1999 STATE-LEVEL SMALL/MEDIUM NONRESIDENTIAL MA&E STUDY

PHASE I REPORT

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EXECUTIVE SUMMARY

E.1 INTRODUCTION AND SCOPE

This report is the Phase I report of the *1999 State-Level Small/Medium Nonresidential Study* (hereafter "Small/Medium Nonresidential Study"). A Phase II report will be prepared in early 2000. The scope of this Phase I report was driven around the PY2000/20001 planning cycle. Program plans for 2000/2001 were developed in August 1999 and filed in late September 1999.

To produce this Phase I report in time to support this planning process, the scope of research activities was limited to tasks that could be conducted within one month. These tasks included conducting focus groups with contractors, interviewing energy-efficiency service providers (EESPs) and utility program managers, and synthesizing information on the small/medium nonresidential market from four recently completed market assessment and evaluation (MA&E) studies. In Phase II of the project, a variety of more quantitative data collection and analysis activities will be conducted in the Fall/Winter of 1999.

E.2 SUMMARY OF SMALL/MEDIUM NONRESIDENTIAL MARKET CONDITIONS

E.2.1 The Small Nonresidential Customer Market

- There are roughly three-quarters of a million small/medium (<500 kW) nonresidential customers statewide.[1]
- Opportunities for high-efficiency products occur through distinct market events, including replacement on burnout, remodeling and renovation, and retrofits.
- Despite positive attitudes toward energy efficiency most customers have not implemented even the most common efficiency upgrades. Thus, similar to the residential market, there appears to be only a weak correlation between efficiency related *attitudes* and *behaviors*.
- This market has been largely under-served by previous efficiency programs.

E.2.2 Significant Barriers Impede Small/Medium Customer Efficiency Upgrades

- Relative to their other business and operating expense priorities, these customers often don't consider energy costs to be a significant concern and consider energy costs to be "fixed" rather than variable.

[1] Note that we use the term "statewide" in this report to refer to the combined service territories of Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG).

- These customers lack the expertise, staff, experience, time, and other resources to assess energy-efficiency opportunities comprehensively and confidently.
- Many of these customers are confused about what programs currently are available and their differences and advantages.
- Most of these customers lease their space, and they and their building owners believe that they are unlikely to capture the benefits of efficiency upgrades.
- These customers are skeptical of the information provided by possible service providers.

E.2.3 Trade Allies Play a Crucial Role in the Small/Medium Market

- Contractors are the market actor that most often serve the equipment replacement, maintenance, and specification needs of small customers.
- Contractors usually specialize in providing certain products and services. Most are limited in their ability to provide comprehensive energy analyses for customers.
- Currently, contractors generally have only limited awareness of energy-efficiency programs. This was not the case in the mid-1990s.
- Energy service companies (ESCOs) offer a broad spectrum of services, including energy analyses, and many are aware of energy-efficiency programs. However, most target large customers and chains.

E.2.4 Providing Efficiency Services to Small/Medium Customers Is a Challenge

- Because of small customer bills, the absolute value of efficiency-related savings is small. To sell high-efficiency products, providers have to overcome customer lack of awareness, split incentives, concerns about first-cost and performance, and skepticism.
- As a result of the two conditions above, the marketing, sales, and contracting costs of EESPs are high relative to the prospective savings, thereby limiting prospects for profits.
- Contractors, who specialize in providing basic equipment sales and services, find it costly to learn the needs of small customers adequately and to provide the hand-holding required to recommend and implement efficiency improvements.

E.2.5 Current Programs Pose Opportunities and Difficulties for Service Providers

- Contractors tend to favor rebate programs to help them sell efficiency upgrades. Contractors also believe audits have the potential to create demand for higher efficiency products, but do not see strong links to their businesses.
- Some EESPs prefer the Small Standard Performance Contract (SPC) program to rebates in concept, but maintain that the incentives are not large enough to entice them into the small/medium market.

- Many providers are unaware of or confused about what programs exist, how they are linked, and what the connections are to prior programs.
- Understanding the Small SPC measurement and verification (M&V) requirements and accepting the risk of energy savings shortfalls and cash-flow delays are formidable problems for contractors.
- Lingering perceptions of SPC complexity and resource demands on suppliers present serious barriers to participation.

E.2.6 Utilities Face Special Challenges As Their Role Changes

- 1999 funding levels are small in comparison with the size of the small/medium nonresidential market and may be low relative to this market's public goods charge (PGC) contribution.
- Utilities have occupied a central role in the past offering a range of services to customers who generally found the utility services very useful and dependable. However, pre-1998 regulatory rules often led to purposefully distinct separation between audits and rebates. Recent uncertainties about the current and eventual roles of utilities have disrupted program implementation and reduced linkages, coordination, and effectiveness.
- Startup delays, funding levels, concerns based on previous regulatory rules, and uncertainty over current rules and goals make it difficult for utilities to implement these programs effectively as an integrated portfolio in PY1999.

E.3 RECOMMENDATIONS

At this stage of our research on the small/medium market, we offer the following recommendations as ideas and suggestions for consideration. We recognize that the small/medium market has only recently been broken out as a separate programmatic area. As such, policy goals are still evolving for this market. Thus, the recommendations below are thematic; specific ideas are presented under each theme in Section 3:

1. ***Convey a simple mass market message.*** The small/medium nonresidential market is a mass market with roughly ¾ of a million firms. A high-level communication strategy is therefore needed. Consideration should be given to creating a single, clear name or brand under which all interventions are marketed. A mass communication strategy should be considered that conveys the entire portfolio of interventions under a single name.
2. ***Minimize the hassle (actual and perceived) of program participation***. The extent to which programs in the small/medium nonresidential market minimize versus increase the effort required to participate in them appears to be a litmus test of their likelihood of success. All of the research conducted to date indicates that interventions directed at the small/medium market must minimize hassle costs. This applies to interventions directed at both end users and supply-side actors (particularly, contractors).

3. ***Help customers move from intent to action***. In cases where energy-efficiency retrofit opportunities are identified, either by trade allies, utility audits, or customers themselves, small customers need help moving through the stages that end in project implementation. Improved linkages should be made between program activities that prospect for efficiency opportunities and activities that lead to the implementation of those opportunities. A crucial need is ways to link "warm lead" customers with qualified suppliers.
4. ***Set clear, high-level policy objectives***. The small/medium nonresidential market is characterized by a set of difficult to overcome market barriers and a diverse set of customers. To the extent that market transformation is a policy goal for this group, it should be recognized that such transformation will not occur quickly (specifically, not within the 1999 - 2001 transition period). Consideration should be given to setting both strategic, medium- to long-term goals and short-term, tactical objectives that take into account important differences between customer groups within the <500 kW market.

1 INTRODUCTION AND PROGRAM OVERVIEW

1.1 INTRODUCTION AND SCOPE

This section describes the overall purpose and scope of this study and presents brief descriptions of the programs studied. The *1999 State-Level Small/Medium Nonresidential Study* (hereafter "Small/Medium Nonresidential Study") includes two phases of analysis and reporting. This report represents the Phase I activities. A Phase II report will be prepared in early 2000.

The overall Small/Medium Nonresidential Study consists of three primary components: 1) an assessment of the baseline characteristics of the current market for the small nonresidential sector programs, as well as any other types of energy efficiency products and services which early analysis suggests may be significantly affected by the programs; 2) a broadly focused process evaluation of a) the Small Standard Performance Contract (SPC) program and b) the utility incentive programs (the statewide Express Efficiency program) to assess their effectiveness at reaching and influencing the target market sector; and 3) development of a regular market tracking system for the small nonresidential customer segment. These three overall components of the research are expected to draw on many of the same data sources and to be closely linked.

The scope of this Phase I report was driven around the PY2000/20001 planning cycle. Plans for 2000/2001 are being developed in August 1999 and will be filed in late September 1999. To produce this Phase I report in time to support this planning process, the scope of research activities was limited to tasks that could be conducted within one month (see Section 1.2).

Section 2 of this report presents the major findings from this phase of the Small/Medium Nonresidential Study. Section 3 presents the key implications drawn from the information and data and offers our suggestions and recommendations on how to improve these programs. Supporting information is presented in four appendixes. Appendix A lists the utility program staff who participated in meetings and interviews that we conducted. Appendix B contains the focus group guide and a memorandum summarizing the findings of four contractor focus groups conducted as part of this study. Appendix C presents a synthesis of information from our literature review to characterize small/medium nonresidential customers. Appendix D summarizes information obtained from interviews we conducted with ESCO/EESP representatives.

1.2 RESEARCH ACTIVITIES FOR PHASE I REPORT

This report was prepared based on data and information collected through several focused activities. In Phase II of the project, a variety of more in-depth data collection and analysis activities will be conducted in the fall of 1999.

The specific activities conducted to prepare the Phase I report included the following:

- **Group interviews with key utility staff** (see Appendix A for a list of participants)
  - ⇒ On-site group interviews were conducted with three of the four utilities; one group interview was conducted by conference call.
  - ⇒ Follow-up telephone calls and email exchanges were used to verify collected information and expand on key points.
  - ⇒ Information was obtained on details of utility Express Efficiency, SPC, and audit programs.
  - ⇒ Program successes, problem areas, and potential improvements were documented.
- **Contractor focus groups** (see Appendix B for the interview guide and summary)
  - ⇒ A focus group moderator's guide was prepared that covered characteristics of the small/medium customer market, program awareness and participation, contractor practices, and energy-efficiency issues.
  - ⇒ One lighting contractor focus group was conducted in Berkeley and one in Riverside.
  - ⇒ One HVAC contractor focus group was conducted in Berkeley and one in Riverside.
- **ESCO/EESP interviews** (see Appendix D for a summary)
  - ⇒ An interview guide was prepared that covered awareness, participation, and strengths and weaknesses of the existing programs.
  - ⇒ Ten ESCO/EESP representatives were interviewed by telephone.
- **Literature review** (see Appendix C for a thorough summary)
  - ⇒ Four recent studies of the California market were reviewed.
  - ⇒ Relevant information about the small/medium nonresidential customer market was extracted and summarized.
  - ⇒ Information on customer characteristics and experiences with the SPC and Express Efficiency Programs was emphasized.

1.3 OVERVIEW OF THE 1999 SMALL/MEDIUM NONRESIDENTIAL PROGRAMS

As noted above, the principal program interventions that are included in the scope of the Small/Medium Nonresidential Study are the Small SPC and Express Efficiency incentive programs. We also include the utilities' energy audit programs within the scope of this Phase I report. The Small SPC program was implemented for the first time in 1999. It was created during the PY1999 planning process in order to increase the participation of smaller customers in

the overall SPC program.[1] The Small SPC program is being implemented on a statewide basis by Pacific Gas and Electric (PG&E), Southern California Edison, (SCE), and San Diego Gas and Electric (SDG&E). As part of the move toward consistent, statewide programs, the Express Efficiency program was also implemented on a statewide basis for the first time in 1999 (this statewide program was modeled on PG&E's 1998 Express Efficiency Program). Express Efficiency is being implemented by each of the three electric utilities plus Southern California Gas (SCG). In addition to these incentive programs, each of the utilities offers energy audits to nonresidential customers with less than 500 kW in demand. Different but similar auditing strategies are pursued by each utility separately (there are various combinations of on-site, mail, and telephone audits). A summary of the 1999 budgets by program and utility is presented in Table 1-1 below.

Table 1-1
Summary of 1999 Program Budgets, $ Million

Utility	Express	Small SPC	Energy Management Services***	Total
PG&E	8.3*	5.7	3.2	17.2
SCE	2.0	2.5	2.9	7.4
SDG&E	2.4*	1.6	0.6	4.6
SCG	0.3**	N/A	2.9	3.2
Total	13.0	9.8	9.6	33.4

* Includes Upstream Incentives to HVAC and Motor distributors.

** Express is an element of SCG"s Small Nonres Comprehensive Retrofit (SNRCR,) these dollars reflect the goal of monies to distribute.

*** EMS programs consist primarily, but not exclusively, of energy audits.

1.3.1 1999 Express Efficiency Program

Express Efficiency is a statewide rebate program targeted to high-efficiency measures among <500 kW businesses. The Express Efficiency Program has been available to PG&E's nonresidential customers in one form or another for almost 10 years. Each of the other utilities has had nonresidential rebate programs in some form or another for most of the past 10 years as well. The statewide 1999 Express Efficiency Program is similar to PG&E's former Retrofit Express Program except that it was designed to encourage market transformation and includes two upstream components (HVAC and Motors, although SCE did not include upstream components in 1999). Under the 1999 Express Efficiency Program small/medium businesses can receive rebates for a number of high-efficiency HVAC, lighting, refrigeration, and other measures. Rebates are paid to customers generally within 1 month of completed installation

[1] This was in response to the fact that there were few small customer participants in the 1998 Nonresidential SPC program (see *Evaluation of the 1998 NSPC Program, Final Report*, prepared by XENERGY Inc. for the California Board for Energy Efficiency and Southern California Edison Company, June 1999).

paperwork. Payment is subject to utility verification of appropriate installation, at the utility's discretion. Examples of HVAC and lighting rebates are provided in Table 1-2.

Table 1-2
Selected Electric Express Efficiency Rebate Levels

HVAC and Refrigeration	Lighting
$36/HP for variable-frequency HVAC fan drives	$2.75-$5.00 per screw-in CFL lamp depending on wattage
$7 per time clock	$7.25-$14.50 per hardwired fluorescent fixture depending on wattage and existing incandescent vs. mercury vapor
$12 per setback programmable thermostat	$1.75 per lamp-controlled, Non-dimming electronic ballast
$.45 per square foot for reflective window film	$10 per lamp-controlled, dimming electronic ballast with daylighting
$70 per ton for evaporative coolers	$1.50 per 2-foot T8/T5 lamp installed and $.75 per delamp, up to $7.50 per 8-foot T8/T5 lamp installed, $2 per delamp
$25 per linear foot for glass/acrylic refrigerator doors	$18-32 per fixture for internal HID, depending on wattage and incandescent vs. mercury vapor
$40-45 per linear foot for new refrigeration case with doors	$7.50 to $20 per occupancy sensor depending on which type
$25 per linear foot for low/no-heat refrigeration case doors	$3.50 per exit sign retrofit and $10.75 per LED exit sign
$40 per auto-closer for coolers/freezers	$7.25 per time clock
For CACs, the incentive is $50 per ton, paid to distributors (PG&E and SDG&E only)	$2.75 per photocell

1.3.2 1999 Small Nonresidential Standard Performance Contract Program

The Small SPC is also a statewide program. Under the Program, third-party project sponsors (including contractors) are paid for measured, verified savings, based on a fixed schedule for verified savings amounts. End users cannot self-sponsor projects. A standard contract between the program administrator (utilities) and third-party sponsors specifies incentives, performance measurement and verification (M&V) options and protocols, payment terms, and other operating rules. Measures must have a useful life of at least 3 years, and save 20,000 to 200,000 kWh/year (or 2,000-20,000 therms/year). Third-party participants submit applications that may or may not be accepted, depending on adherence to program requirements, including detailed justification for expected savings.

