

**Final Report of the Oregon Housing and
Community Services Department Residential Energy Assistance
Challenge Option (REACH)**

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**Prepared by
Public Policy Research
408 NW 12th, Suite 213
Portland, Oregon 97209
Tel: (503) -525-2424
Fax: (503) 525-2323
E-mail: rkatzev@reed.edu**

Executive Summary

Overview

REACH is a Federally funded residential energy assistance program, which provides a variety of services and benefits to clients who are recipients of a Low-Income Home Energy Assistance Program (LIHEAP) in the State of Oregon. REACH services and benefits include co-payments on energy bills, energy education, residential repair and weatherization assistance, family services related to budget management and payment plans and case management. During the past two years the program has been implemented by the Oregon Housing and Community Services Department in twenty-six Oregon counties by thirteen community action agencies. The current report constitutes a comprehensive review and evaluation of the program during this period.

REACH Goals

REACH was designed to assist low-income households more effectively manage their energy costs and stabilize their social and economic life. The program attempted to develop resource management skills that led these households to:

- Reduce their energy consumption
- Remain current in their fuel bill payments
- Reduce home heating and/or cooling costs
- Eliminate health and safety risks to family members

Project Intervention

The REACH project developed a coordinated cluster of services and educational activities to assist low-income families better manage their energy costs. Because the program was structured on the needs of individual households, each household received a somewhat different package of services that was negotiated separately with each client, based on household need and service availability in the community.

Services and benefits included co-payments on utility bills, energy education, residential repair and weatherization assistance. In addition, family services related to budget management, payment plans and case management were provided. Local agencies sought to leverage resources for REACH operations and negotiate with energy suppliers to develop payment plans for reducing arrearages of REACH participants.

Evaluation Methodology

The REACH Evaluation was conceived as a quasi-experimental design with a control group and 2 treatment groups. The Control group was drawn from a sample of LIHEAP recipients at each Community Based Organization (CBO) who received an energy assistance payment and in-office education but did not participate in the REACH Program.

The REACH treatment groups consisted of an Education + Weatherization Group that received the complete set of services and benefits of the program, including a household weatherization and equipment repair. The second REACH treatment group, Education Only, received all the program services and benefits as in the previous group, with the exception of the weatherization/equipment repair component.

The Process Evaluation examined the program operations and activities in order to gauge how well REACH was implemented and the satisfaction of the staff and clients with the program. The Outcome Evaluation focused primarily on the degree to which REACH met the Project Goals as noted above.

REACH Clients

Participants in the REACH Project were drawn from LIHEAP recipient households that had an arrearage at least 1/2 of the annual LIHEAP Payment and an energy cost burden greater than 15% of the total household income. In addition, participants were chosen if their house structure or heating equipment represented a potential health or safety risk or they appeared to be highly motivated to participate in the program.

A total of 1,578 households completed the Project during the past two years. The evaluation focused on the Project's impact on a representative sample of 286 of these participants who occupied all electric households. They included a total of 55 males and 230 females with an average age of 46.1 years of age. Participants were predominately Caucasian Americans with few from minority groups. The mean annual income across all agencies and participants was \$6,351 and the mean number of members per REACH participant household was 2.70.

Client Survey Results

At the conclusion of their participation in the program, clients were asked to complete a questionnaire about their REACH experience. The overwhelming consensus of participants, as revealed during both years the Client Survey was administered, was that REACH was extremely beneficial to them and to their families. The participant's comments reflected the many ways in which it had a positive impact on their household environment and their ability to better manage their energy resources. They also expressed a clear desire that the program be continued in the future.

These trends are most clearly shown by the following findings:

1. With the exception of Money Management, approximately 80% of the clients responded that the various REACH activities (e.g. home walkthrough, action plan meetings, weatherization measures, service referrals, etc.) were either "Quite Useful" or "Extremely Useful."
2. Approximately 80% of the participants reported that the REACH program motivated them to improve the energy efficiency of their home and that it led them to undertake at least 1 or 2

weatherization measures. In 1998 46% reported an average of 2.2 repairs per household, while in 1999 60% of the participants reported an average of 1.6 repairs per household.

3. REACH participants conveyed a uniformly high level of overall satisfaction with the program and its various components, during both years of its operation. The specific strengths they were most likely to single out included the personal contact with the staff and the financial, educational and material benefits of the program.

Staff Survey Results

REACH was held in similarly high regard by the CBO Program Staff who responded to the Staff Survey at the end of each year of the program.

1. 95% of the agents indicated they felt that the program was meeting its intended goals and that they were both realistic and effectively designed to achieve these purposes.
2. A sizeable majority of the agents judged the *organization* and *administration* of the program in a positive light, with a notable improvement during year 2 in the overall level of satisfaction with such administrative features as the adequacy of staff time and volume of paperwork.
3. The majority of the staff also rated each of the 14 different elements of Program Delivery rated on the survey as either "Good" or "Excellent," with a modest improvement in these ratings in most of these areas in year 2 of the program.
4. During both years of the program, the majority of the staff held that the program had a "Modest" influence on client knowledge of energy efficiency and commitment to adopt such actions. Yet a sizeable minority reported that REACH did have a "Significant" impact in these two areas, a view that is consistent with the one held by the majority of participants.
5. A clear majority of the staff reported they were "Very Satisfied" in their overall evaluation of REACH. Indeed, the program received more (69%) "Very Satisfied" ratings during its second year than it had in the first (49%). In agreement with the clients, they also reported its principal strengths consisted of the personal contact and material benefits it provided.

In short, the staff felt the REACH Program was offering needed resources to low-income families who would otherwise go without them. Many stated that, while it is difficult to determine if these benefits will continue to have a sustained influence on behavior, the REACH Program offered clients a wide array of useful services in an very effective, well designed manner.

Energy Outcomes

The major findings from the outcome evaluation revealed that:

- In the year they participated in the program, both groups of REACH participants consumed 11% less energy (metered electricity) than they had in the pre-REACH year. This reduced level of *energy usage* was sustained in the post-REACH period
- Both groups of REACH clients also reduced the amount of their utility company *arrears* as a result of their participation in the program. The decrement in the Education Only group was \$55 (42% reduction), while in the Education + Weatherization group it was \$77 (48% reduction).
- Participation in the REACH program also led to an average decline of 2.5% in the *energy burden* for both experimental groups.

Eliminating energy related health and safety risks to family members was also a major goal of the REACH Project. Its success in meeting these objectives is best revealed by the reports of clients on their exit survey. On each administration of this survey, well over two-thirds of the participants responded that REACH had helped to make their home a healthier and safer environment.

In addition, 80% reported that REACH had helped to make their home more comfortable and energy efficient than it was before they had entered the project. There was also a difference between the two groups of REACH clients on this measure, with those who received both Education and Weatherization reporting that the program helped to make their household more comfortable than those who received Education Only.

The REACH program also sought to insure that 50% of the households would *not* incur new arrears after 6 months. The results indicate that initially 109 (59%) of clients had arrears, but that after they had completed their participation in the program, only 63 (36%) continued to have arrears. This is 14% better than the program objective.

Finally, the program attempted to lower energy consumption by 15% in 75% of its participating households. Of the 173 clients, 58 (33.5%) consumed less energy during the post-REACH period than they had during the pre-REACH period. However, closer analysis revealed that this reduction was 15% or more than pre REACH level for only 40 of the 173 clients (23%).

Hence, while there was an overall decline of energy consumption for both groups of REACH clients, the amount of this reduction did not attain the target level for as many households as originally initially desired. On the other hand, the program did surpass or come close to meeting the initial target levels for completion of household action plans and in home energy education.

Conclusion

In summary, these findings indicate that the Oregon REACH Project assisted clients to develop a repertoire of energy resource management skills. The success of REACH in achieving this objective provides strong support for its guiding assumption that a program of coordinated services and educational resources is an effective approach to reducing the consumption and costs of energy for low-income households. It also confirms the value of this approach in lowering their high energy burden and assisting them to remain current in the fuel payments. Taken together, the evidence presented in this report indicates clearly that REACH has greatly assisted low-income households to achieve a greater degree of energy self sufficiency than they experienced before participating in the program.

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Chapter 1 Introduction

Project Overview & Background

A. Brief Description of Project

REACH is a residential energy assistance program, which provides a variety of services and benefits to clients who are recipients of a Low-Income Home Energy Assistance Program (LIHEAP) in the State of Oregon. REACH services and benefits include co-payments on energy bills, energy education, residential repair and weatherization assistance, family services related to budget management and payment plans and case management. During the past two years the program has been implemented by the Oregon Housing and Community Services Department in twenty-six Oregon counties by thirteen community action agencies. The following report constitutes a comprehensive review and evaluation of the program during this period.

B. Purpose of the Demonstration

REACH was designed to assist low-income households more effectively manage their energy costs and stabilize their social and economic life. The program attempted to develop resource management skills that led these households to:

- Reduce their energy consumption
- Remain current in their fuel bill payments
- Reduce home heating and/or cooling costs
- Eliminate health and safety risks to family members

C. Target Population

The geographic areas covered by the REACH project encompassed two-thirds (26) of the 36 counties in Oregon, evenly divided between the Western and Eastern parts of the State. Approximately 85% of Oregon's low-income population fell within this area. It included both urban and rural communities and a variety of demographic, climatic, and socio-economic conditions.

The diversity of clients served by REACH is important in testing the generality of the program model throughout the state and in comparable areas in other parts of the country. For example, energy costs take a large portion of income for low-income households. On the average Oregon households spend 2% to 3% of their income on electricity, natural gas, and heating oil. But for low-income households, energy bills take up a much larger portion--13% according to 1990 census data. The REACH project was designed to determine the effectiveness of the energy education, weatherization and the other services it provided in helping to reduce these costs.

D. Project Assumptions

From the outset, three general assumptions guided the overall development and implementation of the REACH Project. Each is listed below:

1. An effective energy assistance program should *coordinate* services and resources to enable low income families to better manage their energy costs, ensure that the LIHEAP payment offsets actual energy cost rather than arrearages and benefits home energy supplies by reducing user arrearages.

REACH was based on the belief that programs that combine services and resources will be more effective in achieving long term results than those that are not coordinated with the services of related organizations. In addition, the program assumed that it could most effectively achieve its goals with a resource management plan based upon the needs of individual households that are, at the same time, involved in developing the plan.

2. Low-income households need education and weatherization activities in addition to a LIHEAP payment in order to reduce or end reliance on LIHEAP assistance.

In order to achieve long term gains in reducing energy costs, rather than simply buying down accumulated arrearages with LIHEAP payments, REACH was designed to provide low income households with an additional package of energy education, home energy assessment, and if appropriate, a household weatherization. Such a comprehensive intervention was assumed to be an effective way to reduce the energy burden of each household and thereby provide a *long-term* solution to high-energy costs.

3. Households that participate in the program must be willing and able to make significant changes that can affect their energy burden.

The Oregon REACH Project was also predicated on the assumption that households will voluntarily participate in the development of the action plan for managing their resources and sign a contract they will make an effort to reduce home energy costs and to make regular payments to energy vendors. These conditions were also considered necessary for achieving the principal goals of the program.

E. Project Intervention

On the basis of these assumptions the REACH project developed a coordinated cluster of services and educational activities to assist low-income families better manage their energy costs. Because the program was structured on the needs of individual households, each household received a somewhat different package of services. Each such package was negotiated separately with each client, based on a joint determination of their household need and service availability in the community.

The program was delivered by 13 Community-Based Organizations (CBOs). The name, location, counties served and abbreviation of each of CBO is shown in Table 1.

Table 1
REACH Community Based Organizations

Name	Location	Code	Counties Served
ACCESS, Inc.	Medford	ACCESS	Jackson
Community Action Program of East Central Oregon	Pendleton	CAPECO	Gilliam, Morrow, Umatilla, Wheeler
Community Action Team	St. Helens	CAT	Clatsop, Columbia, Tillamook
Community Connection of Northeast Oregon	LaGrande	CCN	Baker, Grant, Union, Wallowa
Clackamas County Social Services Division	Oregon City	CCSSD	Clackamas
Community Services Consortium	Corvallis	CSC	Benton, Lincoln, Linn
Josephine County Community Services	Grants Pass	JOCO	Josephine
Lane County Human Services Commission	Eugene	LANHHS	Lane
Mid-Columbia Community Action Council	The Dalles	MIDCOL	Hood River, Sherman, Wasco
Community Action Program Office, Multnomah County Dept of Community and Family Services	Portland	MULTCO	Multnomah
Mid-Willamette Valley Community Action Agency	Salem	MWVCAA	Marion, Polk
Umpqua Community Action Network	Roseburg	UCAN	Douglas
Harney County Senior Center ¹	Burns	Harney	Harney

Services and benefits included co-payments on utility bills, energy education, residential repair and weatherization assistance. In addition, family services related to budget management, payment plans and case management were provided. Local agencies sought to leverage resources for REACH operations and negotiate with energy suppliers to develop payment plans for reducing arrearages of REACH participants.

The specific activities that were delivered in this project during each of the past two years are listed in Table 2 as well as the REACH Logic Model shown in Table 4. They are more fully described in Chapter 2, Section C Intervention Activities.

¹ The agency in Harney County withdrew from the program after the first year. All of the remaining agencies participated during both years.

Table 2
REACH Activities

1. LIHEAP intakes completed & used to identify eligible REACH participants
2. Identification of participant pool.
3. Potential REACH participants complete initial energy education orientation.
4. Marketing of REACH program.
5. Notification and recruitment of participants.
6. Final selection of program participants.
7. CAA/CBO Weatherization conducts assessment of physical dwelling and heat system.
8. Create the REACH action plan for the household.
9. Complete a referral for home weatherization or heat system repair if necessary.
10. Work with all household members to complete the action plan.
11. REACH Coordinator facilitates participant negotiations with the energy vendor or vendor to reduce arrearage or arrearages.
12. Explore alternative payment procedures,
13. Discuss budget counseling for the household.
14. If weatherization needed, conduct a computerized WEXOR audit of dwelling determine the cost effective measures to be installed.
15. Referrals to CAA/CBO family stabilization and self-reliance programs
16. Schedule follow-up contacts with the participants.
17. The participant evaluates the program when the Action Plan is completed.

F. Expected Project Outcomes

The REACH Program was viewed as an access point to a set of services to assist low-income Oregonians move toward self-sufficiency. Accordingly, the various services shown in Table 1 were expected to lead to a number of specific behavioral changes. These objectives are shown in Table 3.

Table 3
REACH Objectives

- 100% of participants sign REACH contract agreement
- Action plan completed by 90% by REACH households
- 90% of households receive dwelling assessment & in home energy education
- 300 households enroll in social service program
- 95% of participants complete feedback forms
- 75% of participants with arrearages negotiate with utilities
- 75% of participants successfully reduce arrearages
- 60% of households resolve health & safety issues or increase comfort
- 75% of participants with arrearages establish regular payment patterns
- 50% of participants do not incur new arrearages after 6 months
- 75% of households reduce their energy usage by 15%

Determining the extent to which the Program achieved these objectives will be a central concern of the current evaluation of the Oregon. For example, REACH interventions were expected to provide clients the tools to lower their energy consumption, reduce their overall level of arrearages and establish a regular pattern of utility payments.

G. Program Logic Model

A logic model of the Oregon REACH Project, shown in Table 4 on the following page, was developed within this framework. It depicts the major project assumptions, activities, and three classes of outcomes: immediate, intermediate and the final project goals.

This model provides a graphic representation of the specific assumptions that guided the development of REACH, the principal activities that were carried out when it was applied and the outcomes the project was expected to achieve. Table 4 provides a brief description of each of these components of the Oregon REACH Project.

Insert Table 4 Logic Model

Assumptions: The REACH Project was based on a rational information model in which an increase in a person's knowledge and/or skill was expected to lead to behavioral changes. For example, the Project assumed that energy costs and arrearages incurred by low income individuals could be reduced through the application of a cluster of educational and informational activities. It was also assumed that these effects would be bolstered by referrals to family and community services tailored to the specific needs of each client.

Activities: These assumptions generated the set of services, interventions and institutional arrangements listed in Table 2. For example, the case management feature of the REACH Project led to varied set of activities, such as, specific referrals to community agencies, a utility payment plan appropriate to budgetary constraints of each client, a residential action plan based on the specific energy and weatherization requirements of each household, etc.

Outcomes: At each stage in its application, the Project was designed to lead to a number of measurable changes. The Logic Model shown in Table 4 distinguishes between three temporal periods during which these changes were expected to occur.

- The *immediate* changes were assumed to be an increasing client awareness of their billing history, household pattern of energy usage and knowledge of the steps that would help them to manage their resources more effectively.
- These initial cognitive changes were considered necessary for the occurrence of the subsequent *intermediate* behavioral changes such as, lower consumption of energy, elimination of arrearages, regular utility payments, etc.
- Lastly, the *final goals* of the REACH Project represent the principal, long-term objectives toward which the entire program is directed. They include a sustained reduction of energy efficient behavior, overall improvement in economic self-sufficiency and eventual elimination of the LIHEAP assistance.

While Logic Models often play a critical role in the planning and subsequent management of a project, they also play an important role in evaluating its impact. As an evaluation tool, the Logic Model of the Oregon REACH Project shown in Table 4 provides a framework for determining if the program had its intended effects and the various outcomes that provide the basis for this assessment. For example, the measurable changes in energy consumption, arrearages and energy burden furnish the quantitative evidence for evaluating the success of the project in achieving three of its principal goals. Similarly, the Project's success in meeting the other Immediate, Intermediate and Final Goals (shown in the Table 4 Model) is determined on the basis of both process and outcome measures obtained during the course of the evaluation.

Chapter 2

Project Implementation

A. Initial Development and Start-Up

Initial planning for the REACH project began in August 1996 when a statewide meeting was held with Community Based Organizations (CBOs) to consider a grant application. The meeting focused on a range of topics, including program goals, operation, costs, and schedules. Comments and suggestions were solicited from each CBO and then circulated for further recommendations and comments. On the basis of this input, an application for an Oregon REACH Project was prepared and, following its review, a grant to support the program was awarded on September 30, 1996.

