



**CO First Response Program  
Process Evaluation  
Final Report**

**July 2007**

## Table of Contents

Executive Summary .....	i
First Response Design.....	i
First Response Implementation.....	ii
First Response Program Statistics.....	iv
Observations and Inspections .....	iv
Key Findings and Recommendations .....	v
I. Introduction .....	1
A. Background.....	1
B. Evaluation Objectives and Activities.....	2
C. Organization of the Report.....	3
II. First Response Program Design .....	4
A. Program Budget and Requirements .....	4
B. Design Process .....	5
C. Program Goals .....	5
D. Service Delivery Mechanisms .....	5
E. Program Management and Administration.....	7
F. Eligibility and Targeting .....	7
G. Program Data .....	8
H. Contractor Selection.....	8
I. Contractor Training.....	10
J. Contractor Responsibilities .....	10
K. Quality Control .....	11
L. Program Assessment and Contract Renewal .....	11
III. First Response Program Implementation.....	13
A. Direct Install.....	13
B. Workshop.....	18
C. Mass Mailing .....	20
D. GEO Challenges and Accomplishments.....	23

IV. First Response Program Statistics .....	24
V. Observations and Inspections.....	27
A. Training.....	28
B. Observations .....	29
C. Inspections .....	32
VI. Summary of Findings and Recommendations.....	37
A. Program Design .....	37
B. Program Implementation .....	37
C. Training.....	39
D. Quality Control .....	39

## Executive Summary

Colorado's Governor's Energy Office (GEO) implemented new energy efficiency initiatives in 2006 to improve the energy efficiency of low-income homes. The initiatives include the First Response Program to provide low-cost, cost-effective energy efficiency measures and education to Low-Income Energy Assistance Program (LEAP) eligible households. APPRISE was hired by GEO in April 2007 to conduct an evaluation of the initial implementation of the First Response Program. This report presents preliminary findings from the CO First Response Process Evaluation.

### *First Response Design*

GEO hired consultants to conduct background research and develop information on program design options. The consultants furnished information on service delivery models for high-volume, low-cost services that have been implemented in other states. They recommended that GEO pursue three delivery options and use the first program year to assess the total energy savings from each program model and to measure the cost-effectiveness of the program.

GEO has developed service delivery goals and cost-effectiveness goals for the first year of program operations. Timelines have been extended due to delays in contracting.

- Direct installation – 3,500 to 5,000 homes visited by 6/30/07
- Workshop – 3,500 clients served by 6/30/07
- Mass mailing – 15,000 to 18,000 kits mailed by 6/30/07

All three models include delivery of CFLs, energy efficient showerheads, smoke/CO detectors, temperature measurement cards, and client education.

GEO developed a request for proposals (RFP) to procure contractors to deliver services under the First Response Program. As part of the RFP, GEO included spreadsheets that were developed by the program design consultants. The spreadsheets included assumptions about measure installation frequency, measure retention rates, rates of energy saving actions that would be taken by participants, state-level fuel costs, and resulting energy savings. Based on these predicted savings and on program costs provided by contractors, the spreadsheets calculated the savings to investment ratio for the proposal. GEO required that contractors achieve an SIR of 2.5 or greater.

The program will be assessed based on the statutory provisions:

- How cost-effective is the program?
- How many households were served? (The goal is to serve substantially more than the Colorado WAP.)
- How well did the program achieve statewide coverage?

Provider contract renewal will be based upon the results of the evaluation.

### ***First Response Implementation***

The First Response direct install program was piloted on multi-family properties in Fall 2006 and was fully implemented in January 2007. The workshop model has just begun implementation in June 2007. The mass mailing component was implemented beginning in Spring 2007 and will continue through the end of the summer.

#### **Direct Install**

The Mile High Youth Corps (MHYC), located in Denver, Colorado, served as the Youth Corps lead and coordinator for the proposal and for the program implementation. As the lead agency, the MHYC has a contract with the state. They trained the other Youth Corps and coordinate communication between the different Youth Corps.

MHHC began work on First Response in January 2007. For the summer, they have returned to their traditional outdoor conservation work on trails. In September 2007, they will return to work on the First Response program.

MHHC, along with their five subcontractor Youth Corps, have been contracted to serve 4,436 household around the state by June 30, 2007. The deadline will be extended due to delays in contracting.

GEO sends MHHC the LEAP lists for all of the counties that MHHC and the other Youth Corps serve. MHHC uploads all of the lists into the database that they developed. MHHC staff and Corps members make cold calls to the clients using a phone script. When they visit clients' homes, they install CFLs, showerheads, and smoke/CO detectors; turn down temperatures in the refrigerator, freezer, hot water heater, and furnace where applicable; provide clients with cards to measure the temperature of the refrigerator/freezer and hot water heater; and provide education on temperature reduction.

MHHC should be acknowledged for making the investment to develop a database tool that has increased the efficiency of service delivery and the accuracy of program and measure data. The database is simple and effective and has been implemented in an extremely short timeframe. Rarely, if ever, have we seen a nonprofit agency develop a useful data management tool, on its own initiative, so efficiently and effectively.

#### **Workshop**

Energy Outreach Colorado (EOC) is the contractor that is providing workshop services. While these services were originally conceived as a traditional type of group workshop, they have been implemented in a one-on-one model when clients come to an agency to apply for energy assistance.

EOC's goal was to serve 3,500 clients by June 30, 2007. However, due to delays in the contracting process, they only began service delivery in June, and will extend their timeframe.

EOC's clients visit agencies in the EOC network to seek a variety of social services, including utility bill payment assistance. When they visit one of ten agencies around the state, the case manager explains the program, shows the clients the energy kit, and provides initial education about the kit and why it is important in reducing the need for assistance in the future. The case worker reviews the education materials and the directions on how to install the CFLs and the showerhead.

### **Mass Mailing**

Niagara Conservation is responsible for approximately two thirds of the mass mailing component of the First Response program. Mile High Youth Corps and Resource Action Programs are also providing services under this component. All of the energy kits include CFLs, an energy efficient showerhead, a temperature measurement card, a card to request additional measures, and education materials.

Niagara is providing approximately 12,000 kits through two different approaches. They received a list of 9,000 participants from GEO and shipped kits out to these customers. One barrier has been that kits have been returned because of incorrect addresses (over 1,500 kits were returned due to addresses that were no longer valid). GEO sent Niagara an additional list of approximately 2,500 customers to send the business reply cards to. If the customer sends back the card, Niagara sends the kit to the customer. They have received about 580 cards back (23 percent) requesting kits.<sup>1</sup> The kits were sent out in June 2007.

Mile High Youth Corps had a contract to mail out 5,500 energy kits. They began this work in June 2007 and it will run through August 2007.

Resource Action Programs (RAP) is providing 1,671 kits through the mass mailing component. RAP received a list of LEAP clients from the State. They cleaned the list (removed duplicates, checked addresses against the national change of address list, and did a valid receptacle test) and mailed a postcard to all of the clients on the list. The clients were given a choice of one of three kits. Like Niagara, RAP has experienced problems with bad addresses that were no longer valid.

### **GEO Challenges and Accomplishments**

One challenge that GEO experienced was the lack of clear-cut avenues for achieving cost-effective energy reductions. They reported that this required a relatively slow-build process of tightly defining the service delivery options, funding each approach at a level adequate to support evaluation, evaluating the impact, and determining which alternatives to continue and/or expand.

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<sup>1</sup> Consultants had estimated a 25 percent installation rate through the mass mailing component.

GEO reported that the greatest obstacle they have faced in the program to date has been the contracting process. They had difficulties executing the contracts and did not have flexibility when the Youth Corps were ready to begin work. They did resolve this issue by utilizing purchase orders so that MHYC could start on a pilot basis with multi-family housing.

The largest impact from the late program start is on the impact evaluation. The late start to service delivery pushes back how quickly the impacts can be known. This is problematic, because GEO needs to have impact data prior to deciding how to invest additional resources. Based on the evaluation results, GEO may decide to allocate a higher proportion of services to one method of service delivery and/or to modify the methods that are used.

From GEO's perspectives, their early key accomplishments have been:

1. Developing the contractual relationships, so that the infrastructure is in place.
2. Testing out different models for service delivery.
3. Including the savings estimates in the RFP.

### *First Response Program Statistics*

Direct install service delivery began in January 2007. As of the end of June, 2,378 clients had been served. MHYC served about half of these clients. All of the Youth Corps began service delivery in 2007 except Weld County, who is waiting for a formal subcontract agreement.

GEO allowed an average of up to 15 CFLs per home through the direct install method. Actual installations averaged 13.1 across all of the providers. Showerheads were installed in 70 percent of homes. Smoke/CO detectors averaged one per home.

EOC had just begun implementation of the workshop model in June 2007, so statistics on workshop service delivery are not yet available.

Niagara shipped kits to 9,000 households. They sent out business reply cards to another 2,500 households, and kits to the 580 of these households who returned the postcards. RAP sent postcards to 5,035 households, and kits to 483 households who returned the cards. MHYC has not yet sent out their kits.

### *Observations and Inspections*

Three types of on-site evaluation activities were conducted.

- APPRISE conducted two days of observations with one Youth Corps providing services in Logan County. During this time, nine jobs were observed.
- APPRISE observed MHYC conduct training for Weld County Youth Conservation Corps. Weld County had previously received classroom training. On the day that

APPRISE observed, MHYC provided additional instruction on MHYC policies and procedures. APPRISE then observed two jobs while MHYC demonstrated their procedures for Weld County.

- APPRISE inspected 29 jobs that Youth Corps had completed. The inspections were conducted in Denver and in El Paso counties.

