Government Partnership: Measuring Indirect Impacts on the Community

Luisa M. Freeman, PA Consulting Group, Inc.
Kevin Cooney, Summit Blue Consulting, LLC
Jean Lamming, California Public Utilities Commission Energy Division
Nick Hall, TecMarket Works, Inc.
Bryan Ward, PA Consulting Group, Inc.
Floyd Keneipp, Summit Blue Consulting, LLC

ABSTRACT

The California Public Utilities Commission (CPUC) recognizes the special role that local governments and community organizations can play in encouraging adoption of energy efficient practices and technologies. To that aim, a Government Partnerships (GP) contract group was formed with funding from the California State Public Goods Surcharge (PGS) mechanism. Partnership concepts were solicited for the 2006–2008 funding cycle from California investor-owned utilities (IOUs) and local government, state agency and community based groups for the purpose of achieving energy savings and peak demand reduction. Each of the four investor-owned utilities participating in the PGS[1] were encouraged to submit GP programs that combined would achieve cost effective energy savings and demand reduction.

This paper discusses the evaluation approach being taken to estimate impacts from indirect program activities, and special challenges associated with investigating such a diverse set of services implemented by the various stakeholders. The full Evaluation Plan is cited in the references.[2] The data collection phase is starting in second quarter 2008. The paper therefore discusses findings regarding the initial investigations into the non-resource elements of the 56 government partnerships being implemented in the state of California by PG&E, SCE, SCG and SDG&E, and their implications for impact evaluation.

Introduction

There is increased interest in the role that communities can play in addressing energy challenges both locally and at the utility or state level. How much can they contribute to energy efficiency resource acquisition goals by tapping into the potential for energy savings and demand reduction in government facilities and in the homes and businesses that local governments represent? Local government partnerships have been formed between utilities and local entities to address this question. These partnerships defy easy definition in that they can include many features and types of partnership arrangements. Even so, a few central characteristics apply to all of these programs. (1) all California PGS funded partnerships involve joint implementation by a government or community level organization (e.g., local government departments, state agencies and community-based non-profit organizations) and one or more of the four major investor owned utilities (PG&E, SCE, SCG and SDG&E), (2) they provide a range of energy efficiency information and services and (3) they seek some combination of direct and indirect energy savings and demand reduction impacts.

This paper describes the complexity of the partnership program services offered and the challenges involved in measuring their impacts, with special emphasis on those activities that result in behavioral changes—*indirect impacts*—that are a part of virtually all of these community based programs.

Central Research Questions

The study team launched the GP evaluation project in September 2007 and developed a detailed Evaluation Plan, which was posted for public comment in December 2007, reviewed with IOU program staff and other stakeholders in January 2008, and finalized in February 2008. This initial period focused on a review of available program data, and interviews with utility and partner program managers in order to catalogue the activities carried out through the various GP programs. As part of this process the research team evaluated activities that produce both direct and indirect impacts. Direct impacts are those that can be attributed to energy saving and demand reduction activities. Indirect impacts are those that may be attributed to activities that encourage behavioral changes (non-resource activities). It is this latter group of activities that are the focus of this paper.

This investigation addresses the following research questions:

1. What indirect services are offered and how are they different from similar energy efficiency services offered directly by utility programs?
2. What indirect impacts are evident and what energy savings are they contributing, if any?
3. What are the challenges to evaluating these programs and how are these challenges being addressed in this study?
4. What preliminary outcomes can be shared to inform program planners interested in future community level partnership programs?

The next four sections address the four questions posed above. The paper concludes with an update and some thoughts regarding the CPUC evolving emphasis on delivering energy efficiency services through government partnerships.

What Indirect Impacts Are Evident and What Energy Savings Are They Contributing?

In order to address this question, it is first important to understand the scope of the evaluation of the local government partnership programs. There are 56 individual partnership programs that are covered by the evaluation. Table 1 lists the individual partnership programs by IOU, program name, and filed program number. Some programs have multiple utility partners, so the discrete list of partnerships is slightly smaller than 56, however the CPUC directed evaluation is required to provide results for each program for each utility. Descriptions of these programs can be found on the CPUC website (3).