In October 1996 a contract was prepared for an evaluator of the project 1996 and soon thereafter a formal Invitation to Bid was advertised. The contract was awarded jointly to the State of Oregon Energy Extension Office and Public Policy Research in November 1996. Weekly meetings with the evaluators were held in November and December to discuss evaluation methodology, measurement instruments and the major goals of the evaluation. The various program forms and data collection instruments were completed by January 1997 and tested on two Beta Sites. Thereafter the remaining CBOs received their awards and overall budget projections.

A statewide meeting of the REACH administrators, CBO agents and evaluators was convened in February 1997. All aspects of the REACH program were discussed in some detail at that meeting. This included the major program goals and objectives, linkages between CBOs and their ongoing programs, leveraging of resources, the sequencing of REACH activities, fiscal policies and procedures and various evaluation issues. Training for each of the CBOs was initiated in March 1997 and their separate work plans were submitted and reviewed by the REACH Program Representative in April 1997.

The formal review of the REACH files at each CBO began in August 1997. In addition, regional meetings were held at four locations around the state in November 1997. The purpose of the meetings was to acquire information on project implementation and improve those aspects of the program that were not working well. In April 1998, a statewide meeting was held to evaluate the first full year of the program. Ideas were exchanged on a large number of issues including, preliminary first-year evaluation outcomes, program strengths and weakness, billing procedures, household quotas and leveraging.

B. Program Changes and Modifications

Once the project was underway, changes and/or modifications were made in both program activities and assessment procedures.

With respect to the latter, some forms were changed or dropped because of their redundancy or because more specific information was required for the evaluation. In addition, to obtain a higher percentage of returned forms, it was decided to complete the

client feedback forms, while the six-month follow-up was eliminated. As an incentive to encourage completion of the client feedback forms, \$20 was added from the discontinued six-month follow-up phone call. The majority of CBOs felt that the needs of their clients would be met after the three month follow-up phone call and that all discretionary funds would be exhausted by then. Finally, it was decided to eliminate the REACH Action plan form, since the same information was captured on the Client Narrative.

With respect to program activities, several items were added, once the project was underway. Discretionary funds were not only utilized for arrearages and co-payments, but also for replacement of water heaters, furnaces, electronic thermostats, CO detectors and heating repairs (up to \$100). These changes were made in response to CBO requests to better meet their client's needs. Because of their cash flow difficulties, CBOs were allowed to apply for start up costs.

In addition, the energy burden required for enrollment in the REACH program was lowered from twenty 20% to 15%. This was instituted once it became clear that the majority of clients had lower energy burdens. A crisis payment of \$200 was also designated to help especially needy clients. It was observed that some individuals did not spend all of their discretionary payments, while others needed more because of a crisis situation. Instead of allocating \$250 of discretionary payments per household, it was decided to make the average payment across all clients \$250.

There were no major changes in the program during its second year, as only minor adjustments were made in the administrative and evaluation forms. A budgetary review was undertaken in July 1998 that led to a reallocation of REACH funds to agencies that needed additional support. The client attrition rate during the second year of the program was sixteen percent, double the prior six-month period. Some temporary problems occurred among rural agencies that were having difficulties receiving billing histories from local utilities. But this was quickly resolved in response to administrative clarification of the importance of the billing records for evaluation purposes. Finally, the heavy REACH workload burden continued to exist during the second year. This was partially alleviated by leveraging additional resources such as volunteers, Job Plus and work-study students

C. Intervention Activities

The REACH Program comprised a set of 17 separate activities. Each is listed and briefly described below:

Activity #1 LIHEAP Intake

A LIHEAP form was completed and used to identify eligible REACH participants. At this point the initial energy burden, defined as a percentage of household income applied to energy cost, was computed for each household.

Activity #2 Identification of Participant Pool

REACH Project participants were drawn from LIHEAP recipient households that met the following criteria:

1. Had an arrearage equal to 1/2 of the LIHEAP payment
2. Had an energy burden greater than 20% of the total household income
3. Household energy source and/or under utilization of energy represented a potential health or safety risk
4. Potential candidates appeared to be highly motivated to participate in REACH
5. Candidates from a group of individuals mandated by local community priorities

Activity #3 Initial Energy Education

Potential participants were given education materials relevant to those areas identified in individual or group sessions. The materials were designed to increase knowledge of energy issues and assist in establishing energy self-sufficiency.

Activity #4 REACH Marketing

During Activity #3, potential REACH participants were made aware of the nature of the program. The major REACH goals and the participant's role in the program were discussed at that time.

Activity #5 Participant Recruitment

A letter was sent to potential REACH clients inviting them to participate in the program and explaining their responsibilities. The letter highlighted the importance of taking an active role in energy education sessions, identifying methods for reducing arrearages and engaging in budget counseling and co-payment activities, if appropriate. Those who wished to participate were asked to sign and return the contract, which also included a release form enabling their energy vendor to send a copy of their bills to the REACH office.

Activity #6 Participant Selection

The final pool of REACH participants was selected from those who met the criteria established in Activity #2 and indicated a willingness to take an active role by completing the previous activities.

Activity #7 Dwelling Assessment

A simplified assessment of the physical dwelling and heat system was conducted at each participating household. At its conclusion the staff member and the REACH participant completed a summary assessment to identify energy efficiency concerns and specific actions that could remedy these issues. The assessment included:

1. Blower door air leakage test
2. Carbon monoxide test where appropriate
3. Air leakage of forced air furnace duct systems where appropriate
4. Overall physical condition of the structure, including windows, doors, roof, holes and other items that affect the unit's energy consumption
5. Insulation in attic, floors, and walls

Activity #8 In Home Energy Education

The process of developing a household action plan was initiated on the basis of the Activity #7 assessment. Staff conducted an in-home energy education session that included discussion of the household energy burden and a walk-through to explain the management and use of utility meters, heating system, hot water source, major appliances and health and safety issues. The staff discussed the assessment with the participant who was asked to identify two or three actions that could be taken immediately to reduce consumption.

Activity #9 Weatherization Referral

A referral for a more comprehensive home weatherization or heat repair was completed for those households where it was judged to be necessary.

Activity #10 Action Plan Formulated

In conjunction with household members, REACH Coordinators completed the design of the household action plan.

Activity #11 Utility Negotiation Plan

When necessary to prevent a shut-off of energy by the energy vendor, the REACH Coordinator worked with the participant to initiate negotiations with the vendor to reduce arrearages.

Activity #12 Arrearage Reduction Plan

The REACH coordinator identified alternative utility payment procedures with the participant in order to establish a pattern of regular payments that, in turn, increase household energy efficiency and eliminate energy crises.

Activity #13 Budget Counseling

The REACH Coordinator and the participant discussed budget counseling in order to help household members to prioritize expenditures and determine the amount that could be allocated for monthly arrearage reduction.

Activity #14 Weatherization Audit

If the participating household required weatherization, the staff conducted a computerized audit of the dwelling to determine cost effective measures to be installed under the Federal Weatherization Assistance (WAP) Program.

Activity #15 Self Sufficiency Referrals

In order to encourage a more comprehensive approach for achieving household energy self sufficiency and reduce arrearages, the REACH coordinators made referrals to community family stabilization and self-reliance programs, such as housing support programs, family counseling, food/nutrition programs and education/job training programs.

Activity #16 Follow Up Contacts

Follow up contacts were scheduled with participants to discuss further progress on the household action plan as needed.

Activity #17 Program Evaluation

Each participant was asked to evaluate the REACH program when they had completed the last (3rd) follow-up phone contact.

D. Facilitators and Barriers to Project Implementation

The dedication of the REACH coordinators has been the major factor responsible for facilitating the program goals. They continued to provide an access point to the cluster of services and assistance provided by the REACH project throughout its operation. They also made excellent suggestions for improving the program so they are able to respond more effectively to client needs once they became evident.

On the other hand, there have been barriers that impeded the delivery of some components of the program. The project began somewhat later than originally planned. In addition, the State REACH Program Coordinator was hired just a short time before the important initial statewide meeting and the staffing of this position did fluctuate during the second year. Further, because REACH agents were also responsible for administering the state Low Income Energy Assistance Program (LIEAP), they were unable to devote as much time to REACH as might have otherwise been desired.

Funding limitations made it impossible to weatherize all the households that needed it. Indeed, the housing conditions of some REACH clients were considered substandard for weatherization. Even when it was possible to weatherize a home, some clients elected to drop out of the program. They did so on the assumption that they had achieved all that was required to reduce their energy costs. As a result, they did not receive the full benefits of the program.

Other barriers included the difficulty of contacting some individuals for follow up interviews, because their phones had been disconnected. In addition, agents reported that clients were not always at home when a dwelling assessment or visit had been scheduled. Finally, some households who had received utility fuel funds were not eligible for the LIEAP program and thus, lacked one of the requisites for participating in REACH.

Chapter 3

Evaluation Methodology

A. Overview

Process and outcome evaluations were performed during both years of the REACH Project. Wherever possible the results during these two years were compared. The process evaluation examined the program operations and activities in order to gauge how well REACH was implemented and the satisfaction of the staff and clients with the program. The outcome evaluation focused primarily on the degree to which the project goals were met. It provided quantitative evidence on the overall program benefits, including changes in client knowledge, behavior, skills and attitudes.

B. Project Design

The REACH Evaluation was conceived as a quasi-experimental design with a control group and 2 treatment groups. The Control group was drawn from a sample of LIHEAP recipients at each CBO who received an energy assistance payment and in-office education but did not participate in the REACH Program.

The REACH treatment groups consisted of an Education + Weatherization Group that received the complete set of services and benefits of the program, including a household weatherization and equipment repair. The second REACH treatment group, Education Only, received all the program services and benefits as in the previous group, with the exception of the weatherization/equipment repair component.

The overall project design with the size of each sample is depicted in Table 5. Wherever possible, energy consumption data was collected in the year preceding the Program (Baseline), the year the program was implemented (Program) and the year after client participated ended (Follow Up). Baseline and Program Year Energy data was obtained for all three groups. However, Follow Up year data was not available for those clients who entered the program during its second year. This is shown in Table 5, where an "X" indicates availability of energy data.

Table 5
REACH Evaluation Design

Group	Group Size	Period of Time		
		Baseline	Program	Follow Up
1. Control				
A	37	X	X	X
B	83	X	X	
2. Education Only				
A	39	X	X	X
B	62	X	X	
3. Education + Weatherization				
A	69	X	X	X
B	54	X	X	

C. Data Collection Procedures

A large number of instruments, listed in Table 6, were developed for administering and evaluating the REACH program. They are listed in Table 6 and a sample of each is shown in Appendix A - L. These instruments were designed to achieve three objectives:

1. To provide complete and useful information to those delivering the program
2. To obtain reliable data required for evaluating the project
3. To make the data collection process as unobtrusive as possible

Since the Oregon REACH Program was predicated on the value of a package of comprehensive services and carefully monitoring items negotiated with clients, a Client Narrative form was also developed. This form provided a central record of each client's activity throughout his or her participation in the project. A sample of this form is shown in Appendix F.

The inclusion of a Control Group was one of the distinctive features of the Oregon REACH evaluation. In Oregon the procedure for collecting such data has always required the client to sign a release form to allow the agency to access their utility records. As a result consent was obtained from each subject in the Control Group to collect their utility energy and billing records.

Table 6
REACH Protocols

1. LIEAP intake form	7. REACH client intake assessment
2. Client signed contact letter and utility release form	8. REACH client energy/billing history
3. Dwelling assessment form	9. REACH client activity summary
4. Energy action plan	10. Client Program Completion Review
5. REACH action plan	11. Client Feedback Survey
6. REACH client narrative	12. Staff Feedback Survey

Chapter 4

Profile of REACH Clients

A. Demographic Data

This chapter summarizes the basic demographic characteristics of REACH participants from each of the 13 agencies. Information was collected about their gender, ethnic background, age, income and the number of members in their household.

B. Gender

Table 7 provides a breakdown by agency of REACH participants who identified their gender. There was a striking disparity on this measure with a total of 55 males and 230 females.

Table 7
Gender of REACH Clients

AGENCY	Females	Males	Total
ACCESS	10	4	14
CAPECO	12	8	20
CAT	6	4	10
CCN	19	7	26
CLACK	9		9
CSC	29	10	39
JOCO	22	5	27
LANE	36	3	39
MID-COL	19	5	24
MULT	11	2	13
MWVCAA	42	5	47
UCAN	15	2	17
Total	230	55	285

C. Age

Table 8 indicates the mean age of REACH clients varied somewhat across agencies with a mean range of 37.4 (CAT) TO 51.3 (CAPECO). The average age of the participants was 46.1 years of age.

Table 8
Age of REACH Clients

AGENCY	N	Mean Age	Std. Deviation
ACCESS	14	41.8	16.27
CAPECO	20	51.3	13.38
CAT	10	37.4	14.86
CCN	26	52.7	18.03
CLACK	9	55.0	18.68
CSC	39	49.8	15.30
JOCO	27	42.2	20.01
LANE	39	43.8	15.05
MID-COL	24	46.0	15.52
MULT	14	36.1	16.16
MWVCAA	47	44.1	14.12
UCAN	17	44.70	15.30
Total	286	46.1	16.39

D. Ethnicity

Table 9 shows the ethnic background of REACH participants at each agency. Participants were predominately white, with a clear under representation of minority groups in this population. This fact suggests caution in extending the generality of the findings reported in this study.

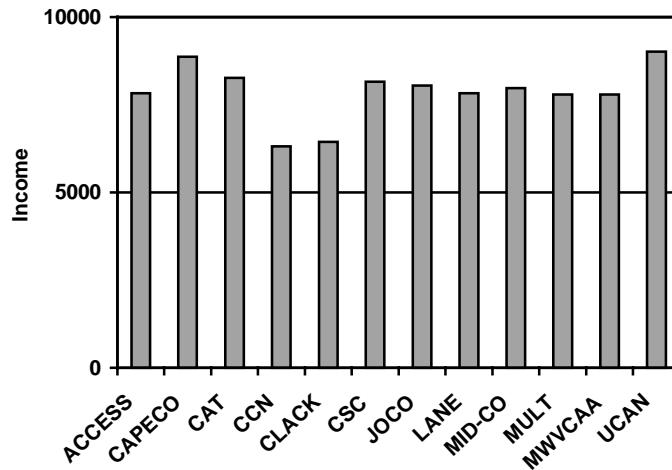
Table 9
Ethnicity of REACH Clients

AGENCY	African American	Hispanic	Native American	White	NA	Total
ACCESS				14		14
CAPECO		4	5	8	3	20
CAT				10		10
CCN				25	1	26
CLACK		1		8		9
CSC		1		33	5	39
JOCO			3	20	4	27
LANE				39		39
MID-COL		6		11	7	24
MULT	6		1	3	4	14
MWVCAA		7		31	9	47
UCAN				16	1	17
Total	6	19	9	218	34	286

E. Income

Figure 1 displays the mean yearly income of the participants by agency. The mean annual income across all agencies was \$6,351 with a standard deviation of \$3,344.

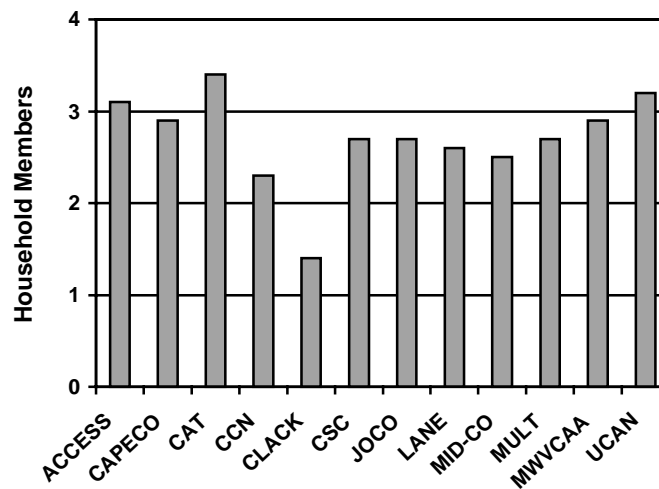
Figure 1



D. Household Members

Figure 2 shows the mean number of household members by agency. The mean number of household members across all agencies was 2.70 with a standard deviation of 1.65.

Figure 2



F. Profile of REACH Client

The preceding information indicates that the typical REACH client during the past two years of the program has the following basic demographic characteristics:

Age	46 years of age
Gender	Female
Ethnicity	White
Income	\$6,351 per year
Household Size	2.7 individuals

Chapter 5

Results: Client Survey

A. Overview

The process evaluation, presented in this and the following chapter, examined REACH program operations and activities in order to learn how well it was implemented and how its delivery might be improved. The current chapter reports the findings from a survey of REACH clients, while the following chapter presents those from a survey of the REACH coordinator at each agency.

B. Client Survey

At the conclusion of their participation in the program, clients were asked to complete a questionnaire about their REACH experience. This evaluation examined the responses from 251 clients (87 in year one and 164 in year two) from 12 agencies. In the following analysis, the clients in year two were partitioned into 2 groups: Education Only and Education + Weatherization

The results are described in the same order as the questions were presented on the survey. The topics treated were divided into the following three broad areas:

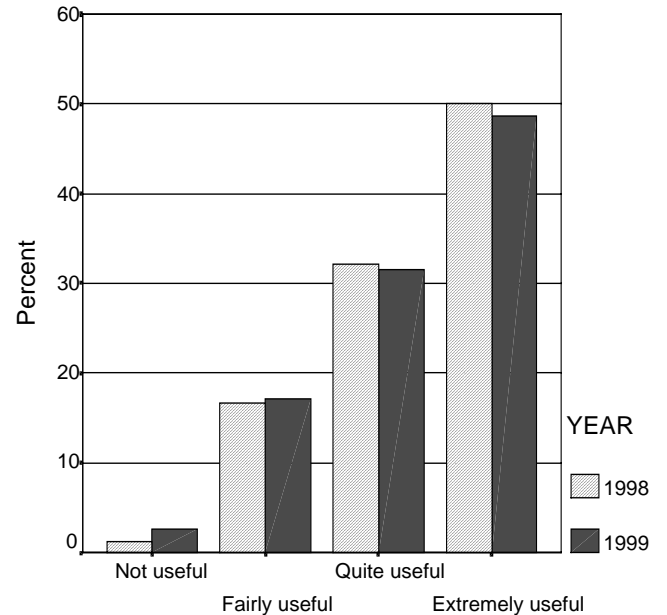
- 1) REACH Activities
- 2) Specific Topics
- 3) Overall Evaluation

The findings have been arranged in tables that indicate the question topic, the frequency of the response, the percentage of total responses, the number of participants who responded to the question, and the mean response value. The "Not Applicable" category refers to participants who did not experience that particular aspect of the program, not the number of missing responses.

