



Aloha
SYSTEMS

Evaluation, Measurement, and Verification Final Report

San Joaquin Comprehensive Energy Efficiency Program

CPUC Reference Number 1423-04

Final Version, April 25, 2006

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EXECUTIVE SUMMARY

The San Joaquin Energy Efficiency Program (SJEED) provided energy information to small business customers in San Joaquin County, California. The program was implemented by Intergy Corporation with the cooperation of the county and municipal governments and organizations such as the chambers of commerce. The information was provided through on-site energy audits of businesses as well as providing seminars and being present at large community events. Emails and printed materials were also prepared.

The program met its goals. It set out to conduct 566 energy audits and actually completed 623. It also presented the full set of events presented in its program plan (8 small business seminars, 4 vendor seminars, 6 large events). It sent out 4 mass emails to 125,089 total recipients and printed four sets of brochures totaling 226,053 copies.

Customers were overwhelmingly satisfied with their participation, with the program itself, with the information presented, and with the auditors themselves. Customer interviews demonstrated that they did indeed learn about energy conservation through the program, and discussions as well as unannounced on-site visits that we conducted showed that several of these customers had implemented energy-saving behavioral changes.

The audits presented specific recommendations, mostly lighting, for customers to implement. It also provided information about utility programs, such as Express Efficiency, that could be beneficial. Audit programs in the past have demonstrated that the link between information and implementation is weak, with most customers not following up with the actions recommended in the audit. This generic problem was apparent in the SJEED program, though there were no specific SJEED flaws that appeared to caused this. Even customers who had not done anything to physically change their premises still indicated that they learned about energy efficiency through the program and were satisfied with it. Capital cost, time and effort, and procrastination were the reasons for leading to lack of action on the part of the customers.

We believe that the program was successful and well implemented. We believe that coupling the audits with direct installation would significantly increase the physical energy-efficiency changes that would lead to greater energy savings.

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INTRODUCTION

Overview

The San Joaquin Comprehensive Energy Efficiency Program (SJCEEP), also known as the San Joaquin Energy IQ Program, was an audit and informational program for local small businesses to make energy efficiency improvements in their facilities, implemented by the Intergy Corporation. The project was carried out in various parts of San Joaquin County including the cities of Tracy, Manteca, Lathrop, Ripon, Escalon, and Stockton as well as some unincorporated areas of the county. The project built on the success of the 2002-03 Stockton Third Party Program. The SJCEEP provided facility energy audits which assisted small business owners in utilizing rebate programs from local utilities. The program also conducted training seminars for both vendors/contractors and small business owners that raised energy efficiency awareness and knowledge of funding assistance opportunities. This was marketed through the use of energy efficiency informational brochures, emails, a website, city and county events, and through seminar sessions to the harder-to-reach population in San Joaquin County.

Program Theory

The theory of the San Joaquin Comprehensive Energy Efficiency Program included the following components:

- Energy audits will provide small businesses the information necessary to increase their knowledge about the benefits of energy efficiency and ultimately encourage them to consider completing energy efficiency retrofits in their facilities.
- Outreach efforts will produce increased energy efficiency awareness in the targeted communities.
- Outreach efforts will produce energy efficiency actions, either on their own or with the assistance of rebates or incentives from the utilities.

Program Description

The SJCEEP was designed to conduct energy audits for hard to reach small businesses. The audits identified areas where energy and money can be saved through energy efficiency upgrades and provided information about statewide and local utility incentives and also provided a list of local vendors that could provide the necessary services to install the recommended energy efficiency measures. The project had six main plans of action within San Joaquin County:

1. Create partnerships within San Joaquin County and its various cities and organizations that leverage their resources and target customers more effectively. For example, co-marketing the SJCEEP with cities and using the Chambers of Commerce to access the local business community.
2. Conduct comprehensive energy audits of 566 small businesses. These audits were designed to deliver personalized reports that make recommendations for possible energy efficiency retrofits, provide information about the statewide and local utility incentives available to fund energy efficiency upgrades, and provide the owners with a list of local vendors and contractors who are qualified to perform these upgrades.
3. Conduct approximately eight informational seminars for small business owners to raise their energy consciousness and their awareness of statewide and local utility incentives.
4. Conduct approximately four seminars for local vendors and contractors to inform them of the educational and product resources they can provide to small business owners through the SJCEEP, statewide, local utility incentive programs, and other avenues. These seminars will also discuss the technical aspects of various energy-efficient technologies as well as marketing strategies that increase sales of these technologies.
5. Sponsor six city or county events that introduce the program to the community.
6. Present energy efficiency information through direct mailers, emails and a comprehensive website targeted at the underserved “hard-to-reach” residential, commercial, and other hard-to-reach utility customers.
7. Generate and maintain an energy consciousness throughout San Joaquin County.

METHODOLOGY

Research Objectives

Our objectives in the EM&V research project was to explore the issues described in the following table. The means by which we assessed these issues are also listed in the table.