Table 1. Programs Covered in the GP Evaluation Plan

Utility	Program ID	Program Name (do not use abbreviations)
PG&E	PGE2015	Association of Bay Area Governments (ABAG) Energy Watch
PG&E	PGE2016	Association of Monterey Bay Area Governments (AMBAG) Energy Watch
PG&E	PGE2017	Bakersfield and Kern County Energy Watch
PG&E	PGE2018	California Community Colleges/IOU Energy Efficiency Partnership
PG&E	PGE2019	California Department of Corrections and Rehabilitations/IOU Energy Partnership
PG&E	PGE2020	East Bay Energy Watch (EBEW)
PG&E	PGE2021	Fresno Energy Watch (FEW)
PG&E	PGE2023	Local Government Energy Action Resources (LGEAR)
PG&E	PGE2024	Madera Energy Watch
PG&E	PGE2025	Marin County Energy Watch
PG&E	PGE2026	Merced/Atwater Energy Watch
PG&E	PGE2027	Motherlode Energy Watch
PG&E	PGE2028	Redwood Coast Energy Watch
PG&E	PGE2029	San Francisco Energy Watch (SFEW)
PG&E	PGE2030	South San Joaquin (SSJ) Energy Watch
PG&E	PGE2031	Santa Barbara County Energy Watch
PG&E	PGE2033	Stockton Energy Watch
PG&E	PGE2034	Silicon Valley Energy Watch (SVEW)
PG&E	PGE2035	Silicon Valley Leadership Group Energy Watch
PG&E	PGE2036	UC/CSU/IOU Energy Efficiency Partnership
PG&E	PGE2088	Dept. of Genl Services, State-leased Facilities
SCE	SCE2518	Local Government Energy Action Resources
SCE	SCE2519	Ventura County Partnership
SCE	SCE2520	South Bay Partnership
SCE	SCE2521	Bakersfield and Kern County Partnership
SCE	SCE2522	Santa Barbara Partnership
SCE	SCE2523	Community Energy Partnership (Non-Resource)
SCE	SCE2524	Community Energy Partnership (Resource)
SCE	SCE2525	San Gabriel Valley EE Partnership Program
SCE	SCE2526	California Community Colleges
SCE	SCE2527	California Department of Corrections and Rehabilitation
SCE	SCE2528	SCE-SCG County of Los Angeles Partnership
SCE	SCE2529	County of Riverside Partnership
SCE	SCE2530	UC-CSU-PG&E-SCE-SCG-SDG&E Partnership
SCE	SCE2566	Palm Desert Partnership
SCE	SCE2567	Mammoth Lakes Partnership
SCE	SCE2568	Ridgecrest Partnership
SCE	SCE2569	Department of General Services Partnership. Also, PGE2088.
SCG	SCG3516	SCD4-Sustainable Communities Demo/City of Santa Monica
SCG	SCG3518	CCP4-IOU/Community College Partnership
SCG	SCG3519	CDC4-CA Department of Corrections Partnership
SCG	SCG3520	UCP4-IOU/UC/CSU Partnership
SCG	SCG3521	VCP4-Ventura County Partnership
SCG	SCG3522	SBP4-South Bay Partnership
SCG	SCG3523	BKP4-Bakersfield Kern Partnership
SCG	SCG3524	EC5-Energy Coalition – Peak
SCG	SCG3527	LAP4-Los Angeles County partnership
SCG	SCG3533	3P Alliance Partners Program
SCG	SCG3543	Palm Desert Partnership Demonstration Project. Also SCE2566
SDG&E	SDGE3001	CCP-IOU/Community College Partnership
SDG&E	SDGE3002	CCV-City of Chula Vista Partnership
SDG&E	SDGE3003	CDC-CA Department of Corrections Partnership
SDG&E	SDGE3005	CSD-City of San Diego Partnership
SDG&E	SDGE3022	SDP-County of San Diego Partnership
SDG&E	SDGE3023	SDW-San Diego Co. Water Authority Partnership
SDG&E	SDGE3026	UCP-IOU/UC/CSU Partnership

Source: Government Partnerships Programs Indirect and Direct Impact Evaluation, Summit Blue Consulting, February 29, 2008

The 56 programs were reviewed by the evaluation team to determine the specific elements of program services that may result in indirect energy savings impacts through behavioral changes. Table 2 shows the types of activities identified and describes the program theory behind each element, its goals, and the performance metrics that are being used to measure impacts.