APPRISE found that the Youth Corps are generally doing a good job of providing service delivery. For the most part, they are following the procedures and the clients are satisfied with the services. Some potential areas for improvement were identified and are summarized below.

- Increased involvement of the client during measure installation.
- Increased discussion with the client about lighting usage.
- Increased education of clients on temperature turndowns and use of temperature cards.
- Investigation of more user-friendly temperature cards.
- Availability of tools needed for service delivery.
- Use of referrals to weatherization and potentially other programs.

APPRISE also began to investigate other potential opportunities for energy savings including turning off computers that are left on all night, using cold water for laundry, and turning down the heat at night. Based on a limited assessment, it appears that the laundry change may have the greatest potential for adoption.

## *Key Findings and Recommendations*

Findings and recommendations based on the program manager interviews, document review, on-site observation, and inspections are summarized below.

### **Program Design**

GEO made several decisions that are likely to increase the long-term cost-effectiveness of the program.

1. They spent time up front to investigate promising program models and analyze potential program savings.
2. They initially implemented services on a relatively small scale.
3. They kept the initial implementation simple, with few client behavior change goals.
4. After evaluation results are in, they will determine how to modify program offerings.

The evaluation is examining whether additional education may be effectively added to the program. Initial exploratory research began during the inspections of service delivery, and more rigorous research will be conducted in the client interviews in the coming months.



Results of these interviews will allow the evaluators to make recommendations regarding education procedures.

### **Program Implementation**

Interviews with program managers and contractors, and observations and inspections of service delivery have shown that the program has been successfully implemented. Direct install services have been provided to over 2,000 clients, with an average of 13 bulbs per home, .7 showerheads per home, and one smoke/CO detector per home. The workshop model had begun implementation. Energy kits have been mailed to thousands of clients. Clients have expressed their satisfaction and gratitude for these services. Based on the initial review of the program, we have several recommendations to increase the effectiveness of service delivery.

1. Service delivery –The Youth Corps should reassess their approach to service delivery to increase the clients’ involvement. The client should be given the opportunity to observe and participate in measure installation.
2. Bulb replacement –The Youth Corps should discuss whether a light is used prior to replacing a bulb.
3. Temperature changes and cards – The Youth Corps should spend more time reviewing the temperature cards with the clients and should investigate whether they can obtain more user-friendly materials.
4. Referrals – GEO should develop a policy on when referrals should be made, provide this information to MHYC, and MHYC should train their members and the other Youth Corps on this policy.
5. Tools – The Youth Corps should reassess their tool kits and make sure that all needed tools are available to the Youth Corps members.
6. Education opportunities – While the First Response program is a low-cost implementation model, they should take advantage of targeted opportunities to provide additional education to clients. This includes follow-up calls made by providers and inspections done by third party contractors.

### **Training**

The Direct Install program is designed to be simple, and relatively little training was provided on the program. GEO should consider a meeting for all Youth Corps crew members to provide them with additional information. Some of the information needs that have been identified are summarized below.

1. Client involvement – Youth Corps members should be trained to involve clients in the installation process.

2. Client education – Youth Corps members should be trained to show clients how to use the temperature cards to measure the refrigerator, freezer, and hot water temperatures.
3. Referrals – Youth Corps members should be trained on when to make referrals to WAP.

### **Quality Control**

Quality control is provided by Sun Power for five percent of clients served. The quality control is more focused on compliance with contractual obligations than on assessing and improving the client education aspect of service delivery. GEO could work with Sun Power to use this opportunity to assess the education that has been provided and to reinforce the clients' potential opportunities for behavior change.

## I. Introduction

Colorado's Governor's Energy Office (GEO) implemented new energy efficiency initiatives in 2006 to improve the energy efficiency of low-income homes. The initiatives include the First Response Program to provide low-cost, cost-effective energy efficiency measures and education to Low-Income Energy Assistance Program (LEAP) eligible households. APPRISE was hired by GEO in April 2007 to conduct an evaluation of the initial implementation of the First Response Program. This report presents initial findings from the First Response Process Evaluation.

### A. *Background*

Energy prices throughout the U.S. rose in 2005 and early 2006, leading many state energy offices to examine how they could provide energy efficiency services to many more households than those that the Federal Weatherization Assistance Program (WAP) could assist. Some states implemented low cost programs that provided low-income households with energy efficiency kits through the mail. These kits generally included compact fluorescent light bulbs, energy efficient showerheads, and educational material. In Colorado, a regional advocacy group, the Southwest Energy Efficiency Project (SWEET), proposed a program that would similarly provide mass distribution of low-cost and cost-effective energy efficiency devices.

House Bill 06-1200 was adopted by both the Colorado House of Representatives and State Senate, and signed into law by the governor on February 3, 2006. This bill provides funds from Colorado's severance tax on oil and gas production for both low-income energy efficiency services and bill payment assistance. The bill provides funding through state fiscal year 2009. Through this bill, OEMC is authorized to initiate services in the following areas:

- Providing low-cost and cost-effective energy efficiency measures and energy education to low-income households.
- Retrofitting households with low-cost and cost-effective energy efficiency measures through the state Weatherization Assistance Program.
- Providing heating system and other appliance replacements.
- Providing cost-effective renewable energy measures.
- Supplementing the funding for any energy efficiency measures or services offered to low-income households through electric or gas utility energy efficiency or renewable energy programs.

- Paying a portion of the cost for energy efficiency upgrades to new housing built for low-income families.

The statute requires that OEMC strive to “serve as many low-income households through the state as possible and achieve the maximum lifetime energy savings per dollar expended.”

## ***B. Evaluation Objectives and Activities***

GEO is required to report to the General Assembly with information on the program’s energy savings and potential program modifications. GEO hired APPRISE and Michael Blasnik and Associates to provide evaluation support and to help GEO meet these reporting requirements. The goals of the evaluation are to estimate the expected savings and non-energy benefits that result from the program; determine the cost-effectiveness of the program; and to provide recommendations for program modifications that could improve the program impacts and cost effectiveness.

The evaluation began in April 2007. This report provides findings from the evaluation activities that have been conducted to date. All of the evaluation activities and their completion status are described below.

- *Program Design Research:* We interviewed program managers and reviewed program materials to document the final program design.
- *Data Collection and Analysis:* We are collecting program tracking data, utility usage data, and weather data to evaluate the program. We will analyze the program tracking data to assess program delivery practices and the adequacy of the data available to manage and evaluate the program.<sup>2</sup>
- *Provider Research:* We interviewed program providers and conducted observations and inspections of service delivery to assess the extent to which the program design was effectively implemented, understand challenges faced and success realized during program implementation, and develop recommendations for changes to program procedures and implementation that could improve program outcomes.
- *Customer Surveys:* We will conduct telephone interviews with clients to assess the level of actions taken, measure installation and retention rates, and examine potential for additional energy savings. These surveys will be conducted in July and August 2007.
- *Energy Impacts:* We will conduct analysis to measure the overall energy impacts of program measures and to assess the energy impacts of individual measures. Engineering estimates will be developed in late 2007 and impact estimates will be developed in May 2008.<sup>3</sup>

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<sup>2</sup> Michael Blasnik and Associates will conduct this research.

<sup>3</sup> Michael Blasnik and Associates will conduct this research.

- *Non-Energy Impacts:* We will develop information on the non-energy impacts associated with energy savings and changes in client behaviors. This research will be conducted in January 2008.<sup>4</sup>

### ***C. Organization of the Report***

Four sections follow this introduction.

- **Section II – First Response Program Design:** This section describes the program design process and the final program design.
- **Section III – First Response Program Implementation:** This section describes how the program has been implemented in the first year.
- **Section IV – First Response Program Statistics:** This section provides statistics and analysis of the services provided and the measures installed in the first several months of service delivery.
- **Section V – Observations and Inspections:** This section describes the findings from the observations and inspections of service delivery.
- **Section VI – Summary of Findings and Recommendations:** This section provides a summary of the key findings and recommendations for the First Response Program based on the analyses in this report.

APPRISE prepared this report under contract to Colorado's Governor's Energy Office (GEO). GEO facilitated this research by furnishing program information to APPRISE. Mile High Youth Corps (MHYC) facilitated this research by furnishing program information and access to their program database to APPRISE. Any errors or omissions in this report are the responsibility of APPRISE. Further, the statements, findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of the GEO.

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<sup>4</sup> APPRISE will estimate the economic impacts and Michael Blasnik and Associates will estimate the environmental impacts.

## II. First Response Program Design

House Bill 06-1200 was adopted by both the Colorado House of Representatives and State Senate, and signed into law by the governor on February 3, 2006. This bill provides funds from Colorado's severance tax on oil and gas production for both low-income energy efficiency services and bill payment assistance. However, the statute provided flexibility in the types of services to be delivered and how the services are to be provided.

### A. *Program Budget and Requirements*

The bill that established the energy efficiency programs provides funding through state fiscal year 2009. Funding was established for the portfolio of programs, leaving GEO to allocate funds between the various initiatives. First Response is one of the initiatives that was developed. Table II-1 displays the budget for all of the energy initiatives that will be established through the legislation. Only a small percentage of the funding was expended in 2005–2006, so these funds were carried over to the next fiscal year.

**Table II-1**  
**Program Budget and Expenditures**

State Fiscal Year	Program Budget	Expenditures
2005-2006	\$4 million	\$70,000
2006-2007	\$4 million	\$7.9 million (available)
2007-2008	\$5 million	--
2008-2009	\$6 million	--

GEO is required by statute to submit an annual report<sup>5</sup> to the General Assembly that specifies:

- How the funds were expended.
- The number of households served.
- Expected energy savings and other non-energy benefits.
- Recommendations for future programs.