Issue	Method of Assessment
How many SJCEEP audits were conducted?	Tabulate data from SJCEEP database.
What energy efficiency actions were initiated by SJCEEP participants?	Survey customers
What is the total number of small businesses, in San Joaquin County, that participated in utility rebate programs as an outcome of SJCEEP?	Survey customers and cross-tab number of participants with utility rebate programs.
What is the level of customer satisfaction with the program?	Telephone and on-site surveys, on-site verifications of audits, and observations at events.
Did the customers "spread the word" about the SJCEEP and/or energy conservation?	Telephone and on-site surveys, on-site verifications of audits, and observations at events.
What is the level of city government satisfaction with the SJCEEP?	Interviews of city officials.
Were community and workshop events effective in introducing the program?	Written observations and commentaries on such events as well as participant surveys.
What are reasons for participating or not participating?	Survey customers and vendors.
How can the process be improved?	Directly observe and/or interview team players.
Are program training and materials effective?	Review materials and interview technicians.
Do the vendors need additional training to perform installations correctly?	Track any problems observed.
Do the customers use their new energy efficiency technologies correctly?	Track any problems observed.
Do the customers need additional incentives in order to actually install energy efficiency equipment?	Survey participants.

Discussion of CPUC Objectives

The SJCEEP focused on the marketing of the energy efficiency and funding discount opportunities available to underserved and hard-to-reach small business owners as well as walk-through audits that pointed out specific ways to reduce energy use and costs. Because the project was designed to be “information-only,” the measurement of direct demand reduction and energy savings was not required because actual hardware installation was not part of the SJCEEP program *per se*. In the initial phases of the program, Intergy provided or coordinated a few hardware installations, but these installations were coordinated through PG&E incentive programs, and the hardware-based energy savings are accounted through these programs.

During our process and customer satisfaction evaluation, we asked participants whether they have increased their knowledge and awareness of energy efficiency, whether they completed or plan to do an energy efficiency installation, and what (if any) were the reasons they hesitated or did not proceed with an installation.

The CPUC has set out certain guidelines that direct the EM&V process of information-only programs. These CPUC’s specific information-only objectives, from Chapter 6 of the *Energy Efficiency Policy Manual*, are covered in this plan as discussed below:

Providing up-front market assessments and baseline analysis. For the SJCEEP, the baseline analysis is a matter of energy efficiency awareness and action in the community. We conducted surveys of participants as well as non-participants. The non-participants are small business owners who would have been eligible for the program, but did not know about the program or did not wish to participate.

Providing ongoing feedback and corrective and constructive guidance regarding the implementation of the programs. Aloha Systems personnel were in frequent and ongoing communication with Intergy personnel. Furthermore, because so much of the SJCEEP was subjective in nature, one or more of our staff people observed some of the larger community events and seminars. These events ranged from city and county events, which may have hundreds of participants, to vendor/contractor seminars. When we observed such events, we provided written reports to Intergy personnel assessing the event from the standpoint of ways we believe the process or effectiveness could be improved. These assessments and observations included general commentary on the actual operation and program documents as well as passing on of anecdotal information gathered from participants. We also provided input to Intergy staff regarding ideas collected from participants on strategies to increase the effectiveness of local energy efficiency efforts.

Measuring indicators of the effectiveness of specific programs, including testing of the assumptions that underlie the program theory and approach. There are several outreach components to the SJCEEP, and each of them had slightly different indicators of

effectiveness. We strove to measure these various indicators in such a manner as to grasp this variety and assess the project's individual and overall effectiveness. Since the exact details of the SJCEEP were not fixed in an absolute sense, part of the partnership approach was to allow the program participants to provide input and relay this input to Intergy staff in order to develop a tailored program that would best suit their efficiency needs. We therefore allowed the EM&V plan to evolve along with the SJCEEP in order to best measure the effectiveness of the specific programs as they are actually implemented.

Assessing the overall levels of performance and success of the program. The overall performance and success is based upon a number of factors. Our report provides an assessment of whether the program accomplished its outward goals (such as number of audits conducted) as well as whether these actions appear to lead to the desired results (such as installing equipment and/or participating in utility incentive programs).

Informing decisions regarding compensation and final payments. The information we analyze and present should enable Intergy and the CPUC to accurately determine whether the program has met its stated objectives, which in turn can be used by the CPUC for decisions regarding final payment.

Helping to assess whether there is a continuing need for the program. Assessing the ability of the program implementers to achieve the outward goals, combined with evidence that the activities provided by the implementers led to behavior or equipment changes leading to energy efficiency, allows us to estimate the program's ability to conserve energy and reduce demand. We also assessed the reasons and barriers for audit participants not moving ahead with installations and utilizing rebate incentives. The assessment of the non-participant and baseline status quo provided useful information regarding the usefulness of continuing the program within San Joaquin County and/or expanding it to include other similar counties. We also assessed SJCEEP participants' interest in participating in future energy savings programs

Process Evaluation and Customer Satisfaction

The process evaluation focused on providing recommendations for program changes that improve cost effective operations and achievements. It also assessed the success of the small business audits, vendor/contractor and small business owner training seminars, and the efforts to increase awareness about energy efficiency amongst city/county staff and local organizations (for example the Chambers of Commerce). We reviewed the complete set of materials used for this program. We also surveyed the participants in some of the training sessions conducted by program staff.

The process evaluation focused on the following areas of the program's outreach activities:

- Partnerships within San Joaquin County between the various participating cities and organizations that leverage existing channels of communication
- Small business audits
- Small business seminars
- Vendor training sessions
- City and county events
- Informational brochures and/or emails
- Website – ease of informational flow and navigation on the SJCEEP website.