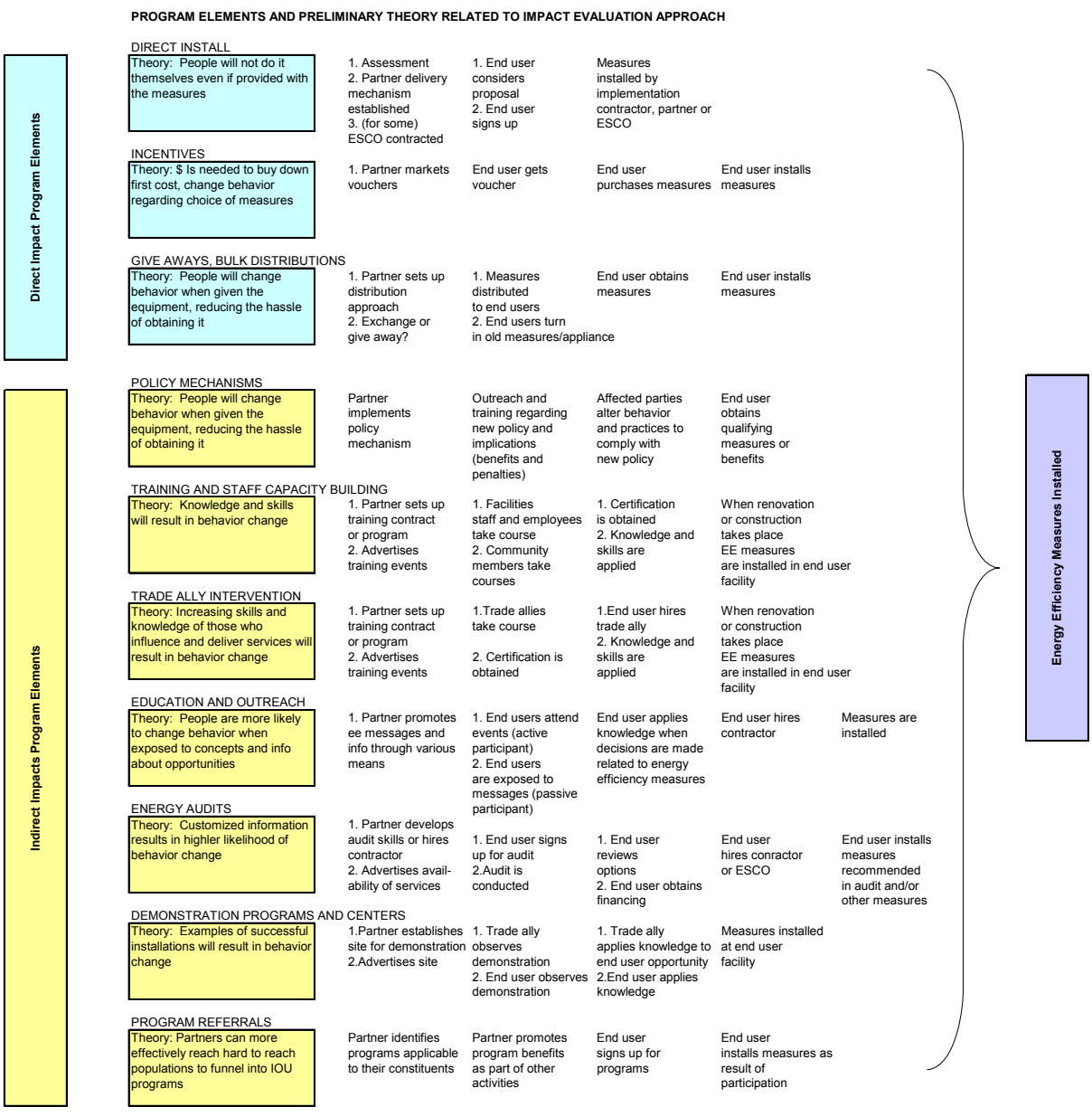
Table 2. Government Partnership Program Elements that Result in Indirect Impacts

Program Activities	Program Theory	Goals	Performance Metrics
Policy Mechanisms (including codes and standards, other legislative and regulatory approaches)	Activity will overcome lack of or competing, potentially inconsistent policies on energy efficiency	Provide information on new policy and implications (e.g., benefits and penalties) to change behavior and practices	Affected parties will alter behavior and practices to comply with new policy
Education, Training, Outreach – Staff	Increasing skills and knowledge of key staff will build internal capacity to affect behavior change	Training established and delivered to key staff to change behavior	Training participants will apply acquired knowledge and skills
Education, Training, Outreach – Trade Allies	Increasing skills and knowledge of those who influence and deliver services will result in behavior change. Activity will overcome contractor reluctance to recommend energy efficiency alternatives.	Training established and delivered to trade allies to change behavior affecting what is installed at end-user facility	Training participants will apply acquired knowledge and skills. Increase in proportion of participating trade ally proposals including EE recommendations Increase in rate of EE equipment installations
Education, Training, Outreach – End-users	People are more likely to change behavior when exposed to concepts and info about opportunities	Partner promotes energy efficiency means through various means to change behavior	End user applies knowledge when decisions are made regarding energy efficiency measures
Energy Audits	Customized information results in higher likelihood of behavior change	Audits are conducted of end-user facilities to identify energy efficiency opportunities	Increase in installed measures recommended in the audit
Demonstration Projects and Centers	Examples of successful installations will result in behavior change. Activity will overcome lack of knowledge of EE possibilities and methods	Increase knowledge of possible energy reductions and methods for reducing energy use	Knowledge is applied at end-user facility
Program Referrals	Partners can more effectively reach hard to reach populations to funnel into IOU programs. Activity will overcome program participation barriers	Partner identifies and promotes programs applicable to its constituents	End-user signs up for program and installs measures as a result of participation