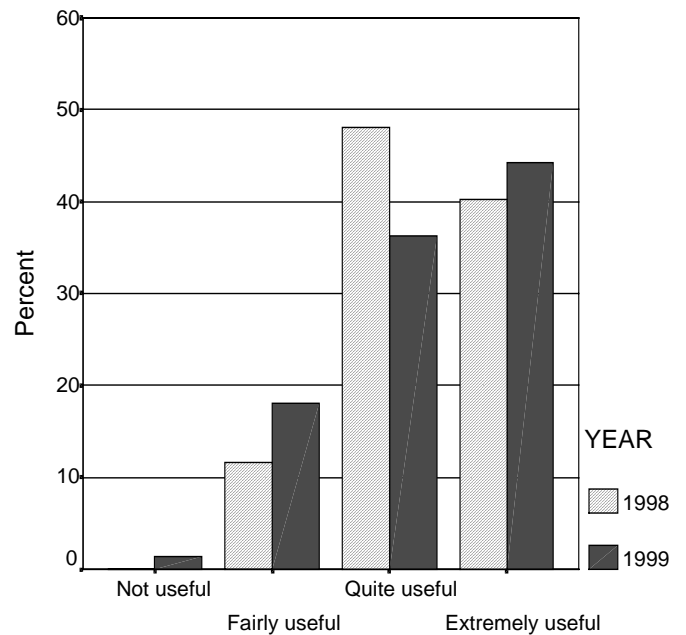
C. Part I REACH Activities

This section asked clients to rate the usefulness of 8 separate activities in helping them to achieve the goals of the program. Ratings were made on a scale of 1 to 4, where 1 was Not Useful, 2 Fairly Useful, 3 Quite Useful and 4 Extremely Useful.

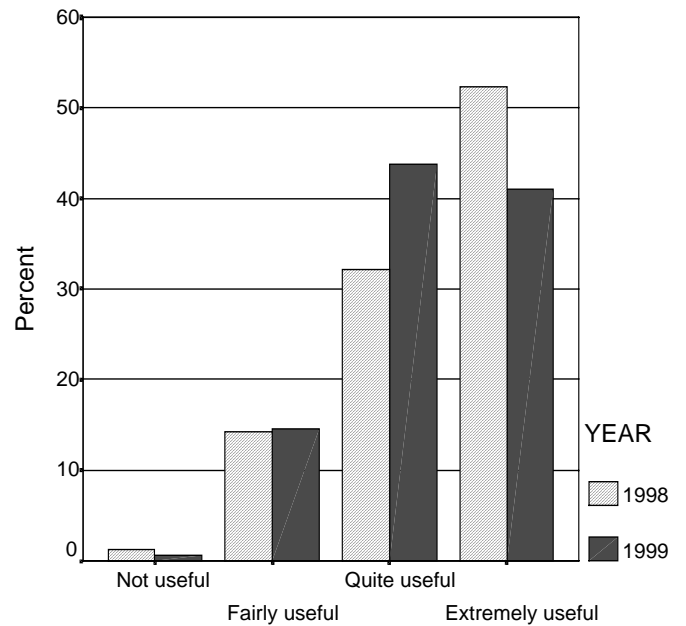
<i>1. Home walkthrough</i>				
	1998		1999	
	n	%	n	%
Not Useful (1)	1	1	4	2
Fairly Useful (2)	14	17	26	16
Quite Useful (3)	27	32	48	30
Extremely Useful (4)	42	49	74	46
Missing/ NA	3	-	12	-
Total (valid)	84	100	152	100
Mean	3.31		3.26	



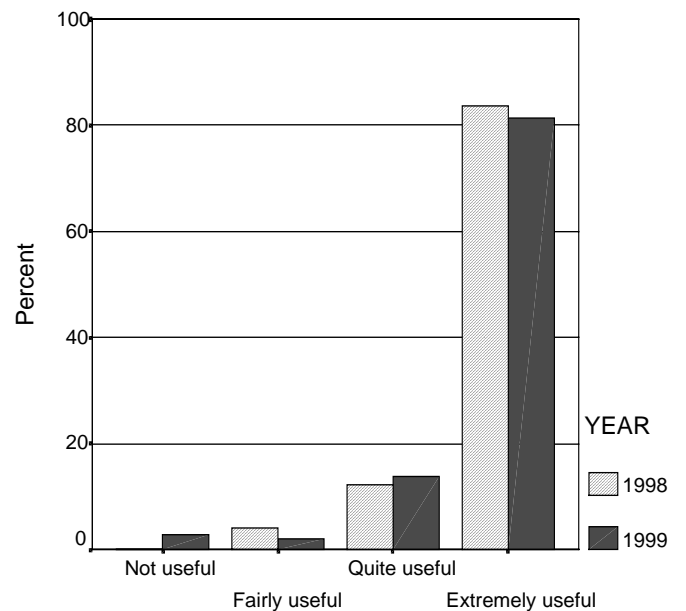
<i>2. Household action plan meetings</i>				
	1998		1999	
	n	%	n	%
Not Useful (1)	--	--	2	1
Fairly Useful (2)	9	12	25	18
Quite Useful (3)	37	48	50	36
Extremely Useful (4)	31	40	61	44
Missing/ NA	10	--	26	--
Total (valid)	77	100	138	100
Mean	3.29		3.23	



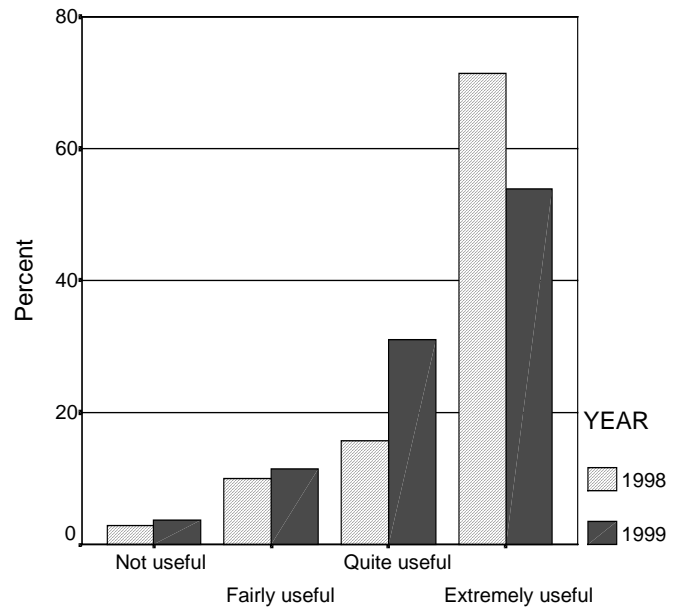
3. Follow-up contact				
	1998		1999	
	n	%	n	%
Not Useful (1)	1	1	1	1
Fairly Useful (2)	12	14	22	15
Quite Useful (3)	27	31	66	44
Extremely Useful (4)	44	51	62	41
Missing/ NA	3	--	13	--
Total (valid)	84	100	151	100
Mean	3.36		3.26	



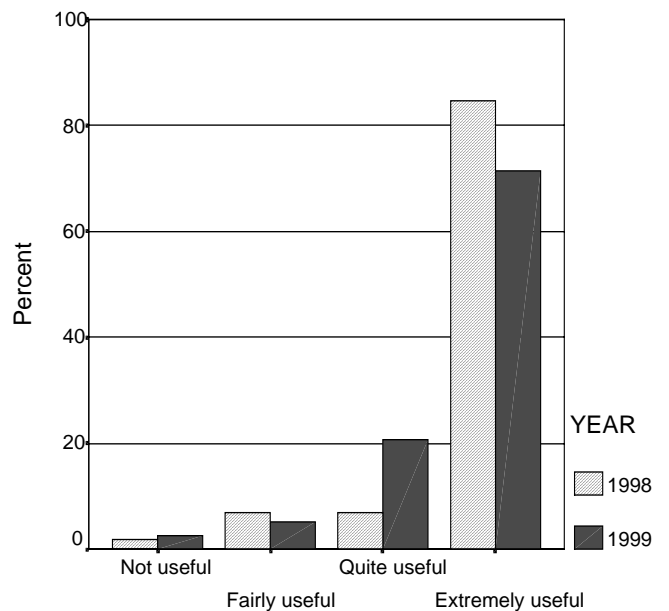
4. REACH financial assistance				
	1998		1999	
	n	%	n	%
Not Useful (1)	--	--	4	3
Fairly Useful (2)	3	4	3	2
Quite Useful (3)	9	12	20	14
Extremely Useful (4)	62	84	118	81
Missing/ NA	13	--	19	--
Total (valid)	74	100	145	100
Mean	3.80		3.74	



5. Low-cost weatherization measures				
	1998		1999	
	n	%	n	%
Not Useful (1)	2	3	5	4
Fairly Useful (2)	7	10	16	12
Quite Useful (3)	11	16	43	31
Extremely Useful (4)	50	71	75	54
Missing/ NA	17	--	25	--
Total (valid)	70	100	139	100
Mean	3.56		3.35	

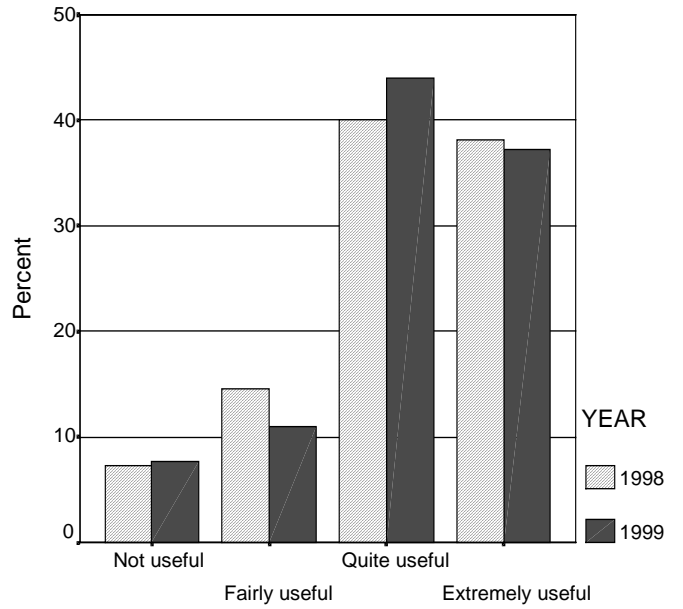


6. Full weatherization measures, if taken				
	1998		1999	
	n	%	n	%
Not Useful (1)	1	2	2	3
Fairly Useful (2)	4	7	4	5
Quite Useful (3)	4	7	16	21
Extremely Useful (4)	50	85	55	71
Missing/ NA	28	--	87	--
Total (valid)	59	100	77	100
Mean	3.75		3.61	



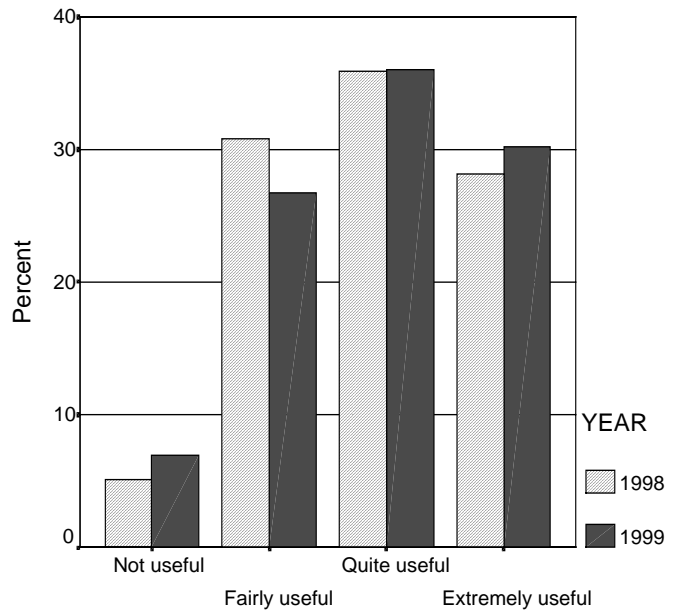
7. Referrals to other services

	1998		1999	
	n	%	n	%
Not Useful (1)	4	7	9	8
Fairly Useful (2)	8	15	13	11
Quite Useful (3)	22	40	52	44
Extremely Useful (4)	21	39	44	37
Missing/ NA	32	--	46	--
Total (valid)	55	100	118	100
Mean	3.09		3.11	



8. Money Management/ Budget counseling

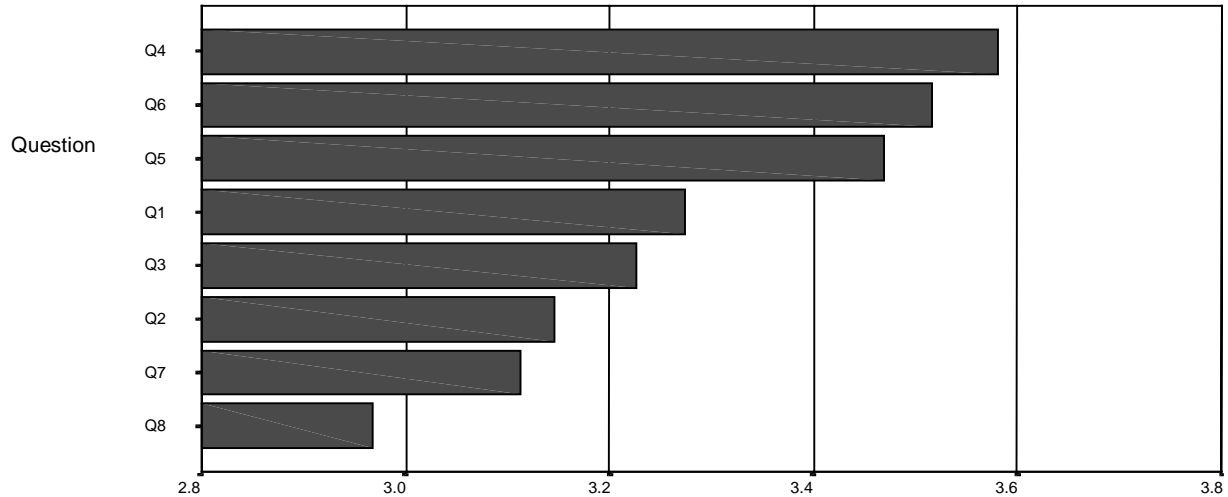
	1998		1999	
	n	%	n	%
Not Useful (1)	2	5	6	7
Fairly Useful (2)	12	31	23	27
Quite Useful (3)	14	36	31	36
Extremely Useful (4)	11	28	26	30
Missing/ NA	48	--	78	--
Total (valid)	39	100	86	100
Mean	2.87		2.90	



D. Part I Summary: REACH Activities (Questions 1 - 8)

Figure 3 illustrates the mean response for each question in Part I of the Client Survey with the questions ranked in terms of most to least positive response.

Figure 3



With the exception of Question 8 that dealt with Money Management, REACH clients during both years of the program responded either Quite Useful (3) or Extremely Useful (4) to each of the questions about program-related activities.

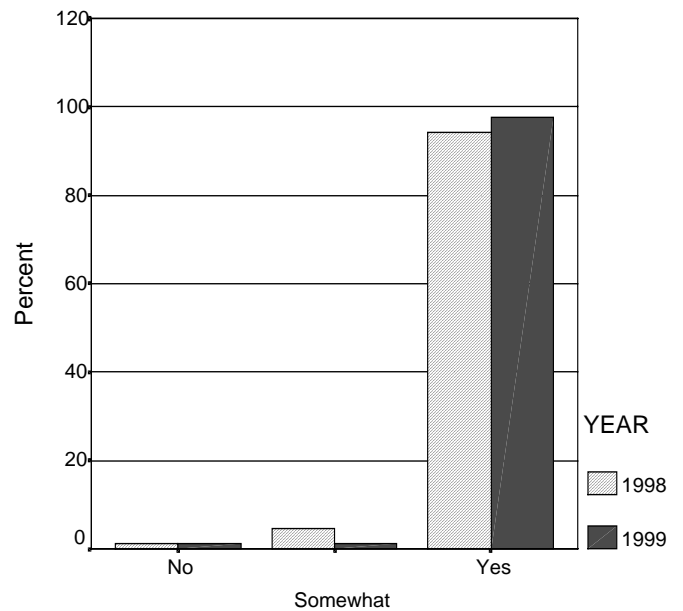
Several analyses of variances were conducted on year 2 clients for questions 1 - 8. Analyses were conducted to identify differences between groups (Education Only and Education + Weatherization). Interestingly, none of the comparisons revealed significant differences ($\alpha=.05$) between the groups on questions 1 - 8. Thus, both groups reported similar and quite positive levels of usefulness for each of the activities mentioned in those questions.

It should be noted both here and elsewhere in the Client Survey, that some clients checked "Not Applicable" in response to a question. This most likely reflects the fact that the services referred to (e.g. full weatherization or money management) were not recommended by the REACH Coordinator on the basis of an appraisal of the specific need or the availability of services in their community.

E. Part II Specific Topics

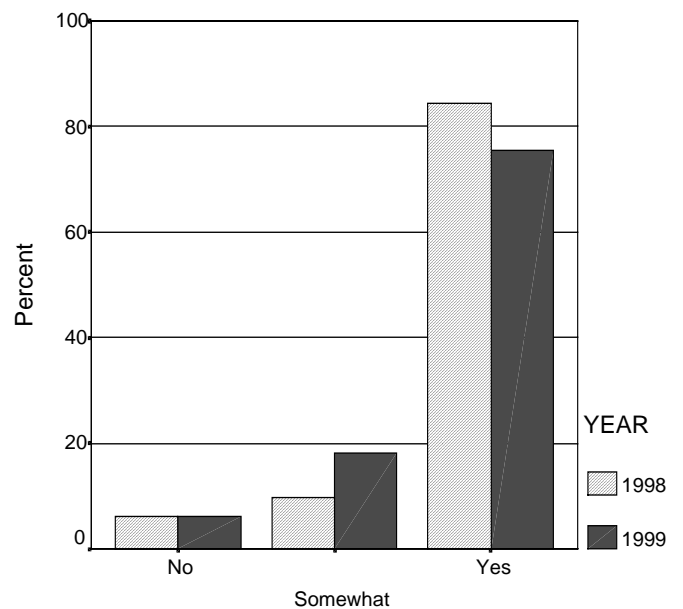
This section asked clients to select the answer that best reflected their opinion about 7 features of the REACH program. Responses could be made on a scale with 3 categories: No, Somewhat or Yes. Following each question, the clients were also given an opportunity to clarify their response with a related follow-up question. The numbers shown in the tables with the results of the follow-up questions represent the frequency that response was cited.