Civic Partnerships. We interviewed governmental officials and local organizations (for example, the chambers of commerce) to assess their opinions of the effects of the program in the county. We provided feedback from these interviews to Intergy in order for them to incorporate recommendations if possible.

Small Business Audits. We assessed the quality of the energy audits, customer satisfaction, and the interest of the audit participants in following through with energy-efficient upgrades contribute to the program's goal of increasing energy efficiency. We worked with Intergy and its contractors to estimate information on actual measures installed and with PG&E to assess the customers' participation in utility or other incentive programs.

Audit Participant Surveys. We interviewed the recipients of 62 energy audits conducted at local small businesses. These included the 16 persons interviewed during our on-site visits of 34 customer premises as well as 46 telephone interviews. We interviewed the recipient customers regarding their perception of the audit's value, assessed the customers' overall impression, and gathered their specific recommendations for how the program could be improved.

We also reviewed the draft audit materials themselves and provided Intergy with our professional opinion regarding the audits, where we felt they excelled, and where we felt improvements could be made. These recommendations were generally incorporated by Intergy in the final audit materials.

In our customer surveys we verified that the audits actually took place and assessed the small business owner's increased energy efficiency awareness, increased inclination to perform energy-efficient upgrades, and the potential challenges and hurdles to performing such upgrades. The on-site inspections of participating small businesses enabled us to establish a small benchmark group of participants that is verified independently of both participant and auditor information. Both the telephone and on-site surveys were also used to gather information regarding satisfaction, energy attitudes, and indirect program effects.

Non-Participants. We also interviewed 25 non-participating small business owners or managers. This enabled us to benchmark information gained through Intergy's program with knowledge already in the community. It also helps assess the contributing factors of various causes of non-participation such as lack of knowledge of the program, inconvenience of the program, or having already made the energy efficiency changes.

Large Scale Events. We evaluated the large-scale events including one contract/vendor training seminar, one small business seminar, and one city/county event in order to provide direct first-hand assessment and constructive commentary. We distributed two written questionnaires at the small business seminar, one before and one after the presentation.

Program Materials. We observed the program and reviewed the program materials. The goal of this review was to enable a discussion of the program organization and management structure, the internal administrative procedures and quality controls, the program tracking database, data processing and record retention, the interaction between implementers and subcontractors, the interaction between implementers and city or county staff, the interaction between subcontractors and customers, the quality of meeting and seminar material, the quality of the audits, and the program's overall success.

OBSERVATIONS AND RESULTS

Audits Conducted

Intergy conducted a total of 623 audits, thus exceeding the goal of the program implementation plan. The following table shows the location by city.

City	Number of Audits
Collegeville	1
Escalon	25
French Camp	6
Lathrop	23
Manteca	216
Ripon	52
Stockton	1
Tracy	299
Total	623

The majority of the audits were performed on very small customers (those with peak demands less than 20 kW), as shown in the following table:

Customer Size	Number of Audits
Large (>500 kW)	1
Medium (100-500 kW)	11
Small (20-100 kW)	205
Very Small (<20 kW)	406
Total	623

We surveyed a sample of audit participants to find some basic information out about them. Of those surveyed, 89% indicated that this was the first energy audit they had ever received. The vast majority considered themselves committed to energy conservation, with 44% considering themselves “very committed” and 46% considering themselves “committed.” Only 2% considered themselves “not committed.”

Nearly all (94%) of the interviewed participants became aware of the program through the on-site visit of the energy auditor.

Participant Actions

We surveyed 46 participants by telephone. We also visited 34 participant sites in person. Of these, we were able to speak with 16 people familiar with the audit. The telephone surveys were more formally structured. The in-person surveys focused on actual equipment installation and were more loosely structured with regards to opinions and attitudes. Among the questions we asked were what energy efficiency actions they planned to take as a result of participating in the SJCEEP program.

All of the participants remembered receiving their free energy audit.

Twenty-five (54%) of the telephone-interviewed participants said that they reviewed their audit report. Five directly admitted that they had not reviewed it, three said they did not recall, and the other thirteen gave other answers or did not answer the question. During the unannounced on-site visits, we carried a copy of an audit so they could be reminded of it and asked people if they actually reviewed it. Since the responses were open-ended, the answers were often vague and not as easily categorized. The general sense is that most reviewed it slightly but few reviewed it thoroughly.

Twenty-seven of the telephone-interviewed participants answered questions about the audit report. The following table presents the opinions shared:

Response Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The audit report was informative and easy to understand.	0	1	3	9	13
The report accurately reflected my small business needs	0	0	3	13	11
The energy audit caused me to re-evaluate the amount of money I spend on energy for my business	3	3	7	9	5
The payback period for lighting upgrades seems reasonable	2	1	6	8	10

For the most part the people who answered the questions felt that the audit was understandable and meaningful. In considering this, however, we must be aware of the fact that these were the people who read their audits. It remains a possibility that some of the people who did not read their audits, or do not recall reading their audits, actually started reading them but did not find them easy to understand. However, some of the on-site visits were conducted after the telephone data had been analyzed, and we discussed readability and understandability with those who admitted to not having read the full audit. None of them felt this was an issue. The more important issue that kept them from reading the audit was simply taking the time.

