMARY AND CONCLUSIONS

The ultimate performance of Iowa's *Seeing RED* project presents a mixed bag of conclusions. It is neither entirely good nor entirely bad.

SEEING RED PERFORMANCE OUTCOMES

On the one hand, *Seeing RED* cannot be found to have delivered the customer self-sufficiency outcomes it sought to generate. A review of the outcomes does not support the conclusion that self-sufficiency was achieved:

- After entering *Seeing RED*, did program participants experience a sustainable annual home energy burden? No. *Seeing RED* customers routinely experienced home energy burdens in excess of sustainable levels.

- After entering *Seeing RED*, did program participants experience increased risk due to the high levels of winter month home energy bills? Yes. *Seeing RED* customers experienced winter home energy bills that would, without outside assistance such as LIHEAP, consume 40% or more of their winter incomes.

- After entering *Seeing RED*, were program participants able to pay their outstanding utility arrearages in a full and timely fashion? No. Even limited to accounts on which payments were made, only half of all utility bill payments from *Seeing RED* customers resulted in a $0 balances on their utility accounts.

- After entering *Seeing RED*, wee program participants able to maintain their account balances or catch-up on arrears? No. Program participants fell further and further behind on their utility bills during program participation. In particular, *Seeing RED* participants who entered the program with high arrears maintained and increased their level of arrears after entering the program.

There were positive aspects to the payment performance of *Seeing RED* participants. For example, after entering *Seeing RED*, program participants, with the assistance of LIHEAP, were generally able to make winter payments. Of the 29 *Seeing RED* participants with data, 17 made winter payments equal to 100% or more of their winter bills. Indeed, *Seeing RED* participants paid more than 80% of their winter utility bills during the winter months.

Despite this favorable news, however, the lack of sustainable home energy burdens cautions against declaring these payments as being unqualified "good news." The Iowa LIHEAP program, in particular, has documented what LIHEAP recipients do in their efforts to pay their bills. The "paid-but-unaffordable" bill is a well-recognized concept. And, the "paid-but-unaffordable" bill is prevalent amongst Iowa LIHEAP recipients.

In a different way, since *Seeing RED* staff did not operate the program in the way it was originally planned, it is not possible to determine whether the program as designed would have been able to make the difference on either payment-related or burden-related performance outcomes. For example:

- Had *Seeing RED* staff assisted program participants apply for the Earned Income Tax Credit (EITC) for which they were qualified, as a way to generate household dollars to pay winter utility bills, would those bills have been paid completely?

- Had *Seeing RED* staff assisted program participants with employment or job-preparedness training and placement, would incomes have increased and burdens been reduced?

- Had *Seeing RED* staff helped program participants pick-up a few hundred dollars here and there, whether through help in enrolling in the telephone lifeline program, or in claiming property tax circuit breaker credits, or in accessing pharmaceutical assistance to help pay medicine bills, would customers have been able to use the "freed-up" dollars to pay their otherwise unpaid home energy bills (or to offset the adverse budget decisions necessarily made to pay their home energy bills)?

These are the questions which remain unanswered by the Iowa REACH program.

SEEING RED AS A LEARNING TOOL

Despite the above observations, on the other hand, *Seeing RED* was a tremendous success as a learning tool. In fact, *Seeing RED* should not be viewed exclusively as a service delivery program, the success of which can be measured exclusively by client-based outcomes. Instead, *Seeing RED* was a research project, a mechanism

to learn how (and how not) to deliver the comprehensive, holistic services that underlie the intervention design included in the Iowa REACH proposal. Based on the *Seeing RED* experience, multiple lessons have been learned on how to identify and enroll customers to be assisted, how to staff a project, and how to train, supervise and administer such a staff.

One additional lesson of *Seeing RED* is that the delivery of such services cannot be a replacement for fuel assistance. From both an outcome-based and an operational perspective, the delivery of family development interventions must be highly targeted to a select group of customers and delivered by a highly qualified staff. It would be impossible to deliver such services to the Iowa LIHEAP population (or any substantial portion thereof).

In this sense, the lessons of *Seeing RED* are somewhat disturbing. One lesson is that it is not practical to piggyback the effective delivery of *Seeing RED* services on to other staff functions. The family development functions really require a dedicated staff. One lesson is that it is not practical to deliver effective *Seeing RED* services through entry level staff, or through staff which lack formal education and training in family development. One lesson is that it is not possible to deliver effective *Seeing RED* services to large case loads. One lesson is that it is not possible to deliver effective *Seeing RED* services through a limited number of client contacts. Ongoing "relationship building" is essential to the effective delivery of services. These lessons are "disturbing" in that each –independence from other job functions, high expertise, low case loads, extended contacts in time and frequency—all carry a price tag. *Seeing RED* does not allow a quantification of that price tag other than to conclude that it requires more than *Seeing RED* had available.

In sum, the family development intervention tested by Iowa's *Seeing RED* project deserves emulation, whether in Iowa or elsewhere. Iowa is better prepared to deliver such supplemental services having operated its *Seeing RED* program.