9. Did you have a good relationship with the REACH educator?				
	1998		1999	
	n	%	n	%
No (1)	1	1	2	1
Somewhat (2)	4	5	2	1
Yes (3)	81	94	157	98
Missing/ NA	1	--	3	--
Total (valid)	86	100	161	100
Mean	2.93		2.96	



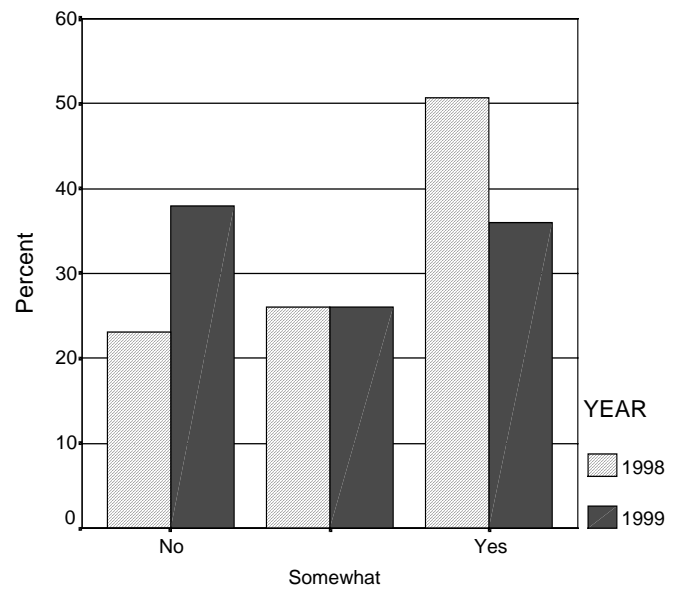
10. How could the educator be more helpful?	1998	1999	Total
Educator was already very helpful.	26	40	66
Issues related to time (waiting lists/ being on time).	5	0	5
Better communication	0	4	4

11. Did the REACH Program help you reduce your energy bills?				
	1998		1999	
	n	%	n	%
No (1)	5	6	10	6
Somewhat (2)	8	10	29	18
Yes (3)	70	84	121	76
Missing/ NA	4	--	4	--
Total (valid)	83	100	160	100
Mean	2.78		2.69	



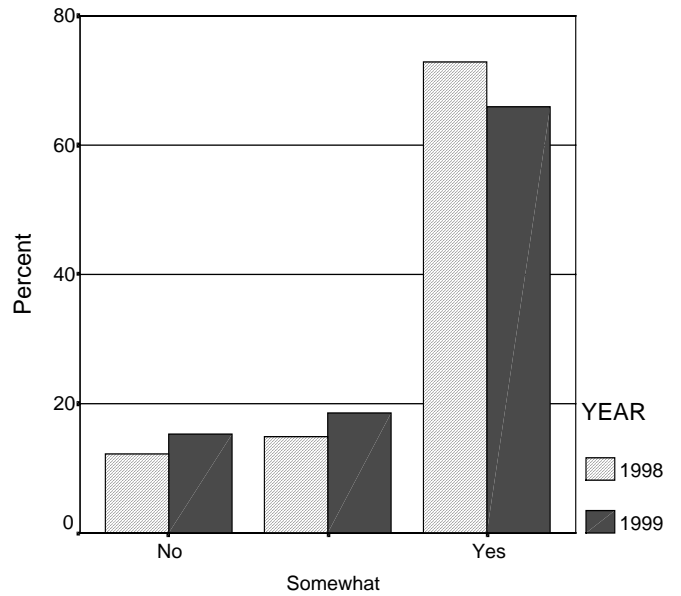
12. What further help do you feel you need in this area?	1998	1999	Total
None needed	16	13	29
More materials available	12	8	20
Replacement or repair of windows	9	7	16
More weatherization/ insulation	7	13	20
More financial assistance	3	13	16

13. Did your contacts with the utility individuals help reduce your utility bills?				
	1998		1999	
	n	%	n	%
No (1)	16	23	54	38
Somewhat (2)	18	26	37	26
Yes (3)	35	51	51	36
Missing/ NA	18	--	22	--
Total (valid)	69	100	142	100
Mean	2.28		1.98	



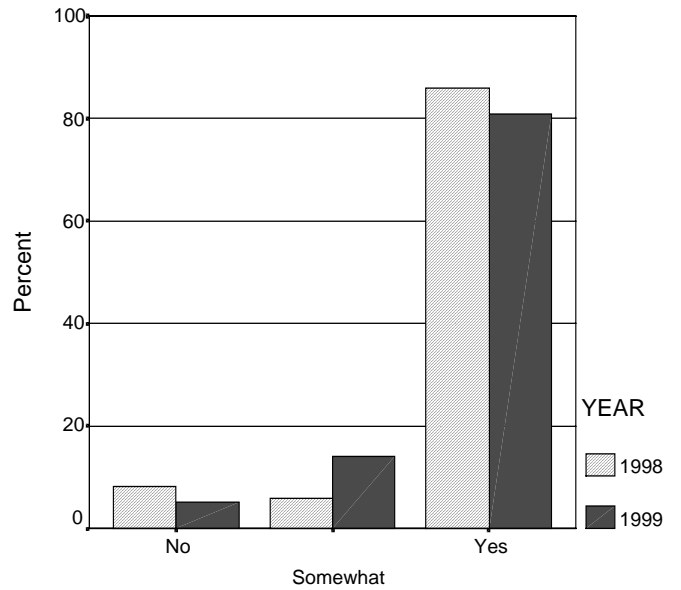
14. Could you give an example?	1998	1999	Total
Budget or financial help (payment plans)	12	16	28
Information or educational assistance (wise energy use)	5	11	16
Repairs or adjustments (thermostat adjustments, electrical/mechanical repairs)	5	9	14
Behavioral changes (less hot water use, lights off)	4	5	9

15. Did REACH help make your home healthier and safer?				
	1998		1999	
	n	%	n	%
No (1)	10	12	23	15
Somewhat (2)	12	15	28	19
Yes (3)	59	73	99	66
Missing/ NA	6	--	14	--
Total (valid)	81	100	150	100
Mean	2.60		2.51	



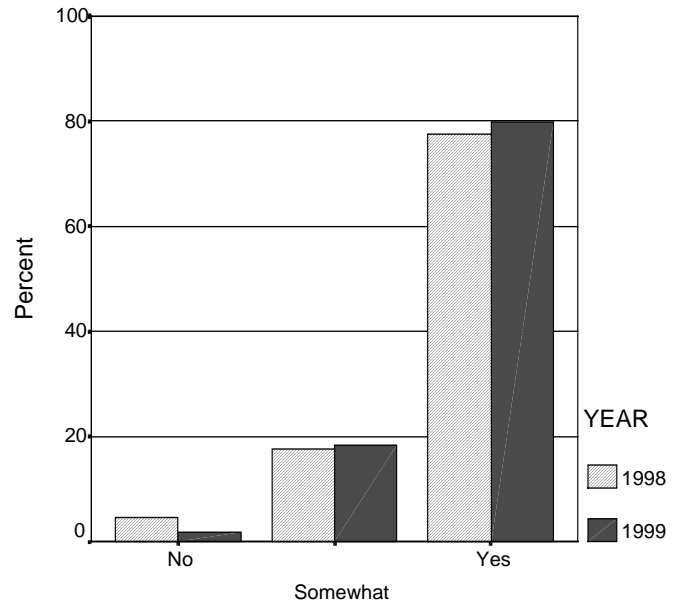
16. Can you give an example?	1998	1999	Total
Material repairs or adjustments (heater distances, safer hot water temperatures)	20	29	49
Environmental changes (warmer, less drafty)	18	42	60
Insulation and weatherization	3	8	11

17. Did REACH help make your home more comfortable?				
	1998		1999	
	n	%	n	%
No (1)	7	8	8	5
Somewhat (2)	5	6	22	14
Yes (3)	73	86	127	81
Missing/ NA	2	--	7	--
Total (valid)	85	100	157	100
Mean	2.77		2.76	



18. Can you give an example?	1998	1999	Total
Environmental changes (warmer, less drafty)	32	64	96
Material repairs or adjustments (furnaces fixed, thermostats adjusted)	16	31	47
Resource assistance (money, other)	4	2	6
Information or education	1	7	8

19. Did REACH motivate you to make your home more energy efficient?				
	1998		1999	
	n	%	n	%
No (1)	4	5	3	2
Somewhat (2)	15	18	29	18
Yes (3)	66	78	126	80
Missing/ NA	2	--	6	--
Total (valid)	85	100	158	100
Mean	2.73		2.78	



20. What specific action did you take?	1998	1999	Total
Material repairs or adjustments (furnaces fixed, thermostats adjusted)	19	65	89
Behavior changes (less energy waste, lights off)	15	34	49
Education, information and awareness	11	9	20

21. In addition, please list each of the weatherization measures that were installed in your home during the REACH Project.

In 1998, 57 clients listed 124 repairs, averaging 2.2 repairs per household. In 1999, 104 clients listed 171 repairs, averaging 1.6 repairs per household. Table 10 lists each of the stated weatherization measures.

**Table 10
Client Weatherization Measures**

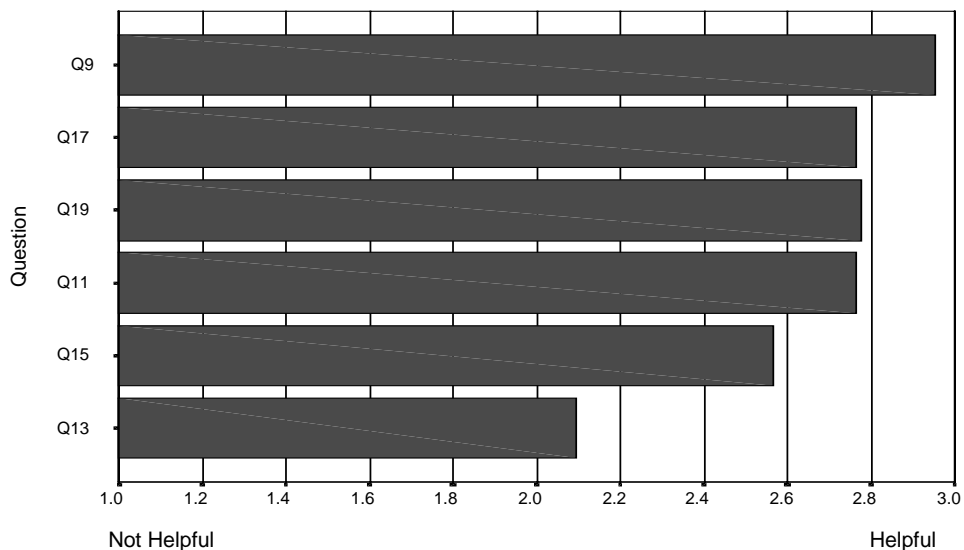
Weatherization Measures	1998	1999	Total
Insulation/ Weather Stripping/ Caulking	45	66	111
Windows (replacement or weatherization)	27	25	52
Major Material Replacements (furnaces, plumbing, roofs)	16	26	42
Forced Air Duct Repairs	12	21	33
Doors (repair or replaced)	10	12	22
Vapor Barriers	10	5	15
Other (low-flow showers, light bulbs, etc)	4	16	20
Total	124	171	295

F. Summary Part II: Specific Topic

Figure 4 displays the mean responses to the questions in this section of the survey that asked clients to rate the *helpfulness* of specific features (e.g. relationship with REACH educator, utility contacts, energy tips, etc.), of the REACH Program. On the scale shown in Figure 5, 1 refers to Not Helpful, 2 Somewhat Helpful and 3 Helpful.

On the whole participants responded quite positively to each of the questions in this section, with almost every feature of the program judged to have been helpful. Almost all the participants reported they had a very positive relationship with the REACH Educator and that the program contributed to making their homes more comfortable and energy efficient. It is also clear that the program led a large number of them to weatherize their home with at least 1 or 2 such measures.

Figure 4

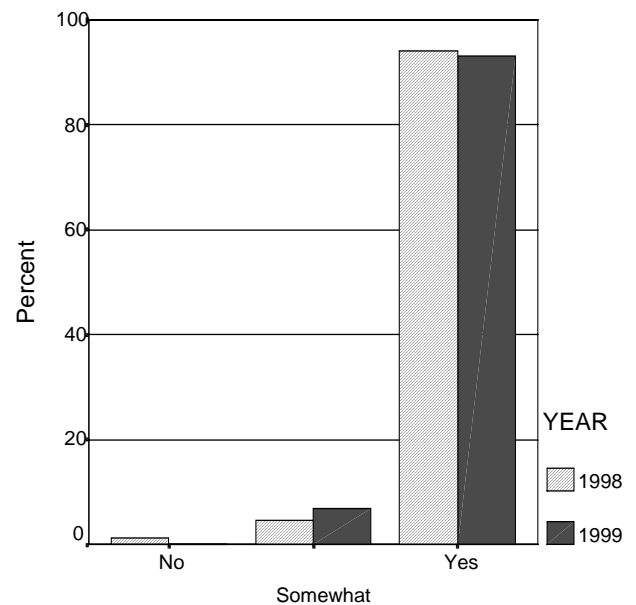


Several analyses of variances were conducted on the scaled questions in this section in order to identify differences between groups (Education Only & Education + Weatherization). Only Question 17, *Did REACH help make your home more comfortable?* revealed a significant difference, $F(1.156) = 4.286$, $p = .040$ between these two groups. Participants who received both education and weatherization reported that the REACH program helped make their home more comfortable than those who received education only.

G. Part III Overall Evaluation

In the final section of the survey, the participants were asked a set of questions about their overall appraisal of the program. They were also given an opportunity to identify specific strengths and weakness of the program and to provide recommendations for its future improvement. The results are shown in the following tables.

22. Do you think REACH, as a whole, was worthwhile?				
	1998		1999	
	n	%	n	%
No (1)	1	1	--	--
Somewhat (2)	4	5	11	7
Yes (3)	81	94	147	93
Missing/ NA	1	--	6	--
Total (valid)	86	100	158	100
Mean	2.93		2.93	



23a. What do you consider the principal strengths of the program?

Principal Strength Stated	1998	1999	Total
Personal Contact of Staff	24	26	50
Financial Benefits	11	19	30
Education, Information or Awareness	9	29	38
Entire Program	9	8	17
Material Benefits	8	8	16
Environmental Change	4	3	7
Total	65	93	158

23b. What do you consider the principal weaknesses of the program?

Principal Weaknesses Stated	1998	1999	Total
Service issues (waiting lists, on-time service, or quality)	12	10	22
Limited resources (money, wx materials)	7	12	19
Window service (for unusual sized or shaped windows)	4	3	7
Contact and communication	4	6	10
Total	27	31	58

24. Were there any obstacles which prevented you from benefiting from REACH?

Obstacles Preventing Benefits	1998	1999	Total
Landlord barriers (uncooperative or evicted)	4	4	8
Environmental barriers (stairs or location of repair)	2	1	3
Lack of resources (money or materials)	3	14	17
Other (moving, illness, children, etc)	6	5	11
Total	15	24	39

25. Do you have any suggestions that would help us improve the program?

Suggested Improvements	1998	1999	Total
Increase the amount of materials, funds, and services per household	9	9	18
Better Service (on-time, wait lists, follow through)	4	5	9
Increase the awareness & expand program	3	8	11
Total	16	22	38

H. Summary to Part III Overall Evaluation

The respondents to this survey conveyed an almost uniformly high level of satisfaction with the REACH Program (93%), with every section scoring positive marks. Little change was noted between the first and second year of the program. The clients consistently stated that the entire program was a benefit to themselves, their families, and their household environment. The specific strengths that were singled out by clients included the personal contact with the staff, and the financial, educational and material benefits of the program.

A few of the clients identified some areas where the program could be

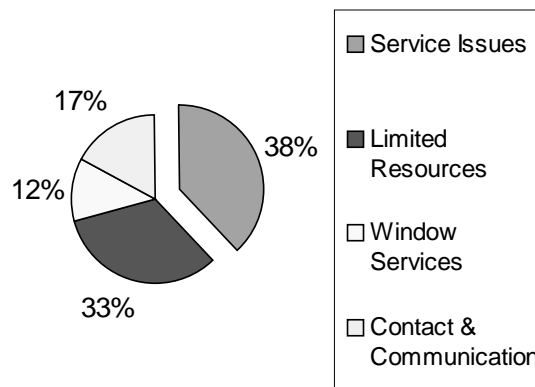


Figure 5

improved. They can be divided into the 4 service components (service issues, window related, limited resources, and contact and communication) shown in Figure 5.

Clients ranked both communication problems and the wait for service as top concerns. Several clients felt that the wait for service was considerably lengthy. In some cases weatherization had not yet been implemented at the time of this survey. Still others stated that service personnel did not arrive when stated. Finally, clients living in homes that had unique sized or shaped windows voiced some dissatisfaction with their weatherization. Because of the difficulty of obtaining such windows, it is not surprising that they were somewhat less satisfied with this aspect of the program than others.

Chapter 6 *Staff Survey*

A. Staff Survey

In order to obtain their overall appraisal of the program, the REACH Coordinator at each agency was surveyed at the end of year 1 and 2. The survey addressed the following topics:

1. Program design and goals
2. Internal organization and administration
3. Program delivery
4. Participant knowledge and behavior change
5. Overall evaluation and recommendations

The results, which compare the responses of 14 REACH Coordinators from each year of the program, have been arranged into tables that show the question, the frequency of response, percentage of the total responses, the number of participants, and the mean response. A graphical representation of these results is also given in the box adjacent to the table. The percentage represents the percent or total responses per category and the number in parentheses represents the frequency of that response.