M&V options exist, and an M&V plan must be submitted to the utility. Verification of installation is an option for lighting projects; short-term or continuous monitoring is preferred for non-lighting projects. In either case, equipment loads and operating hours are subject to verification. Computer modeling based on changes in customer billing data also is an option, as is computer-based building simulation of savings. Sponsors are responsible for M&V.

Incentives are paid to project sponsors, with 40% after installation and 60% after one year, based on verified savings. One component of the project sponsor incentive is a fixed "participation incentive" of $1,000 for lighting projects and $2,500 for HVAC projects. The second component of the project sponsor incentive is based on verified savings—$0.055/kWh for lighting, and $0.185/kWh for HVAC/R ($0.09/kWh for HVAC fan motors).

1.3.3 1999 Nonresidential Energy Audits

As mentioned previously, utilities currently employ one or more of the following auditing approaches: a) in-person, on-site; b) mail-out/mail-back "do-it-yourself" (DIY) audits; and c) telephone audits. PG&E employs all three approaches; SCE conducts both DIY and on-site audits; and SCG and SDG&E conduct only on-sites.

PG&E

PG&E conducts three types of nonresidential audits:

- Business Edge (DIY)
- Phone survey audits
- On-site audits

In 1999 Business Edge will mail 50,500 direct solicitations and anticipates 3,000 responses. The mailing is targeted to certain SIC codes and rates. The phone survey program has a goal of 1,500 completes. The survey is done over the phone, and then it is mailed to the customer. PG&E uses it with customers on the A-1, A-6, and A-10 rate schedules. In addition to the telephone survey, PG&E is working on an enhancement to the BEST software that will be applied to on-site audits. PG&E has a goal of 1,000 on-site audits using BEST software, concentrating on agricultural and industry accounts (A10 and E19V rate schedules). There are about 15 field offices, with an average of 3 reps at each, for a total about 45 to 55 reps. A few reps do audits full time, but most do not. PG&E used to have audit specialists who targeted particular markets, but this is no longer the case.

SCE

SCE's 1999 goal is to conduct 2,000 small business DIY audits. SCE sent out 40,000 mailers in mid-April. The target response rate was 5% in 1998-99 and they have achieved 4-5% in 1999 so far. SCE studied results from their November 1998 DIY mailing and chose SIC codes to target in 1999 based on the best response rates. SCE tries to use all SCE venues that touch the customer to promote audits: telephone surveys, newspaper ads, customer reps, field service organizations, mailings. Field offices do some on-site audits, but not on a full-time basis as they have many additional responsibilities. At one time SCE had more than 250 auditors, but they are currently limited to approximately six.

SCG

Several SCG small nonresidential programs include on-site audits. SCG uses service technicians, account executives, and other personnel to do audits. Audits are generated in several ways: sometimes customers request an audit; other times utility personnel offer audits when visiting customers for another reason; account executives also try to visit customers fairly regularly (about once per year) and sometimes offer an audit during a routine customer call.

SDG&E

SDG&E currently has only a few auditors who conduct three (3) to five (5) audits per week. SDG&E anticipates conducting about 700 to 1,200 on-sites in 1999.

1.4 1999 PARTICIPATION FIGURES TO DATE

In this subsection we present a high-level summary of participation in the 1999 programs to date. Note that due to the short time-frame under which this Phase I report was produced, we are only able to present fairly generic summary data. In addition, no attempt has been made to account for any differences that may exist between utilities in how data is tracked or summarized. Finally, the participation data are dynamic and will have changed by the time this report is published. A summary of the number of participants in each of the three programs is provided in Table 1-3.

Table 1-3
Number of Participants in 1999 Small/Medium Nonresidential Programs, August 1999

Utility	Express	Small SPC	Audits
PG&E	339	9	420 on-site 1,150 phone 360 mail-in
SCE	150	13	1,446 mail-in
SDG&E	18	3	456
SCG	120	N/A	5,300
Totals	627	25	9,132

*Estimated applications received.

2 PHASE I FINDINGS

This section presents the key findings of the Phase I Small/Medium Nonresidential Study. It summarizes first the major findings about the small nonresidential market. The subsequent subsections present key findings for each of the programs addressed. The final subsection discusses cross-cutting findings.

These findings are based on either a relatively small number of interviews or existing literature, as discussed in Section 1 of this report. The information sources used are listed below and the findings are referred to the appropriate references by the numbers noted:

- *Evaluation of the 1998 NSPC Program, Final Report*, prepared by XENERGY Inc. for the California Board for Energy Efficiency and Southern California Edison Company, June 1999. (Reference 1)
- *1998 Express Efficiency Market Effects Study (Small/Medium Commercial Focus)*, prepared by XENERGY Inc. for Pacific Gas & Electric Company, June 1999. (Reference 2)
- *1998 Business Energy Management Services (BEMS) Market Effects Study* (Small/Medium Commercial Focus) prepared by Quantum Consulting Pacific Gas & Electric Company, June 1999. (Reference 3)
- *PG&E and SDG&E Commercial Lighting Market Effects Study*, Prepared for by XENERGY Inc. for Pacific Gas and Electric Company and San Diego Gas and Electric, July 1998.(Reference 4)
- *PG&E 1997 Commercial Building Survey Report*. (Reference 5)
- XENERGY/Quantum Consulting contractor focus groups summary (Reference 6)
- XENERGY/Quantum Consulting interviews of utility program managers (Reference 7)
- XENERGY interviews of EESPs, including ESCOs (Reference 8)
- SDG&E summary of small business customer focus groups conducted by RER (Reference 9)
- XENERGY review of New England small nonresidential programs (Reference 10)

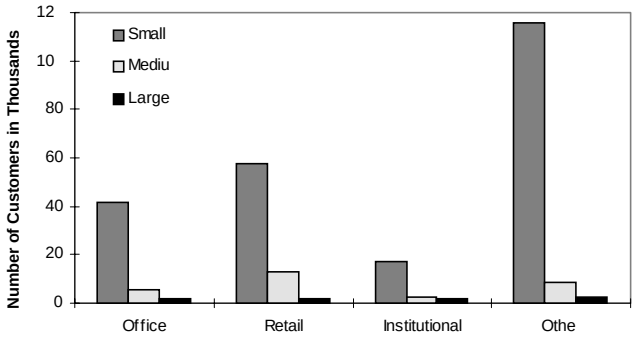
We note that none of the studies available covers exactly the market focused on in this study and that the surveys and interviews conducted were limited to relatively small samples. Consequently, the findings presented reflect the authors' judgment and knowledge about the applicability and accuracy of this information. Our intent is to verify and enhance these initial findings through the Phase II research activities for this Small/Medium Nonresidential Study. Nonetheless, we have found that the previous research referenced, focus groups recently

conducted by utility program managers, and research conducted specifically for this Study all converge around the same conclusions about the small/medium nonresidential market.

2.1 CHARACTERISTICS OF SMALL/MEDIUM NONRESIDENTIAL CUSTOMERS[1]

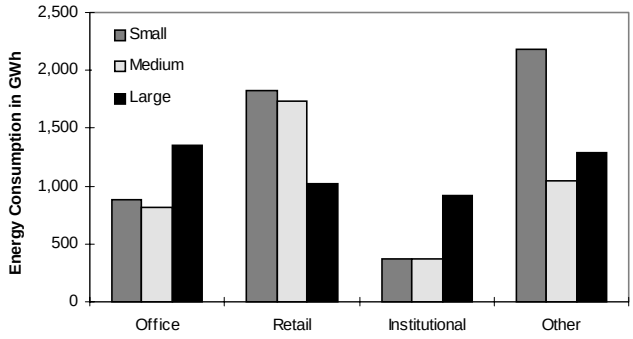
Based on PG&E-area data, breaking small/medium commercial customers into four categories—office, retail, institutional, and other—about 27% are retail, 18% are offices, about 8% are institutional, and about half fall into the other group [2, 3]. On an energy basis, retail accounts for 33%, office 22%, institutional 12%, and all other 33% [2, 3]. Statewide estimates from Reference 1 are similar. The statewide study also indicates that there are approximately three-quarters of a million small/medium nonresidential customers in the PG&E, SCE, and SDG&E territories, approximately 15% of which are industrial [1]. Approximately, 80% to 90% of small/medium customers in each group have electricity demands less than 20 kW, but consumption is split roughly equally among customers in three groups: demand less than 20 kW, from 20 to 99 kW, and from 100 to 499 kW [1, 2, 3].

Figure 2-1
Number of Premises for Commercial Customers <500 kW in PG&E Service Territory*[2]



*Category definitions are: small (<20 kW), medium (20 to 99 kW), large (100 to 499 kW)

Figure 2-2
kWh Consumption of Commercial Customers <500 kW in PG&E Service Territory*[2]



*Category definitions are: small (<20 kW), medium (20 to 99 kW), large (100 to 499 kW)

[1] Appendix C presents more detailed information from which this subsection was extracted.

Electricity consumption for most nonresidential customers is dominated by lighting. HVAC usually comprises the second largest usage.

About 60% of small customers rent/lease their space [1]. Of these, about 90% pay their utility bill directly [1, 3].

2.1.1 Energy-Efficiency Awareness, Knowledge, and Barriers

Overall, small/medium nonresidential customers report low to moderate levels of energy-efficiency awareness and knowledge, but awareness/knowledge varies significantly by customer size [1].

While energy is considered an essential service by small nonresidential customers, energy bills are not a major concern to many. This is due primarily to the fact that utility bills are often small relative to other expenses and the opportunity costs of small business managers. Expenditures on energy, however, may be more of a concern to the smallest customers [9].

About three-fourths of small customers indicate they are at least somewhat knowledgeable or aware of energy-efficiency measures or products [2]. About half the small customers overall indicate that they often hear about energy-efficiency [2]. Only about 10% indicate that energy-efficient products are very difficult to use or understand [2]. Nonetheless, small/medium customers self-report significantly lower levels of knowledge about savings opportunities than their larger counterparts (e.g., scores of 4 to 5 on a 10-point scale compared with scores of 8 for large customers) [1].

Small customers generally have positive attitudes about energy-efficiency. Between 60% and 80% state that conserving energy is part of being a good corporate citizen, believe efficient products perform well, and believe all businesses should pursue energy-efficiency investments [2].

Despite having very positive attitudes toward energy-efficient measures/products, few small nonresidential customers have already installed such measures (even T-8s) and less than half indicate they will actively pursue such investments in the future [1]. About four-fifths of the small customers have no policy for selecting energy-efficient equipment [2].

Consistent with their general lack of concern about energy costs, the reason given most often by small nonresidential customers for not installing energy-efficient products is that they have no need to change their existing equipment. First-cost is also usually volunteered as a major barrier [2]. When asked about specific barriers to the adoption of efficiency measures, small customers ranked them as follows [2]:

- doubts about magnitude of energy bill savings
- lack of confidence in information provided by contractors and others [9 also]

- efficiency investments usually fall below other priorities
- lack of access to financing
- time/hassle to get energy efficiency information [9 also]
- time/hassle to pick an energy-efficiency contractor [9 also]
- energy-efficiency information received is not very helpful
- energy-efficient products are unavailable

Contractor observations in the four focus groups generally support the customer self-reported information summarized above. Overall, contractors believe that small customers' immediate priorities do not include managing energy costs. They also believe that small customers generally lack the capability to assess energy-efficient options and anticipate the efficiency benefits to be small compared with other considerations that demand their resources [6]. Contractors feel that the main barrier for small customers is higher first-cost, coupled with customer perceptions that potential energy savings are relatively small [6]. Contractors also believe that small customers generally have little or no knowledge of, or interest in, high-efficiency measures, savings potential, or payback. These customers rarely specify or inquire about energy-efficient products. In addition, contractors believe that small customers generally lack awareness of energy efficiency and this makes uncertainty about performance a secondary consideration [6].

Contractors also note that the smaller customers' perceptions about the performance of high-efficiency products may be outdated and based on early "high efficiency" equipment that did not live up to its performance claims. Contractors generally feel that small customer education is a must, but that contractors can't afford the time and effort required to do the educating entirely themselves [6]. Utility managers note that small customers rarely use the Internet for information so far [7].[2]

A level of distrust compounds customers' lack of current knowledge. Small customers often don't trust the efficient technologies or contractors' promotion of them [1, 2, 7, 9].

Customers who lease space are disinclined to make energy-efficiency investments and contractors acknowledge that the rent/lease split incentive is a barrier, but the contractors do not identify it as a major hurdle for them to market energy-efficiency services [9, 6]. Utilities have encountered obstacles trying to get owners to make efficiency improvements in leased space [7].

Some of these barriers are aggravated for the smallest customers. Compared with the larger small customers, the smallest customers [2]:

[2] Note, however, that marketing efforts to promote utility websites have only recently begun. For example, as of this writing, PG&E is in the middle of a mass media campaign focused on their SmarterEnergy website.

- are much more likely to rent/lease their space
- are less knowledgeable/aware about energy-efficiency
- are much more likely to believe efficient equipment is hard to use/understand
- hear about energy efficiency much less often
- have fewer intentions to install energy-efficient products/measures
- are much less likely to have a policy for selecting energy-efficient measures and are much less likely to use a long-term investment criterion for such investments
- are more likely to doubt efficiency information provided by contractors and others
- are more likely to consider time/hassle required to get efficiency information and pick a contractor to be significant barriers
- are more likely to not find energy-efficiency information very useful or products available.

Differences exist across segments including the following [2]:

- institutional customers are more likely to indicate that lack of access to financing is a barrier and that energy efficiency falls below other priorities
- institutional customers are more likely to view contractor selection as a barrier
- retail-segment customers are more likely to view information search costs as a barrier.