The only limit on program services is that they are cost effective. Additionally, GEO is not permitted to use the new funds to hire state staff.

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<sup>5</sup> The first annual report will be submitted after the state fiscal year 2006-2007 records are closed, approximately September 2007.

## ***B. Design Process***

Shortly after the legislation was passed, GEO convened a brainstorming session with experts and stakeholders. They asked the experts and stakeholders to provide feedback on broad design strategies and philosophical questions related to the program.

GEO hired consultants to conduct background research and develop information on program design options. The consultants furnished information on service delivery models for high-volume, low-cost services that have been implemented in other states. The research found that there were three primary models that were used.

- Direct install – Service delivery contractors visit clients' homes, provide them with energy efficiency measures, and educate them on energy efficient behaviors.
- Workshop – Group sessions are convened where information on energy efficiency is provided in an interactive format and energy efficiency measures are distributed.
- Mass mailing – Energy saving kits that include energy measures and education materials are mailed to client homes.

Based on analysis of potential savings, the consultants concluded that a program that focuses on low-cost service delivery of cost-effective measures can be cost-effective, even with relatively low measure and action adoption rates. They recommended that GEO pursue all three options and use the first program year to assess the total energy savings from each program model and to measure the cost-effectiveness of the program. Based on results from short-term projections and longer-term impact evaluation, GEO could then revise the mix of programs each fiscal year to enhance the overall program effectiveness.

## ***C. Program Goals***

GEO has developed service delivery goals and cost-effectiveness goals for the first year of program operations. There service delivery goals are described below, however, the timeline has been extended due to delays in contracting.

- Direct installation – 3,500 to 5,000 homes visited by 6/30/07
- Workshop – 3,500 clients served by 6/30/07
- Mass mailing – 15,000 to 18,000 kits mailed by 6/30/07

The minimum goal for the benefit to cost ratio is 2.5.

## ***D. Service Delivery Mechanisms***

GEO developed requirements for service delivery after reviewing the consultants' design recommendations. Some of the design parameters were further refined after reviewing the contractors' proposals for service delivery. In developing the final program design, GEO

was more narrowly focused on the cost-effectiveness of program services than they are in the WAP, which is governed by several objectives besides energy efficiency (health and safety; serving high need populations; etc.). Every decision made in the First Response Program is driven by cost effectiveness and a requirement to serve substantially more households than the number served by WAP.

The estimated budget for First Response services in State Fiscal Year 2006-2007 was \$750,000 to \$1.25 million.

The final design consisted of the following mechanisms.

- Direct Installation – Providers conduct short visits to clients' homes to install measures and provide basic education. The visit is done by a two-person team and lasts approximately 60 minutes. During this time, providers install
  - CFLs – An average of no more than 15 per home. 13 and 23 Watt bulbs are provided.
  - Energy Efficient Showerheads – A target installation rate of 38 percent of homes.
  - Carbon monoxide/smoke detectors.

Providers also measure the temperature of the refrigerator, freezer, and hot water temperature, educate the clients on safe and energy efficient temperatures, and lower temperatures where applicable. They also discuss the furnace temperature setting and lower this setting if applicable. They provide the clients with a card to measure the refrigerator/freezer temperatures and a card to measure the hot water temperatures.

- Workshop – A classic group workshop model was not implemented because the program designers could not identify a location where they obtain high enough client attendance to make the workshop cost-effective. Rather, when clients show up at local emergency assistance agencies (nonprofits) for assistance with their energy bills (provided through a hardship fund), representatives provide one-on-one mini-workshops. As the client discusses arrears and financial issues, the representative discusses actions the client can take to reduce energy consumption, and distributes efficiency measures. The targeted number of measures are described below.
  - CFLs – An average of 7.2 installed per client. 13 and 23 Watt bulbs are provided.
  - Energy Efficient Showerheads – A targeted installation rate of 38 percent of clients.



- Mass Mailing: Energy efficiency devices and educational information are distributed to clients through the mail. Expected measure installation rates are described below.
  - CFLs – An average of 6 per home. 13 and 23 Watt bulbs are provided.
  - Energy Efficient Showerheads – A targeted installation rate of 10 percent of homes.

The RFP required that the education, at a minimum, address acceptance of higher efficiency lighting; acceptance of energy efficient shower heads; and adjusting temperature settings for the heating system, water heater, refrigerator, and freezer.

The implementation of these different models provides the opportunity to test the performance of each and assess the appropriate contribution of each to low-cost, high volume service delivery.

### ***E. Program Management and Administration***

GEO is responsible for program design and administration. These responsibilities include:

- Developing, reviewing, and updating program procedures and requirements.
- Developing and maintaining program documentation.<sup>6</sup>
- Developing a program brochure for distribution to clients.
- Sending lists of targeted clients to program providers.
- Overseeing program providers.<sup>7</sup>
- Reviewing and processing provider invoices.
- Collecting and compiling program data.
- Reporting to the General Assembly on program accomplishments.

The Weatherization Assistance Program has an advisory board, pursuant to federal regulations. Informally, they have provided advice to the state-funded initiatives.

### ***F. Eligibility and Targeting***

Households who are LEAP eligible in Colorado, those with income below 185 percent of the federal poverty standard, are eligible for program services.

The First Response Program targets customers whose electric and gas consumption is average or below average. The goal was to serve customers with electric usage below 7,000 kWh per year and gas usage below 800 therms per year. However, the LEAP data, which are available to GEO because they are used by LEAP to determine the household's benefit level, only contains heating costs. Therefore, GEO targeted households with \$600 or less in

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<sup>6</sup> To date, program manuals have not been developed.

<sup>7</sup> GEO has contracted with Sun Power to provide quality control.

their six months of winter heating costs. The State expects to obtain energy consumption data from gas and electric utility companies and to screen energy assistance recipients in year two of the program.

GEO extracts client data from the LEAP database (clients determined eligible for LEAP assistance), by county and by heating cost. They create data files by county of households with \$600 or less in heating costs. They select enough clients so that the providers can meet their contractual number of households to serve.

In the first year of program services, GEO did not promote the program publicly, as they wanted to control the flow and volume of clients as they tested out the process and procedures.

### ***G. Program Data***

Program data will be collected from the providers and retained by GEO. GEO included a provision in the RFP that contractors are required to retain and electronically report client specific data. The following types of data are required for the different service delivery mechanisms.

- Direct Install – Client name, client address, date of service, number of CFLs installed by wattage, wattages of bulbs replaced, flow rate of existing shower head, number of shower heads replaced, whether a CO/smoke detector was installed.
- Workshop – Client name, client address, date of delivery, number and type of CFLs provided, number of showerheads provided.
- Mass Mailing – Client name and addresses to which materials were mailed, quantities and types of items mailed, inventory of items returned.

These data will allow the evaluators to develop engineering estimates for projected savings, and to estimate savings for specific measures after utility data are obtained.

### ***H. Contractor Selection***

GEO developed a request for proposals (RFP) to procure contractors to deliver services under the First Response Program. Potential contractors were required to submit proposals by September 6, 2006.

As part of the RFP, GEO included spreadsheets that were developed by the program design consultants. The spreadsheets included assumptions about measure installation frequency, measure retention rates, rates of energy saving actions that would be taken by participants, state-level fuel costs, and resulting energy savings. Based on these predicted savings and on program costs provided by contractors, the spreadsheets calculated the savings to investment ratio for the proposal. GEO required that contractors achieve an SIR of 2.5 or greater.

Based on the assumptions in the spreadsheets, this resulted in maximum proposed costs allowed of \$221 for direct install, \$136 for workshop delivery, and \$35 for mass mailing, all inclusive of materials, labor, and administration.

In addition to providing proposed costs for service delivery, respondents were required to describe the method of service delivery that they would implement and estimate the number of homes they could serve by the end of the state fiscal year (June 30, 2007).

When selecting contractors to provide service delivery, GEO considered the following:

- The Savings to Investment Ratio (SIR) of the proposal.
- By statute, they gave preference to Youth Corps.
- The contractor's potential ability to perform the work as proposed.
- The ability to test out a variety of service delivery methods.
- The assurance of providing services statewide, in all 64 counties.

The Youth Corps' proposal for direct installation met the cost effectiveness test, and there is a statutory requirement that Youth Corps be given preference as providers, so they were chosen first in any county they proposed.

The workshop model will be tested in eight different jurisdictions. GEO did not want this offered in the same counties as the Youth Corps was serving, so they awarded this contract in 8 of the 10 counties that Energy Outreach Colorado applied for.

The rest of the state will be served by the mail. The most cost effective mail approach was proposed by Niagara. They will provide mailings in the bulk of the state. There are two other models. The Youth Corps also proposed to do some mass mailing, and GEO awarded them two counties. The other model, proposed by Resource Action Programs, was a business response card approach. GEO is testing this model on a limited basis.

Table II-2 displays the contractor awards, budgets, and service delivery goals by service delivery mechanism.