Twenty-one (46%) of the telephone-interviewed participants indicated that they are planning to install energy-efficient lighting as a result of what they learned from the energy auditor. Nineteen (41%) directly said they were not planning to do so. This compares with the non-participant survey where nine of the 30 interviewed non-participants (30%) said that they plan to install energy-efficient lighting. The audits therefore clearly increase the *intent* to install energy-efficient lighting. Of the 21 participants who indicated an intent to install energy efficient lighting, only three had actually done so at the time of our interview. When asked when they plan to install them, the others gave answers ranging from one month to five years in the future, or stated that they did not know.

Fourteen (30%) of the telephone-interviewed participants indicated that they are planning to make “other energy-efficient upgrades” as a result of what they learned from the energy audit. Twenty-six (56%) directly said they were not planning to do so. This curiously compares to the non-participant survey, in which twelve (40%) of the interviewed non-participants said that they plan to make other energy-efficiency upgrades. However, when these twelve non-participants were probed further as to what they plan to do, all gave vague answers such as “whatever there is to do.” The audit participants gave specific answers relevant to their situation, including naming windows, insulation, appliances, and insulation as well as turning off unneeded equipment. Many of the participants indicated that there is nothing else for them to do except lighting, which is something they learned during their audit. Thus, even though a higher percentage of non-participants indicated an intent to install “other energy-efficient upgrades,” this intent appears less likely to result in any actual change since it was not coupled with knowledge as to what those upgrades might be.

The on-site surveys showed that a significant majority of the participants had not completed the recommended efficiency upgrades. Some of them had installed some, but not all, of the recommended measures. Others made behavioral changes, either actively or passively, as a result of their new energy awareness. An example of a “passive” behavioral change is the facility that still had old T12 fixtures but had about half of the lights turned off. When asked if this was to save energy, we were told it was because the ballasts had burned out and they let the lights stay out both to save money on ballasts and to save energy. (The lighting was still adequate with these lights out. The audit actually recommended replacing all of the T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts, which had not been done.)

All of the participants who received lights or thermostats by direct installation were happy with their equipment, with the installation process, and with the program.¹

¹ Direct installation was not technically part of the SJEEP program. As an independent service Intergy assisted some customers with the installation of programmable thermostats and helped those customers participate in Express Efficiency.

Utility Program Participation

The 46 interviewed participants were asked about utility rebate program participation. Twenty-eight (61%) indicated that they were aware of available energy-efficiency rebate programs. None of them had contacted Intergy for assistance in applying for a rebate, and only one had contacted PG&E regarding a rebate.

None of the customers interviewed on-site indicated that they had participated in a PG&E program.² The most interesting observation was the owner of a small grocery store who had installed new refrigeration equipment and had obtained PG&E incentive forms, but had never gotten around to completing them and getting the rebates.

The information about the 623 audit recipients was given to PG&E, which checked participation in the various programs it offers. Twenty-six participants (4%) participated in Express Efficiency. Of these 26, only five of the customers received the rebates directly; the remaining 21 incentives were paid to Intergy when it installed programmable thermostats for those customers as an independent service. Two audit recipients (one church and one convenience dairy) received upstream HVAC incentives for equipment they had installed.

Customer Satisfaction

All of the participants interviewed by telephone or in person were satisfied with the program. Two generic observations limit the value of this observation. First, customers tend to be satisfied with things that are free. Second, the telephone interviews were conducted with people willing to be interviewed,³ and people mildly disappointed with the program may have screened themselves out of the survey process by not agreeing to be interviewed. Conversely, people with complaints they felt strongly about probably would have agreed to be interviewed as a chance to voice their complaint, but no one fell into this category.

We asked the participants if they had any recommendations to make the program better. Only twelve (26%) of the telephone participants provided answers other than simply “No.” Of these twelve, six provided expanded positive comments beyond their “No.” These included elaborations such as “You guys were excellent” and “I was very pleased,”

² This is technically false. One of the customers interviewed on site had received a programmable thermostat from Intergy that was technically not part of the SJEEP, but rather an independent service and partially funded through an Express Efficiency rebate. Intergy filed the paperwork and received the Express Efficiency incentive directly. Although she did not remember doing so, this customer therefore did in fact participate in a utility incentive program.

³ This is technically true of the on-site participants, although none of the participants actually on site during our announced or unannounced visits refused to participate; the only reason people were not interviewed was because the person(s) knowledgeable about the audit were not physically present at the time of our walk-in visit.

volunteering to be a research “guinea pig” for energy efficiency, and recommending the program for all businesses.

The six (13%) respondents who provided ways to make the program better all provided improvements they considered constructive, without indicating that they had overall dissatisfaction with the program. These recommendations included:

- Having cost information available (2 times, one suggesting a math formula)
- Having clear information on how to access utility rebates, including printed material
- Having better rebates
- Making an appointment rather than just showing up so they would have had more time to sit down with the auditor
- Having cheaper lighting

The on-site interview participants also indicated satisfaction when asked for recommendations. One manager suggested that if the auditor had followed up with the actual owner of the business it might have resulted in more action.