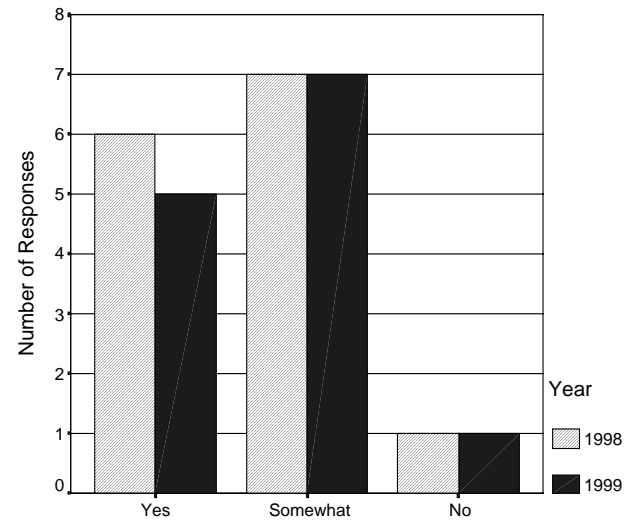
B. Program Design and Goals

This section asked the staff to evaluate various aspects of the program's design and goals. They were then asked to explain their answers in the space below each question.

1. In your view what were the major goals of the REACH program?

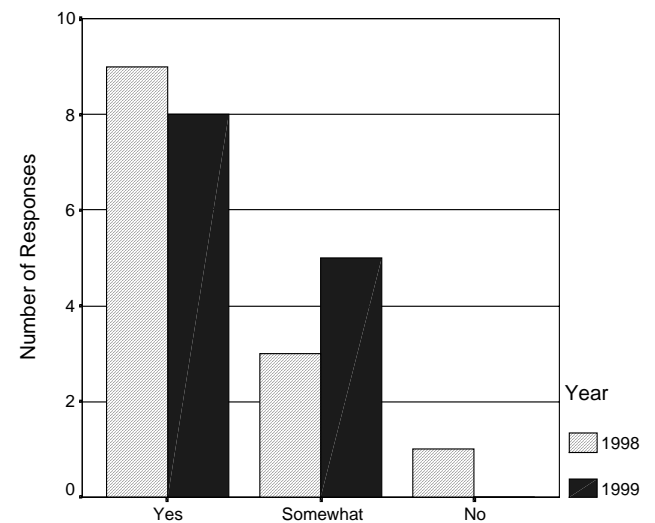
Comments	1998	1999	Total
Reduce energy bill/ burden/ use	5	5	10
Payment of past-due energy bills (arrearage)	3	4	7
Education of efficient energy use/ weatherization	4	0	4

2. Were the program goals realistic?				
	1998		1999	
	n	%	n	%
Yes (1)	6	43	5	38
Somewhat (2)	7	50	7	54
No (3)	1	7	1	8
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.64		1.69	



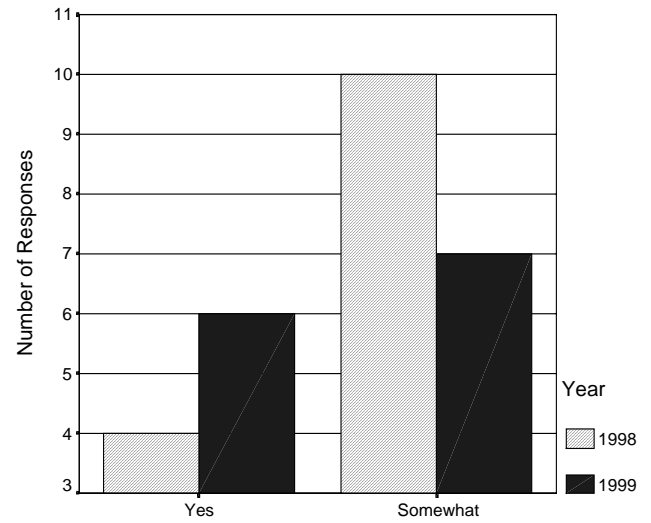
Comments	1998	1999	Total
If participants were motivated to change their behavior.	3	1	4
Many participants needed more than \$250.	2	2	4

3. Was the program effectively designed to reduce arrearage?				
	1998		1999	
	n	%	n	%
Yes (1)	9	69	8	62
Somewhat (2)	3	23	5	38
No (3)	1	8	0	0
Missing	1	-	-	-
Total (valid)	13	100	13	100
Mean	1.38		1.38	



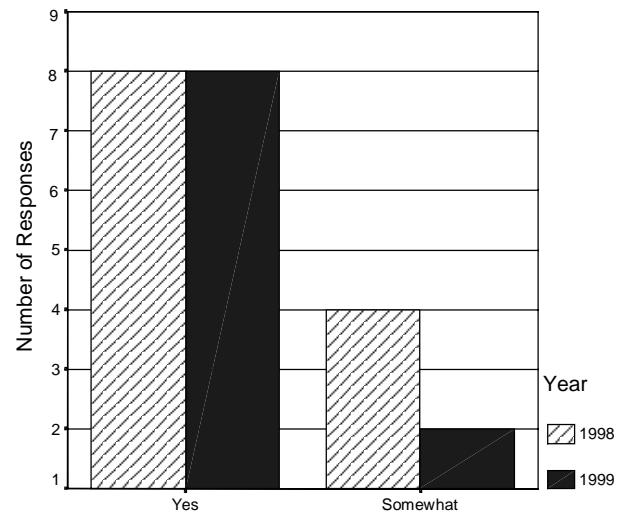
Comments	1998	1999	Total
Many participants needed more than \$250.	4	3	7
Yes, there was enough money to cover arrears.	2	1	3

4. Was the program effectively designed to diminish energy burden?				
	1998		1999	
	n	%	n	%
Yes (1)	4	29	6	46
Somewhat (2)	10	71	7	54
No (3)	0	0	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.71		1.54	



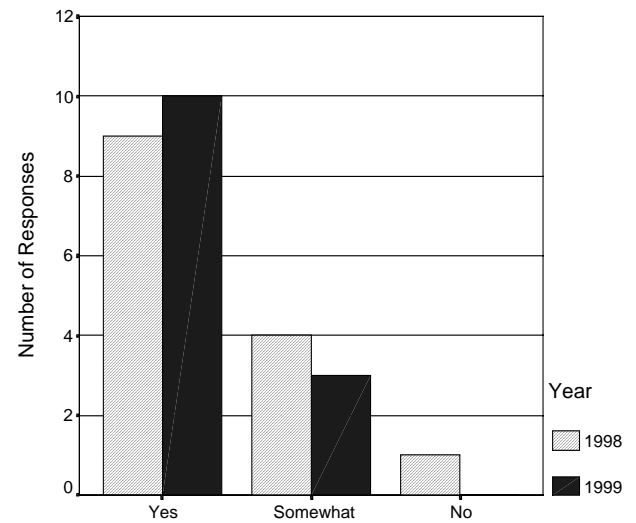
Comments	1998	1999	Total
Many participant's low income couldn't ease burden.	4	2	6
If the home was weatherized or repaired.	2	3	5
If participants were motivated to change their behavior.	2	0	2

5. Was the program effectively designed to increase household energy efficiency?				
	1998		1999	
	n	%	n	%
Yes (1)	8	57	8	62
Somewhat (2)	6	43	5	38
No (3)	0	0	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.43		1.38	



Comments	1998	1999	Total
If the home was weatherized and/or participants were educated.	3	2	5
Depends on participant (action plan).	1	3	4

6. Was the program effectively designed to promote participant energy efficient actions?				
	1998		1999	
	n	%	n	%
Yes (1)	9	64	10	77
Somewhat (2)	4	29	3	23
No (3)	1	7	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.43		1.23	

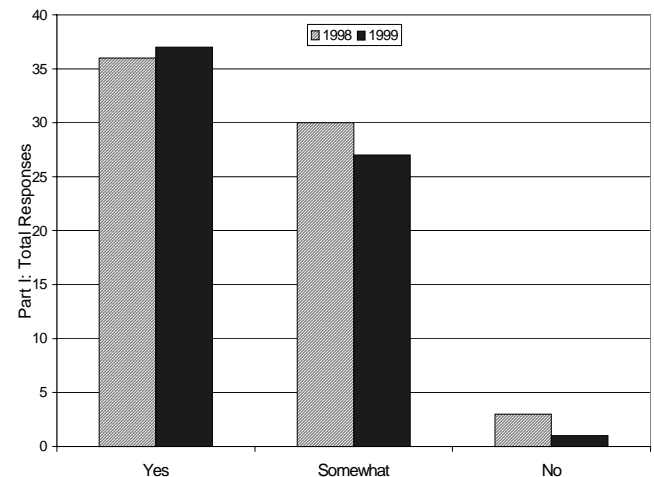


Comments	1998	1999	Total
If participants were motivated (action plan).	2	2	4
Yes, because clients were open to new ideas and education.	2	1	3

C. Part I Summary: Program Design and Goals

The overall average for the 5 questions on Part 1, Program Design and Goals was 1.45, on a scale where 1 meant "Yes," the program was effective, 2 meant it was somewhat effective and 3 meant it was not effective. The REACH staff viewed these general features of the program in a very favorable light. The staff gave modestly higher ratings to half of the questions during the second year of the program.

Overall, was the program effective in design and goals (Part I: Questions 2-6)?				
	1998		1999	
	n	%	n	%
Yes (1)	36	52	37	57
Somewhat (2)	30	44	27	42
No (3)	3	4	1	1
Total (valid)	69	100	65	100
Mean	1.52	1.45		



The greatest increase was found in the program's design to promote energy efficient actions (Question 6), with 77% of staff indicating that the program was effectively

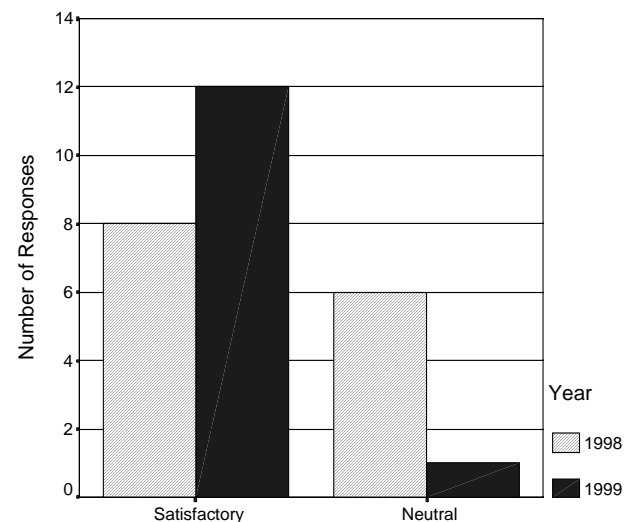
designed to promote client energy efficient actions, a 13% increase over 1998. The following table summarizes the findings on this section of the Staff Survey.

Written comments suggested that the success of program goals varied in terms of the client's need (amount of arrearage and level of income) and motivation (specifically, in following action plans), as well as whether or not the household received a weatherization. Some clients received education without weatherization, several clients had high arrearages and/or very low incomes, and other clients were not highly motivated to change their behaviors. Thus, staff was much more likely to judge the program goals as successful when weatherization resources were administered, client need was moderate, and clients were highly motivated.

D. Part II Internal Organization and Administration

This section of the survey asked the staff how satisfied they were with 5 separate administrative features of the REACH program. They were then asked to explain their response, especially if it was negative.

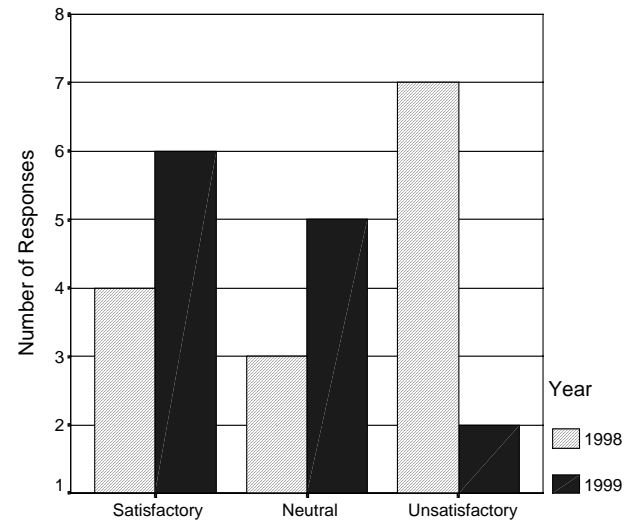
7. Ease of incorporating REACH into your agency's operations.				
	1998		1999	
	n	%	n	%
Satisfactory (1)	8	57	12	92
Neutral (2)	6	43	1	8
Unsatisfactory (3)	0	0	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.43		1.08	



Comments	1998	1999	Total
REACH was a natural addition to current program.	2	3	5
Limited time was an issue.	3	0	3

8. Adequacy of staff time to administer the program.

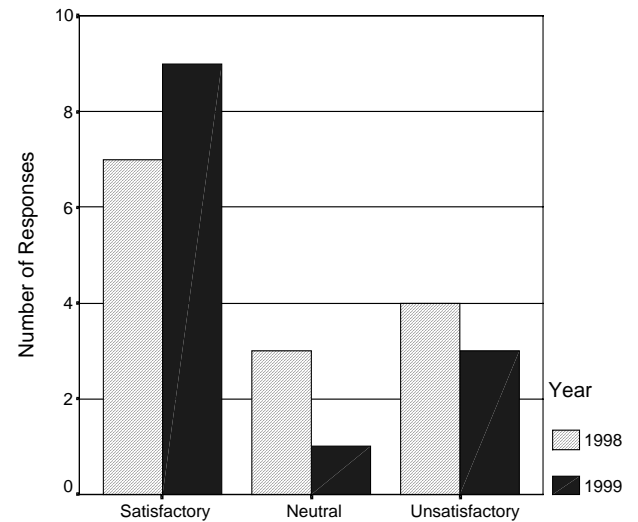
	1998		1999	
	n	%	n	%
Satisfactory (1)	4	29	6	46
Neutral (2)	3	21	5	39
Unsatisfactory (3)	7	50	2	15
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.21		1.69	



Comments	1998	1999	Total
Not enough time because other job burdens.	5	1	6
Need more staff.	0	4	4
Summer time is fine, but winter is more difficult.	2	1	3
Too much paperwork.	2	0	2

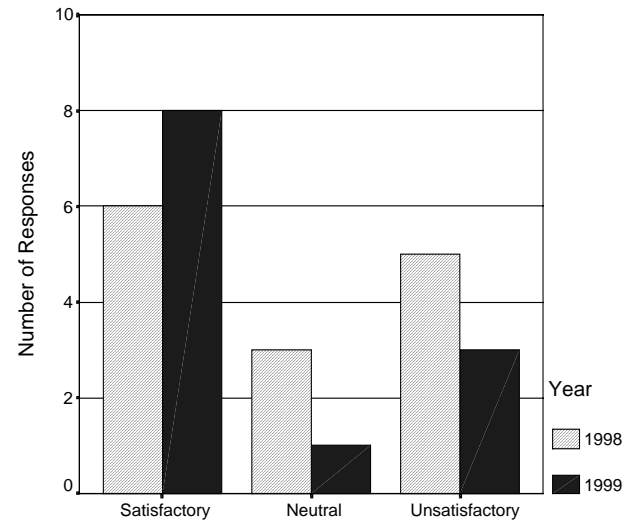
9. Ease of administering direct financial payments.

	1998		1999	
	n	%	n	%
Satisfactory (1)	7	50	9	69
Neutral (2)	3	21	1	8
Unsatisfactory (3)	4	29	3	23
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.79		1.54	



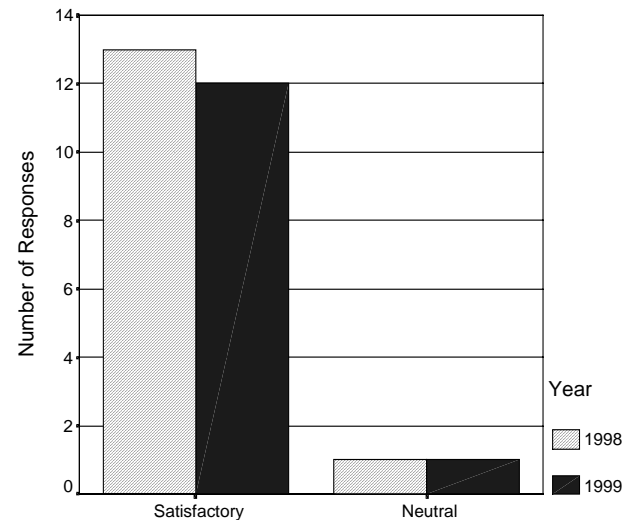
Comments	1998	1999	Total
Bureaucracy created additional paperwork.	2	1	3
Change in payment structure.	0	2	2

10. Billing/ reimbursement procedure.				
	1998		1999	
	n	%	n	%
Satisfactory (1)	6	43	8	67
Neutral (2)	3	21	1	8
Unsatisfactory (3)	5	36	3	25
Missing	-	-	1	-
Total (valid)	14	100	12	100
Mean	1.93		1.58	



Comments	1998	1999	Total
Paperwork created problems.	3	0	3

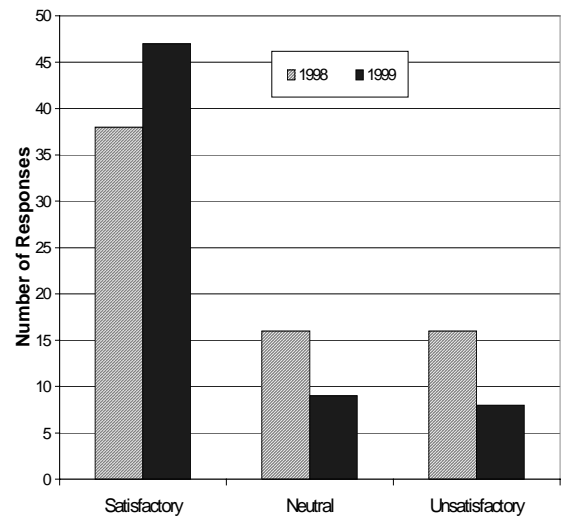
11. State administrative and technical support.				
	1998		1999	
	n	%	n	%
Satisfactory (1)	13	93	12	92
Neutral (2)	1	7	1	8
Unsatisfactory (3)	0	0	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.07		1.08	



Comments	1998	1999	Total
Listened and provided good efficient resources.	3	2	5
The state staff were great.	1	3	4

E. Part II Summary: Internal Organization & Administration

<i>Overall, was the program effective in design and goals (Part II: Questions 7 – 11)?</i>				
	1998		1999	
	n	%	n	%
Satisfactory (1)	38	54	47	73
Neutral (2)	16	23	9	14
Unsatisfactory (3)	16	23	8	13
Missing	-	-	-	-
Total (valid)	70	100	64	100
Mean	1.69		1.38	



There was a notable improvement during year 2 in the overall level of satisfaction with the various administrative features of the REACH Program assessed on this portion of the survey. While the satisfaction rating for adequacy of staff time to administer the program increased more than any other feature, it still ranked the lowest in overall level of satisfaction. It is also important to note the virtual absence of any concerns about the volume of paperwork involved in administering the program. This had been widely voiced area dissatisfaction during year one.