**Table II-2**  
**Contractor Awards – State Fiscal Year 2006-2007**

<b><u>Mass Mailing</u></b>				
<b><u>Provider</u></b>	<b><u>Budget</u></b>	<b><u>Production Goal</u></b>	<b><u>Cost Per Unit</u></b>	<b><u>Counties</u></b>
Mile High Youth Corps	\$164,226	5,050	\$32.52	Adams, Arapahoe, Broomfield
Niagara Conservation Corp	\$263,959	12,200	\$21.64	48 counties
Resource Action Programs	\$72,794	1,700	\$42.82	Larimer

<u>Workshop</u>				
<u>Provider</u>	<u>Budget</u>	<u>Production Goal</u>	<u>Cost Per Unit</u>	<u>Counties</u>
Energy Outreach Colorado	\$424,165	3,500	\$121.19	Weld, Pueblo, Alamosa, Mesa, Summit, Boulder, Jefferson, Denver, El Paso Douglas
<u>Direct Install</u>				
<u>Provider</u>	<u>Budget</u>	<u>Production Goal</u>		<u>Counties</u>
Mile High Youth Corps And 5 subcontracted Youth Corps	\$1,013,574	4,436	\$228.49	El Paso, Logan, Denver, Montezuma, La Plata, Archuleta, Weld, Mesa, Delta, Montrose

## ***I. Contractor Training***

GEO provided training to direct install providers by connecting them with weatherization agencies. Sun Power trained the Mile High Youth Corps on how to interact with low-income households and how to install showerheads. GEO provided written material that a consultant prepared and met with directors of Youth Corps to provide an overview of the program.

Ongoing training has not been scheduled, but it is anticipated that training will be provided when there are evaluation results and when service delivery methods are modified.

Mile High Youth Corps, the lead Youth Corps, provided training to the other Youth Corps on service delivery, how to use the database system, and how to do outreach, intake, and scheduling.

## ***J. Contractor Responsibilities***

The contractors have the following responsibilities.

- Obtain targeted client lists from GEO.
- Purchase supplies, including CFLs and showerheads.<sup>8</sup>
- Provide service delivery through their contracted method(s).
- Report client-specific data to GEO.
- Conduct follow-up with at least five percent of the clients (on-site or phone) to confirm receipt of services, assess client acceptance and satisfaction, check CO functioning, and reinforce behavioral changes.

<sup>8</sup> All procurement is happening locally because the procurement could not be built into the state purchasing system.

## ***K. Quality Control***

GEO has contracted with Sun Power to conduct inspections of First Response direct install service delivery. The goal is to conduct inspections on a random sampling of five percent of homes served, for approximately 240 inspections in total. A small percentage will be observations of service delivery.

To date, Sun Power has conducted inspections and observations for clients served by two of the six Youth Corps. During the inspections they confirm that the measures are in place as reported by the Youth Corps and conduct an interview with the client. The client interview focuses on the following topics:

- Understanding of the direct install program.
- Referral to weatherization and understanding of weatherization eligibility requirements.
- Understanding of potential energy savings from the direct install program.
- Satisfaction with CFLs and energy efficient showerheads.
- General satisfaction with the program.

Clients are not asked about the temperature changes that may have been made to refrigerators, freezers, hot water temperature, and furnace settings; and are not asked whether they have made changes in how they use energy. These inspections and observations are more focused on whether the Youth Corps are fulfilling their contractual obligations than on whether there are potential improvements to program implementation.

## ***L. Program Assessment and Contract Renewal***

The program will be assessed based on the statutory provisions:

- How cost-effective is the program?
- How many households were served? (The goal is to serve substantially more than WAP.)
- How well did the program achieve statewide coverage?

Provider contract renewal will be based upon the results of the evaluation. GEO wants to know the impact and the cost-effectiveness of the approaches before deciding whether to continue the different approaches. If results were available by late 2007, GEO could provide a new download of LEAP recipients for providers to target. However, impact results will not be available by then. An expansion of the utility demand side management programs on the electric side is expected in 2008. If this expansion occurs, the utilities can

use the infrastructure developed through the First Response program to deliver low cost targeted electric demand side management.

### III. First Response Program Implementation

The First Response direct install program was piloted on multi-family properties in Fall 2006 and was fully implemented in January 2007. The workshop model has just begun implementation in June 2007. The mass mailing component was implemented beginning in Spring 2007 and will continue through the end of the summer.

#### ***A. Direct Install***

The Youth Corps, led by Mile High Youth Corps, are providing the direct install services in the First Response program.

##### **Mile High Youth Corps**

The Mile High Youth Corps (MHYC), located in Denver, Colorado, served as the Youth Corps lead and coordinator for the proposal and for the program implementation. As the lead agency, the MHYC has a contract with the state. They subcontracted with the other Youth Corps, trained the other Youth Corps, and coordinate communication between the different Youth Corps.

MHYC began work on First Response in January 2007. For the summer, they have returned to their traditional outdoor conservation work on trails. In September 2007, they will return to work on the First Response program.

The Youth Corps employ with individuals aged 16 to 24. There are 16 Youth Corps members at MHYC that have worked on this program (and approximately 25 other Youth Corps members at the other participating Youth Corps around the state that worked on the program). They are in the AmeriCorps leadership class, and are full time AmeriCorps workers, who have committed a full year to the program. They are a little older than the general Youth Corps, with ages ranging from 19 to 22. Some have just graduated high school, some are taking a year off during college, and some have college degrees.

The AmeriCorps youth members are on a stipend of \$10,900 for a year of service.<sup>9</sup> The Youth Corps members are employees of the organization. The organization receives a grant from the Corporation for National and Community Service, an independent federal agency, to pay their stipend. After 1,700 hours of service, the youth receive a \$4,725 Education Award. They are motivated to provide service and make a difference.

The Youth Corps are interested in youth development and in conservation. They have historically worked on trail building and erosion control. They take young people who are interested in community service and develop their leadership skills. They feel that this youth development is an important benefit of the CO First Response program.

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<sup>9</sup> They receive health insurance as well.

### **Youth Corps Training and Support**

MHYC developed training materials and conducted trainings for their Youth Corps members. The MHYC members receive a full orientation when they start. Part of the orientation was on the Direct Response program. They also received other training on team building and the organization's general procedures.

When MHYC begins providing program services again in the fall, they will conduct another full day training for their Youth Corps members.

Ongoing training includes weekly debriefings, and continual review of issues that come up during service delivery. The Youth Corps meet in the afternoon and discuss issues. On Fridays they get together as a group and do training. If something comes up that they need to discuss, they can meet in the morning before they go out. The crew leaders constantly provide feedback. They have trained the Youth Corps to call the crew leader if they have any issue. When they are in the field, they always have cell phones so they can call if they need assistance. If the crew leader feels that he/she needs the coordinator, the crew leader will make that call.

### **Youth Corps Coordination**

MHYC does not oversee the day-to-day operations of the other Youth Corps. They have had several meetings and one all day training with the other Youth Corps. All of the Youth Corps have sent their staff or crew leaders to MHYC. The other Youth Corps shadowed MHYC for a day or two. The training was the biggest part of supporting the other Youth Corps.

MHYC set the other Youth Corps up with the MHYC vendors. They negotiated a common agreement and pricing with the vendor for the other Youth Corps. MHYC shared all forms, policies, and procedures with the other Youth Corps and gave them the database to use for scheduling and tracking.

MHYC does the client follow-up, checks the other Youth Corps' work in the database, and reports to GEO. MHYC sends one combined report and a single invoice to GEO. GEO pays MHYC and then MHYC pays the other Youth Corps.

MHYC also does trouble shooting over the phone for the other Youth Corps. They have done on-line database training over the phone. MHYC tries to give the other Youth Corps all of the resources they can to make the program a success.

### **Data Management**

When MHYC was getting started on the project, they needed to develop their own linked series of spreadsheets to track clients, inventory, and scheduling. MHYC determined that they needed a database to manage these processes, so they hired an outside developer to



create and host a web-based database. The database has been a work-in-progress, and has recently been updated to improve reporting functions with additional information.

The database contains the following information.

- Client name, address, and phone number.
- Client LEAP number
- Home owner/renter
- Date of service delivery
- Youth Corps organization that provided service delivery
- Youth Corps members and crew leader that provided service
- Previously existing bulbs and wattage by room
- Number of installed bulbs by wattage and room
- Water flow in current showerhead
- Number of showerheads provided
- Existing temperature in refrigerator, freezer, hot water, and furnace setting
- Whether an adjustment was made to each of the temperatures
- Number of smoke/CO detectors installed

Service delivery reports can be generated by Youth Corps and service delivery time period. The database also contains a scheduling tool, inventory tracking, and installation tracking.

MHYC should be acknowledged for making the investment to develop this database tool that has increased the efficiency of service delivery and the accuracy of program and measure data. APPRISE's review found that the database is simple and effective and has been implemented in an extremely short timeframe. Rarely, if ever, have we seen a nonprofit agency develop a useful data management tool, on its own initiative, so efficiently and effectively.

### **Direct Install Service Delivery – Youth Corps Procedures**

MHYC, along with their five subcontractor Youth Corps, have been contracted to serve 4,436 household around the state by June 30, 2007. Due to the late start of the contract, they are working with GEO to extend their contract.

GEO sends MHYC the LEAP lists for all of the counties that MHYC and the other Youth Corps serve. MHYC uploads all of the lists into the database that they developed. Each Youth Corps has access to the lists in the counties that they serve. As administrators, MHYC has access to all of the lists.

Each Youth Corps makes appointments for their own service delivery. MHYC staff and Corps members make cold calls to the clients using a phone script. During the phone call, they provide the following information.

1. They ask the client if they received the current LEAP application. If the client has not received the application, they give the client the toll-free number to call for application.
2. They tell the client that the State has contracted with their organization to energy saving products free of charge to help the client save money.
3. They tell the client that they will install up to 15 high efficiency light bulbs, a new energy efficient showerhead, and check the home to see if they qualify for other services.
4. They attempt to schedule an appointment for service delivery and give them the MHYC phone number in case they have a question.

The MHYC uses the database to schedule service delivery. At full production they have six to seven teams of two crew members each. Each team goes into four to five homes per day.