We also asked the participants specifically how they rated the auditor on his professionalism and his ability to answer questions and explain the program. Twenty-six participants (57%) rated the auditor “excellent.” Fourteen participants (30%) rated him “good.” Two each responded “average” and “fair” and one responded “poor.” The person who responded “poor” answered “don’t know” to the vast majority of questions. Other comments suggest that lack of time was more an issue to her than the actual ability of the auditor, and we do not consider this “poor” rating a reliable commentary about the auditor’s abilities.

The people interviewed in person were all pleased with the auditor. Several elaborated with positive comments indicating that he was friendly, knowledgeable, helpful, informative, and courteous. No one had any negative comments about the auditor or the audit experience.

Spreading the Word

We specifically asked the participants in the chamber of commerce business luncheon whether they planned to share the information they learned with their associates and colleagues. On a scale of 1 (“very unlikely”) to 5 (“very likely”), the average response was 4.1. The following table delineates these responses:

What is the likelihood that you will share what you learned today with your friends and business associates?		
Response	Quantity	Percent
1. Very Unlikely	0	0%
2. <i>(No descriptor listed)</i>	1	6%
3. Possibly	5	28%
4. <i>(No descriptor listed)</i>	4	22%
5. Very Likely	8	44%

Municipal Team Satisfaction

We interviewed six representatives from a variety of local organizations, including one county, two cities, and one chamber of commerce. These people had been with their respective organizations for periods ranging from one to twenty-one years. Their positions included general administration, public works, and economic development.

Four of the six indicated that they were “very familiar” with the program. One was “somewhat familiar” and the other did not feel familiar with the program.

Generally, they felt Intergy did a good job of informing them with e-mails and telephone calls. Five out of six described the relationship with Intergy and beneficial. The benefits included good communication, conveying energy related ideas for the community, and helping small businesses. One indicated that it was a good team because Intergy provides the tools and his/her organization provides the access.

The respondents were asked about their initial perceptions of the program. All the views were either initially positive or soon became so. One was apprehensive at first because s/he thought it was “about sales”; however, this person’s views changed and s/he became curious about the program. Another reported that it was great because “now there is finally a way to reach the public.” One initially felt it was “too good to be true.”

After they were exposed to the program, some views became even more positive. Those who initially had positive thoughts continued to have them after exposure. One indicated that his/her views became more positive because the program demonstrated that it would “bring people to the table,” including people from the smaller cities. No one’s views became more negative after being exposed to the program.

The civic team members interviewed had varied levels of involvement with the program. One described his/her involvement as “secondary,” which included attending events and meetings with Intergy staff. Another indicated that s/he provided topics for mailers, carried out community needs, and helped generate the conceptual design of the program. One was not as personally involved but had a staff person in charge who was in

contact on a biweekly basis. Another indicated that s/he scheduled meetings with municipal agencies, helped put together funding, and helped “get the word out” about the program.

When asked if they would like to be more involved, less involved, or retain the same level of involvement in the future, three of the six persons interviewed felt their level of involvement was fine as it is. Two wanted more involvement, with one of them saying it was like “getting a taste, but not having enough.” One wanted less involvement, citing time constraints as the reason.

The team members interviewed provided the following responses when asked how the program enhances energy efficiency awareness:

- Little steps make a difference.
- Seminars and audits help, making people want to get involved.
- Staffing – a third person contacting small businesses.
- Education and direct contact with Intergy.
- Showing people how to be energy-efficient and save money
- Simply talking to people and telling them how.
- “Communication raises awareness.”

Five of the six persons interviewed felt the program made an impact on their city or county. The person who had not been involved with the program very long indicated that s/he did not know.

We asked the team members what they thought was the most beneficial in the program’s marketing strategy. The following answers were received:

- Diversity of outreach, including fliers to individual customers
- Participation with a booth in the “State of the City” event
- Newsletters
- Personal contact with informative representatives
- Website

We asked how the program could be improved. Two felt no improvements were necessary. The other respondents gave the following responses:

- More funding
- More implementation
- More resources to get the word out to more people
- More marketing materials

Four of the six indicated that their organization officially endorses the Energy IQ Program. One did not know, and the other indicated that they did not because “that process delays things.” Ways that the organizations helped included the following:

- Promoting the program by putting Intergy marketing materials in utility bills
- Providing input
- Using the Energy IQ Program
- Getting mailers out
- Getting the community involved
- Giving access to the business license database
- Creating a newsletter about the program
- Making retention visits
- Sponsoring numerous events involving the program.

All six stated that they believe that city and county governments are an effective resource for carrying out energy efficiency programs. The benefits of city and county partnership included:

- The ability to reach large numbers of people on a regular basis.
- Adding credibility to the program.
- Being a resource for contacting the public.
- The ability to inform companies of the services for which they are eligible.

Overall, the team leaders were satisfied with the program. Five of the six responded “very satisfied,” and the other responded “somewhat satisfied.” The marketing materials received only a slightly lower response, with four saying “very” and two saying “somewhat satisfied.” Everyone felt that the Energy IQ Program should be continued and that the program should expand into other cities.

Delivering the message that “little things can make a difference” was cited as a particular benefit of the program. The mailers, direct personal contact, and educational components were mentioned as benefits by many of the participants.