Figure 1 describes these indirect impact program elements in the context of all types of program activities being evaluated. The program elements in blue result in direct energy savings impacts, and in yellow have the potential for indirect energy savings impacts.

The first column to the left describes the program element in terms of the barrier it is attempting to overcome, identified as the program theory. The second through fourth columns are the sequential steps that take place to achieve the desired behavioral change. The first column generally refers to actions of the partners or sponsoring organizations. The second involves the target audience for the first time—whether trade allies, other market actors or direct end users. The third through fourth columns represent the behavioral changes in terms of actions taken to arrive at actual energy impacts. These last three columns vary depending upon how passive or active the approach is for each program element.

Figure 1. Indirect Impacts Program Elements



This figure shows the assumptions associated with how each type of program elements results in energy savings. This theory and the program assumptions form the basis for the evaluation approach being pursued to estimate savings associated with each indirect activity by the evaluation team.

How Are these Services Different from Similar Energy Efficiency Services Offered Directly by Utility Programs?

All of the types of activities considered as delivering (or capable of delivering) indirect energy savings are fairly common in energy efficiency programs delivered directly by utilities (i.e., without local government partners). Specific examples include educational workshops, trade ally trainings, and energy audits that are common features of residential and non-residential utility programs. The differences in these services under the GP model build on the unique capabilities inherent in local governments that are not typical at utilities. These unique characteristics are (1) The entity delivering the service is local—either a department of the local government, or third party organization (regional council of government, community based non-profit organization), or may be local government staff, and (2) The target market is local—typically extends to the immediate geographic reach of the local government jurisdiction or partner (in the case of a community based group)

Due to the local nature of these partnerships, the Energy Division and the study team is working under the presumption that local governments and community level entities have both **relationships** and unique **mechanisms** that can be leveraged to more effectively reach and influence end use customers than do broader-based utility programs. Special relationships refer to the forms of communication and access points that local governments have to their citizens and the business community, as well as to decision-makers that manage local government and school properties and facilities. Local government mechanisms that influence energy use include building codes, inspections, policies regarding purchasing of equipment, etc. They may also include relationships with specific hard-to-reach members of the community through cultural resource centers aimed at minority populations, or relationships with the local chamber of commerce or neighborhood business associations. These are unique characteristics to local government and community-based programs and are not typically available to traditional utility based programs.

What Are the Challenges To Evaluating these Programs and How Are These Challenges Being Addressed in this Study?

There are many challenges associated with evaluating a large group of heterogeneous programs. Among the 56 programs, the evaluation team estimates that there are 265 discrete types of activities that result in either direct or indirect energy savings. Major challenges stem from the fact that partner program providers did not institute method so track and evaluate the effectiveness of their programs, thus making after-the-fact evaluation much more difficult. The primary challenges involved in evaluating the direct impacts of these programs include:

Lack of Comprehensive Enumeration and Definition of the Types of Activities Conducted in each Partnership Program

The utilities involved in the partnership programs have not consistently maintained complete or consistent records as to the types and numbers of activities that have been or are being implemented through the programs. This is particularly true for outreach and education activities. As a result, the research team spent significant time recreating and categorizing records for the purpose of evaluating them.

Difficulty In Defining Participants and the Limited and/or Incomplete Lists of Participants

With many GP activities that may result in behavioral changes that lead to indirect energy savings, there is no clearly defined participant. For example, attendees of a local Home Show or Earth day event associated with a GP program might be exposed to information and educational materials and even measures, but may not sign up or otherwise identify or perceive themselves as participants. In other cases, some programs that do have participant lists may not have captured contact information to facilitate follow up data collection, or (more commonly) may not have captured this information electronically or in a consistent manner.