MHYC has developed inventory tracking sheets, work sheets, and service order forms. When they do service delivery, they generally take the following steps.

1. When they go into the home, one youth does education and goes over the liability form and the other does the installation.
2. They have a conversation with the clients to determine which fixtures are on the most and they replace those bulbs. (GEO asked MHYC to change out bulbs that are used at least one half hour per day.) They found that usually kitchen lights and bathroom lights are used the most, and sometimes they change bedroom lights. They try to replace the bulbs with the most usage and this is usually straightforward. MHYC average about 15 bulbs per home. They reported that they err on the side of putting in more, rather than putting in less.
3. When they replace the bulbs, MHYC removes the incandescent bulbs from the home. They leave the clients a box that the CFL came in and a box that CO/smoke detector came in.
4. They measure the flow of the showerhead, and replace the showerhead if the flow is more than 1.5 gallons/minute. Once in a while they replace more than one showerhead.<sup>10</sup>
5. They look at the temperature of the refrigerator, freezer, heating system, and hot water heater. They discuss with clients and reduce temperatures where appropriate.
6. They fill out forms in the home.

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<sup>10</sup> When showerhead replacement was first discussed, MHYC had strong concerns that there would be damage to client homes and this measure would be very costly. However, due to training about the proper way to remove and replace the showerhead, MHYC reports that there have been no problems to date.

MHYC asserts that the education is an important component of the visit and they have worked to inform the Youth Corps members of the importance of the education component. MHYC feels that the education is an important both to reduce energy usage and to avoid callbacks. They have also emphasized the education to the other Youth Corps. The forms require that staff check off that they have provided the education.

The Youth Corps members explain the measure installation and provide education on what the client can do to save energy. They go through the home room by room with the clients. They show the clients how they adjust the heating thermostat, and how they turn down the hot water. They take the temperature in the refrigerator and the freezer and adjust those. They show the clients the bulbs, the showerheads, and the CO/smoke detector. They tell the clients where they can buy additional CFLs.

The Youth Corps members inform clients that they may qualify for the Weatherization program. They make referrals to the United Way and to weatherization agencies. MHYC has asked GEO for guidance on whether they should refer all clients to the weatherization program or just in certain circumstances, but they have not received this information.

At the end of the day, the Youth Corp members check in with the crew leaders, and reconcile the inventory with installation sheets. The information is later entered into the database.

In addition to the Youth Corps members in the field, there is a crew leader who goes into the field and checks on how the Corps are doing, or who checks in by telephone. There are always a number of clients who cancel, so the youth will call in and get fillers.

MHYC does callbacks if clients call and say that the bulbs have burned out, but these calls are very infrequent (less than one percent of the jobs.) As part of their required follow-up, the MHYC calls five percent of the clients to confirm the work that was done in the home, ask how they are doing with the measures, and assess their satisfaction with the program. They ask whether they were happy with the services that they received, whether the crews were courteous, and whether the bulbs are still installed. There is no additional education provided at this time.

The First Response contract started later than the MHYC expected, so they had to lower the June 30<sup>th</sup> production goals. As of June 28, all of the Youth Corps had reported 2,378 homes across the state. Mile High had done the largest piece, with 1,140 homes completed.

### **Client Feedback to MHYC**

MHYC reports that the clients have been very receptive and that they have reported high levels of satisfaction in the MHYC follow-up survey.

### **Program Challenges and Concerns**

MHYC has reported the following challenges with the direct install program.

1. MHYC made a large investment in the proposal and in developing the infrastructure for service delivery. Therefore, they hope that the program continues for a few years.
2. MHYC has experienced some challenges in working with GEO. Because First Response is a new project, some pieces are being developed as they move along. Two examples are the database reporting function that MHYC developed and the LEAP list that GEO provides to MHYC. With the reporting function, GEO signed off on MHYC's design, but later made revisions. Working with the LEAP list has been challenging for MHYC because GEO has sent them three different formats.
3. There was a change in administration with the election of the new governor, and that caused some delays in program implementation.
4. It has been difficult for MHYC to marshal the needed resources in a nonprofit environment. MHYC is paid on a cost reimbursement basis, but they would prefer to receive capital up front, at least to purchase needed materials. Additionally, MHYC did not receive capital for building the infrastructure in the agency. The additional infrastructure that was needed included tools, vehicles, and the database that they paid an outside contractor to develop.
5. The five subgrantee Youth Corps have different abilities, background, skills, clientele, and resources.
6. MHYC reported that it would be useful to have a joint meeting of all of the First Response contractors to formalize the process and get everyone on the same page.

## ***B. Workshop***

Energy Outreach Colorado (EOC) is the contractor that is providing workshop services. While these services were originally conceived as a traditional type of group workshop, they have been implemented in a one-on-one model when clients come to an agency to apply for energy assistance.

### **Energy Outreach Colorado**

Energy Outreach Colorado is a private nonprofit organization. They are distributing energy efficiency kits through the charitable energy network, which has 100 agencies around the state. In this project, they are working with ten of the member agencies located in different areas of the state. EOC selected the agencies that serve the most clients in each region to distribute the kits.

### **Case Manager Training**

EOC developed a detailed training manual for the case managers. Each case manager received a kit to learn how to install the bulbs and showerhead themselves, so they can speak

directly to their experience. EOC has done some on-site trainings at participating agencies that requested them.

### **Workshop Service Delivery – Energy Outreach Colorado Procedures**

EOC's goal was to serve 3,500 clients by June 30, 2007. However, due to delays in the contracting process, they only began service delivery in June, and will need to extend their timeframe.

EOC's clients visit agencies in their network to seek a variety of social services, including utility bill payment assistance. Many of these clients are already in the agency's database, so the agency can qualify the clients for the program based on income. LEAP-eligible clients are eligible for this program – this is the main qualifying mechanism. The agencies have information in their own database, which allows them to connect with the client's energy provider and see what the client's energy use is. While the energy use information is not being used to determine if the client should receive program services, it provides useful supplemental information to EOC's program.

The case manager explains the program, shows the clients the energy kit, and provides initial education about the kit and why it is important in reducing the need for assistance in the future. The case worker reviews the education materials and the directions on how to install the CFLs and the showerhead.

The energy kits have been developed by Resource Action Programs (RAP). The kit contains the following materials.

- One 13 watt CFL
- One 23 watt CFL
- One energy efficient showerhead
- A thermometer device to measure the hot water and refrigerator/freezer temperature
- Information on how to use the thermometer
- A quick start guide and energy saving tips on other measures they can take and how much they can save.
- An order form that allows the client to order up to eight additional CFLs (13 or 23 watts) and one additional showerhead.
- A follow-up survey to assess whether the clients have installed the CFLs and showerhead. To provide an incentive for clients to return the survey, RAP enters the client into a contest to win \$100 towards their rent or mortgage when the survey is returned.

The education that the caseworker provides is focused on developing the client's investment in the long-term goal of reduced dependence on energy assistance. They educate the clients that the initial steps to reduce their energy usage will translate into reduced bills. The goal is to empower the clients.

The clients are given a toll free number to call that goes into RAP. RAP can handle the call or transfer the call to EOC if there are questions about the actual program. There is also a web site for them, [www.easysavingsco.com](http://www.easysavingsco.com).

RAP follows up by phone with five percent of the clients. They ask the clients about the ease of installing the devices, and whether the client has left the bulbs in place.

### ***C. Mass Mailing***

Niagara Conservation is responsible for approximately two thirds of the mass mailing component of the First Response program. Mile High Youth Corps and Resource Action Programs are also providing services under this component.

#### **Niagara Conservation**

Niagara is providing approximately 12,000 kits through two different approaches. Most of the kits, about 9,000, are direct mail fulfillment. They received a list of 9,000 LEAP recipients from GEO. They assembled the kits and shipped them out to these clients.

GEO also requested that Niagara develop a business reply card approach. GEO sent Niagara an additional list of approximately 2,500 customers to send the business reply cards to. If the customer sends back the card, Niagara sends the kit to the customer. They have received about 580 cards back (23 percent) requesting kits.<sup>11</sup> Niagara will provide the state with a list of customers that requested and were mailed the kit.

The energy kits contain the following materials.

- Two 15 watt CFLs
- Two 23 watt CFLs
- One energy efficient showerhead
- One hot water temperature gauge card
- The brochure that GEO developed. This brochure explains the products and furnishes a toll free number for people to call GEO for more information on energy assistance.
- Instructions on how to install the devices.

One barrier has been that kits have been returned because of incorrect addresses (over 1,500 kits were returned due to bad addresses). Most of these are where the customer has moved. Niagara will provide a list of customers whose kits were returned to the State.

Some customers have called to say that some of the bulbs were broken. Niagara's policy is to replace the bulbs quickly and free of charge. Niagara provides their phone number on the

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<sup>11</sup> This is about the same rate that Niagara has experienced in similar programs. Consultants had estimated a 25 percent installation rate through the mass mailing component

instruction guide. The bulbs have a two-year warranty and Niagara reported that they will also replace any bulbs that fail prematurely.

Niagara recommended that in the future they address the energy kit to the name “or current resident” to increase the number of kits that are installed. They reported that they will do so with the rest of the kits that they mail out.<sup>12</sup>

Niagara also recommended that they indicate somewhere on the package that it is a FREE kit and they should clearly communicate why the customer is receiving the kit. There have been about 85 customers who refused the kit because they didn’t know why they received it. Niagara also received some calls from clients who asked where the kit came from or if there was going to be a charge for the kit. Niagara also had some extremely grateful callers. Niagara’s customer service staff had a copy of the brochure, and a section provided information on the program, so they were able to furnish this information to clients who called with questions.