Direct installation, implementation, conducting case studies, and moving into a broader base of business customers, including industrial, were mentioned as possible ways to improve the program.

Workshop/Event Effectiveness

We attended three events sponsored by Intergy – one contractor/vendor training seminar, one small business seminar, and one city or county public event. The events were the following:

- Contractor training on October 14, 2004
- Manteca Chamber of Commerce luncheon presentation on January 26, 2005
- Manteca Pumpkin Fair on October 1, 2005

The contractor training event was effective except that it was attended by only two contractors. We discussed the situation that it is very difficult to get contractors to come to events such as these. They are typically small businesses with time constraints on their owners, and the owners are only likely to attend events that are perceived as being useful to their business development. Energy efficiency is often perceived as a nuisance that has little opportunity for contractors to increase their business. It is a matter of getting the customers to care about it and demand it from the contractors. The other way around – trying to get contractors to sell efficiency to their customers – is difficult because customers don't always perceive the value and, in the case of air conditioning, the economics are often difficult to justify.

The luncheon presentation was attended by approximately 30 people. Intergy is a member of the Manteca Chamber of Commerce, and the chamber has regularly scheduled meetings during which members are scheduled to make presentations. We distributed pre- and post-presentation surveys to the participants and received 20 responses.

On the survey handed out before the presentation, most of the respondents claimed some, but not great, familiarity with energy conservation, with 65% selecting either “somewhat familiar” or “fairly familiar” but only 15% selecting “familiar” (ranked higher than “fairly familiar”) and only 10% indicating “very familiar.” All but one of the respondents indicated on the post-seminar questionnaire that their awareness of energy conservation had been increased.

Approximately one-third claimed that they had already had an energy audit and understood how an audit could benefit their business. Only two claimed prior knowledge of energy efficiency rebates, and none of the participants indicated on the pre-presentation survey that they planned to participate in any utility rebate programs. Nine (50%) of the 18 who answered the post-presentation questionnaire indicated that they “possibly” would sign up for recommended energy efficiency programs and three said they were likely or very likely to do so.

We asked several questions related to the quality of the presentation and the information given. The following bullets show that the program was generally well received.

- All of the participants called the program “useful” with 50% of them calling it “very useful.”
- All of the participants considered the level of complexity of the program material to be good; 83% considered it “easy to understand” and the others “satisfactory.” No one chose the options of “too simplistic,” “confusing,” or “difficult to understand.”
- Very similar results were given for the speaker himself, with 88% calling him “easy to understand” and the others choosing “satisfactory.”
- All of the respondents considered the duration of the event satisfactory. None felt it was either too long or too short.
- When asked how well the speaker answered questions, the average response was 4.1 on a 1-to-5 scale. No one answered “1” and only one person responded with a 2.
- The ability of the SJEEP Program to meet the financial concerns of the businesses received a slightly lower score, 3.3 on a 1-to-5 scale. The majority of respondents gave it a rating of 3, which was labeled “satisfactory” on the questionnaire.
- The attendees indicated a rather strong intent to share the information they learned with business associates. Eight (44%) said “very likely” and 22% said “likely.” All but one of the others said “possibly.”
- On a scale ranging from 1 (“definitely not”) to 5 (“definitely yes”) the average was response was 4.4 when the attendees were asked if the seminar was worth their time.

At the community event we attended, the Manteca Pumpkin Fair, Intergy had a booth providing information about the SJEEP program and about energy efficiency. Participation in these large scale events was designed to reach residential customers and perhaps small business owners who were not otherwise reached by the program. Most of the attendees at the fair seemed generally uninterested in the booth. However, an estimate of 50 to 100 people approached the booths at each of the events and entered into some sort of meaningful conversation about energy efficiency. Although this is a small percentage of the event’s overall attendance, it still represents a significant number of customers reached.

We did observe that some people who did visit the booth appeared confused about the purpose of the Intergy material, with many thinking that Intergy manufactured and/or installed the energy-saving products they were promoting. Perhaps clearer displays, and/or a more prominent association with the PG&E, would have attracted more people who might have been interested in energy efficiency, but not buying products at the fair.

It was observed that many people who did look at the booth recognized the compact fluorescent lamps and some other energy-saving technologies. Many senior citizens commented that they had CFLs in their homes and were pleased with them.

Reasons for Participating/Not Participating

Participants. The reason for given for participation equally represented “save energy” and “save money” with 22% each. “Free service” (13%) and “To learn more about the energy use of my business” (11%) were the other two major reasons given.

Non-Participants. We interviewed 30 businesses that had been contacted by Intergy but chose not to participate in the program. Of these, 19 remembered being contacted by Intergy. Of the 11 that did not initially remember, five remembered after we refreshed their memory about the program.

The following table delineates the reasons for non-participation given by the 24 businesses who remembered being contacted by Intergy about the program. The total number of responses is greater than 24 because seven respondents gave more than one reason.

Reason for Non-Participation	Responses
Not interested	12
No time	8
Didn't know what it was about	8
Already energy-efficient	2
Didn't trust it	2
Renovating	1
Total	33

Lack of interest was the dominant reason given for not participating, with half (12) of the knowledgeable respondents giving it as a reason. Half of these (25% of the total) gave no other reason than “not interested.” One-third of the non-participants included lack of time as a reason, and one-third indicated some sort of lack of understanding of the program.