2.1.2 Efficiency Upgrade Opportunities and Programs

Small customers offer many opportunities for efficiency upgrades in existing buildings. Higher efficiency equipment can be installed when equipment fails, space is added, space is remodeled, or the occupant decides to replace existing operable equipment. Remodeling occurs in about 10% of the commercial space each year. New air conditioners are installed by about 6% of the customers annually and fluorescent lamps representing about 6% of the stock are bought each year [2].

The economic benefits of upgrading equipment to higher efficiency products vary by locale. Location is more often a factor for high-efficiency air-conditioning equipment because the benefits are less in areas that have lower cooling loads; in some mild areas, small customers don't have air-conditioning equipment at all. The demand for new equipment also depends on the amount of business expansion that is occurring that would lead to building additions, remodeling, or new construction [6].

Small nonresidential customers are interested in understanding their energy use and opportunities to reduce consumption. Consequently, they are generally receptive to audits that would provide such information, especially with guidance on how to make improvements. They are interested in approaches that are simple and can go *smoothly and rapidly from recommendations to implementation with few demands on their time*. They also generally view contractor

certification by the utility (or potentially other trusted entity) as desirable to provide a level of confidence [9].

Efficiency improvements for small customers are impeded, however, because the customers have little awareness of energy-efficiency providers other than utilities. Only about 6% of small nonresidential customers indicate they are aware of energy-efficiency services available from providers other than utilities, whereas nearly half the large commercial customers say that they are aware [1].

Both utilities and contractors note that small customers require more attention or "hand holding" than larger customers. This makes the economics of serving these customers even less attractive. Small customers are often cash poor and lack staff to deal with energy issues [6, 7]. Consequently, only roughly a quarter of small nonresidential customers report being offered energy-efficiency products or services over a two-year period, versus over three-fourths of the largest customers [1].

2.2 EXPRESS EFFICIENCY PROGRAM

2.2.1 Program Status and Expectations[3]

As discussed in Section 1, all four utilities offer the Express Efficiency Program in 1999. PG&E and SDG&E offer an upstream program, but SCE and SCG do not [7].

Generally, utilities have found that the downstream activities have fallen short of their goals to date. According to utilities, staffing cuts in customer service representatives assigned to and funded by efficiency programs have been a problem because they have reduced the ability of the utilities to market the Program through these reps, as they often did in the past [7].

Some utilities are expanding outreach through direct mailings to targeted groups of market actors (end users and supply-side), advertising (business journals and mass media), and by enlisting partners to help with marketing. The California Manufacturing Technology Center, for example, focuses on customers with demands less than about 70 kW and the Center has agreed to put information in their newsletter about the Program [7].

2.2.2 Program Success Areas

Program awareness among contractors is relatively high in northern California, probably because the Program has been in existence there longer. Half the lighting contractors attending a Berkeley focus group were aware of the Program. ESCOs also indicated a high awareness of the Program and the majority that we interviewed had participated already [6]. Note, however, that these awareness levels among focus group participants are higher than those found in a larger survey conducted of contractors regarding PG&E's 1998 Express Efficiency programs. This survey found approximately one-third of contractors were aware of the program [2].

[3] Section 1 provides statistics on participation in the Express Efficiency Program so far this year.

Overall, contractors attending focus groups responded positively to the Express Efficiency Program's features. The existence and level of the rebates are well received by the contractors. The timeliness of the rebates—i.e., payment within one month—is received very positively. Although a minority of focus group contractors had negative responses to the requirement for utility verification of measure installation, the majority of the contractors saw this as a positive feature that would increase customer confidence in the measures [6].

ESCOs generally echoed the responses of contractors about what works well in the Program. They view the ease of using the Program, simplicity, monetary incentives, and firm deadlines as pluses. From their perspective, ESCOs see the advantages of the Program to be improved customer relations, increased business, marketing, and increased customer awareness of energy efficiency [8].

One utility noted that its workshops for customers and vendors had received high marks. Attendees felt that the workshops were effective because they were informative and targeted their needs well [7].

According to Program staff, SDG&E's upstream HVAC program has led to a substantial increase in the number of high-efficiency packaged air conditioners stocked by distributors. Participating distributors predict that sales of units under the program will be nearly double the goal for this year. SDG&E plans to increase its budget proposal next year for this component of the Program. This activity has built upon working relationships that the utility had established with distributors in the past [7].

2.2.3 Program Problem Areas

Based on limited focus group information, Program awareness by contractors appeared to be relatively low in southern California, probably because the Program started just this year. Program awareness of the HVAC contractors was very low in both southern and northern California, possibly because packaged units are covered by the upstream distributor Program. Several contractors in the focus groups had reservations or were confused about the Program requirement for utility verification. Although contractors generally liked the idea of the Express Efficiency "summer sale," several raised concerns about implementation. None of the Riverside contractors and none of the Berkeley lighting contractors were aware of the sale yet. The timing of the sale was a concern since the summer is generally when contractor business is best and increasing sales is not a major concern, let alone a practical possibility—they noted that an off-season sale might be more useful [6].

There has been some initial confusion tied to the Express Efficiency Program because of differences between it and prior programs. In particular, the previous requirement some utilities had to notify the utility before installing measures is not a requirement under the statewide Program and some customers have been confused by this change [7].

ESCOs voiced only a few negative comments about the Program. Among them are perceptions of low utility support, smaller rebates than in the past, and too many technology limitations [8].

There are differences across the utilities in how they are implementing the upstream programs, particularly in terms of how much is or should be communicated to customers about the supply-side rebates [7]. Contractors participating in focus groups generally responded negatively to or were confused about the fact that the packaged A/C rebate went to the distributor [6]. The upstream program for motors in the SDG&E area has been slow to grow this year, in part due to increasing efficiency requirements. A similar situation was noted about the PG&E program last year [7, 2].

2.3 SMALL SPC PROGRAM

2.3.1 Program Status and Expectations

All utilities except Southern California Gas offer the Small Nonresidential SPC Program.

In all the participating utility areas, the number of applications so far is relatively small and less than the utility goals. Chains have been major participants in some cases. Generally, the utilities are expecting to reach no more than half their expenditure targets this year [7].

2.3.2 Program Success Areas

The Small SPC awareness level of the lighting contractors in our focus groups was relatively high; for example, half the lighting contractors in the northern California were aware of the Program. Surprisingly, more lighting contractors were aware of the SPC than were aware of the Express Efficiency Program [6]. This result is likely to be a small sample, self-selection anomaly and should not be extrapolated.

Contractors react positively to several Program features. Most of those in the focus groups approved of the statewide design and standard contract. They generally had positive reactions to the SPC incentives. The participation incentives, in particular, are well received by contractors [6]. Despite the positive reactions to selected Program features, contractors were decidedly negative overall about the Program requirements (see discussion in following subsection).

ESCOs generally view the SPC as more likely than rebate programs to lead to lasting market changes, larger energy savings, and increased business in the long run [8].

In general, the SPC approach permits more customized and creative efficiency projects than do prescriptive rebate programs. According to some utility Program Managers, the SPC already has been used in some cases to implement projects that would not have been possible under the Express Efficiency Program because of the technologies employed [7].

2.3.3 Program Problem Areas

All of the focus groups and interviews converge around a common belief that the Small SPC Program is far too complicated for the target market of small/medium nonresidential customers,[4] despite attempts to simplify it relative to the Large SPC Program. Many trade allies view the paperwork requirements as excessive and complicated [6, 7, 8].

The M&V requirements receive the most criticism. One issue is the cost and effort required to conduct the required M&V [6, 8]. A major issue is how to estimate energy savings before the project starts; this appears to be more of a concern of the contractors than the ESCOs [6, 8]. This is not only an area that causes uncertainty, but from the trade ally perspective it is an issue of accepting excessive risks. Contractors raise the question of what will happen if the customer changes operations significantly and the forecast savings are not realized. Contractors not only believe this is risky, but some indicate that they feel it is unfair [6]. This issue is probably, in part, a problem of perceptions and incomplete understanding of the Program.

In both northern and southern California, HVAC contractor focus group participants indicated they had a low level of Program awareness [6].

Customers also appear to have little awareness of the Small SPC Program. Although they reacted positively in the SDG&E focus groups to the basic concept and intent, their reaction turned negative when exposed to the specific Program details [9]. In addition, many react negatively to the payment going to the contractor [9].

Contractors generally view the application fee, which is now being eliminated from the Program, negatively. Part of the problem again was that contractors felt that the fee exposed them to risks beyond their control [6].

Contractors also generally feel that the overall statewide funding level is not adequate. Many also disapprove of spreading out the incentive over time [6].

The participation of EESPs /ESCOs in the Program has been less than expected. According to EESPs (including ESCOs) interviewed for this report, this is due to the issues noted above as well as the following [8]:

- a perceived lack of clear Program goals
- the inherent difficulty and cost of reaching small customers
- a lack of adequate advertising and marketing
- a poor fit of the approach with some vendors' business models.

[4] Some believe the Small SPC may be worth the effort required to participate for the largest of the small/medium customers (i.e., those in the 300 to 500kW range) and for chain accounts that are aggregated.

There are also concerns about the time required to go through the Small SPC process. From the supplier perspective, this can create a cash flow problem [6, 7].

Utilities express some concerns about the feasibility of proving the Small SPC concept in a relatively short time frame. Some feel that a better understanding of the market will be required to make the Program work, and more time is required to make and implement any necessary revisions [7]. In particular, some Program Managers emphasized that the Small SPC has only been on the streets for four months and that given its significant differences from past programs, participation should be expected to take more time to develop.

Overall, most trade allies view the Small SPC as not offering enough benefits to them *or to their customers* to make participation worthwhile at this time. On balance, the paperwork requirements, time required, M&V requirements, and uncertainties are perceived to be excessive compared with the benefits to customers and trade allies [6, 7, 8].

2.4 AUDIT PROGRAMS

2.4.1 Program Status and Expectations

All utilities currently implement audits for their nonresidential customers. Traditionally, audits were a channel utilities used to provide customer service and were valued as a way to build customer satisfaction with the utility. In-person, rather than telephone or mail-in, audits were found to be both better tools to build customer satisfaction and provide higher quality information [7].

The use of on-site audits has declined, primarily with the electric or combined electric/gas utilities because of recent funding cuts and policies discouraging the use of large numbers of customer service representatives in energy-efficiency programs. Currently, the utilities have a relatively small number of auditors who perform on-site audits. Most auditors perform about 5 audits per week [7].

PG&E and SCE use a high-volume mail-in audit (often referred to as “do-it-yourself” or DIY audits) to reach larger numbers of customers at lower cost than on-sites. Response rates (the percent who receive the audit offer in the mail and then complete and return the audit form) are approximately 3 to 6 percent.

Generally, the utilities use several venues to contact customers about audits. Most utilities use newspaper ads, telephone contacts, contacts by customer representatives, and mailings [7].

2.4.2 Program Success Areas

The utilities generally offer a mix of audit services. This has permitted some targeting of audits and audit types to specific markets [7].

Utilities that have extensive in-person customer contact have used these contacts successfully to implement audits [7]. The utilities generally follow up audits to pursue customers with a high potential for participating in other programs; unfortunately customer follow-through typically has been relatively low [7]. This seems somewhat attributable to perceptions among Program Managers about previous regulatory constraints (that focused on distinct accounting separation between savings from audit versus rebate programs) and uncertainty over what are acceptable or desirable linkages between programs in the current policy environment.

Contractors attending our focus groups generally felt that audits implemented through utilities could be very effective at increasing customer awareness and producing a demand for energy-efficiency services. Some felt that audits were almost essential for small customers [6].

2.4.3 Program Problem Areas

Because of audit budget reductions, utilities are limited in their ability to offer a high volume of in-depth audits and to reach small customers. In the past, the utilities were able to target particular markets, but program cutbacks have pushed utilities and their auditors toward high-potential customers, and the small customer segment generally has suffered [7].

In general, the utilities are concerned about where to draw the line between audits and other services. Some utility staff are unsure how much information they should provide about other efficiency programs when they conduct an audit [7].

There is only limited tracking to determine whether or what audit recommendations were implemented. Data management that would permit tracking and linking audit data to other programs has been a challenge for some utilities. Consequently, it is difficult to determine what measures customers implemented and how effective the audits were [7].

The linkage between audits and efficiency improvements is especially problematic for small customers. This is due, in part, to the nature of small customers. For example, there are usually a limited number of efficiency improvements that are appropriate for individual small customers and once they are implemented, if they are, there are few additional upgrades that are feasible in the short term. In addition, small customers frequently are out of business or have moved by the time an additional round of improvements should be considered [7].

Marketing of audit services has been difficult. Mass mailings are often employed, but their response rate is relatively low (5% or less). In addition, the mechanics of getting the mailing to the right customer contact has been problematic [7].

“Do-it-yourself” mail audits are effective at reaching a large number of customers, but they may not be suitable for some customers. One utility estimates that mail audits adequately apply to only about 60% of its nonresidential customers. This is a particular problem with customers that have unique facilities or needs, which are frequently small customers. Customers often want

technical assistance and advice to conduct the audits and this requires someone to visit the customer's facility [7].

2.5 CROSS-CUTTING ISSUES

One major issue for this market is that it is so large, diverse, and hard to reach. Utilities can have hundreds of thousands of customers that fall into the "small" segment as currently defined. Generally, research on this specific market has been rather limited, and what information is available has not been applied sufficiently. Several utility staff indicated that the current definition of small customers—i.e., demand less than 500 kW—may be too broad. There are distinct size groups within this broad category that might need to be targeted separately. Furthermore, other customer characteristics, including SIC code, whether they own or lease, franchises/chains versus single-site businesses, technologies used, and customer characteristics have been suggested as possible variables for segmenting this market [7].

Customer lack of awareness and confusion about the programs has emerged as another issue. Many small nonresidential customers are confused about the relationship between the Express Efficiency and SPC Programs, who is involved, how to participate, etc. [6, 7]. In addition, customers' general mistrust of the government, and recent skepticism about utilities, makes it difficult to increase awareness effectively [6, 7, 8].

Overall, program participation and effectiveness have also been reduced by incomplete linkages and coordination among the programs. Generally, utilities have felt that they could not or should not link audits to rebates or the SPC. A related issue is the extent to which customers who receive audits should be put in contact with private firms that can help them implement the recommendations. This has been an issue particularly in referring customers to possible contractors, ESCOs, or ESPs. Small customers especially need help to 1) identify which program they need, 2) apply to the program, and 3) identify qualified, trusted service providers. Although they can assist customers in the first two areas, utilities are restricted in their ability to link customers to service providers; some utility legal departments have raised cautions about possible liabilities and market power issues that might emerge. Utilities are looking at creative solutions to some of these problems, including working with organizations and other partners who can provide information to customers about potential service providers and, in some cases, by using their websites to allow end users and service providers to find and communicate with each other [7].