### **Mile High Youth Corps**

Mile High Youth Corps had a contract to mail out 5,500 energy kits. They began this work in June 2007 and it will run through August 2007.

GEO will provide a list of clients in three different counties. MHYC will set up an assembly line and ship out the kits to the clients. The kits will contain the following materials.

- Two 15 Watt CFLs
- Two 20 Watt CFLs
- One energy efficient showerhead
- One temperature card for measuring the hot water temperature
- One temperature card for measuring the refrigerator and freezer temperatures
- The brochure that GEO has created
- A postcard that clients can send back to request additional CFLs
- An instruction flyer created by MHYC.

MHYC will track the clients to whom the kits are sent, and if there is a response, how much more is sent.

This year, the mass mailing aspect of the project will not be built into the database. They will track the mass mailing in their own spreadsheets.

MHYC is working with GEO to amend their contract.<sup>13</sup> During this process, they will determine how many additional bulbs clients can request and how MHYC will bill GEO for the additional shipments.

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<sup>12</sup> One issue with this approach is that the new householder may not be LEAP-eligible.

### **Resource Action Programs**

Resource Action Programs (RAP) is providing 1,671 kits through the mass mailing component.

RAP received a list of LEAP clients from the State. They cleaned the list (removed duplicates, checked addresses against the national change of address list, and did a valid receptacle test) and mailed a postcard to all of the clients on the list. The clients were given a choice of one of three kits.

- Kit 1: one 13 watt CFL and three 23 watt CFLs
- Kit 2: two 13 watt CFLs and two 23 watt CFLs
- Kit 3: four 23 watt CFLs

All of the kits contain a showerhead and stickers and other educational information that targets behavioral changes. The kits include a savings summary survey. This survey is an education tool as well as a data collection method. Customers return the survey to RAP for tabulation. The return also includes a contest entry.

The results of the mailings that they did are shown in Table III-1. Like Niagara, RAP has experienced problems with bad mailing addresses. In their second mailing they removed duplicated addresses, checked the addresses against the national change of address list, and conducted a valid receptacle test. Of the 6,869 clients that remained after the first mailing, there were 3,534 unique addresses and 3,035 left after the checking against the national change of address list and the valid receptacle test. This was a successful process, as there were only 13 percent returned due to bad addresses, as compared to 45 percent in the first mailing.

Table III-1 shows that 26 percent responded to the first mailing and eight percent responded to the second mailing. The majority of clients requested Kit 2, the kit with two of each type of CFL, for both of the mailings.

**Table III-1**  
**Resource Action Programs Mailing Results**

	<b>First Mailing</b>		<b>Second Mailing</b>	
Date sent	3/28/07		4/20/07	
Number of postcards mailed	2,000		3,035	
Bad Addresses	900	45%	395	13%
Good Addresses	1,100	55%	2,640	87%
Responses	281	26%	202	8%
Kit 1	30	11%	24	12%

<sup>13</sup> The contract is being amended for both the mail portion and the direct install portion because of the delay in the original contract which caused a late start for the program implementation



	First Mailing		Second Mailing	
Kit 2	164	58%	107	53%
Kit 3	87	31%	71	35%

#### ***D. GEO Challenges and Accomplishments***

One challenge that GEO experienced was the lack of clear-cut avenues for achieving cost-effective energy reductions. They reported that this required a relatively slow-build process of tightly defining the service delivery options, funding each approach at a level adequate to support evaluation, evaluating the impact, and determining which alternatives to continue and/or expand.

GEO reported that the greatest obstacle they have faced in the program to date has been the contracting process. They had difficulties executing the contracts and did not have a signed contract when the Youth Corps were ready to begin work. They did resolve this issue by utilizing purchase orders so that MHYC could start on a pilot basis with multi-family housing. In the fall/winter of 2006 they provided the crews with a few purchase orders so they could test the services in buildings with as many as 40 eligible participants. This was beneficial, as MHYC was then ready to begin service delivery when the contract was executed.

The most significant consequence of the late program start is the delay in the impact evaluation. The late start to service delivery pushes back how quickly the impacts can be known. This is problematic, because GEO needs to have impact data prior to deciding how to invest additional resources. Based on the evaluation results, GEO may decide to allocate a higher proportion of services to one method of service delivery and/or to modify the methods that are used.

From GEO's perspectives, their early key accomplishments have been:

1. Developing the contractual relationships, so that the infrastructure is in place.
2. Testing out different models for service delivery. (GEO reported that the best practices background work was a good investment of time and effort because it helped them narrow down their approaches and build a solid RFP.
3. Including the savings estimates in the RFP. It helped that contractors had an estimate of their SIR when they developed the proposals.

## IV. First Response Program Statistics

This section of the report provides preliminary statistics on First Response service delivery.

### A. *Direct Install*

The Mile High Youth Corps, as the lead Youth Corps on the direct install program, recognized the need for a database to schedule service delivery, track inventory, manage service delivery data, and report to GEO. They initially utilized linked spreadsheets for these processes, and then hired an outside contractor to develop a database to meet these needs. The database that was developed is a web-based system that allows MHYC to access the records for all clients and other Youth Corps to access the records for clients in the counties that they serve. MHYC provided APPRISE with access to the database, and APPRISE was able to use the database's reporting function to generate key statistics on service delivery. This section presents the data that were obtained from the MHYC database. Jobs that were reported by June 27, 2007 are included in the tables below.

Table IV-1 displays the number of clients served by month. Service delivery began in January 2007. As of the end of June, 2,378 clients had been served. MHYC served about half of these clients. All of the Youth Corps began service delivery in 2007 except Weld County, who is waiting for a formal subcontract agreement.

**Table IV-1**  
**Direct Install Service Delivery**

	Number of Jobs Completed						
	1/07	2/07	3/07	4/07	5/07	6/07	Total
Mile High Youth Corps	156	144	448	196	196	0	1,140
CO Legends and Legacies	0	0	84	287	201	0	572
CO Range Riders	0	0	0	0	0	147	147
Southwestern Conservation	32	163	33	1	1	0	230
Weld County	0	0	0	0	0	0	0
Western Colorado	0	45	83	59	67	35	289
Total	188	352	648	543	465	182	2,378

Table IV-2 provides statistics on the average number of CFLs, showerheads and smoke/CO detector units installed per home. GEO allowed an average of up to 15 CFLs per home, but had originally assumed an average of 7.5 per home. Actual installations averaged 13.1 across all of the providers. While showerheads were expected to be installed in approximately 40 percent of households served, they were installed in 70 percent of homes. Smoke/CO detectors averaged one per home.

**Table IV-2  
Installation Summary**

	Number Installed per Home				
	15 W	20 W	Total CFLs	Showerheads	Smoke/CO
Mile High Youth Corps	9.6	4.2	13.9	0.8	0.9
CO Legends and Legacies	8.7	3.4	12.1	0.7	0.9
CO Range Riders	5.6	3.5	9.1	0.5	1.1
Southwestern Conservation	11.8	3.4	15.2	0.7	0.9
Western Colorado	8.1	4.8	12.9	0.8	1.4
Total	9.2	4.0	13.1	0.7	1.0

GEO reported that the installation rates are higher than what they initially expected, and they are planning to increase provider contracts to ensure that they have enough funds to complete their allocated jobs at the higher installation rate. GEO reported that they would like to encourage these higher installation rates.

The database also contains information on the existing temperature for the client's refrigerator, freezer, hot water, and furnace, and whether an adjustment was made to the temperature. However, currently only the hot water temperate data are included in the reports that can be generated on the web site. It may be useful to add information about temperature adjustments to the reports, so that analysis can be done on the frequency of temperature reductions.

## ***B. Workshop***

EOC had just begun implementation of the workshop model in June 2007, so statistics on service delivery are not yet available.

## ***C. Mass Mailing***

Table VI-3 displays statistics on the mass mailing component of the program. Niagara shipped kits to 9,000 households. They sent out business reply cards to another 2,500 households, and kits to the 580 of these households who returned the post cards. RAP sent postcards to 5,035 households, and kits to 483 households who returned the cards. MHYC has not yet sent out their kits.

**Table IV-3**  
**Mass Mailing**

	<b>Direct Mail</b>	<b>Business Reply Cards Mailed</b>	<b>Kits Sent to Households that Returned Cards</b>	<b>Total Kits Mailed</b>
Niagara	9,000	2,500	580	9,580
Mile High Youth Corps	--	--	--	--
Resource Action Programs	--	5,035	483	483
Total	9,000	7,535	1,063	10,063

## V. Observations and Inspections

APPRISE proposed to conduct onsite observation of First Response direct install service delivery to increase understanding of the benefits and challenges of this approach. Directly observing providers furnish services creates the following opportunities.

- Researchers are given the opportunity to observe how the program is actually implemented. Often, actual program implementation differs from design and training in significant or in subtle ways.
- Direct observation of service delivery allows researchers to independently assess barriers to the approach that has been developed.
- First-hand observation of client reaction to service delivery provides qualitative indicators of the potential impact of the program and additional information on how the procedures may be modified to improve program results.
- Discussions with clients at the end of the visit allows researchers to determine whether there may be additional energy-saving opportunities that the program should address.

APPRISE faced some barriers when attempting to schedule observation of service delivery. Due to the delay in the award of the evaluation contract, some of the Youth Corps had completed service delivery, prior to the summer break for traditional conservation activities, just when APPRISE was able to begin work on the evaluation. Other Youth Corps had not yet begun delivering services. APPRISE was able to schedule two days of observations with one Youth Corps providing services in Logan County. During this time, nine jobs were observed. To provide additional information about program implementation and service delivery, APPRISE conducted other evaluation activities.