Interestingly, only two respondents claimed to be energy efficient already. (We made no actual verification as to whether this was true.) Furthermore, when asked separately, only four of the respondents indicated every receiving an energy audit in the past.

Trust also appears only as a minor factor.

The lesson learned from the non-participants appears to be that greater efforts must be made to interest them in the concept of energy efficiency, to make programs non-time-

intrusive for business owners and to convey this fact to them, and to clearly present the program so that everyone understands it.

Training and Material Effectiveness

As discussed above, the participants in the small business workshop reported nearly unanimous satisfaction with the presentation and the presenter. It was reported to be at the right level of complexity and the right length of time. The materials and discussions were considered useful.

The contractor/vendor training was very hands-on, and the vendors and contractors were able to ask specific questions. To some extent this personal connection was enhanced by the low attendance at each seminar.

At the event we observed we did notice that the presenter could not answer some specific questions regarding the utility programs. While it is not reasonable to expect anyone to be able to answer such specific questions on the large array of available programs, it would have been helpful if the presenter had with him reference materials. For example, having applications and guidelines for PG&E's Express Efficiency and SPC programs would have facilitated a specific response to most of the specific questions.

We discussed this situation with Intergy and were informed that PG&E was opposed to any appearance of a direct affiliation or endorsement of the program. Further discussions with Intergy indicate that this problem appears to have been resolved during the course of the program and that PG&E is now more open to such activities as having Intergy hand out information or applications for PG&E's own programs. Several customers suggested that making utility information more readily available would be desirable, so we believe this better connection between Intergy and PG&E will be beneficial in the future.

We reviewed drafts of the various documents, literature, and emails, including the documents presented after an audit is conducted. Our review assessed technical and presentation issues, and comments were provided to Intergy. We found the draft audit presentation to be technically accurate. We prepared a list of specific recommendations that we thought would make the information easier to understand by the customers. We reviewed the some of the actual audit documents sent to customers by Intergy and found that our recommended changes had indeed been incorporated in the audit materials.

During the on-site visits, we brought a copy of an audit and specifically asked customers what they thought of it. Many customers had not read through their audit because they did not have time. We asked these customers if they thought the audit was too long and if it would have helped if it was shorter. They said "No." We were originally concerned that the lengthy nature of the audit booklet would prove to be a major component in getting customers to read it. Discussion with customers did not bear this out. While a one-page report might produce a higher incidence of being read, it would not be able to provide sufficient information. There is little evidence to support our original thought that a tailored 24-page audit would be more likely read than the present 48-page audit.

It does remain a possibility (but an untested hypothesis) that a shorter tailored audit would produce greater implementation among those who did read it. However, this too may be mitigated by the fact that customers appear to have learned the no-cost and very-low-cost behaviors and changes through their personal contact with the auditor himself more so than from reading the audit booklet.

Need for Additional Training

Since actual installations became a minor component of the program, vendor training did not become an observable issue one way or the other.

Discussions with both Intergy staff and vendor participants lead us to believe that Intergy's outreach and attempts to solicit participation of contractors were excellent. However, the contractor/vendor seminars were nonetheless poorly attended. The four seminars had a total of 18 participants. The twenty-five year history of utility energy efficiency programs demonstrates that contractors and vendors are extremely difficult to reach for such training events, and the lack of attendance at Intergy's seminars cannot be attributed to any specific problems in either the seminars or the program's approach.

Since the program exceeded its audit goals, and the vast majority of audit participants indicated that they heard about the program through the auditor's unplanned visit, the participation and awareness of local vendors and contractors regarding the SJEEP does not appear to be a major issue, and additional training seminars would not appear to be a wise investment on Intergy's part.

Correct Use of Efficient Technologies

When the original EM&V plan was developed, the program intended to have a much closer connection to actual equipment installations. As the program evolved, the audits became dominant and hardware installations became negligible. Furthermore, most of the installations that were made were lighting measures. "Correct use" is much more important for measures such as programmable thermostats than it is for lighting. This basic issue – whether the customers used their new technologies correctly – became almost irrelevant for the evaluation of the program as implemented.

Need for Additional Incentives

In the open-ended question asking interviewed participants how the program could be improved, one said “better rebates” and another said “cheaper lighting.” Thus 5% of the participants brought up cost-related issues without them being the direct subject at the time. When asked if the payback period for lighting upgrades seems reasonable, only two-thirds of the responding participants agreed. Six (22%) were neutral, one (4%) disagreed, and two (8%) strongly disagreed.

Nineteen (41%) of the interviewed participants said that they were not planning to install energy-efficient lighting. Of those nineteen, four listed economic factors for not doing so.

Some participants claim that additional incentives would help them participate. However, it is not clear that they actually would do so. Likewise, this group represents a relatively small portion of the people who don’t install efficiency measures. A more important issue seems to be having honest intent followed through by actual activity.