Another coordination issue has been limitations on what a natural gas utility can do in terms of electricity efficiency upgrades (and vice versa). This has prevented follow-through on some measures identified through audits [7].

The late start-up of the programs in 1999, coupled with their uncertain future, was noted by one utility to be a major factor that impeded progress this year. The utility staff noted, in fact, that once the 1999 program began there was not enough time to complete projects by the end of the year and that many projects required at least a 12- to 18-month time frame [7].

In the context of these programs, utilities voiced general concerns about implementing market transformation from at least four perspectives [7]:

1. How market transformation is defined and can be recognized and measured
2. What role the utility should play in defining, implementing, and assessing market transformation
3. How applicable market transformation is to the small nonresidential customer market (or certain sub-segments as currently defined, e.g., lessee customers <20 kW)
4. How to move from a general, strategic goal of market transformation in the long-term, to more tactical and operational short-term, program-specific goals.

Generally, the utilities believe that the purpose of these programs is to transform the small nonresidential market, but there is a common utility perception that what that means in terms of these programs is not fully articulated or agreed upon. Generally, utility representatives feel that the role of these programs in transforming this market has not been defined adequately. A related observation is that market transformation could take more advantage of the existing body of marketing literature and techniques [7].

The perception that market transformation has not been defined adequately is matched by a common feeling that the utilities are being put in the position of having to define market transformation as they go and find a way to measure progress towards it. Some utilities argue that their business and expertise are providing energy and programs, not transforming markets. Similarly, one utility's staff pointed out that an appeal to market transformation is probably not likely to be very effective with customers because customers are interested in the benefits to their business, not in whether the market is transformed. Similarly, trade allies generally don't understand the market transformation concept and feel that it is overly academic [6, 7]. Of course, these perceptions beg the question of whether targeted market actors need to be aware of or understand the market transformation objectives of programs in order to be positively affected by them. Most private marketing campaigns focus on promoting a desired action (purchase my product), rather than explaining why that action is desirable (increase my sales and profits). Being regulated entities, however, utilities are often expected to justify their actions in private markets.

Finally, some utility staff observed that the small nonresidential market may be a poor candidate for market transformation [7]. Although this issue was raised in terms of the market being large and dispersed and the customers giving energy efficiency a low priority, the fundamental issue is probably whether transformation of this market is cost-effective if all the costs and benefits are included in a comprehensive balance sheet. A contributing factor is the need for more "hand-holding" with the smaller customers, which many contractors and service providers cannot afford to provide. A need for assessing the feasibility of transforming this market is business models that identify the cost structure and financial characteristics of customers and vendors that would permit assessing what interventions would make this market economically attractive [6, 7, 8].

3 IMPLICATIONS AND RECOMMENDATIONS

This section presents the major implications from the research conducted for the Phase I study and our recommendations based on the findings (see Section 2) and implications. The first subsection presents major implications by topical area. The final subsection presents initial recommendations that are intended to be useful in the current program planning process. The recommendations are targeted at both the overall policy level and at the design and planning level.

3.1 IMPLICATIONS

3.1.1 The Small Nonresidential Customer Market

The following points highlight key characteristics of this end-user market related to energy efficiency.

Small Nonresidential Customers Constitute an Extensive, Largely Untapped Market for Energy-Efficiency Services

- There are over half a million small nonresidential customers statewide.
- Opportunities for high-efficiency products occur through distinct market events, including replacement on burnout, remodeling and renovation, and retrofits.
- Customers have positive attitudes toward energy efficiency and many are aware of energy-efficiency opportunities and interested in understanding their energy usage.
- A large proportion, however, have not implemented even the most common efficiency upgrades. Thus, similar to the residential market, there appears to be only a weak correlation between energy-efficiency related attitudes and behavior.
- Dependable energy supply and services are considered essential needs.
- This market has been largely under-served by previous efficiency programs.
- Energy-efficiency opportunities are dominated by possible lighting and HVAC improvements. Purchases of such equipment constitute about 5 to 10 percent of the existing stock each year. However, no complete assessment of the energy-efficiency opportunities in this market, and associated economics, is available.

Significant Barriers Impede Small Nonresidential Customer Efficiency Upgrades

- First-cost is a significant consideration of these customers, partly because of underlying barriers such as bounded rationality (e.g., lack of use of formal investment criteria),

uncertainty over measure savings, market uncertainty (e.g., concern over whether their business will be around next year), and split incentives (most lease their space).

- Relative to their other business and operating expense priorities, these customers often don't consider energy costs to be a significant concern. In addition, many customers consider energy costs to be "fixed" rather than variable, reflecting a lack of awareness and knowledge about how energy costs can be reduced.
- These customers lack the expertise, staff, experience, time, and other resources to assess energy-efficiency opportunities comprehensively and confidently.
- Although these customers are often aware of energy-efficiency services provided by utilities, they have little awareness of such services available from other providers.
- Many of these customers are confused about what programs currently are available and their differences and advantages.
- Most of these customers lease their space, and they and their building owners believe that they are unlikely to capture the benefits of efficiency upgrades.
- These customers are skeptical of the information provided by possible service providers.

Needs of These Customers Vary

- Many barriers for this overall customer group are more serious for the smallest customers (i.e., those less than 100 kW and, especially, less than 20 kW):

  ⇒ they are more likely to lease their space, have less knowledge/awareness/ understanding about efficiency opportunities and benefits, are more skeptical about provider information, are less aware of non-utility service providers, and have less time/resources to assess efficiency opportunities.

- Institutional customers find financing and contractor selection to be larger barriers.
- A significant minority of the customers have specialized facilities and energy equipment needs (particularly in the industrial sector).
- Single-site "mom and pop" customers have more limited resources to consider energy efficiency than customers who are part of a chain or a franchise.
- Customers may be more or less likely to consider energy efficiency depending on the reason they are purchasing new equipment (e.g., emergency replacements versus planned renovation).

3.1.2 Energy-Efficiency Trade Allies

Important implications related to energy-efficiency suppliers are discussed below.

Trade Allies Play a Crucial Role in the Small/Medium Market

- Contractors are the market actor that most often serve the equipment replacement, maintenance, and specification needs of small customers.
- Because small customers lack knowledge/awareness, contractors have considerable leverage in recommending high-efficiency equipment.
- Contractors and EESPs believe they can make the case for high-efficiency equipment if they are armed with effective information and their message is reinforced by a trusted third-party.
- Increasing the upstream availability of high-efficiency products is a necessary but likely insufficient condition for their specification and installation.

There Are Substantial Differences Across Trade Ally Types

- Contractors usually specialize in providing certain products and services. Most are limited in their ability to provide comprehensive energy analyses for customers.

  ⇒ There is, however, a segment of lighting contractors that focus on the energy-efficiency retrofit business.
- Currently, contractors generally have only limited awareness of energy-efficiency programs. This was not the case in the mid-1990s.
- ESCOs and EESPs can offer a broad spectrum of services, including energy analyses, and many are aware of energy-efficiency programs. Most of these firms target large customers and chains.
- In some markets (such as HVAC equipment), distributors/dealers can be instrumental in changing the energy-efficiency market, at least in the short term.

Providing Energy-Efficiency Services to Small Nonresidential Customers Is a Challenge for Providers

- Because of the small size of customer bills, the absolute value of efficiency-related savings is small.
- To sell high-efficiency products, providers have to overcome customer lack of awareness, split incentives, concerns about first-cost and performance, and skepticism.
- As a result of the two conditions above, the marketing, sales, and contracting costs of EESPs are high relative to the prospective savings, thereby limiting EESPs' ability to serve this market profitably.
- Contractors, who specialize in providing basic equipment sales and services, find it costly to learn the needs of small customers adequately and provide the hand-holding required to recommend and implement efficiency improvements.
- On the program side, traditionally, there have been inadequate linkages between effective audits and measure installations with these customers.

Current Energy-Efficiency Programs Pose Opportunities and Difficulties for Service Providers

- Contractors tend to favor rebate programs as a means to help them sell efficiency upgrades.
- Contractors also believe audits have the potential to create demand for higher efficiency products, but do not see strong links to their business.
- Some EESPs prefer the Small SPC program to rebates in concept, but maintain that the incentives are not large enough to entice them into the small/medium market.
- Many providers are unaware of or confused about what programs exist, how they are linked, and what the connections are to prior programs.
- Understanding the Small SPC M&V requirements and accepting the risk of energy savings shortfalls and cash-flow delays are formidable problems for many suppliers, especially contractors.
- Lingering perceptions of SPC complexity and resource demands on suppliers present serious barriers to participation.

3.1.3 Utilities

Key implications involving utilities are presented below.

Utilities Face Special Challenges As Their Role Changes

- 1999 funding levels are small in comparison with the size of the small/medium nonresidential market and may be low relative to this market's PGC contributions.
- Utilities have occupied a central role in the past offering a range of services to customers who generally found the utility services very useful and dependable.
- Some previous multifaceted programs offered the opportunity of linking and coordinating efficiency services from audits through implementation and performance monitoring (e.g., integrated audit/rebate and direct install programs).
- Pre-1998 regulatory rules often led to purposefully distinct separation between audits and rebates. Recent uncertainties about the current and eventual roles of utilities have disrupted program implementation and reduced linkages, coordination, and effectiveness.
- Startup delays, funding levels, concerns based on previous regulatory rules, and uncertainty over current rules and goals make it difficult for utilities to implement these programs effectively as an integrated portfolio in PY1999.

The Small Nonresidential Market Has Special Needs

- Taken as a whole, the small/medium nonresidential market is a mass market. Few attempts have been made to apply mass marketing techniques to this market.

- Although information is available on the characteristics of small nonresidential customers from a variety of sources (albeit, disparate sources, e.g., private databases such as D&B), it has not been fully integrated and extensively used to focus program design and market targeting. There are information gaps that remain, particularly those related to the smallest customers.

  ⇒ This is partly attributable to the year-by-year regulatory planning and filing cycles, and their associated deadlines, which has discouraged program planners from conducting more market research and database development activities that may take several years to implement and pay off.

- Just as energy-efficiency service suppliers find it costly to reach this market, utilities have to expend considerable resources to address small nonresidential customers. Some low-cost marketing and partnerships have been employed to overcome this impediment.

3.1.4 Policies and Goals

There are several important implications of this Study that involve the fundamental policies and goals that provide the foundation for the small/medium nonresidential programs.

The Role of Market Transformation in This Market Is Unclear

The unique characteristics of this market make it an especially challenging target for market transformation efforts. Market transformation activities implicitly assume that the fundamental economics of energy-efficiency investments are sound, but that market barriers create market imperfections that stand in the way of efficiency investments. However, the transaction costs of providing efficiency services to small, and especially the smallest, nonresidential customers are high on a per unit basis. Furthermore, the potential absolute savings for customers may be low relative to the costs and payoff from other investment opportunities. Without a more complete understanding of the complete economics of energy-efficiency opportunities in this market, it is difficult to determine the feasibility of transforming the market.

What this market would look like if it were transformed is uncertain. It is being addressed by a range of interventions, but the ultimate goal needs further clarification and there are few measures available to determine how well the market is approaching the goal.

Coordination and Integration among Current Interventions Is Incomplete

Utilities have experience conducting a range of programs and organizing them as a package for their customers. The need for utilities to shed some of their past responsibilities and functions has created confusion and gaps in efforts this year to continue providing an integrated package of efficiency services. Although it is likely that a state can be reached where a well functioning integrated set of services is provided, it is likely that getting there will require continued course corrections and an adequate time horizon. Supply-side and customer confusion exists about how the different programs are related and to what situations they apply.

3.2 RECOMMENDATIONS/SUGGESTIONS

Based on the data and information that we reviewed, and our understanding of this market developed through this and prior research, we offer recommendations organized into key thematic areas. At this stage of our research on the small/medium market, we offer these more as ideas and suggestions than as final, conclusive recommendations. In addition, the small/medium market has only recently been broken out as a separate programmatic area. As such, policy goals are still evolving for this market. Although some recommendations apply to a specific program, many are overarching suggestions that are built on basic fundamentals about how to address the overall small/medium nonresidential market. We offer these recommendations as input to the planning process for next year and beyond.

3.2.1 Develop and Convey a Simple, Mass Market Message (with Appropriate Targeting)

As noted several times in this report, the small/medium nonresidential market is comprised of over half a million businesses. It is unlikely that this group of customers can be reached cost effectively without a mass marketing strategy. Most mass marketing strategies emphasize very simple messages consisting of a single product name and two to five words that convey a message the sponsor wants the target audience to associate with the product. There are key advantages to utilizing a mass marketing strategy. An effective mass marketing campaign is likely to increase program awareness and program participation inquiries. If reinforced by trade ally messages that build off and are consistent with the mass market program message, the combined effect may lead to increases in program participation and the penetration of efficient products.

Awareness and participation would be likely to increase if the portfolio of relevant interventions is presented under one umbrella or "brand name" so that suppliers and customers, in particular, would be less confused by what appear to be similar or overlapping programs. Actual delivery of the marketing message should be targeted to identifiably unique customer segments. Specific recommendations include the following:

- ***Consider establishing a single, statewide "brand name" for a range of programs:*** The programs covered would include at a minimum all those relevant to small nonresidential customers. Because many mass media considerably overlap the residential and nonresidential markets, and because many contractors service both residential and small commercial customers, the possibility of integrating the residential programs with the small and even large nonresidential programs should be considered. The advantage of this approach is that PGC funds could be combined across markets to create awareness and intent across program elements. The overall approach could be designed from the participants' perspective like a series of rooms. All customers would enter the main door at the "brand name" level. Beyond that, they would be directed to select appropriate

doors depending on their specific characteristics and needs. Several utilities have used this approach successfully in the past.