- APPRISE observed MHYC conduct training for Weld County Youth Conservation Corps. Weld County had previously received classroom training. On the day that APPRISE observed, MHYC provided additional instruction on MHYC policies and procedures. APPRISE then observed two jobs while MHYC demonstrated their procedures for Weld County.
- APPRISE inspected 29 jobs that Youth Corps had completed. The inspections were conducted in Denver and in El Paso counties.

This section summarizes APPRISE's findings from the observation of MHYC training for Weld County, observations of Colorado Range Riders Youth Corps (CRRYC) service delivery in Logan county, and inspections of MHYC service delivery in Denver and Colorado Legends and Legacies Youth Corps service delivery in El Paso.

## **A. *Training***

MHYC presented Weld County with specific information that they had developed about service delivery. Some of the key points that they presented are described below.

### **Logistics**

MHYC sends two Youth Corps members to clients' homes to provide service delivery. Youth Corps members are instructed to make sure that they have all needed supplies and tools prior to leaving the office for service delivery, including bulbs, showerheads, smoke/CO detectors, maps, safety goggles, tools, and paperwork. On average, the work takes 45 minutes to complete. MHYC has Spanish-speaking members that are assigned to homes where there are no English speakers.

### **Installations**

Youth Corps members should ask clients where they could use the bulbs the most. Youth Corps members are instructed to place old incandescent bulbs in trash bags for disposal.

When installing showerheads, they are instructed to take the following steps.

- Check for leaks.
- Check to make sure that the new showerhead is installed correctly to eliminate improper installation as a cause of leaks.
- Install Teflon tape over the threads prior to installing the new showerhead.
- Demonstrate the flow of the new showerhead for the client.

Youth Corps members should install smoke/CO detectors between bedrooms or near utility rooms.

Youth Corps members should leave manuals and product boxes with clients and remind clients that the client is responsible for product maintenance, for example replacing batteries in the smoke/CO detectors.

### **Service Delivery**

APPRISE observed MHYC demonstrate service delivery in two client homes. The Youth Corps members related well to the clients and largely followed the protocols that have been discussed by the MHYC manager.

- Youth Corps members described the program to the client.
- Youth Corps asked the client to sign the waiver form at the beginning of the visit.
- Youth Corps members washed dirty light domes prior to installing them back over the CFLs.

- The Youth Corps turned on the CFLs and waited a few minutes for the light to brighten prior to asking the clients if they were satisfied with the light produced.
- The Youth Corps explained that the CFLs would use only about one quarter of the energy that the incandescent bulbs had used.
- The Youth Corps removed the incandescent bulbs from the home.
- The Youth Corps members measured and turned down the hot water temperature, with the client's permission.
- The Youth Corps members gave the client the program brochure and the temperature cards, and explained what they were to the clients.
- The Youth Corps members discussed the fact that the client could save energy by setting the heat at a lower temperature at night in the winter, and told one of the clients about programmable thermostats.
- The Youth Corps members made a referral to the weatherization program when the client complained about the temperature in the kitchen in the winter.
- The Youth Corps members gave the clients the program brochure and encouraged them to read it.

Based on the observations, the following improvements could be made.

- Youth Corps members should discuss how lights are used, so they do not replace bulbs that are rarely turned on. In our observations, the Youth Corps replaced all bulbs unless there was a problem such as the dome not fitting over the CFL or unless the client specified that they did not want a bulb replaced.
- Youth Corps members should discuss what they are doing while the measures are being installed, rather than explaining to the client after the installations.
- Youth Corps members did not demonstrate to the clients how to use the temperature gauge cards.
- The two Youth Corps members did work simultaneously. As a result, the client could not observe everything that was done.

## ***B. Observations***

APPRISE observed nine service delivery jobs performed by Colorado Legends and Legacies Youth Corps in El Paso county on June 14 and June 15, 2007. During this time, three different crews, each composed of two Youth Corps members, were observed.

Table V-1 displays information on some of the implementation issues that were assessed during the observations. The table shows that the Youth Corps were largely following protocols, including describing the program to the clients, discussing lighting in all rooms in the home, removing the incandescent bulbs from the home, and measuring the showerhead flow rate.

**Table V-1**  
**Implementation Issues**

	<b>Number</b>	<b>Percent</b>
Described program	9	100%
Discussed lighting in every room in the home	9	100%
Removed incandescent light bulbs	9	100%
Measured showerhead flow	8	89%

The Colorado Legends and Legacies Youth Corps crews that were observed did discuss lighting usage with clients prior to replacing light bulbs. Table V-2 shows that in the nine observations conducted, bulbs were replaced in an average of 5.8 fixtures and the Youth Corps members asked about hours of use in 4.9 of these. The Youth Corps members were also likely to ask whether the client was satisfied with the lighting of the replaced bulbs.

**Table V-2**  
**CFL Replacement**

	<b>Mean</b>
Number of fixtures in which bulbs were replaced	5.8
Number where hours of use was asked	4.9
Number where asked if client was satisfied with lighting	5.1

Table V-3 examines the extent to which the Youth Corps members checked and discussed temperatures in the refrigerator, freezer, hot water heater temperature, and furnace setting. The table shows that the Youth Corps members checked all four temperatures in all of the observed homes. They discussed the refrigerator temperature in all of the homes, but only discussed the freezer temperature in six of the nine homes, the hot water temperature in six of the nine homes, and the furnace temperature in five of the nine homes. (Note: it is questionable how valuable it is to discuss furnace settings at this time of the year.)



**Table V-3  
Temperature Measurement**

	<b>Number</b>	<b>Percent</b>
Refrigerator temperature checked	9	100%
Refrigerator temperature discussed	9	100%
Freezer temperature checked	9	100%
Freezer temperature discussed	6	67%
Hot water temperature checked	9	100%
Hot water temperature discussed	6	67%
Furnace temperature checked	9	100%
Furnace temperature discussed	5	56%

Table V-4 examines the education that was provided to the clients. The table shows that all of the Youth Corps members that were observed showed the client how to measure the refrigerator temperature and the hot water temperature, gave the copy of the brochure that GEO prepared, told the client how much CFLs could save, and left measure boxes with the customer. However, the Youth Corps members did not always discuss actions that the client could take to save energy<sup>14</sup>, estimate savings from those actions, and encourage clients to review the GEO brochure.

**Table V-4  
Education**

	<b>Number</b>	<b>Percent</b>
Showed client how to measure refrigerator temperature	9	100%
Showed client how to measure hot water temperature	9	100%
Discussed actions client can take to save energy	4	44%
Estimated energy savings from actions	4	44%
Gave client a copy of the GEO brochure	9	100%
Encouraged client to review the brochure	5	56%
Told the customer how much the CFLs could save	9	100%
Left measure boxes with customer	9	100%

Some of the other qualitative findings from the observations are described below.

<sup>14</sup> The observer noted that many of the clients were already taking several steps to save energy.

- Referrals – There were no referrals (to WAP or other types of assistance) made by the Youth Corps members during these observations. The crew members reported that they felt they needed more information about weatherization.
- Education – Crew members expressed a desire to know more about how to save energy so that they could share additional information with clients.
- Tools – Crew members do not have all of the tools that are needed. The crews needed to borrow a hammer at several of the homes to install smoke detectors. They needed to borrow a pipe wrench from the Sun Power quality control inspector who happened to be in the homes at the same time.
- Satisfaction – Overall, the clients were very satisfied and grateful for the assistance that the program provided.

### ***C. Inspections***

APPRISE conducted inspections of 29 direct install jobs that were completed in March and April 2007. These inspections were conducted in Denver and El Paso counties in June 2007. The focus of the inspections was on knowledge and satisfaction with installations and behavioral changes.

- CFLs – Did the client know where the CFLs were installed, how many hours per day the bulbs were used, and how satisfied the client was with the bulbs?
- Showerheads – Could the client identify the replacement, and how satisfied was the client was with the new showerhead?
- Temperature changes – Could the client identify the temperature change, and how satisfied was the client was with the temperature change?
- Program satisfaction – What was the overall program satisfaction?
- Opportunities – Some of the inspections included a discussion of additional opportunities for energy saving.

Table V-5 examines the number of CFLs that were installed, the number that were identified by the client, and the difference between the number that were installed and the number that the client identified. While the mean number of installed bulbs in the inspected homes was 11.6, clients identified an average of 10.4 bulbs. This indicates that the clients are highly aware of the installations and the Youth Corps members are doing a good job of educating the clients about the installations.

**Table V-5  
CFL Identification**

	Mean	25 <sup>th</sup> Percentile <sup>15</sup>	Median	75 <sup>th</sup> Percentile
Number Installed	11.6	7.0	12.5	16.5
Number Identified	10.4	7.5	10.0	13.0
Number Unidentified	1.3	-0.5	0.5	3.0

When the inspections were conducted, clients were asked to report the average number of hours bulbs were used in each room where they were replaced. Table V-6 shows that clients reported that bulbs were used an average of 2.3 hours per day. GEO has instructed the Youth Corps to install bulbs where the lights are used more than .5 hours per day. Discussions with program managers and some of the observations found that the Youth Corps members were not always instructed to specifically discuss hours of use with clients. The concern is that replacing bulbs in lights that are rarely used will reduce the cost-effectiveness of the program. Table V-6 shows that there were an average of 3.3 bulbs in replaced in each home that were used less than one hour per day, and there were an average of 1.9 bulbs in homes that were used less than .5 hours per day.