Lack of Branding such that Participants Might Recall Having Received Services or Information from a Local Government Partnership Program

The GP programs tend to not be identified as "programs" or have visible branding that a participant might recall. Therefore, even when lists exist, respondents to a telephone survey may not associate their involvement in an activity or attendance of an event with a specific local government partnership (i.e., one of the 56 discrete programs listed in Table 1). Attributing energy savings to a specific program presents a challenge.

Measuring the GP Programs' Effects on Funneling Customers into Other Programs

A key objective of many of the programs is to actively market the availability of other incentives and programs that are offered by the utilities. The utilities do not consistently track account numbers (or other such discrete information) of customers that have been exposed to such information through a GP program and who later appear on the participant lists of other 'feeder' programs.

How Is the Evaluation Dealing with these Challenges?

First, to address the large number and range of activities associated with potential indirect impacts, the team has developed a prioritization scheme that will cull the list of 263 program elements (see table below) into those that have the highest likelihood of revealing energy savings, and have the necessary data to support their measurement. The criteria being examined are:

- Number of activities conducted
- Potential scope of influence

- Number of (recorded) participants
- Likelihood of near term savings
- Likelihood of long term savings
- Budget associated with non-resource program elements
- Target achieved
- "Evaluability" (the extent to which adequate data are available to evaluate the program)
- Planning interest

The nature of participants is still being defined for each program, but is entirely dependent on the availability of contact lists. The data collection approach for each type of program element is shown below in Table 3, with the estimated number of programs with those elements. Fulfillment of these plans is contingent upon identification of participant lists, a process now being completed with the various utilities.

Table 3: Data Collection Approach by Element Assuming Participant Lists

Program Elements Resulting in Indirect Impacts	Number of Programs with these Elements	Evaluation Data Collection Methodology for Measuring Indirect Impacts
Education, Training and Information	51	Telephone surveys with participants, includes augmented samples on indirect programs.
Facilitation/Coordination	18	In depth interview with key IOU and partner staffs, includes augmented sample on indirect impact evaluations
Market Transformation	2	Covered in market effects evaluation
Audits	30	Telephone interviews with audit recipients
Demonstration	5	Census in depth interview
Program referrals	21	Covered in Education / Information interviews and installation
Design Assistance	14	Census in depth interview
Codes and Standards	11	In depth interview with key IOU, partner staffs, and end use customer interviews

What Preliminary Outcomes Can Be Shared To Help Inform Program Planners Interested in Future Community Level Partnership Programs?

Since the evaluation has just begun the data collection phase at the time of writing, there are very limited preliminary outcomes available at the time of the drafting of this paper. Preliminary results that have been vetted through the CPUC review process and will be shared at the ACEEE summer study meetings in August.

The most critical early recommendation that was made to program managers and planners relates to the need to incorporate adequate program tracking systems to capture both direct and indirect activities. This is necessary to enable the critical and potentially significant energy savings impacts of the non-resource program elements to be measured. The question is – what indirect energy savings impacts may be resulting from behavioral changes that are taking place above and beyond those that involve direct measure installations or incentives? The ability of evaluators to measure indirect impacts is entirely dependent upon the existence of clear documentation as to what program activities have taken place, to what market audiences or segments, with what behavioral changes and measures encouraged, and resulting in what specific lists of participants. This level of data tracking is sometimes neglected for programs that do not

result in direct installation of measures, yet the absence of such tracking may be undercounting energy savings attributable to such activities. This single recommendation has been the most critical finding of the evaluation team during this early phase of the investigation. Significant direction and data tracking recommendations have been provided to the utilities during this phase. It is anticipated that subsequent program cycles will allow for more complete prioritization and evaluation of the indirect impacts of these important programs.

References and Notes

[1] Public Goods Surcharge, a fee levied on all electricity and gas sales of participating utilities for the purpose of funding energy efficiency and demand reduction programs in the State of California.

[2] Government Partnerships Programs Indirect and Direct Impact Evaluation Plan; Summit Blue Consulting, PA Consulting Group, Inc., ECONorthwest, Science Applications International Corporation, ADM Associates, Inc., SBW Consulting, Inc., Robert Thomas Brown Company and Strategic Energy Technologies, Inc For the California Public Utilities Commission, Energy Division, February 29, 2008.

[3] Updated program status reports can be viewed at the CPUC's official program reporting website: http://eega2006.cpuc.ca.gov/ Utilities post reports monthly and quarterly.