- ***Implement an integrated mass marketing strategy:*** If the approach above is pursued, a statewide marketing strategy promoting the single brand name should be designed and implemented. Pilot testing would likely be necessary. Recent mass marketing campaigns, such as that conducted by PG&E to increase awareness of the SmarterEnergy website, also should be assessed to determine how effective they are and how they can be improved.
- ***Identify and characterize key market segments and conduct targeted marketing:*** The utilities have already conducted some market segmentation analyses and more can be done to identify and characterize unique segments within the small nonresidential market. The overall market message should be tailored in format and delivery mechanism to target hard to reach and under-served market segments. The tailored marketing messages also should address non-energy benefits that are relevant to the segments.
- ***Address the hard to reach leased property customers:*** Most small nonresidential customers lease their space, which impedes efficiency improvements in some cases more than in others. Approaches such as using bulk purchases and working with direct access or other aggregation groups should be explored for getting either occupants or owners to invest in efficiency improvements.

3.2.2 Minimize the Hassle (actual and perceived) of Program Participation

The small nonresidential market is encumbered with costs associated with energy-efficiency investments that can be very significant relative to the savings they produce. These costs are well recognized, but difficult to alleviate. Although current programs attempt to ameliorate these costs, the perceptions of a range of market actors is that the programs themselves often introduce other costs that act as barriers to program participation. We offer the following recommendations as steps to help alleviate these two categories of impediments:

- ***Programs must significantly reduce participants' net hassle and transaction costs***. The extent to which programs in the small/medium nonresidential market minimize versus increase the net costs of delivering high-efficiency solutions to end users should be viewed as virtually a litmus test of their likelihood of success. All of the research conducted on this market to date indicates that interventions must minimize hassle costs. This applies to interventions directed at both end users and supply-side actors (particularly small contractors who serve small customers).
- ***Consider consolidating the Express Efficiency and Small SPC offerings.*** Based on this Phase I research and 1999 participation levels to date;[1] we are concerned about the

[1] As shown in Section 1, there are only approximately 500 Express Efficiency and 25 Small SPC participants statewide to date. For historic comparison, note that there were close to 6,000 PG&E Express participants under 500 kW in 1994, 4,200 in 1997, and 1,800 in 1998. Also recall that the total population of electric customers under 500 kW for these same IOUs is roughly ¾ of a million firms.

viability and usefulness of overlap and competition between Express Efficiency and the Small Customer SPC programs. Given that creating market effects in the small/medium market is an important goal but a formidable challenge, we believe success may require a clearer, more consolidated message to the market (in the form of a single, well-funded program; see related recommendation below). Consideration should be given to creating a single program, perhaps even a hybrid, that combines the best of both the Express Efficiency and Small SPC Programs.[2]

- ***Simplify the Small SPC Program application process:*** First, potential suppliers need to be educated that the process and paperwork may not be as formidable as they think currently. Second, efforts should be made to simplify and focus the supporting material so that it provides easily accessible answers to the most important questions. Third, the actual application materials should be simplified and shortened as much as is feasible.
- ***Simplify and clarify the M&V requirements under the Small SPC Program:*** Many providers see value in using M&V as a means to validate energy savings, but most feel that current requirements are burdensome and unnecessary for well-proven technologies. Deemed savings should be considered for certain lighting and other measures. Ways should be explored to reduce contractor risk for customer changes over which the contractor has no control. For example, an "insurance" fund might be established that would pay out if uncontrollable factors caused the contractor to be underpaid. Other steps that could be used to simplify the monitoring and reporting requirements should be explored.

3.2.3 Improve Efforts to Help Customers Move from Intent to Action

The momentum to proceed from energy-efficiency awareness to measure implementation can fade in this market if the path is not an easy one. In some cases, an opportunity can be identified through an audit; in other cases, an opportunity is based on an urgent need to replace burned out equipment. The best way to facilitate energy-efficiency improvements is likely to be different under these alternative situations. We suggest the following ways to make this process work better:

- ***Approaches should be tailored to the type of event that can lead to an efficiency upgrade:***

  ⇒ **Replace-on-Burnout/Emergency Replacement**. Customers who require an emergency replacement are unlikely to dedicate time and effort to researching efficiency options, so this type of event may depend substantially on contractors who have ready access to and knowledge of high-efficiency products. Current upstream Express Efficiency Programs are potentially an effective approach to address these

[2] An unresolved question currently is whether the performance contracting (and associated M&V) element of the Small SPC is viable for the small/medium customer market. Even if it is not, some elements of the SPC objectives and mechanisms may be worth considering and incorporating into a hybrid program (e.g., requiring verification of installation and some type of vendor follow-up and post-installation communication with end users to reinforce the benefits associated with the project).

situations (though contractors should be aware of the distributor program and perceive that its benefits are at least partially passed through to them and their customers). The use of a simple program brand, possibly the same as or co-branded with a technology brand such as Energy Star®, may also increase the likelihood of efficient product purchases during emergency replacement.

⇒ **Elective retrofits, remodels, and expansions**. These market events take more time and therefore provide an opportunity for more comprehensive types of interventions such as audits, design assistance and tools, service referrals or trade-ally selection guidelines, financial incentives, quality assurance assistance, or complete turn-key services.

- ***The audit process should be leveraged more to lead to efficiency improvements and aid end users in finding and selecting trade allies:*** Impediments to translating audits into energy-efficiency improvements should be identified and alleviated. Creative approaches or linkages may be required to increase the likelihood of implementation after an audit. A crucial need is ways to link "warm lead" customers with qualified suppliers; trade allies or independent organizations may be able to provide assistance. The conversion of audits into installations should be monitored and analyzed to determine what makes the conversion more likely.
- ***Consider the use of third-party product labeling and provider certification:*** Both product labeling and provider certification could potentially reduce the information, hassle, and asymmetric information costs faced by small nonresidential customers. Establishing statewide mechanisms could take a substantial amount of time, but some related efforts are underway. The Energy Star Program and label could provide a starting point for some products. Consideration also should be given to investigating the feasibility of an *energy-equivalent* of the ValueStar® label used for contractors.[3] A similar efficiency-based certification is being investigated by the Alliance to Save Energy and Center for Resource Solutions that would focus on retail energy service providers and be similar to the Green-E label.[4] Any effort in this regard should be coordinated with residential program efforts. Initiatives should build off of existing national and related initiatives as appropriate.

3.2.4 Establish Clear High-level Goals and Policies

It is important for all parties to have a clear, common understanding of what goals the nonresidential programs are trying to achieve. Specific programs should have objectives that

[3] ValueStar is a privately-funded business certification that is based on customer satisfaction scores obtained from independent surveys. Businesses pay to be rated for certification and provide their client lists for ValueStar to survey. Certification requires a minimum satisfaction score and is not guaranteed (according to ValueStar, half of the companies that apply do score high enough to be certified). For information on ValueStar, see www.valuestar.com.

[4] See Prindle, W.R., and Brown, K., *Evaluating Unregulated Energy Efficiency Programs in Competitive Energy Services Markets*, proceedings of the 1999 Energy Program Evaluation Conference, Denver, Colorado, August 18-20, 1999, p. 467.

contribute to the overall goal of the program. To a large extent, it is necessary to define the goal and objectives clearly as the basis for fulfilling the preceding recommendations. We suggest the following steps:

- ***Assess the small nonresidential market to determine how its unique characteristics affect the feasibility of and best approaches for transforming the market:***

  ⇒ As a starting point, business models of various types of service providers should be developed and analyzed to determine where actions and leverage are needed to make this market attractive. This analysis should also focus on the underlying cost structures of contractor and EESP businesses to better understand the likelihood of whether self-sustaining, efficiency-based business models are viable.[5]

  ⇒ On the customer side, bottom-up analyses of the economic potential of efficiency opportunities are needed. Further analyses of what types of interventions are likely to be most successful are also needed once the policy goals for this market are more firmly established.

- ***Establish strategic goals and tactical objectives along with a realistic time horizon:*** These should reflect what is learned about the supply- and demand-sides of the market. Medium- and long-term goals should be developed and used to design the program elements. The tactical objectives should be used to monitor performance and help identify necessary program changes. *The budgets for these programs should be reexamined to determine whether they are sufficient to achieve the strategic goals and tactical objectives established.* An explicit time frame should be established for meeting medium- an long-term goals for this market.

- ***Provide increased program certainty:*** Although considerable uncertainty exists about the long-term future of the framework in which these programs operate, there would be advantages to adding as much certainty to the programs as possible within these external constraints. Participation by both suppliers and customers suffers when program continuity is uncertain and this creates a vicious cycle by making the programs appear to be less successful and, therefore, less worthy of a long-term commitment.

[5] A similar research project has been proposed as part of the Large Nonresidential Customers Area MA&E plan for 2000.

A

UTILITY INTERVIEWEES

We conducted in-person and telephone group interviews, and follow-up individual interviews, with the four California IOUs' staff and their contractor representatives. Personnel who were interviewed were involved in implementing or monitoring/evaluating the utility's Express Efficiency, SPC, audit, or other small/medium nonresidential customer programs.

Table A-1 lists each of the interviewees and identifies their program involvement.

Table A-1
Utility Representative Interviewees

Utility/Individual	Program
PG&E	
Mary O'Drain	MA&E
Susan Kulakowski (Energy Solutions)	Express Efficiency
Bruce Douglas	Small SPC
Keith Forsman	Nonresidential audits
SCE	
Carole Quinn	Small Nonresidential and Residential SPC
Pierre Landry	MA&E
Grant Hjelsand	Small and Large SPC
William Grimm	Mass Market Efficiency Programs
Jacqueline Jones	Express Efficiency
Jeannette Duvall-Ward	Audits
SDG&E	
Andrew Sickels	MA&E
Michelle Costello	Large/small customer technical assistance
Lyn Roppe	MA&E: Progam Specialist
Don Wood	Nonresidential Programs (non-SPC)
Linda Linderman	Small (and Large) SPC
William Daiber	Express Efficiency: Upstream HVAC, motors and process
Jennifer Barnes	Express Efficiency: Rebates, audits and financing
Bill Mitchell	Information, seminars, web site
SCG	
Jim Green	MA&E
Lilia Villarreal	Express Efficiency

B

CONTRACTOR FOCUS GROUPS

This appendix presents information about the focus groups conducted with contractors. The first section presents the moderator's guide. The second section is a memorandum summarizing the information gathered from the focus groups, which was submitted to Mary O'Drain, Ralph Prahl, and the utility program managers.

B.1 FOCUS GROUP MODERATOR'S GUIDE

I. Purpose/Introductions (10 minutes)

Moderator introduction
Focus group purpose – guided, semi-structured discussion
Verify all (lighting/HVAC) contractors – some small business work
No right/wrong answers, courtesy, one-at-a-time, speak clearly
AV/mirror
Participant introductions – size of their firm, % with small businesses (< 500 kW), what do they buy/typical job size

II. Experience with High Efficiency Equipment/Small Businesses (10)

How do you define high or premium efficiency (HE) equipment?
What proportion of your small business work is HE?
How often do you provide HE options in small business proposals?
How often do small businesses request HE options on their own?
How do you promote HE to small businesses? (Unaided, also probe for cost savings, comfort, aesthetics.) Also, what marketing materials/information do you provide?
What are the benefits (to you) of selling HE to small businesses?
How much untapped demand for HE do you see in that segment?

III. Barriers/Factors in Selling High Efficiency Equipment to Small Businesses (20)

First gather unaided responses – focus on perceived customer barriers
- Probe (non-jargon) on customer-related barriers (deflect "first cost") –
- Awareness/knowledge (both its importance, and HE criteria)
- Performance uncertainty
- Asymmetric information
- Transaction/hassle costs
- Access to financing
- Split incentives
- Bounded rationality

What do you think small businesses perceive HE paybacks to be?
What payback do you think they require to invest in HE measures?
Are there technical barriers to small business use of HE? (As relevant:)

- T8s/electronic ballasts
- CFLs
- HE HVAC
- EMS/controls
- Other?

What other barriers do you face in promoting/providing HE to small businesses? (Unaided, probe for product, information, other supply-side/product supply chain barriers)
Are you able to get reliable information on HE? Where do you get your information? Are you able to provide the customer with sufficient information on HE products and energy savings to expect?
How important are energy vs. non-energy benefits to small business customers?
What kinds of small businesses are best HE prospects? Which are the worst? What could make the worst ones better prospects?
In general, what would make selling HE to small businesses easier?
(Unaided, then probe for:)

- Information needs
- Proposal generation tools (generating energy savings estimates)
- Marketing/advertising to customers
- Financing
- Referral services, customer/contractor hotline
- Vendor (and/or product – Energy Star) certification
- Links to energy audit (BEMS) recipients
- Web site (SmarterEnergy)

(If not addressed already:) Who would provide the greatest credibility? Probe for utility vs. contractors vs. others

IV. Awareness of Utility Programs for Small Businesses (10)

(Gather unaided responses)
Express Efficiency program
Small SPC program
Perceived changes in programs

V. Describe Current Programs to Group (5)

******[SEE ATTACHMENT]*******

VI. Participation in/Perceptions of Utility Programs (20)

Express Efficiency (10)

Level of participation
Reason for participation/non-participation
Positive features of programs
Negative features of programs – what could be done to improve programs?
Probe: Promotion, incentive levels, participation process
Importance of program in getting small businesses to select HE
What can be done to get non-participant end users to participate
[Probe "push-pull" – barriers as end user awareness, end user demand, end user follow-through confusion/hassles, vendor process/hassle, other?]

Small SPC (10)

Level of participation
Reason for participation/non-participation
Positive features of programs
Negative features of programs – what could be done to improve programs?
Probe: SPC application, selection, incentives, M&V, payment schedule
Importance of program in getting small businesses to select HE
What can be done to get non-participant end users to participate
[Probe "push-pull" – barriers as end user awareness, end user demand, end user follow-through confusion/hassles, vendor process/hassle, other?]

How do Express and SPC relate for the small business market?

VII. Program Concepts (20)

[May have covered above somewhat already. Accept but don't get stuck on higher incentive levels. May want to recap on flipchart by program.]
Probe:

- Advertising/marketing program to customers
- Proposal generation tools (calculates customer specific benefits of HE)
- General marketing materials on specific equipment
- Financing
- Referral services, customer/contractor hotline
- SmarterEnergy (buyer-seller conduit)
- "Mass" mailer BEMS audits
- Vendor (and/or product – Energy Star) certification

Get a sense across them of relative value/importance.

(Probe if not mentioned already:) Awareness of/reaction to Express Efficiency "summer sale" – double incentives, $200 bonus for every $100 in rebates earned.

Thanks & Closing. "Based on what we've talked about what else should I ask the next group?"

Attachments:
Express lighting
Express HVAC
PG&E SPC
SCE SPC (differs only in available funds information)

Program Description: Express Efficiency - Lighting

Statewide program targeted to high-efficiency measure retrofit/renovations among <500 kW businesses.