**Table V-6  
CFL Hours**

	Mean	25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> Percentile
Average Hours/Day	2.3	1.3	2.0	2.8
Max Hours/Day	5.7	2	4	6
Min Hours/Day	0	0	0.5	0.5
# <1 Hour/Day	3.3	1	3.5	5
# <.5 Hour/Day	1.9	0	1	4

Clients were asked how satisfied they were with the bulbs installed in each room. On average they were very satisfied with 85 percent of the bulbs, somewhat satisfied with ten percent of the bulbs, and not satisfied with five percent of the bulbs.

<sup>15</sup> The percentile indicates the percentage of observations that were below the number listed. For example, 25 percent of CFLs were used less than 1.3 hours per day, and 75 percent were used more than 1.3 hours per day. The median is the 50<sup>th</sup> percentile. For example, half of the CFLs were used less than two hours per day and half were used more than two hours per day.

**Table V-7**  
**CFL Satisfaction**

	Mean	25 <sup>th</sup> Percentile	Median	75 <sup>th</sup> Percentile
Very Satisfied	85%	82%	100%	100%
Somewhat Satisfied	10%	0%	0%	0%
Not Satisfied	5%	0%	0%	0%

Showerheads had been installed in 19 of the 29 homes that were inspected. Clients identified 18 of these installations. They were very satisfied in 83 percent of the cases and somewhat satisfied in the remainder.

**Table V-8**  
**Showerhead Identification and Satisfaction**

	Number	Percent
Installed	19	66%
Not Installed	10	34%
Identified	18	95%
Not Identified	1	5%
Very Satisfied	15	83%
Somewhat Satisfied	3	17%
Not Satisfied	0	0%

Review of the clients' files found that refrigerator, freezer, and hot water temperatures were adjusted in one quarter to one third of the homes that were inspected. The client identified these turndowns in most of the cases. Satisfaction was mixed in the cases inspected, but the sample size is too small to draw conclusions about the general population of clients.

**Table V-9**  
**Temperature Turndowns**

	Temperature Adjustment Recorded in File		Temperature Adjustment Identified by Client		Very Satisfied		Somewhat Satisfied		Not Satisfied	
Refrigerator	8	28%	7	88%	4	57%	2	29%	1	14%
Freezer	9	31%	7	78%	4	67%	1	33%	1	17%
Hot Water	7	24%	7	100%	6	86%	1	14%	0	0%
Furnace	0	0%	0	--	--	--	--	--	--	--

Most of the clients reported that they were very satisfied with the program and a few clients reported that they were somewhat satisfied. There were no clients who reported that they were not satisfied with the program.

**Table V-10**  
**Program Satisfaction**

	Number	Percent
Very Satisfied	25	86%
Somewhat Satisfied	4	14%
Not Satisfied	0	0%
Total	29	100%

Potential for additional energy saving opportunities was investigated in a sub-sample of 13 of the inspections through a discussion with the clients. Additional investigation will be made in the client surveys that are conducted in the next month. Three possible actions for energy use reduction were investigated.

- Computers left on all night – The preliminary findings suggest that this does not have large potential. Only one of the 13 clients had a computer that was left on all night, and this client was not willing to shut off the computer.
- Cold water for laundry – About half of the clients were not using all cold water for their laundry. About one third of those who were asked whether they would be willing to use cold water to save energy said that they would be willing to do so. Some of those who were not willing to do so expressed a great deal of resistance to making this change.
- Heat set back at night – About one third of the clients were not turning down their heat at night. None of these were willing to begin doing so to save energy.

**Table V-11**  
**Additional Opportunities**

	Number	Percent
Computer on all night	1	8%
Willing to turn off?	0	0%
Not cold water for laundry	7	54%
Willing to use cold?	2	29%
Heat not set back	4	31%
Heat willing	0	0%

A sub-sample of 13 clients were also asked about the presence of serious health issues at the end of the inspection. Fifteen percent of these clients reported that someone in the household had asthma or respiratory problems and about half had heart or circulatory problems. These are conditions that need to be recognized when recommending behavioral changes such as temperature turndowns to clients.<sup>16</sup>

**Table V-12**  
**Health Issues**

	Number	Percent
Asthma or respiratory problems	2	15%
Heart or circulatory problems	6	46%

Some of the other qualitative findings from the observations are described below.

- The clients were enthusiastic and thankful for the assistance provided by the program.
- The refrigerator/freezer and water heater temperature cards are too small, the type on them is too small, and the reading is difficult to interpret. Many of the older clients had difficulty reading the cards, even with glasses. Most of the clients who were asked did not remember receiving the cards, had difficulty finding them, or could not locate them. Those who could find them did not really understand how to read them.
- There were two different water temperature cards that were given to clients and one was much easier to read than the other.

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<sup>16</sup> There still may be safe changes that can be made, but they must be made with careful consideration of the household's members' health status.

## VI. Summary of Findings and Recommendations

This section summarizes the key findings and recommendations from the process evaluation research that has been conducted to date. Findings and recommendations are summarized in the areas of program design, program implementation, training, and quality control.

### ***A. Program Design***

Prior to designing the First Response program, GEO had consultants review programs that had been implemented around the country, analyze how to deliver services, and assess the energy savings that could be achieved through the implementation of minor measures and behavioral changes. Furthermore, they initially implemented services on a relatively small scale, so that they could evaluate program impacts before investing a significantly greater amount of resources. This approach, to design and test services prior to full-scale program implementation, increases the probability for a very cost-effective program.

One of the choices made in the program design was to keep the initial implementation simple, with relatively few client behavior change goals. The education focused only on temperature setting adjustments to the refrigerator, freezer, hot water heater, and furnace. The evaluation is examining whether additional education may be effectively added to the program. Initial exploratory research began during the inspections of service delivery, and more rigorous research will be conducted in the client interviews that are conducted in the coming months. Results of these interviews will allow the evaluators to make recommendations for changes to education procedures.

### ***B. Program Implementation***

Interviews with program managers and contractors, and observations and inspections of service delivery have shown that the program has been successfully implemented. Direct install services have been provided to over 2,000 clients, with an average of 13 bulbs per home, .7 showerheads per home, and one smoke/CO detector per home. The workshop model had begun implementation. Energy kits have been mailed to thousands of clients. Clients have expressed their satisfaction and gratitude for these services. Based on the initial review of the program, we have several recommendations to increase the effectiveness of service delivery.

1. Service delivery – The Youth Corps have chosen to implement services with two members in each home. MHYC explained that their model is to have one youth educate the client while the other does installations. In some of the observations, we have noted that the two youth were in different parts of the home doing work at the same time. One of the observers also noted that the client was told what was done after the installation was completed, rather than being involved at the time of the installation. The Youth Corps should reassess their approach to service delivery to increase the clients'

involvement. The client should be given the opportunity to observe and participate in measure installation.

2. Bulb replacement – GEO has instructed the Youth Corps to replace bulbs that are used .5 hours per day or more. Discussion with the MHYC and observation of service delivery have shown that the Youth Corps do not always discuss how often bulbs are used with customers. Analysis of data from the inspections shows that bulbs that are rarely used are sometimes replaced. The Youth Corps should discuss whether a light is used prior to replacing a bulb.
3. Temperature changes and cards – Some of our observations found that the temperatures were not discussed with clients and that clients were not shown how to use the temperature measurement cards. During the inspections we found that clients did not remember receiving the cards or could not find the cards. When the clients could find the cards, they were not sure how to use them. Furthermore, our inspector noted that the cards were difficult to read. One of the cards was much better than the other. The Youth Corps should spend more time reviewing the temperature cards with the clients and should investigate whether they can obtain more user-friendly materials.
4. Referrals – During our interview, the MHYC manager noted that they had asked GEO for guidance about when to make referrals to the weatherization program, but had not yet received this guidance. During our observations, we found that the Youth Corps were not making referrals. GEO should develop a policy on when referrals should be made, provide this information to MHYC, and MHYC should train their members and the other Youth Corps on this policy.
5. Tools – APPRISE's observer found that the Colorado Range Riders Youth Corps members did not have all of the tools that they needed during service installation. They should reassess their tool kits and make sure that all needed tools are available to the Youth Corps members.
6. Education opportunities – APPRISE's research has found that programs that have repeated interactions where education is provided are more likely to have an impact on the client. While the First Response program is a low-cost implementation model, they should take advantage of targeted opportunities to provide additional education to clients. For example, five percent of clients receive a follow-up call. All providers should be instructed to discuss actions that were taken and provide reinforcement at this time. Additionally, GEO has hired Sun Power to conduct inspections. They should consider a brief follow-up and reminder on actions during this inspection as well.

There are many other avenues for additional education that could be tested. Some potential methods include:

- A monthly mailing of energy-saving tips.
- An annual mailing of batteries for the smoke/CO detector with education tips.



- A postcard at the end of the year that allows the clients to request additional CFLs.

### ***C. Training***

The Direct Install program is designed to be simple, and relatively little training was provided on the program. GEO should consider a meeting for all Youth Corps crew members to provide them with additional information. Some of the information needs that have been identified are summarized below.

1. Client involvement – Youth Corps members should be trained to involve clients in the installation process.
2. Client education – Youth Corps members should be trained to show clients how to use the temperature cards to measure the refrigerator, freezer, and hot water temperatures.
3. Referrals – Youth Corps members should be trained on when to make referrals.

### ***D. Quality Control***

Quality control is provided by Sun Power for five percent of clients served. The quality control is more focused on compliance with contractual obligations than on assessing and improving the client education aspect of service delivery. GEO could work with Sun Power to use this opportunity to assess the education that has been provided and to reinforce the clients' potential opportunities for behavior change.