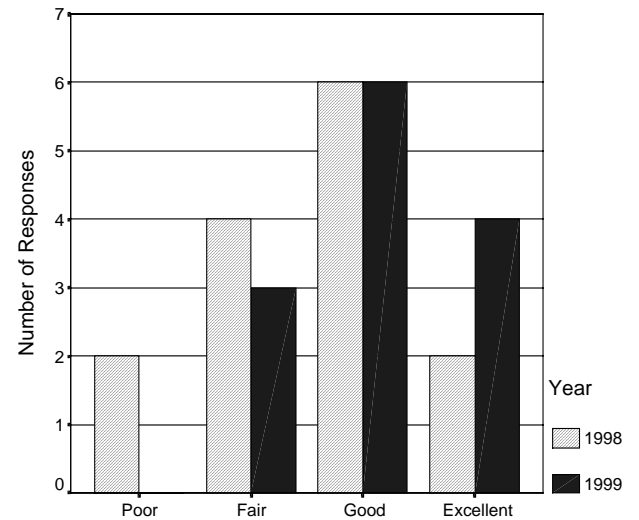
In 1999, most staff (92%) believed that the REACH program was a natural addition to their current assistance programs. Additionally, 92% of the staff and several comments indicated that the state administrative staff was a very helpful resource (Question 11). Some concerns were expressed over the administration of funds (Question 9) and billing procedures (Question 10). Although these features received higher satisfactory ratings in year 2 of the program, it is noteworthy that nearly 25% of staff still judged them to be unsatisfactory.

F. Part III: Program Delivery

The next section of the survey asked the staff to evaluate 14 different areas associated with program delivery on a scale of 1 to 4, where 1 represented poor, 2 fair, 3 good and 4 excellent. An opportunity was provided for specific comments to each question. As before, the following tables compare the ratings for year 1 and 2.

12. Recruitment of REACH participants.

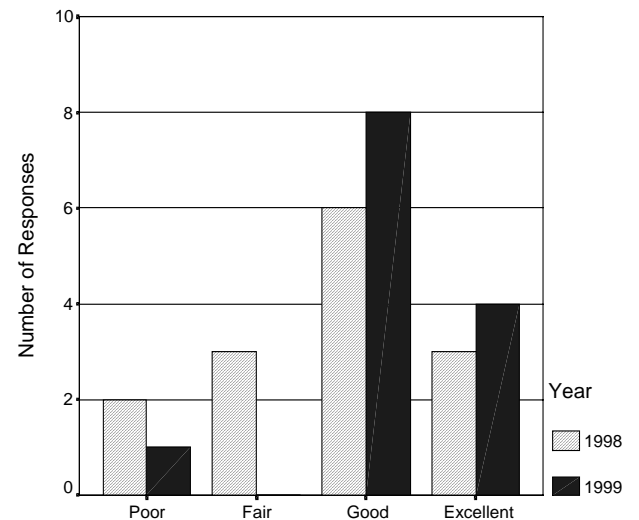
	1998		1999	
	n	%	n	%
Poor (1)	2	14	0	0
Fair (2)	4	29	3	23
Good (3)	6	43	6	46
Excellent (4)	2	14	4	31
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.54		3.08	



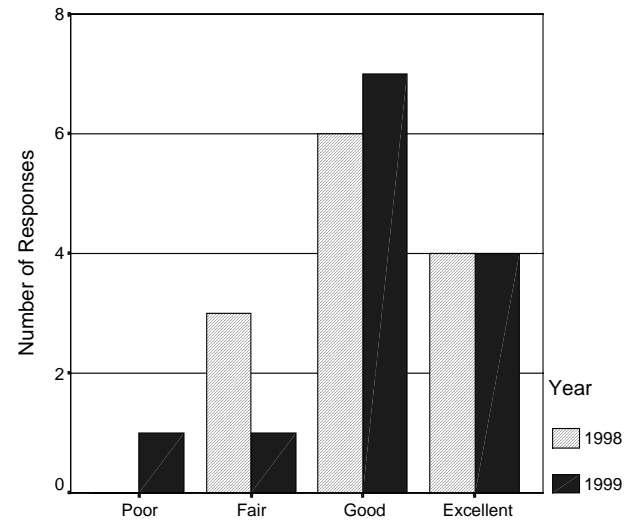
Comments	1998	1999	Total
Recruitment was cumbersome.	0	3	3

13. Selection of REACH participants.

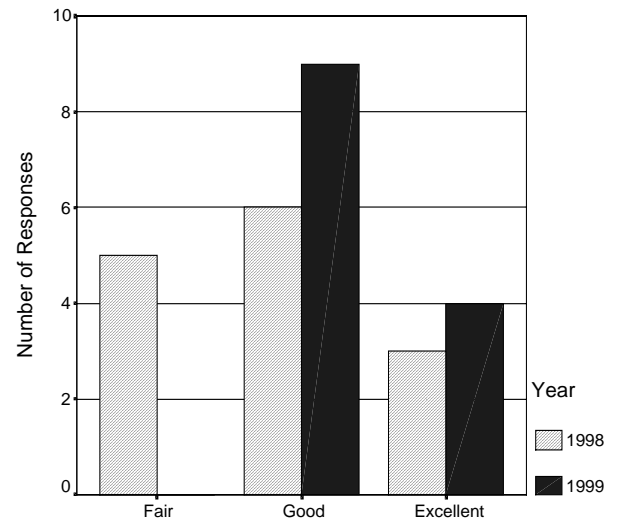
	1998		1999	
	n	%	n	%
Poor (1)	2	14	1	8
Fair (2)	3	21	0	0
Good (3)	6	43	8	61
Excellent (4)	3	21	4	31
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.71		3.15	



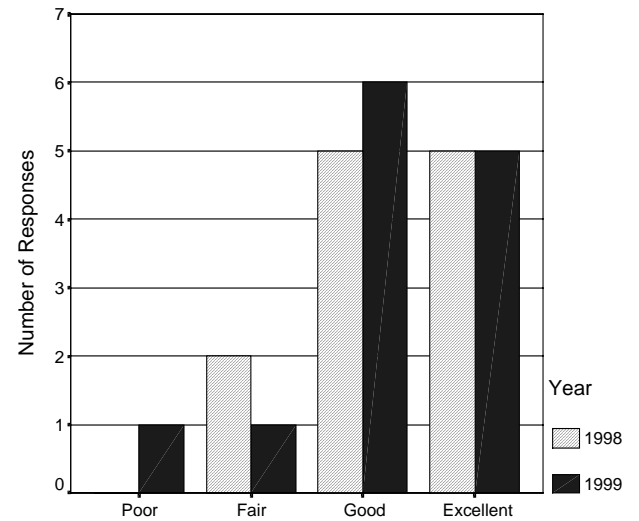
14. Dwelling assessment.				
	1998		1999	
	n	%	n	%
Poor (1)	0	0	1	8
Fair (2)	3	23	1	8
Good (3)	6	46	7	54
Excellent (4)	4	31	4	31
Missing	1	-	-	-
Total (valid)	13	100	13	100
Mean	3.08		3.08	



15. Participant education.				
	1998		1999	
	n	%	n	%
Poor (1)	0	0	0	0
Fair (2)	5	36	0	0
Good (3)	6	43	9	69
Excellent (4)	3	21	4	31
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.86		3.31	

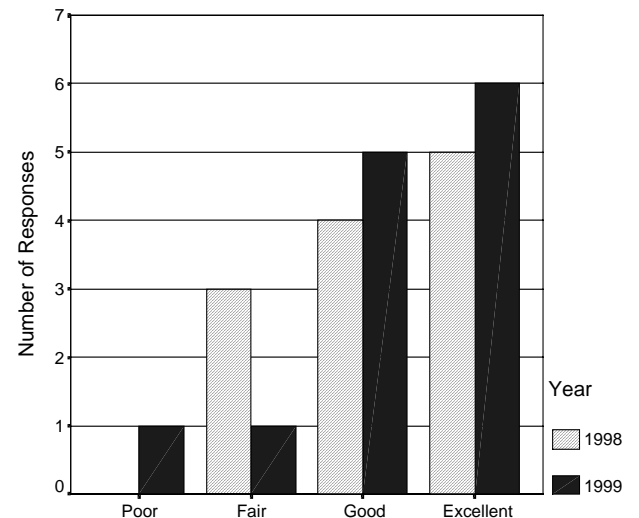


16. Installation of low-cost weatherization.				
	1998		1999	
	n	%	n	%
Poor (1)	0	0	1	8
Fair (2)	2	17	1	8
Good (3)	5	41.5	6	46
Excellent (4)	5	41.5	5	38
Missing	2	-	-	-
Total (valid)	12	100	13	100
Mean	3.25		3.15	



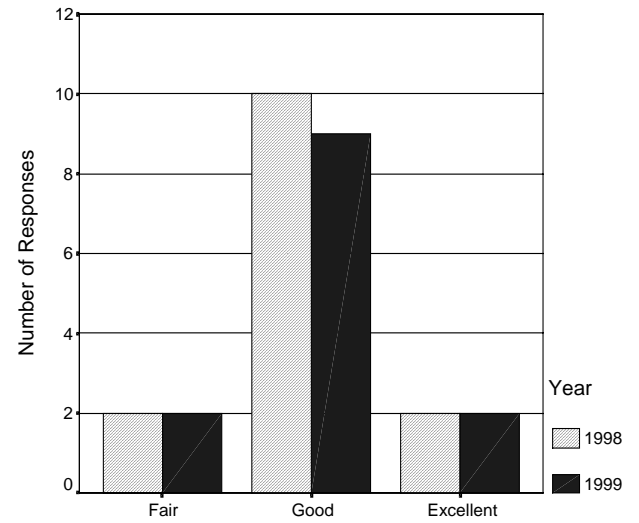
Comments	1998	1999	Total
Need more materials.	1	5	6

17. Full weatherization.				
	1998		1999	
	N	%	n	%
Poor (1)	0	0	1	8
Fair (2)	3	25	1	8
Good (3)	4	33	5	38
Excellent (4)	5	42	6	46
Missing	2	-	-	-
Total (valid)	12	100	13	100
Mean	3.17		3.23	



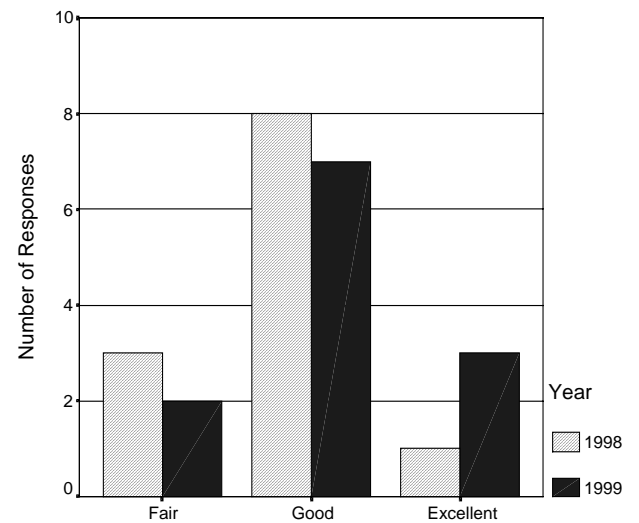
Comments	1998	1999	Total
Extensive wait-list hindered response time.	2	1	3

18. Household action plan.				
	1998		1999	
	N	%	n	%
Poor (1)	0	0	0	0
Fair (2)	2	14.5	2	15.5
Good (3)	10	71	9	69
Excellent (4)	2	14.5	2	15.5
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	3.00		3.00	

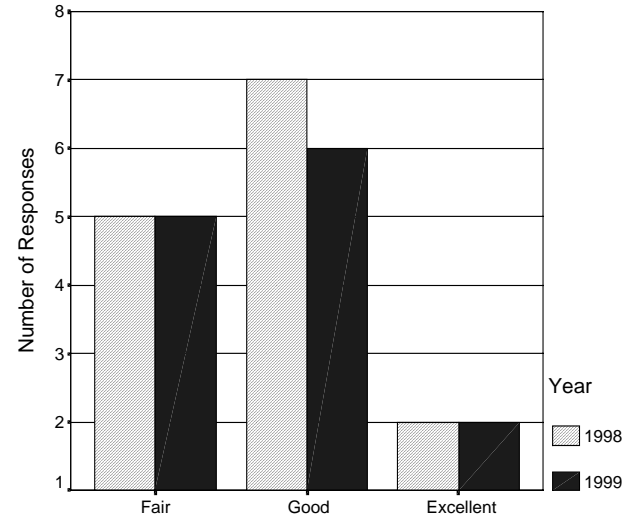


Comments	1998	1999	Total
Participants problems (motivation and enthusiasm)	3	0	3

19. Co-payment process.				
	1998		1999	
	N	%	n	%
Poor (1)	0	0	0	0
Fair (2)	3	25	2	17
Good (3)	8	67	7	58
Excellent (4)	1	8	3	25
Missing	2	-	1	-
Total (valid)	12	100	12	100
Mean	2.83		3.08	

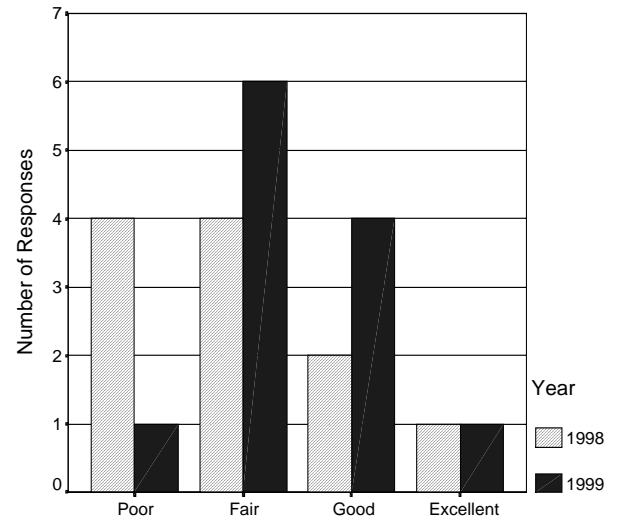


20. Action plan implementation.				
	1998		1999	
	n	%	n	%
Poor (1)	0	0	0	0
Fair (2)	5	36	5	39
Good (3)	7	50	6	46
Excellent (4)	2	14	2	15
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.75		2.77	



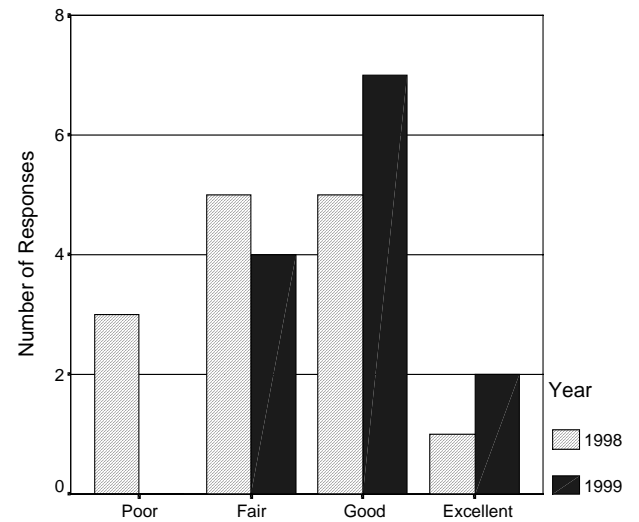
Comments	1998	1999	Total
Depends on participant motivation/enthusiasm.	2	2	4

21. Budget counseling.				
	1998		1999	
	n	%	n	%
Poor (1)	4	36.5	1	8.5
Fair (2)	4	36.5	6	50
Good (3)	2	18	4	33
Excellent (4)	1	9	1	8.5
Missing	3	-	2	-
Total (valid)	11	100	12	100
Mean	1.95		2.42	



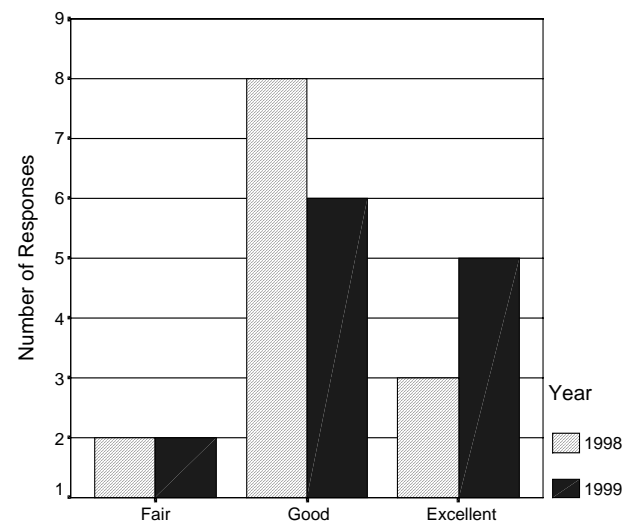
Comments	1998	1999	Total
Participant's income was so low that no room to budget existed.	3	3	6
None or minimal done (possibly due to time constraints).	4	0	4

22. Follow-up contacts.				
	1998		1999	
	n	%	n	%
Poor (1)	3	21	0	0
Fair (2)	5	36	4	31
Good (3)	5	36	7	54
Excellent (4)	1	7	2	15
Missing	-	-		-
Total (valid)	14	100	13	100
Mean	2.25		2.85	