Small businesses are provided rebates for high-efficiency HVAC and lighting changes, obtainable through vendors. Lighting examples include:

$2.75-$5.00 per screw-in CFL lamp depending on wattage
$7.25-$14.50 per hardwired fluorescent fixture depending on wattage and existing incandescent vs. mercury vapor
$1.75 per lamp-controlled, NON-dimming electronic ballast
$10 per lamp-controlled, dimming electronic ballast with daylighting
$1.50 per 2-foot T8/T5 lamp installed and $.75 per delamp, up to $7.50 per 8-foot T8/T5 lamp installed, $2 per delamp
$18-32 per fixture for internal HID, depending on wattage and incandescent vs. mercury vapor
$7.50 to $20 per occupancy sensor depending on which type
$3.50 per exit sign retrofit and $10.75 per LED exit sign
$7.25 per time clock
$2.75 per photocell

Rebates are paid to customers generally within 1 month of completed installation paperwork.

Payment subject to utility verification of appropriate installation, at the utility's discretion.

Program Description: Express Efficiency - HVAC

Statewide program targeted to high-efficiency measure retrofit/renovations among <500 kW businesses.

Small businesses are provided rebates for high-efficiency HVAC and lighting changes, obtainable through vendors. HVAC/refrigeration examples include:

For PTACs, $50 per ton, per each EER level, above minimum qualifying EER
$36/HP for variable-frequency HVAC fan drives
$7 per time clock
$12 per setback programmable thermostat
$.45 per square foot for reflective window film
$70 per ton for evaporative coolers

$25 per linear foot for glass/acrylic refrigerator doors
$40-45 per linear foot for new refrigeration case with doors
$25 per linear foot for low/no-heat refrigeration case doors
$40 per auto-closer for coolers/freezers

For CACs, the incentive is $50 per ton, paid to the distributor.

Rebates are paid to customers generally within 1 month of completed installation paperwork.

Payment subject to utility verification of appropriate installation, at the utility's discretion.

Program Description: Small Business SPC (Standard Performance Contract)—PG&E

Statewide program. Pays third-party project sponsors (including contractors) for measured, verified savings, based on a fixed schedule for verified savings amounts. End users cannot self-sponsor projects. Typical applications might include replacement of T12s with T8s, installing lighting controls, installing high-efficiency HVAC equipment, or installing variable-speed HVAC fan drives.

A standard contract specifies incentives, performance measurement and verification (M&V) options and protocols, payment terms, and other operating rules. Measures must have useful life of at least 3 years, and save 20,000 to 200,000 kWh / year (or 2,000-20,000 therms).

Third-party participants submit applications that may or may not be accepted, depending on adherence to program requirements, including detailed justification for expected savings. There is a $100 per-application fee.

M&V options exist, and an M&V plan must be submitted to the utility. Verification of installation is an option for lighting projects; short-term or continuous monitoring is preferred for non-lighting projects. In either case, equipment loads and operating hours are subject to verification. Computer modeling based on changes in customer billing data also is an option, as is computer-based building simulation of savings. Sponsors are responsible for M&V.

PG&E funds available for remainder of 1999 are $1.8 million for electric projects, and $600,000 for gas projects. The number of participants and projects could be limited by available funds.

Incentives are paid to project sponsors, with 40% after installation and 60% after 1 year, based on verified savings.

One component of the project sponsor incentive is a fixed “participation incentive” of $1,000 (lighting) and $2,500 (HVAC).

The second component of the project sponsor incentive is based on verified savings - $.055/kWh for lighting, and $.185/kWh for HVAC/R ($.09/kWh for HVAC fan motors).

Project installation reports must be submitted by end of 2000, program scheduled to end in May 2002.

Program Description: Small Business SPC (Standard Performance Contract)—SCE

Statewide program. Pays third-party project sponsors (including contractors) for measured, verified savings, based on a fixed schedule for verified savings amounts. End users cannot self-sponsor projects. Typical applications might include replacement of T12s with T8s, installing lighting controls, installing high-efficiency HVAC equipment, or installing variable-speed HVAC fan drives.

A standard contract specifies incentives, performance measurement and verification (M&V) options and protocols, payment terms, and other operating rules. Measures must have useful life of at least 3 years, and save 20,000 to 200,000 kWh / year (or 2,000-20,000 therms).

Third-party participants submit applications that may or may not be accepted, depending on adherence to program requirements, including detailed justification for expected savings. There is a $100 per-application fee.

M&V options exist, and an M&V plan must be submitted to the utility. Verification of installation is an option for lighting projects; short-term or continuous monitoring is preferred for non-lighting projects. In either case, equipment loads and operating hours are subject to verification. Computer modeling based on changes in customer billing data also is an option, as is computer-based building simulation of savings. Sponsors are responsible for M&V.

SCE funds available for remainder of 1999 are approximately $2.3 million. The number of participants and projects could be limited by available funds.

Incentives are paid to project sponsors, with 40% after installation and 60% after 1 year, based on verified savings.

One component of the project sponsor incentive is a fixed “participation incentive” of $1,000 (lighting) and $2,500 (HVAC).

The second component of the project sponsor incentive is based on verified savings - $.055/kWh for lighting, and $.185/kWh for HVAC/R ($.09/kWh for HVAC fan motors).

Project installation reports must be submitted by end of 2000, program scheduled to end in May 2002.

B.2 MEMORANDUM SUMMARIZING FOCUS GROUP INFORMATION

The following memorandum beginning on the next page was prepared to summarize the information from the four focus groups.

- MEMORANDUM -

TO: Mary O'Drain, PG&E; Utility Small Non-res Program Managers; Ralph Prahl, TSC to CBEE
FROM: Mike Rufo, XENERGY; Todd Board, Quantum Consulting
DATE: August 16, 1999
RE: Draft Results from MA&E Contractor Focus Groups
CC: Allen Lee, XENERGY; John Cavalli, Quantum Consulting;

This memorandum summarizes highlights and key findings based on separate lighting and HVAC contractor focus groups conducted August 4th and 5th, 1999, in Berkeley and Riverside, CA. These focus groups were conducted as part of the Statewide 1999 Small Non-residential MA&E Study being managed by Mary O'Drain of PG&E. Ralph Prahl of the TSC is the Study Liaison for this project. XENERGY Inc. is the prime contractor and Quantum Consulting Inc. is a sub-contractor to XENERGY. The focus groups were designed by XENERGY and Quantum Consulting and carried out by Quantum. Todd Board of Quantum was the focus group moderator and also wrote the focus group summary presented in the remainder of this memorandum. Copies of focus groups tapes will go out FedEx to utility contacts in the next couple of days.

The purpose of the focus groups was to assess contractor perceptions of small non-residential ("small non-res") customer needs and energy efficiency market barriers, and to gauge contractor awareness of, and response to, the Express Efficiency and Small SPC (standard performance contracting) programs. This memo is organized as follows:

- Experience with/barriers to selling high-efficiency equipment to small non-res customers
- Awareness of/response to Express Efficiency
- Awareness of/response to the Small SPC program
- Conclusions and recommendations.

Key differences by measure and by market (climate zone) are discussed where appropriate. Contractors were screened and recruited such that all did at least some work with small non-res customers, with most doing at least 25% of their work in that segment. Each group also contained a mix of contractors in terms of business size, focus on retrofit vs. service work, and types of small businesses served. Small non-res customers were defined as those under 500 kW in demand, although some contractors had a better feel than others for how that translates to their customer base. Some group participants were effectively subcontractors to other measure contractors (or their *type* of contractor). Note that in the remainder of this section, we refer to "Berkeley" and "Riverside" contractors based on their participation in each of those focus group locations; however, these locations do not necessarily coincide with the contractors' location of business (though most participants were recruited from zip codes immediately surrounding the focus group facilities). One Berkeley lighting contractor was with a national, maintenance-oriented ESCO, with a heavy small non-res focus.

Focus groups are useful in gathering subjective, qualitative information, and in taking advantage of the interactions between participants, and related idea generation opportunities. Focus group results, however, cannot be projected to the entire market because the participants and the markets in which groups are completed cannot be assumed to be representative of the broader market. Likewise, this is limited to characterizing the most meaningful findings from the groups, and does not report all isolated results or comments. In some cases, participant quotes have been paraphrased for clarity. The focus group-based information in this section is complemented by the other sections of this report, which include a synthesis of recently completed studies focused on small/medium non-residential end users, and a set of targeted ESCO/trade ally telephone interviews conducted in mid-August 1999.

B.2.1 Experience with/Barriers to Selling High-efficiency Equipment

High-Efficiency Definition/Recommendation

Responses varied when respondents were asked to define "high efficiency" measures for small non-res customers. The Berkeley lighting group displayed a good grasp of high-efficiency (HE) criteria, mentioning T8 lamps, electronic ballasts, and also occupancy sensors, along with "better than what they have now" (T12s), removing incandescents, and removing mercury vapor equipment. Most claimed to always or typically recommend HE lighting. A couple of Riverside lighting contractors also echoed these "baseline" criteria for HE lighting; this group also mentioned EMS, high-voltage HIDs (metal halides), and screw-in CFLs. However, perhaps because of their somewhat different customer bases than in Berkeley (specifically, more small industrial/process applications), the Riverside lighting contractors were mixed in terms of how often they recommend HE lighting. One Riverside lighting contractor commented that many of the small non-res customers he encounters already have many of the elements of HE lighting.

Several Berkeley HVAC contractors agreed on 12 SEER as a HE HVAC criterion, but only one recommends HE HVAC on a consistent basis, and some participants seemed to have no firm HE criteria in mind. The vast majority of their work is urgent replacement (this group was mixed in terms of coastal and/or inland climate served). Most claimed to regularly recommend HE HVAC to small non-res customers. Riverside HVAC contractors generally served inland climate markets, and were more varied in terms of HE HVAC knowledge and definition. In addition to SEER considerations, one very knowledgeable participant outlined more of an HVAC systems and maintenance perspective, incorporating ductwork, insulation, building shell, unit sizing, and load calculations; other group participants agreed as he articulated these. Riverside HVAC contractors varied in terms of the proportion of small non-res work that was high-efficiency; most regularly recommend HE HVAC, or at least provide an HVAC option along with a standard efficiency option.

In Berkeley, the lighting contractors were generally more sophisticated about HE measures than were the HVAC contractors; this difference appeared driven primarily by the mild Bay Area climate and the reduced importance of HVAC as a result. Group participants were virtually

unanimous in saying that small non-res customers rarely or never specify or ask about HE measure options.

Few respondents see HE retrofit or service work among small non-res customers as a significant part of their business, and some fellow respondents agreed with one Berkeley lighting contractor's comment that his business "could not survive" without large customers.

- One Berkeley lighting contractor commented that the fastest growing lighting segment is computer room lighting. Riverside contractors emphasized retail customers in general; one noted that "you gotta see it to sell it." There was frank discussion in the Riverside lighting group of their resistance to doing business with some businesses due to a perceived focus on bargaining and lowest cost among some cultures. One Riverside lighting contractor said "we don't work with mom-and-pops."
- HVAC contractors mentioned offices, small professional buildings, and high-tech businesses (generally more established, less cash-constrained buyers) as better prospects for HE HVAC. Conversely, small groceries, deli's, fast-food restaurants, and other types of retail outlets where doors open and close often do not care as much about HVAC quality or savings.

When asked to consider energy and non-energy benefits of HE lighting and HVAC, responses varied by group and across respondents overall.

- Several more knowledgeable contractors indicated that as a matter of course they screen prospects to understand their needs, in order to best determine the importance of first cost, payback, comfort, productivity and aesthetics in the customer purchase decision. One knowledgeable Riverside HVAC contractor indicated that he does diagnostic HVAC system tests to show small non-res customers where savings opportunities are.
- Some contractors clearly had experience in crafting their sales pitch to fit the type of firm and the business role of the particular person they were talking to. Many contractors appeared less sophisticated in this regard. One Berkeley lighting contractor stressed the strength of his business model, which uses long-term leasing, to help smooth installation costs.

Barriers to Small C/I High-Efficiency Use

Contractors in all four groups indicated little or no small C/I HE demand, primarily as a function of three factors:

- High first cost (more for HVAC than for lighting),
- Potential energy savings are relatively small and unimportant (more of a barrier for lighting than for HVAC, particularly the hotter Riverside market where HVAC savings potential is significant), and

- General lack of awareness of HE options or benefits among small non-res customers, translating to a very low degree of proactive customer requests for HE measures.

Contractors generally saw themselves as the first source of energy efficiency information for many small non-res customers; a theme across all groups was the desire for more utility-sponsored customer education. Customer performance uncertainty was seen as a secondary barrier at most; this presumes that the customer is aware of HE options, and sees energy efficiency as an important enough topic to consider in the first place (however, this is inconsistent with contractors' general characterization that customers are unaware of most efficiency opportunities).

One Berkeley lighting contractor mentioned that, for small non-res customers, "it's so much cheaper just to change out the fixtures," and lighting contractors confirmed that the lack of urgency typically associated with lighting replacement means that many small non-res customers have an "if it's not broke, don't fix it" orientation. Another Berkeley lighting contractor asserted that first cost is not typically the most important factor in small non-res HE lighting purchases, but that lighting quality or employee productivity may be most important, since the savings associated with lighting are typically perceived as small. Conversely, lighting contractors in the less-affluent Riverside area indicated that first cost remains a barrier to HE lighting retrofits among small non-res customers. Riverside lighting contractors tended to agree that energy savings are the primary HE benefit sought from area small non-res customers, and that often non-energy benefits (quality, task lighting) are not always maximized with HE lighting anyway.

A common theme was that most small non-res customers are concerned with turning a profit and managing more visible and sizable elements of cost and profitability than energy-using measures. In that sense, first cost is a pervasive small non-res customer barrier, because many of them have such short planning and investment horizons (bounded rationality). One Riverside lighting contractor astutely noted that many small businesses remain small precisely because they are not good at making economically rational decisions, as reflected in resistance to the benefits of HE lighting. Contractors generally felt that small non-res customers will seriously consider HE investments if paybacks are in the 1-2 or 2-3 years range.