Possible Improvements

The vast majority of participants were happy with their programs and most had no recommendations for possible improvements. The few that did make suggestions were still happy with the program. The recommendations that did come from customer interviews include the following. Our professional comments on the customer’s recommendations are shown in italics:

- Having cost information available in the audit. *Detailed costs for lighting retrofits were provided. While it could be nice to provide similar cost information for other energy efficiency measures, it is also difficult unless the auditor is directly connected with installation contractors, and there is also the difference between do-it-yourself and contractor-installed. We question whether availability of this information would have actually increased installations.*
- Having clear information on how to access utility rebates, including printed material or even the utility forms themselves. *The vast majority of utility program eligibility would have been for Express Efficiency. It could be helpful to hand out Express Efficiency applications during the audit presentation. Having similar information available at the small business seminars would also be helpful. We understand that originally PG&E did not want Intergy to distribute this material directly, but that this problem has since been resolved.*
- Having better rebates. *For some customers this might have helped, though not for all, because financial cost is just one of many reasons for not*

following the audit with retrofit action. Enhanced rebates coupled with turn-key installation signed up for at the presentation of the audit would be far more effective than simply increasing Express Efficiency or other incentive levels.

- *Having cheaper lighting. This is beyond the program's control.*
- *Making an appointment rather than just showing up so they would have had more time to sit down with the auditor. This is more important for the audit presentation visit than the first visit when the audit is conducted. Cold-call walk-ins are probably still the most effective way to conduct audits, though the auditor should be willing to set an appointment and come back if the customer requests it.*
- *Having the auditor follow up with the actual owner of the business. This could be done when setting the appointment to present the audit. It would at least eliminate one hurdle – information not getting to the true decision-maker.*
- *Not auditing newer facilities where the lights are already energy-efficient. We noticed this issue ourselves during the on-site visits. Newer facilities should probably not be excluded if a customer solicits the program, but cold-call walk-in audits should be focused in older facilities.*

Like all audit programs, the primary (and perhaps only) significant problem with the San Joaquin Energy Efficiency Partnership is getting energy-efficiency actions to follow the information. This is more true of hardware retrofits than it is of behavioral changes. Direct installation is the best way to solve this problem. Customers do not follow through with audit recommendations because of cost (not necessarily long-term economic “cost-effectiveness”), lack of time, and/or simple procrastination. Some customers indicated future intent even though a year had already passed with no action taken.

During the course of our site visits and conversations, we encountered an ideal example of this problem. One small business had its lights partially retrofitted through another program.⁴ New T8 lamps and electronic ballasts were installed in most of the fixtures, but the program ran out of money and this customer was one of the last participants, so some lights were left unchanged. The customer is happy with the program and with the new lights. The customer is aware of the energy saving that can be achieved by replacing the rest of his lights, and this was pointed out again in the SJEEP audit. The audit was conducted in November 2004. The on-site visit was in February 2006. The remaining lights have still not been replaced. The customer does not plan to change them, citing cost as the main reason.

⁴The customer actually had reported that it was the SJEEP program that did this, but discussions with Intergy's auditor made us aware that this customer had received the lighting retrofit through another small program shortly before receiving the SJEEP audit.

Although this particular customer cited cost as the main reason, that is not uniformly the case. Direct installation of simple equipment – lights and thermostats – is the best remedy to the lack of follow-through. If it is free, it would address the cost issue entirely. Because it is conducted in a turn-key manner, it addresses most of the time and hassle features. Obviously the business will have some disruption and hassle during the installation, but the decision-maker will not have the hassle of getting bids, negotiating contracts, and managing installation, all of which could easily be placed aside at any of several required steps by a small business owner with a myriad of other things to do. Clearly free direct installation would lead to the most installations. We do not have the ability at this time to assess how much this installation participation would decrease if the customers were required to pay a portion (such as 10%, 25%, or 50%) of the cost.

Lack of physical follow-through with equipment installation does *not* mean that the program does not save energy. Most participants indicated that they learned about energy conservation and efficiency through the process. The heightened awareness was apparent in the interview process. In some cases behavior modifications were apparent. Several of the customers visited on site had significant portions of their lights turned off even though our visits were during business hours. Most of these customers credited the audit with this change in behavior. (In some cases credit was unknown because the person responsible for the audit was not there, but the energy-saving behavior was still observed.)

CONCLUSIONS

1. The program met its goals:
 - a. 624 audits were completed
 - b. 8 small business seminars were conducted with 150 total attendance
 - c. 4 vendor seminars were conducted with 18 total attendance
 - d. Booths or tables were hosted at 6 city or regional events with an estimated total attendance of 220,400
 - e. 4 mass emails were sent to 125,089 total recipients, with 22,279 “opens.”
 - f. 4 sets of small business, residential, and Spanish brochures were printed, with a total print of 226,053.
2. Customers were overwhelming satisfied with their participation, with the program, with the information presented, and with the people they met.
3. The program saves energy because customers learned about energy efficiency from the program and several implemented behavioral changes.
4. The program saves energy because some customers installed energy-efficient equipment because of their participation.
5. Vendor interest is difficult to instill.
6. Small seminars such as chamber of commerce meetings are more productive than large events not focused on energy conservation.
7. There still are significant numbers of small businesses with outdated lighting (and other) technology. Increasing the amount of direct installation would significantly increase the retrofit levels and thus increase direct and measurable energy savings.
8. Continuing the program in San Joaquin County would continue to foster awareness and action in that area. Expanding to another similar area would be beneficial as well.