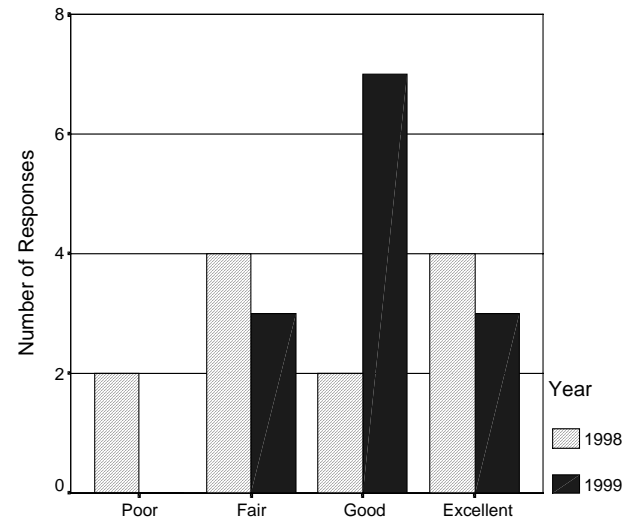
Comments	1998	1999	Total
Difficult to contact participants.	2	1	3
Too many follow-ups requiring too much time.	2	0	2

23. Social service referrals.				
	1998		1999	
	n	%	n	%
Poor (1)	0	0	0	0
Fair (2)	2	15	2	15
Good (3)	8	62	6	46
Excellent (4)	3	23	5	39
Missing	1	-	-	-
Total (valid)	13	100	13	100
Mean	3.08		3.23	



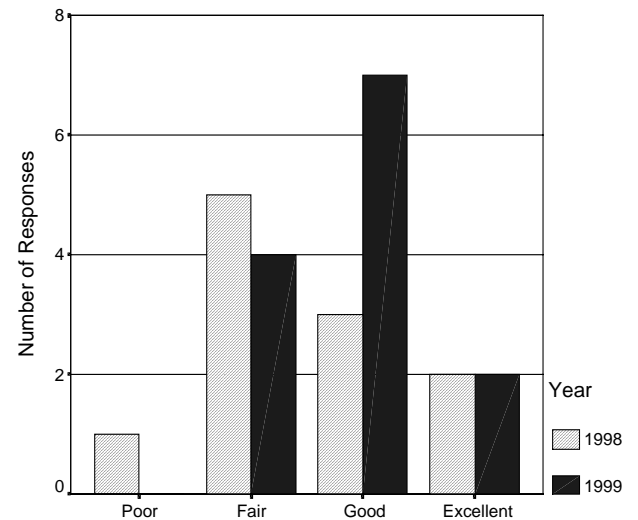
Comments	1998	1999	Total
Referral service good and helpful.	0	3	3

24. Participant feedback.				
	1998		1999	
	n	%	n	%
Poor (1)	2	17	0	0
Fair (2)	4	33	3	7
Good (3)	2	17	7	54
Excellent (4)	4	33	3	23
Missing	2	-	-	-
Total (valid)	12	100	13	100
Mean	2.67		3.00	



Comments	1998	1999	Total
Participant feedback good.	2	3	5

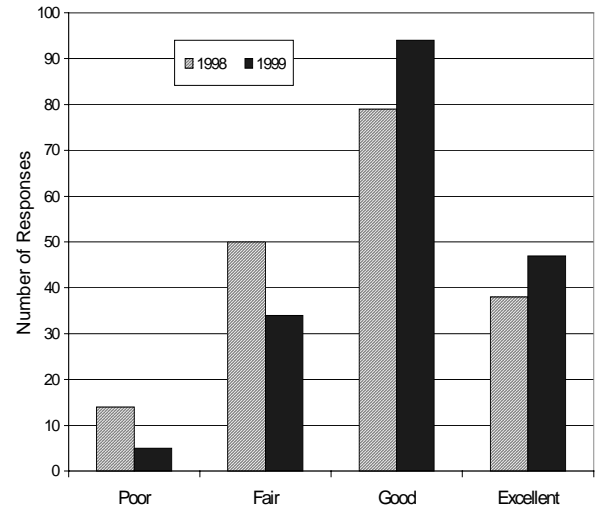
25. Reporting and evaluation.				
	1998		1999	
	n	%	N	%
Poor (1)	1	9	0	0
Fair (2)	5	46	4	31
Good (3)	3	27	7	54
Excellent (4)	2	18	2	15
Missing	3	-	-	-
Total (valid)	11	100	13	100
Mean	2.55		2.85	



Comments	1998	1999	Total
Too much reporting that required too much time.	2	4	6

G. Part III Summary: Program Delivery

<i>Overall rating of program delivery (Part III: Questions 12 - 25).</i>				
	1998		1999	
	n	%	n	%
Poor (1)	14	8	5	3
Fair (2)	50	28	34	19
Good (3)	79	43	94	52
Excellent (4)	38	21	47	26
Missing	16	-	3	-
Total (valid)	181	100	180	100
Mean	2.77		3.02	



The majority of the staff rated the various components of delivering the REACH Project as either "Good" or "Excellent." In 1999 the overall mean ratings on these questions was 3.02, placing it slightly above the category of "Good" on the 4 point rating scale. Compared to year 1, there was a modest improvement in the ratings on most of the Program Delivery questions, with a noticeable improvement in the number of positive ratings for Client Feedback (Question 24) and Reporting and Evaluation (Question 25).

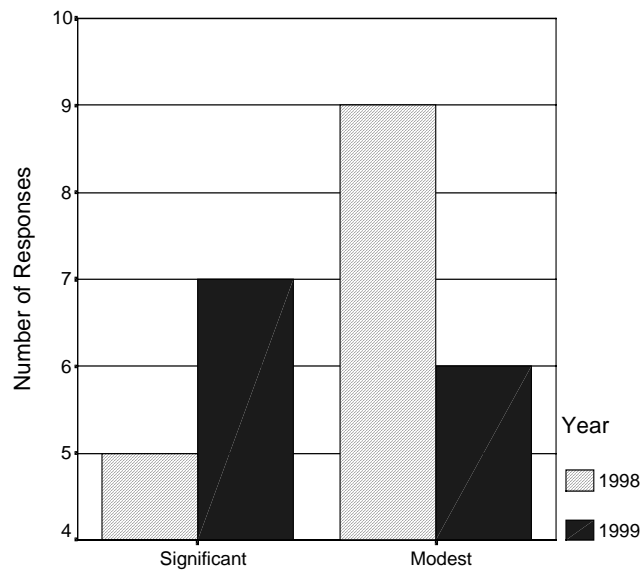
As before, very few areas were rated poorly. In fact, during both years of the evaluation only 5% of total responses were made in the "Poor" category on this part of the survey. It is also important to note that Budget Counseling (Question 21) received only one "Poor" rating during year 2, noticeably fewer than it did in year one.

H. Part IV: Participant Knowledge and Behavior Change

The next section of the survey asked the staff to assess the impact of the REACH Program on the client's energy efficient behavior. They were also asked to comment further on their ratings in the space provide below each question.

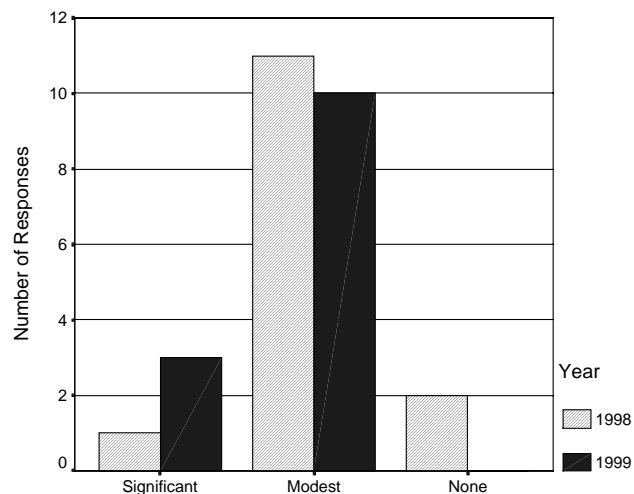
26. Extent to which the overall program motivates participant energy efficient actions.

	1998		1999	
	n	%	n	%
Significant Influence (1)	5	36	7	54
Modest Influence (2)	9	64	6	46
No Influence (3)	0	0	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	1.64		1.46	



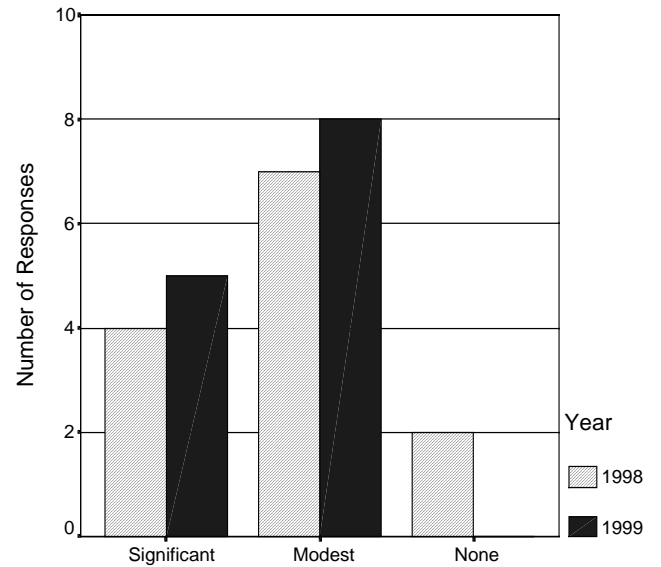
27. Extent to which energy information by itself leads to participant energy efficient actions.

	1998		1999	
	n	%	n	%
Significant Influence (1)	1	7	3	23
Modest Influence (2)	11	77	10	77
No Influence (3)	2	14	0	0
Missing	-	-	-	-
Total (valid)	14	100	13	100
Mean	2.07		1.77	



28. Extent to which REACH develops participant's commitment to continue program recommendations.

	1998		1999	
	n	%	n	%
Significant Influence (1)	4	31	5	38.5
Modest Influence (2)	7	54	8	61.5
No Influence (3)	2	15	0	0
Missing	1	-	-	-
Total (valid)	13	100	13	100
Mean	1.81		1.62	



Comments	1998	1999	Total
Follow-ups reinforce commitment	2	0	2
Too soon to tell (unknown)	4	0	4

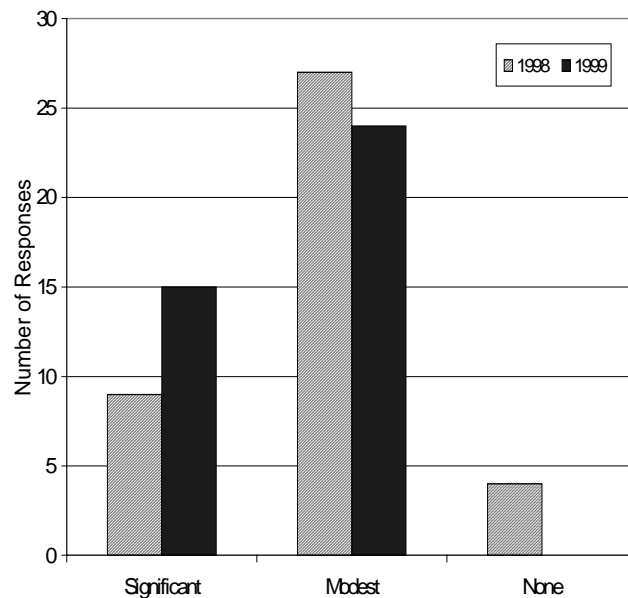
I. Part IV Summary: Participant Knowledge & Behavior Change

On a scale from 1 to 3, where 1 represented significant influence, 2 modest influence and 3 no influence, the overall mean for this section of the survey (questions 26 - 28) was 1.84, placing it midway between "Significant Influence" and "Modest Influence."

During year 2, the staff made more "Significant Influence" ratings on each of the three questions concerning client impact than they had on the year one survey of the program. However, on balance, during both years the majority believed that the REACH Program had a "Modest," but not "Significant" influence on the client's knowledge of energy efficient actions and their commitment to adopting such actions in the future.

Overall influence on participant knowledge and behavior change (Part IV: Questions 26 – 28).

	1998		1999	
	n	%	n	%
Significant Influence (1)	9	23	15	38
Modest Influence (2)	27	67	24	62
No Influence (3)	4	10	0	0
Missing	-	-	-	-
Total (valid)	40	100	39	100
Mean	1.86		1.62	



J. Part V: Evaluation and Recommendations

The final section of the survey sought the staff's overall appraisal of the REACH Program. It also solicited their recommendations for its future improvement. As before, they were given an opportunity to amplify their answers in the space below each question.

29. Summary of principal strengths.	1998	1999
Personal contact and direct intervention	5	3
Program design (intent, concept, comprehensiveness)	4	2
Material benefits (weatherization and co-payments)	3	5
Educational (information and awareness)	1	3

Summary of principal weaknesses	1998	1999
Participant problems (unmotivated, no behavior changes, move)	5	1
Excessive paperwork	4	5
Time issues (follow-up, number of houses in need, bureaucracy)	3	2
Lack of resources (some need more than others, waitlist)	0	5

30. List most difficult activities from part III and suggestions to improve them.	1998	1999
#12 Recruitment: All LIEAP should qualify	3	4
#17 Full weatherization: More volunteers, more weatherization, and shorter wait-lists	4	3
#21 Budget counseling: Income too small to budget	2	2
#22 Follow-ups: Difficult to contact	7	5

31. Evaluate the indirect benefits in the following 3 areas:		1998	1999
Health	Material assistance (repairs, insulation, ceilings, blankets)	4	3
	Environmental assistance (warmer, less mold and mildew)	3	5
	Information (assess problem, educate)	2	0
Comfort	Material assistance (weatherized and repaired)	5	6
	Environmental assistance (temperature)	1	3
	Information (refrigerator/ water heater settings, shared information)	2	2
Safety	Material assistance (CO ² detectors, minor and major repairs)	4	10
	Environmental assistance (mold, temperature)	0	1
	Information (assess problems, education on fireplace use)	3	0

32. In general, how satisfied were you with the REACH program?	1998		1999	
Response	n	%	n	%
Very Unsatisfied	0	0	0	0
Unsatisfied	1	8	0	0
Somewhat Satisfied	4	31	1	8
Satisfied	3	23	5	38
Very Satisfied	5	38	7	54
Total	13	100	13	100

33. In your opinion, how satisfied were the participants with the REACH program?	1998		1999	
	n	%	n	%
Very Unsatisfied	0	0	0	0
Unsatisfied	1	7	0	0
Somewhat Satisfied	2	14	1	8
Satisfied	5	35	1	8
Very Satisfied	6	42	11	84
Total	14	100	13	100

34. Were there any barriers to successful program implementation at your agency?	1998	1999
Lack of monetary resources (money and mileage reimbursement)	2	1
Departmental problems (confusion in dept., referrals from LIEAP)	2	1
Time problems (time and wait-lists)	5	3
Participants (difficult to contact, recruitment, unavailable)	2	0

35. What suggestions do you have for future improvements in the REACH program?	1998	1999
More resources (for education, up-front, per participant)	4	2
Increased flexibility (time and resources)	3	3
Less paperwork (change report system)	3	4

K. Part V Summary: Evaluation and Recommendation

Overall rating of evaluation (Part V: Questions 32 – 33).				
Response	1998		1999	
	n	%	n	%
Very Unsatisfied	0	0	0	0
Unsatisfied	2	7	0	0
Somewhat Satisfied	6	22	2	8
Satisfied	8	30	6	23
Very Satisfied	11	41	18	69
Total	27	100	26	100

The preceding table indicates that a clear majority of the staff was very satisfied with the REACH Program during both years of its operation. Indeed, the program received even more "Very Satisfied" ratings from the staff during its second year (69%) than it had during the first (41%). There were no "Very Unsatisfied" and only 2 "Unsatisfied"

ratings. However, the latter two were made when the survey was administered at the end of the first year.

Several program strengths were noted in response to Question 29. These fell into one of three categories: personal contact, program design, and material benefits. These strengths are closely associated with the indirect benefits listed in response to Question 31 in the areas of health, comfort and safety listed in question 31. Much the same is true for the very high level of client satisfaction reported on Question 33. It is noteworthy that the percentage of staff "Very Satisfied" ratings of client satisfaction was double (84%) what it had been during the first year of the program.

These findings do not imply that the staff thought there was little room for program improvement. On the contrary many such suggestions were made or implied in response to Questions 29 (part 2), 30, 34 and 35. For example, several barriers were noted in response to Question 34, including limited resources, administrative problems, and difficult clients. In addition, in response to Question 35 the most frequently mentioned suggestions for future program improvement included increasing monetary resources, reducing the amount of paperwork, especially redesigning and simplifying the reporting system, and more extensive tailoring of the program to the specific needs of the clients.

Chapter 7

Client Energy Costs and Consumption

A. Overview

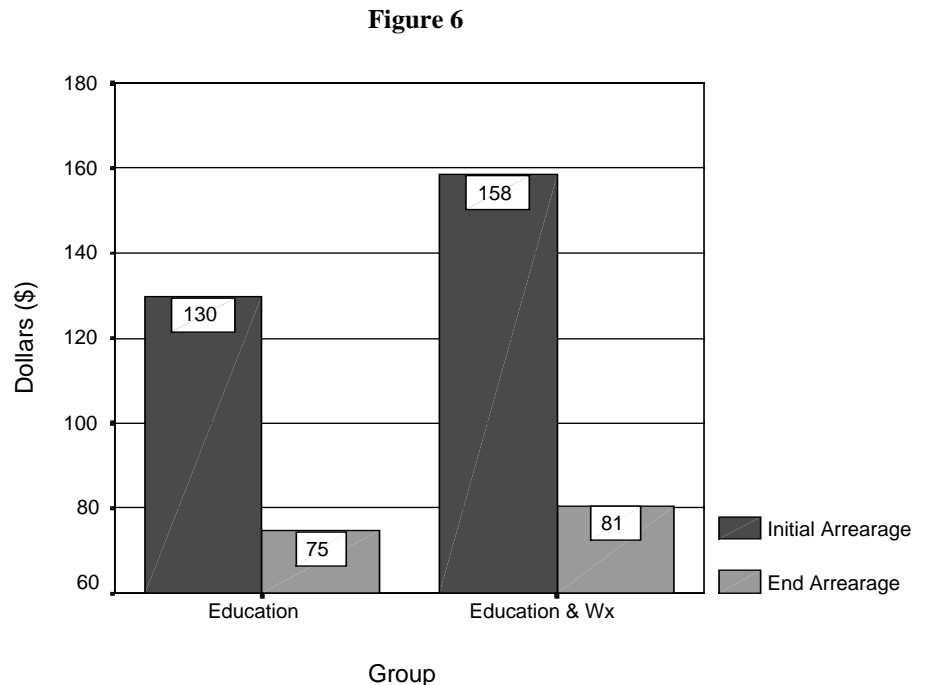
To determine if and to what extent the project helped participants to manage more effectively their energy resources, REACH's impact on the following three measures was assessed:

1. Utility arrearages
2. Energy consumption
3. Household energy burden

REACH clients who received Education Only were compared with those who received Education + Weatherization in analyzing these measures. A Control group of LIHEAP clients, who were not participants in the REACH program, were also compared with these two groups in the analysis of energy consumption. The latter comparison was confined to metered data in all electric households obtained during a three year period, consisting of the pre-REACH baseline year, the year clients participated in the REACH program and, for clients who entered in 1998, the year after they had completed the program.