- While one Riverside lighting contractor commented that "most lighting retrofit paybacks are 8 to 12 months," there seemed to be some range of opinion among the other lighting contractors, depending on exactly what equipment is replaced and what is installed.
- HVAC contractors seemed to agree that HVAC paybacks often might not meet small non-res needs, and that business type and climate zone have a significant impact on potential payback. Most of the Berkeley HVAC contractors concentrate in the Bay Area, and say many small businesses in the coastal zone simply don't need HVAC, with some indicating small businesses in the region would have an unacceptably long payback from HE HVAC installation.
- While contractors generally agreed that small non-res customers would *need or demand* 1-3 year paybacks to seriously consider HE lighting or HVAC, the general opinion was

that most are too unaware of HE measures to hazard a guess at what paybacks actually *are*.

While small non-res customer access to financing was seen as a barrier to some extent, the perceived need for it varied across respondents, probably in turn a function of their varying small C/I customer experiences. This barrier generally was seen as secondary to the three primary barriers noted above; in some sense financing was seen as separate from first cost because it just spreads what is still an incremental cost to small non-res customers that often have thin and uncertain margins. One Berkeley lighting contractor noted that "the ones that need it usually don't qualify" for financing. Riverside HVAC contractors seemed to perceive financing as more helpful than did other groups, perhaps because of the more mixed economic situations of small non-res customers in the Inland Empire region.

While there was acknowledgment of small non-res doubts about contractor reliability, in general asymmetric information was not perceived as a major HE barrier. Some contractors commented that utility-sponsored performance/payback information would be persuasive to some small non-res customers.

Transaction/hassle costs generally did not emerge as a major barrier for small non-res prospects. However, in the Riverside contractor group there was some discussion of supply-side transaction/hassle costs associated with small non-res customers from cultural backgrounds where price-bargaining is common.

The split incentives issue emerged in all groups at some point or another. One Berkeley HVAC contractor estimated that up to 90% of small businesses are renting and not directly paying their bill, underscoring the importance of pursuing the building owner. Similarly, one Riverside HVAC contractor commented that more building owners are realizing the impact of energy consumption on the resale value of their buildings. On one hand, the split incentives issue was acknowledged as a real barrier to small non-res HE adoption, but it did not generate much discussion. The implication was that savvy contractors view prospect payment of the energy bill as an *initial* sales potential screen, so for them it may be less of a sales barrier *later* in the process.

Contractors mentioned few technology barriers to providing HE measures to small non-res customers, though some examples were offered:

- One Berkeley lighting contractor mentioned that available lamps/bulbs don't always fit fixtures, leading to poor aesthetics; another perceived electronic ballasts as very sensitive to variations in power quality, though another noted that those problems have largely been addressed by newer electronic ballasts.
- The Riverside lighting contractors indicated that poor light amount (reduced lumens tied to reduced watts) and quality from first-generation HE lamps (Energy Savers) caused lingering and outdated negative perceptions regarding current HE lighting equipment.

- One Berkeley HVAC contractor noted that equipment for larger facilities is intrinsically more efficient than equipment appropriate for smaller customers. Another commented that "there aren't a lot of choices" of HE HVAC equipment for small businesses.
- One Riverside HVAC contractor commented that bad or inaccessible ductwork, preventing optimization of HVAC system efficiency, was a barrier to some small non-res installations.

One Berkeley lighting contractor commented that HE lighting equipment costs have declined significantly, and others agreed. When asked if this cost decline was due to previous utility programs to a significant degree, most agreed that it was.[1]

Suggestions for Overcoming Barriers

The contractors in these focus groups mentioned a range of factors that might make selling HE measures to small non-res customers easier. The mentions that were more practical and actionable by utilities included:

- "Higher rebates," with discussion of the recent declines in rebate amounts. When compared directly, rebates generally were perceived as more powerful than 2-year payback information in driving small non-res adoption of HE lighting.
- "Explain to the public why PG&E wants to pay them to use less energy."
- Case studies (the briefer the better) showing energy, sales, or and productivity benefits, particularly if readily available via mail or the Web. One Riverside lighting contractor suggested that a spreadsheet with information on lighting costs with standard vs. HE equipment would be useful.
- One Riverside lighting contractor noted that many small non-res customers have been persuaded to install HE lighting by being promised "no-cash-out-of-pocket" deals.
- One Berkeley HVAC contractor asserted that first emphasizing the benefits of HE HVAC in discussions with small non-res customers, and only afterwards providing cost specifics, would bring greater success in this segment.
- A "do-it-yourself" audit was mentioned in the Berkeley HVAC group, and *all* respondents in this group indicated that financing would be helpful, perhaps because of the long paybacks associated with HE HVAC in the Bay Area.
- A Berkeley HVAC contractor mentioned EGIA's former certification and rebate programs, where EGIA-certified contractors would get referrals. Linked to this discussion was the suggestion that PG&E should take a more active role in educating small businesses about HE measures and benefits.
- Riverside HVAC contractors brought up third-party certification of HE measures through utilities, and also the desire for utility contractor certification (there appeared to be little

[1] Note that this perception is consistent with findings from the PG&E/SDG&E Commercial Lighting Market Effects Study, prepared for CADMAC by XENERGY Inc., July 1998.

recognition of the legal complications involved in the latter). This group also felt that verification would be a plus for both customers and contractors, at least for high-quality contractors.

- Several Riverside HVAC contractors mentioned good energy calculation tools that exist for HVAC systems; these included manufacturer tools (Trane and Carrier) and one from Energy Star. Some in the group were less familiar with these specific tools, and even the class of tools, than were others.

When asked on an aided basis, most Berkeley HVAC contractors felt utility-provided savings estimates would have a significant positive impact on small non-res consideration of HE HVAC. Most thought that a utility-sponsored audit also would help significantly; this also was true of financing. When Berkeley HVAC contractors were asked about the concept of a PG&E-provided referral program, they were suspicious that PG&E wanted to "take over" their role.

Riverside lighting contractors thought a reasonably precise estimate from an audit would be a meaningful help in the small non-res market. Discussion of marketing caused one respondent to mention SCE's CTAC training/education center; discussion was generally positive about CTAC's value, based on participants' personal experience or what they had heard about it. When asked about a utility-sponsored referral service (with customers having "opt-in" involvement), several thought it would be a significant help in approaching small non-res customers.

Most Riverside HVAC contractors were aware of audits, but couldn't attribute a specific small customer job to completion of an audit. One provider of audit tools is Energy Star; while Riverside HVAC contractors were complementary of the brand, they said that most small non-res customers would not attach any value to Energy Star, primarily due to low brand awareness.

In summary, most of the actionable comments involved providing more HE measure and performance information to small non-res customers, and helping to reduce their decision uncertainty and risk. Also, financing appears to increase in importance as payback length and/or uncertainty increases.

B.2.2 Awareness of/Response to Express Efficiency

One-half of the Berkeley lighting contractors were aware of Express Efficiency, while only one of the Berkeley HVAC contractors had heard of it.[2] No Riverside lighting or HVAC contractors were aware of the Express Efficiency program. (Note that the SCE rebate program is being run under the "Express Efficiency" name for the first time in 1999.) Respondents were provided

[2] This is generally consistent with the findings from the recently completed PG&E 1998 Express Efficiency Market Transformation Study, prepared by XENERGY and Quantum Consulting for PG&E, June 1999. This study found roughly 1/3rd of contractors were aware of the *1998* Express Efficiency program. As documented in the PG&E/SDG&E Commercial Lighting Market Effects Study, awareness levels among contractors were much higher in the 1992 to 1996 period (75+ percent).

with a description of key facts about the program, and asked to review the description and label the specific elements that they:

- Found positive and/or thought small non-res customers would see as positive
- Found negative and/or thought small non-res customers would see as negative (or insufficient in the case of rebate amounts)
- Found confusing or unclear.

Because the specific program incentives vary by measure, results are summarized separately by measure below, with results by market also. (The focus group discussion guide and program descriptions provided to participants are appended to this summary.)

Table B-1
Program Perceptions - Express Lighting

Express – Lighting	POSITIVE		NEGATIVE		CONFUSING/UNCLEAR	
	BKLY	RSIDE	BKLY	RSIDE	BKLY	RSIDE
Statewide <500 kW program	4	4	2	3		
CFL rebate	6	1	1			
Hardwired fluorescent rebate	6	2				
Non-dimming EB rebate	7					
Dimmable EB with daylighting rebate	8		1			
Upper/lower T8/T5 & de-lamp rebates	6		1			
Upper/lower internal HID rebates	6	1		1		
Upper/lower sensor rebates	6	2			1	
Exit sign & LED rebates	6		1			
Time clock rebate	6	1			1	
Photocell rebate	5	2			1	
Rebates paid within 1 month	7	9				
Payment subject to utility verification	5	3	2	2		3

Note that most Riverside lighting contractors indicated that the general fact of rebates was "positive," but did not identify specific measure rebates as particularly positive, which Berkeley respondents were more likely to do.

Table B-2
Program Perceptions - Express HVAC

Express – HVAC	POSITIVE		NEGATIVE		CONFUSING/UNCLEAR	
	BKLY	RSIDE	BKLY	RSIDE	BKLY	RSIDE
Statewide <500 kW program	5	8		1	2	
PTAC rebate	4	8				
VFD rebate	5	6		2	1	
Time clock rebate	2	6	1		2	
Setback thermostat rebate	3	9	2			
Window film rebate	4	5		1		1
Evaporative cooler rebate	3	7	1			1
Refrigerator door rebate	3	6		1	1	
New refrigerator cases with door – rebate	4	8				
Low/no-heat refrigerator case doors – rebate	4	6				1
Auto-closer rebate	4	7				
CAC rebate to the distributor	2	2	2	6	3	2
Rebates paid within 1 month	7	11				
Payment subject to utility verification	4	6		2	2	1

One Riverside and two Berkeley HVAC contractors indicated that the general fact of rebates was "positive," but did not comment on any specific rebate levels.

Lighting contractors were somewhat split regarding the program focus on small (< 500 kW) non-res customers, while HVAC contractors were mostly positive. The most common negative, not surprisingly, was the direct-to-distributor incentive for CACs. Contractors frequently saw the rebate payment being subject to utility verification as negative or confusing; one participant said it would be better if verification either always or never happened, rather than leaving it to the utility's discretion. Other than isolated mentions, no other aspects of the Express Efficiency program were commonly seen as negative (or, in the case of rebate amounts, insufficient). (There were some negative "big government" connotations associated with the notion of "statewide" programs.)

Timely rebate payments to customers were popular, of course, while most contractors rated most lighting and HVAC rebate amounts as a positive. Probably as a reflection of the more HVAC-sensitive climate, Riverside HVAC contractors made a point of rating specific rebates as positive more often than did Berkeley HVAC contractors. Several Berkeley HVAC contractors felt that PG&E would need to take small customers "by the hand" (in-person audits) to generate small non-res customer awareness of, and confidence in HE HVAC. Nearly all of the Riverside HVAC contractors said they would seriously consider participation in Express Efficiency, once made aware of it in the group discussion.

Contractors were asked at the end of the groups about the Express Efficiency "summer sale" (and in PG&E territory, the contractor incentive for the remainder of PY99). Two Berkeley lighting contractors were aware of the summer sale; this group generally agreed that it and the $200 contractor incentive were not enough to motivate them to focus on small non-res customers, compounded by the short lead time at this point. No Berkeley HVAC contractors were aware of the summer sale; they emphasized that incentive money needs to get to end users, more so than to contractors. No Riverside contractors were aware of the summer sale. Several said they would tout it to small non-res customers, but one participant expressed concern that they already have high-season levels of business at this point anyway – that perhaps an off-season promotion would be more useful. Another noted that in the summer when a customer needs an urgent HVAC replacement "we've already got the business" and don't need the additional incentive.

B.2.3 Awareness of/Response to Small C/I SPC

One-half of the Berkeley lighting contractors were aware of the Small Business SPC program, while none of the Berkeley HVAC contractors had heard of it. Several Riverside lighting contractors were aware of SPC, while only one Riverside HVAC contractor said it "rings a bell." Respondents were provided with a description of key facts about the program, and asked to review the description and label the specific elements that they:

- Found positive and/or thought small non-res customers would see as positive
- Found negative and/or thought small non-res customers would see as negative (or insufficient in the case of rebate amounts)
- Found confusing or unclear.

Because program structure is similar across measures, results are summarized below by end use (L=lighting, H=HVAC) and market. In some cases negative or unclear mentions pertain to just part of the description element, but for the most part positive, negative, and unclear mentions pertained to the entire item indicated in the table below. The only differences between lighting and HVAC SPC elements were the greater M&V flexibility indicated for lighting, and the higher fixed and per-kWh incentives for HVAC. The only difference between Berkeley and Riverside SPC elements was the corresponding (and minor) difference between remaining PG&E and SCE funds.

The fundamental reaction to the SPC program, in part because of low prior awareness, was that it was too complicated to be practical or cost-beneficial to contractors or small non-res customers. The contractors generally were positive about the per-kWh incentives (which tend to be greater than the Express Efficiency rebates in terms of their net effect), and the fixed participation incentives. They also were fairly positive about the overview program description (row 1 above) that confirmed that typical measures would apply, that the program pays third-party sponsors, and that M&V is required.

However, on most other aspects of the SPC description, contractors overall expressed (at best) a mix of positive, negative, and confused responses. Responses were more clearly negative regarding the amount of available funds, the back-loading of incentive payments pending verification of first-year savings, and the $100 application fee without a guarantee that the project will be approved.

One element not made explicit in the SPC description was the amount of paperwork involved in contractor participation. However, one Berkeley lighting contractor was in the midst of the process of a large customer SPC project at PY98 incentive levels, and indicated that the SPC participation experience was similar regardless of customer size. Interestingly, he was critical of the SPC process, but when asked by a fellow lighting contractor if he would "do it again," he said he would because the incentives were attractive enough. However, this response appeared predicated on a large customer job size. His specific comments included (in some cases paraphrased for clarity):

- "So much customer contact and possible aggravation since you have to call the customer so much," which he felt could make the process seem less organized and professional than with participation in the Express Efficiency program.
- "The walk-through is very time-consuming and detail-oriented because it is switch by switch."
- "Then we had to code everything, and the rebate got coded wrong" (he was unclear about exactly how the specific *measure changes* should be coded).
- "Have to make sure all of the actual installs match the paperwork" (he indicated that there didn't seem to be flexibility for altering the measure change plan where it makes sense as the installation progressed; the first PIR failed PG&E inspection).