B. Utility Arrearages

Figure 6 shows the initial and program-completion (final) mean arrearage amount in dollars for both groups of REACH participants. The initial and final arrearage level in the Education + Weatherization Group was greater than the Education Only group. However, in neither case was this difference very large. As a result, the difference between the Education + Weatherization and Education Only groups on this measure was not statistically significant.



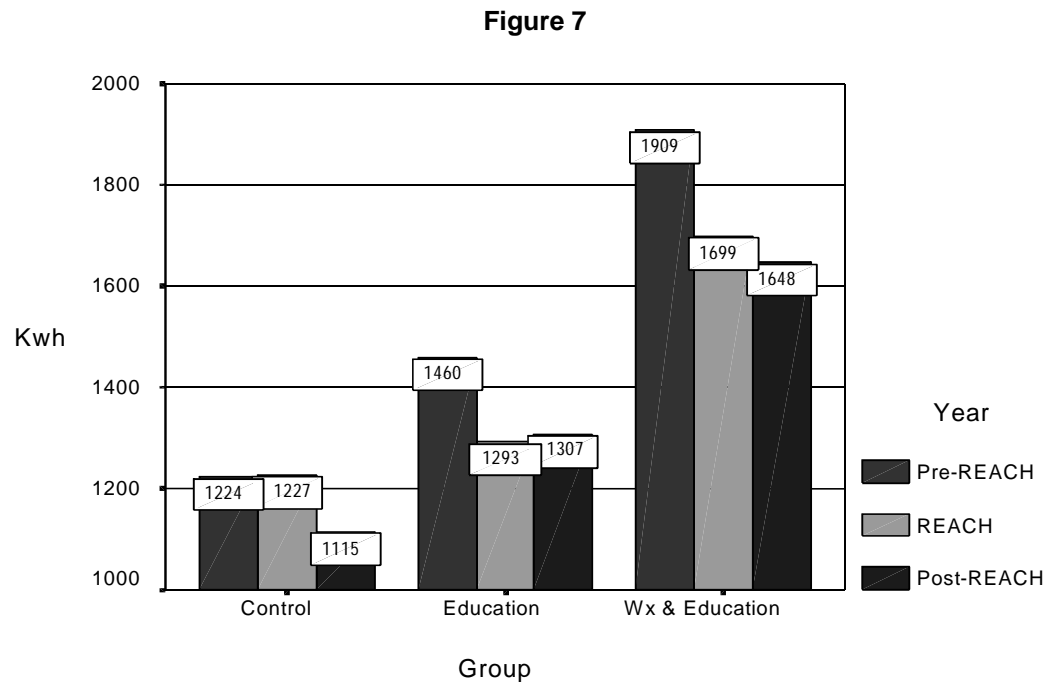
However, *within* each of the two groups employed in this analysis, there was a significant reduction in the amount of their arrearages as a result of their participation in the program. The Education Only group realized a significant decrease of \$55 (42% reduction) after participating in REACH, $t(85) = 4.135$, $p < .001$. Those in the Education + Weatherization group realized a significant decrease of \$77 (48% reduction) after participating in REACH, $t(86) = 2.898$, $p = .005$.

A regression analysis was employed to determine significant *predictors* of lower post-REACH arrearage amounts. Based previous findings reported in the Interim Report (1998), the following variables were entered into the equation to predict the post-REACH arrearages amount: pre-REACH arrearages, pre-REACH motivation and effort, annual income, heat area of home, and post-REACH assessments of efforts during the program.

Due to high levels of skewness and kurtosis, the pre- and post-REACH arrearage variables (DV) underwent a logarithmic transformation. Several variables had missing data. A list-wise total of 54 cases were examined. Of all of these variables, only the pre-REACH arrearage amount was a significant predictor of the post-REACH arrearage model, $F(1, 52) = 20.818$, $p < .001$. This model accounted for 29% of the total post-REACH arrearage variance. *Thus, greater initial arrearage is significantly associated (predicts) greater post-REACH arrearage.*

C. Energy Consumption

Figure 7 displays the pre-REACH, REACH, and post-REACH average energy consumption (Kwh) for each group.



Inspection of the data in Figure 7 and Table 10 indicates there were sizeable *group differences*, with the lowest overall level of consumption in the Control Group, followed in turn by the Education Only and Education + Weatherization. Further inspection of these data also reveals that participation in the REACH program led to a noticeable decrement in the overall level of pre-REACH energy consumption in the two experimental groups.

Table 10
Energy Consumption in Each Group

Group	Average Monthly Energy Use (Kwh)		
	Pre-REACH (12 months)	REACH (12 months)	Post-REACH (12 months)
Control	1224	1227	1115
Education only	1460	1293	1307
Education & Weatherization	1909	1699	1648

Accordingly, a 3x3 factorial analysis was employed to identify differences between and within groups on their pre-REACH, REACH, and post-REACH average energy consumption (Kwh).

This analysis identified several significant differences in pre-REACH ($F(2, 280) = 20.55$, $p < .001$), REACH ($F(2, 280) = 10.54$, $p < .001$), and post-REACH ($F(2, 178) = 13.02$, $p < .001$) average energy consumption by group. All follow-up t-tests confirmed there were significant (or near significant, $\alpha < .07$) differences *between groups*. In each such comparison, the Control group had the lowest average monthly energy (Kwh) use and the Education + Weatherization group had the highest.

It is important to note that the groups differed from each other on this measure from the outset, or pre-REACH phase, of the study. This suggests that the participants were not assigned to the respective groups in a truly random fashion. As a result, differences between the groups during subsequent phases of the study must be interpreted with considerable caution. Such differences may simply reflect pre-REACH differences rather than any effects that might otherwise be attributed to the REACH program itself.

The second set of analyses assessed the *changes* that occurred in the average energy consumption *within* each group between the pre-REACH and REACH periods, as well as the REACH and post-REACH periods. This analysis revealed that both experimental groups consumed significantly less energy during the REACH period than they had in the preceding year.

There was an 11% decline in overall energy consumption in both the Education Only ($t(83) = 2.637$, $p = .010$) and Education + Weatherization Group ($t(85) = 4.109$, $p < .001$). As Figure 7 suggests, the level of energy consumption in the Control Group did not

decline during these two periods. However, it did decrease significantly between the REACH and post-REACH period for this group $t(86) = 3.015, p = .003$.

Additional analyses of the follow up period, after the REACH program ended, indicated there was no further decline in energy consumption for either experimental group. One year after the REACH program, clients in these two groups continued to use about the same average amount of energy as they had during the period they had participated in the project. Thus, rather than returning to their baseline levels of consumption, the gains experienced by clients during the REACH period *persisted* in the year after their participation ended.

A regression analysis was employed to determine significant predictors of post-REACH energy use. Based on earlier findings on the predictors of arrearages, reported in the Interim Report (1998), six variables were employed in this analysis. They were pre-REACH arrearages, pre-REACH motivation, annual income, number of household members, household heating area, and post-REACH assessments of efforts during the program. As before, to correct for hi levels of skewness and kurtosis, these variables underwent transformations.

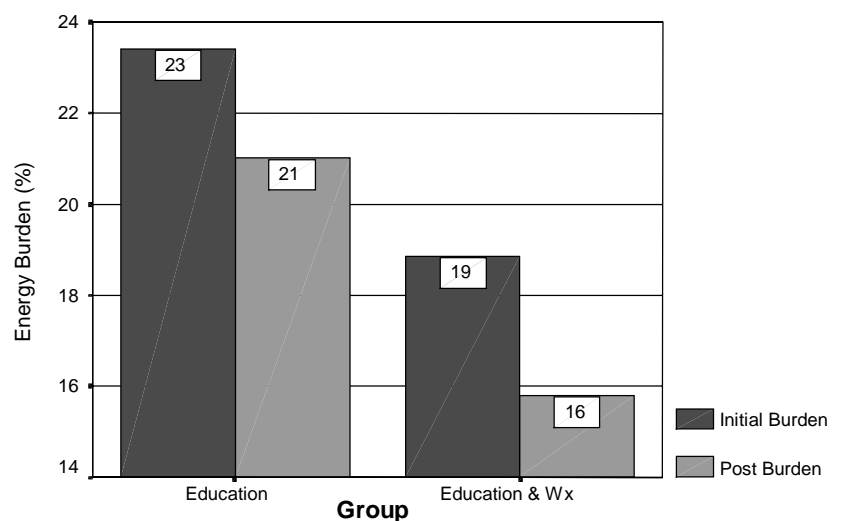
A total of 179 listwise cases were employed in this analysis which identified two significant predictors of post-REACH energy use: number of household members and household heating area, $F(2, 176) = 31.008, p < .001$. This model accounted for 26% of the variance in total post-REACH consumption.

Thus, a decline in post-REACH energy consumption was associated with fewer household members and smaller household heating areas. While little, if anything can be done to alter the number of members in a household, some measures can be taken to adjust the heated area of a home. For example, increasing client awareness of how to limit their home comfort zones, say by closing off unused or rarely used rooms, could have a noticeable impact on reducing household energy consumption.

D. Energy Burden

The REACH program was also evaluated in terms of its impact on the participant's energy burden. This variable was defined as the percentage of household income required for energy resources. To determine if REACH was successful in reducing the energy burden of clients, this variable was measured at the beginning and end of their participation in the project

Figure 8 depicts the pre-REACH and post-REACH energy burden (%) for



participants in each of the REACH experimental groups. This figure indicates that participation in the REACH project led to a decline in the initial household energy burden for both groups.

Table 11 provides an additional description of the change that occurred in the initial and post REACH measure of energy burden. An analysis of these data indicates that there was a significant ($t(165) = 2.358, p = .020$) average decline of 2.5% in the initial energy burden of for both groups of REACH participants.

Table 11
Changes in Energy Burden

Group	Energy Burden (%)	
	Initial Burden	Post Burden
Education only	23	21
Education & Weatherization	19	16
Total	21*	18.5*

* Denotes significant difference at .05

A regression analysis was employed to determine significant predictors of post-REACH energy burden. As before, the following predictor variables were employed in this analysis: pre-REACH arrearages (transformed), pre-REACH motivation and effort, annual income, heated area of home, and post-REACH assessments of efforts during the program. A listwise total of 92 cases were examined in this analysis.

Of these variables, only the heated area of home (sq. feet) was a significant predictor in the post-REACH energy burden model, $F(1, 90) = 10.054, p = .002$. This variable accounted for 10% of the total post-REACH variance in energy burden. *Thus, the larger the heating area of the participant's household, the greater the post-REACH energy burden*

Chapter 8

Review and Discussion

A. Overview

The Oregon REACH project was designed to assist low-income households manage their energy resources more effectively. It attempted to achieve this goal by teaching the members of eligible households techniques to reduce their energy consumption, minimize needless energy usage and avoid wasting this costly and valuable commodity. It also provided assistance on reducing existing arrearages and remaining current in their regular household fuel bills.

The results from an evaluation of the program's operation during the past two years have shown that it has been largely successful in achieving these goals. These results will be reviewed and summarized in the current chapter by considering the principal findings from the outcome and process evaluation reported herein.

B. Energy Self Sufficiency

The major findings from the outcome evaluation revealed that:

1. In the year they participated in the program, both groups of REACH participants consumed 11% less energy than they had in the pre-REACH year. This reduced level of energy usage was *maintained* in the post-REACH period
2. Both groups of REACH clients also reduced the amount of their *arrearages* as a result of their participation in the program. The decrement in the Education Only group was \$55 (42% reduction), while in the Education + Weatherization group it was \$77 (48% reduction).
3. Participation in the REACH program also led to an average decline of 2.5% in the *energy burden* for both experimental groups.

Eliminating energy related health and safety risks to family members was also a major goal of the REACH Project. Its success in meeting these objectives is best revealed by the reports of clients on their exit survey. On each administration of this survey, well over two-thirds of the participants responded that REACH had helped to make their home a healthier and safer environment.

In addition, 80% reported that REACH had helped to make their home more comfortable and energy efficient than it was before they had entered the project. There was also a difference between the two groups of REACH clients on this measure, with those who received both Education and Weatherization reporting that the program helped to make their household more comfortable than those who received Education Only.

C. Additional Objectives

The Oregon REACH Project also established a number of somewhat more specific target objectives. For example, the program attempted to secure the completion of an action plan in 90% of its participating households. Analysis of REACH clients' action plans revealed that 87% had completed their plans. This was 3% short of the program objective.

The program also attempted to complete a dwelling assessment plus in home energy education in 90% of the participating households. Analysis found that 167 of the 173 clients (96.5%) received dwelling assessments and in home energy education. This was 6.5% greater than the program objective.

The REACH program also sought to insure that 50% of the households would *not* incur new arrearages after 6 months. Data only allowed for examination of new arrearages for 12 months after the REACH program. As shown in Table 12, an analysis revealed that initially 102 (59%) of clients had arrearages but that after they had completed their participation in the program, only 63 (36%) continued to have arrearages. This is 14% better than the program objective.

Table 12
Clients with Arrearages

Group	Number of Clients with Arrearages	
	Initial Number with Arrearage	Post REACH Number with Arrearage
Education only	53	32
Education & Weatherization	49	31
Total	102	63

Finally, the program attempted to lower energy consumption by 15% in 75% of its participating households. Of the 173 clients, 58 (33.5%) consumed less energy during the post-REACH period than they had during the pre-REACH period. However, closer analysis revealed that this reduction was 15% or more than pre REACH level for 40 of the 173 clients (23%). This was 52% short of the program's very ambitious objectives.

So while there was an overall decline of energy consumption for both groups of REACH clients, (see Section C, Chapter 7), the amount of this reduction did not attain the target level for as many households as originally initially desired. On the other hand, the program did surpass or come close to meeting the initial target levels for completion of household action plans and in home energy education.

D. Client Satisfaction

The overwhelming consensus of participants, as revealed during both years the Client Survey was administered, was that REACH was extremely beneficial to them and to their families. The participant's comments reflected the many ways in which it had a positive impact on their household environment and their ability to better manage their energy resources. They also expressed a clear desire that the program be continued in the future. These trends are most clearly shown by the following findings:

1. With the exception of Money Management, approximately 80% of the clients responded that the various REACH activities (e.g. home walkthrough, action plan meetings, weatherization measures, service referrals, etc.) were either "Quite Useful" or "Extremely Useful."
2. Approximately 80% of the participants reported that the REACH program motivated them to improve the energy efficiency of their home and that it led them to undertake at least 1 or 2 low cost (e.g. plastic storm windows, energy efficient shower heads, etc.) weatherization measures. In 1998 46% reported a average of 2.2 repairs per household, while in 1999 60% of the participants reported an average of 1.6 repairs per household.
3. REACH participants conveyed a uniformly high level of overall satisfaction with the program and its various components, during both years of its operation. The specific strengths they were most likely to single out included the personal contact with the staff and the financial, educational and material benefits of the program.

E. Staff Appraisal

REACH was held in similarly high regard by the CBO Agents who responded to the Staff Survey at the end of each year of the program.

1. 95% of the agents indicated they felt that the program was meeting its intended goals and that they were both realistic effectively designed to achieve these purposes.
2. A sizeable majority of the agents judged the organization and administration of the program in a positive light, with a notable improvement during year 2 in the overall level of satisfaction with such administrative features as the adequacy of staff time and volume of paperwork.
3. The majority of the staff also rated each of the 14 different elements of Program Delivery rated on the survey as either "Good" or "Excellent," with a modest improvement in these ratings in most of these areas in year 2 of the program.
4. During both years of the program, the majority of the staff held that the program had a "Modest" influence on client knowledge of energy efficiency and commitment to adopt such actions. Yet a sizeable minority reported that REACH did have a

"Significant" impact in these two areas, a view that is consistent with the one held by the majority of participants.

5. A clear majority of the staff reported they were "Very Satisfied" in their overall evaluation of REACH. Indeed, the program received more (69%) "Very Satisfied" ratings during its second year than it had the first (49%). In agreement with the clients, they also reported its principal strengths consisted of the personal contact and material benefits it provided.

In short, the staff felt the REACH Program was offering needed resources to low-income families who would otherwise go without them. Many stated that, while it is difficult to determine if these benefits will continue to have a sustained influence on behavior, the REACH Program offered clients a wide array of useful services in an very effective, well designed manner.

F. Conclusion

In summary, these findings indicate that the Oregon REACH Project assisted clients to develop a repertoire of energy resource management skills. The success of REACH in achieving this objective provides strong support for its guiding assumption that a program of coordinated services and educational resources is an effective approach to reducing the consumption and costs of energy for low-income households. It also confirms the value of this approach in lowering their high energy burden and assisting them to remain current in the fuel payments. Taken together, the evidence presented in this report indicates clearly that REACH has greatly assisted low income households to achieve a greater degree of energy self sufficiency than they experienced before participating in the program.

References

Interim Report of Oregon Housing and Community Services Department Residential Energy Assistance Challenge Option (REACH), 1998.

For Copies of the following Appendices,

Robin.Buchholz@hcs.state.or.us

OHCS' REACH Coordinator

TEL: 503.986.0978

- A. LIEAP Intake Form
- B. Client signed contract letter and utility release form
- C. Dwelling Assessment Form
- D. Energy Action Plan
- E. REACH Action Plan
- F. REACH Client Narrative
- G. REACH Client Intake Assessment
- H. REACH client energy/billing history
- I. REACH client activity summary
- J. Client Program Completion Review
- K. Client Feedback Survey
- L. Staff Feedback survey