Table B-3
Program Perceptions - Small SPC

	POSITIVE				NEGATIVE				CONFUSING/UNCLEAR			
	BKLY		RSIDE		BKLY		RSIDE		BKLY		RSIDE	
	L	H	L	H	L	H	L	H	L	H	L	H
Statewide; pays 3Ps for measured, verified savings	2	4	9	6		1		1		2		2
Standard contract; 20k-200k kWh savings per year	2	1	8	5	3	1		1	1	3		2
Sponsors submit applications with $100 fee		2	1		6	4	6	8	1	1	1	1
Sponsor must submit M&V plans and provide M&V	2	1	4	2	3	2	3	3	2	2		4
Total funds currently available in UDC territory	1	2	1	2	4	3	5	3	2	1		
Incentive payment 40% after install, 60% after 1 yr.	1	3	4	5	6	3	4	3	2			
Fixed participation incentives	4	3	9	7	3	2				1		1
Per-kWh incentives on verified basis	5	5	7	5	1	1	1	1		1		
Project milestone/timing	1	4	5		3	1	2	1	1	1		4

- "The customer is aggravated because they haven't gotten the rebate" (at the time of the group this participant was hoping the customer would be paid by an upcoming date; if not, he feared serious negative repercussions in the customer relationship).
- "M&V is a pain, and it can make the contractor look foolish if the rebate does not turn out to be as much as the initial promise."

Among the other Berkeley lighting contractors, this recitation of real program experience generally made the program sound less attractive. They expressed particular concern about the amount of paperwork involved and the poor cost-benefit of tying up what was perceived to be a significant amount of effort, when it could be spent more effectively elsewhere. Other summary concerns in this group, where impressions may have been skewed (but also made more realistic) by their fellow participant's experience, included the M&V burden and the one-year M&V time frame, which struck some as arbitrary. More broadly, participants expressed concern that project sponsors (i.e., the contractor) bear risk for factors beyond their control, specifically changes in customer measure use after installation (which could impact savings), reliance on third-party

verification agents whose timing and priorities may not be in line with project sponsors, and dependence on utility assessment of savings achieved. Two other Berkeley lighting contractors had investigated the SPC program and decided not to participate.

In general, participants in the other groups had the same general impressions and concerns about the SPC program as it applies to small businesses, though without the firsthand experience of a fellow group participant. Riverside lighting contractors expressed skepticism of utility- and government-sponsored programs, and concern about reliance on utilities to approve projects, as well as the timing of the approval process. They likewise expressed concern about the risks to project sponsors, saying "Why should the contractor have to verify that energy is saved when this is a utility-defined program and the measures are already well-studied?," "We're the installers, not the energy engineers," and "Customers will like the SPC because it puts the risk on the contractor." One Riverside lighting contractor was familiar with the program paperwork, and described it as "two to three inches thick," indicating there was "no way" that small contractors could afford to go through it.

HVAC participants, who face a more involved M&V requirement, asked if the utility would have meters to lend for M&V. They also suggested that M&V should not be required, and that accepted and approved measures should just be rebated at a fixed rate. Like lighting contractors, HVAC contractors also were concerned about taking on the risk of savings shortfalls associated with changes in customer measure use after installation. There was some sense of unfairness in this regard, with one Riverside HVAC contractor saying "The utility will win, the customer will win, but the contractor can lose," and another saying "We're not policemen who have to monitor customer energy use."

Other concerns about the SPC program offered by contractors included:

- The risk that incompetent, unknowledgeable, or unscrupulous contractors would develop failed proposals, complicating the process for qualified contractors.
- Confusion over whether or not multi-family common-area projects and chain/franchise restaurants and stores would qualify.
- Contractors underscored the perceived paperwork burden by stressing their need for utility programs that help to spread demand more evenly throughout the year. While this tied into the discussion of the Express Efficiency "summer sale," it also tied into the perceived SPC paperwork burden precisely when contractors are busiest with seasonal demand.

In short, as currently structured the non-res Small SPC program faces significant barriers to third party project sponsor acceptance, at least within the broad contractor population.

B.2.4 Conclusions

This final section recaps key conclusions from these focus groups.

According to contractors in the focus groups, small non-res customers generally have little or no knowledge of, or interest in, HE measures, savings potential, or payback, and rarely if ever specify or actively inquire about HE measures. Split incentives are a barrier, though as a practical matter many contractors appear to screen out customers (and business types) who don't pay their energy bills as a normal part of pursuing business. While the Small SPC program may theoretically apply to at least some building owners (those encompassing small non-res customers), in effect the Small SPC program seems geared to a "bottom-up" approach, addressing small non-res customers directly rather than separate building owners. Program planners may want to consider a program, or program component, that is explicitly geared to the needs and interests of building owners.

In addition, first cost and bounded rationality - perhaps considered together as an "excessively short planning horizon" - were confirmed as primary barriers. Related to this, contractors generally felt that paybacks needed to be in the 1-2 year range, 3 years at most, to cause small non-res customers to seriously consider HE measures. While many lighting applications can meet this threshold, the savings potential often is too low to sway small non-res customers. Conversely, while many non-coastal HVAC applications may offer more sizable savings, the payback often will not meet the 1-3 year threshold. While the applicability may be too narrow for small non-res customers, it might be interesting to consider a program element that explicitly incents lighting-and-HVAC changes, to blend their savings potential and payback benefits.

Most contractors said they regularly recommend HE measures, or at least offer options. At the same time, most were not aware of Express Efficiency or SPC as potentially helpful tools in selling HE to small non-res customers (only Berkeley lighting contractors reported much awareness of either). It is critical to make sure that supply-side allies are as aware as possible of these tools, along with audits, given existing budget and timing constraints.

Small non-res customers may suffer from outdated perceptions of fluorescent/electronic ballast technologies, in terms of lighting quality and output, and reliability. Consideration should be given to explicitly addressing these possible misperceptions, as a platform for highlighting the benefits of "new and improved," current-generation T8/EB fixtures. Information that demonstrates "typical" savings for specific types of small non-res customers also may be compelling. We recognize that some such materials, such as the Small Business Energy Guide are now being developed and have not had time to register yet with their targeted audiences.

More broadly, there is a clear need for customer education regarding the benefits of HE measures, and contractors are unable (or unwilling) to bear that burden, except when interacting with specific customers at the point of decision. While contractor involvement at these "moments of truth" is critical, it may not be sufficient. Contractors frequently mentioned the need for their HE selling efforts to occur against a backdrop of broader customer education, promotion, and certification of HE benefits by the utilities. Third-party contractor certification also would be attractive to contractors. As customer awareness of HE measures increases, the state should anticipate the need for a "second wave" of information designed to counter performance uncertainty with more specific, quantitative information.

Some contractors are suspicious of the "statewide" nature of these programs, and also of the utilities' motives in reducing demand. The state and utilities may want to be explicit about their goals and valid self-interest in supporting energy efficiency programs, and why statewide coordination is the best approach.

C

SMALL CUSTOMER CHARACTERIZATION

In this appendix we present a summary of characteristics of small/medium nonresidential customers gleaned from previous related research. In the absence of primary data collection, we took advantage of data available from several recent studies and reports to provide customer information that met the needs of the Phase I report. Throughout this appendix, we draw on the five following reports:

- *Evaluation of the 1998 NSPC Program, Final Report*, prepared by XENERGY Inc. for the California Board for Energy Efficiency and Southern California Edison Company, June 1999. (Reference 1)
- *1998 Express Efficiency Market Effects Study (Small/Medium Commercial Focus),* prepared by XENERGY Inc. for Pacific Gas & Electric Company, June 1999. (Reference 2)
- *1998 Business Energy Management Services (BEMS) Market Effects Study* (Small/Medium Commercial Focus) prepared by Quantum Consulting Pacific Gas & Electric Company, June 1999. (Reference 3)
- *PG&E and SDG&E Commercial Lighting Market Effects Study,* Prepared for by XENERGY Inc. for Pacific Gas and Electric Company and San Diego Gas and Electric, July 1998.(Reference 4)
- *PG&E 1997 Commercial Building Survey Report*. (Reference 5)

None of these reports specifically presents a characterization of small/medium nonresidential customers throughout California according to the definitions used in the PY99 program plans (defined as customers with <500 kW demand based on their utility rate classification). Reference 1 presents statewide information on nonresidential customers of all sizes, with selected results broken out by customer size categories. However, the overall results in Reference 1 are weighted across all customers (including those over 500 kW) and the underlying size strata (of which there are 4) do not align exactly with the <500 kW threshold. (Note that the 500 kW breakpoint was developed late in the PY99 planning process after the data collection for Reference 1 was complete.) References 2 and 3 present information specifically for small commercial customers, but only in the PG&E service territory. The data collected for References 2 and 3 were stratified based on three groups (<20 kW, 20 to 99 kW, and 100 to 499 kW). Reference 4 reports commercial sector results for two utility areas, but the study focuses on lighting technologies only and customers are not segmented by electricity demand.

Because none of these reports provides information for exactly the market that is the subject of this study, we have drawn data from all the reports and synthesized it to present as complete and consistent a picture of statewide, small nonresidential customers as possible without primary data

collection. Most of the information presented here is from References 2 and 3, which are limited only in that their data are from a single utility area. Throughout this section, when specific data are presented the source is identified by the reference number in brackets.

Customer characteristics information is presented in the following subsections:

- C.1 Customer Types and General Characteristics
- C.2 Energy Equipment
- C.3 Energy-Efficiency Awareness and Knowledge
- C.4 Energy-Efficiency Attitudes, Beliefs, and Behaviors
- C.5 Barriers to Installation of High-Efficiency Measures
- C.6 Efficient Equipment Installation Opportunities
- C.7 Perceptions of and Responses to Efficiency Programs

C.1 CUSTOMER TYPES AND GENERAL CHARACTERISTICS

Based on PG&E-area data, breaking small/medium commercial customers into four categories—office, retail, institutional, and other—about 27% are retail, 18% are offices, about 8% are institutional, and about half fall into the other group [2, 3]. On an energy basis, retail accounts for 33%, offices 22%, institutional 12%, and all other 33% [2, 3]. Statewide estimates from Reference 1 are similar. The statewide study also indicates that there are approximately three-quarters of a million small/medium nonresidential customers in the 3 electric IOUs' territories, approximately 15% of which are industrial [1].

In all categories, between 80% and 90% of the customers are very small, i.e., their electricity demand is less than 20 kW [1, 2, 3]. Broken down into three demand groups--<20 kW, 20 to 99 kW, and 100 to 499 kW—the electricity consumption is roughly the same for each of these size groups [1, 2, 3]. Based on statewide data, about 20% of commercial electricity use is for customers with bills under $500/month and another 20% is for customers with monthly bills greater than $50,000 [1].

Across all PG&E commercial customers, about half rent/lease their space and half own it [3]. Similarly, statewide data showed that about 59% of commercial establishments (energy-weighted) owned their space [1]. Ownership increases with customer size. In PG&E's area, among the smallest customers (<20 kW), only about 40% own their space, whereas about 70% of the larger small (100-499 kW) customers own their space.[1] In the PG&E area and statewide, of those customers who lease their space, about 90% across all size groups pay their utility bills separately from their lease [1, 3].

[1] Data reported by customer size category are based on raw data for Reference 2.

C.2 ENERGY EQUIPMENT

Note that there is currently an information gap with respect to saturation data and end use consumption for small/medium nonresidential customers. Existing published sources such as utility CEUS reports and CEC ER forecasting documents do not break out separate population estimates for small/medium versus large customers. The figures reported below are thus for *all* commercial customers, including large. We expect that the end-use consumption estimates and lighting and cooling inventories differ significantly between small/medium and large customers and recommend future on-site studies segment published results separate for these two groups.

Over a third of electricity used by PG&E's commercial customers is for interior lighting. The second largest end use is cooling, followed by other miscellaneous loads, and refrigeration [5].

As of 1997 in PG&E's service area, commercial customers relied on fluorescent tubes for almost two-thirds of their lighting capacity [5]. Incandescent lighting provided about one-fourth of the lighting capacity. CFLs provided only about 1% [5]. About 20% of the small commercial customers in the PG&E area indicate their lighting is predominantly high efficiency; the percentage does not vary by customer size within the small commercial group [2].

Packaged electric air-conditioning units are present in nearly two-thirds of the buildings occupied by all commercial customers in PG&E's area. They are most common in hospitals, refrigerated warehouses, restaurants, schools, and colleges. They are least common in hotels/motels and retail stores [3]. In PG&E's area, contractor sales of packaged A/Cs in existing units are distributed as follows: 38% are for planned replacements, 27% are for expansions, and 36% are for emergency replacements [3]. Based on contractors' responses, PG&E-area commercial customers rank packaged unit characteristics in the following descending order of importance: reliability, price, energy efficiency, brand, and dimensions [3]. Across all small commercial customers in the PG&E area, about 20% say that they've installed a new air conditioner in the past 3 years, and of these about half indicate that it was a high-efficiency unit [2].

Among small commercial customers in the PG&E area, about 20% say that they have installed T-8 fluorescents in the past 3 years and about 11% say they've installed CFLs outside of the utility programs [2]. The estimated penetration of T-8s for all commercial customers in the PG&E/SDG&E area is about 40%; the penetration is around 50% in offices, around 40% in institutional buildings, around 20% in retail buildings, and only about 10% in other buildings [4]. One fourth of small commercial customers in the PG&E area say that they've installed setback thermostats in the past 3 years. About 5% say that they've installed VSDs [2].

C.3 ENERGY-EFFICIENCY AWARENESS AND KNOWLEDGE

About one-fourth of PG&E's small customers say they are not knowledgeable or aware of energy-efficiency products and their performance [2]. Awareness is inversely related to size: about one third of the smallest customers say they have little awareness, contrasted with about 15% among the larger small customers. When asked to estimate how much they could reduce

their electricity bill with cost-effective efficiency measures, the smallest customers estimated an average of about 20% whereas the larger small customers said about 25%.

Small customers rate their knowledge of energy efficiency much lower than large commercial customers. Statewide, small customers rate their knowledge of efficient lighting opportunities as half the level that large commercial customers rate their knowledge. For HVAC opportunities the disparity is even greater [1].

About 10% of PG&E's small commercial customers disagree that energy-efficient equipment is easy to use and understand [2]. Again, the difference between the smallest and larger small customers is pronounced; the smallest customers are twice as likely to disagree than the larger customers.

PG&E's small customers indicate that they rarely hear information about energy efficiency. The difference between the smallest and larger small customers is dramatic—nearly 60% of the smallest customers, but only about 15% of the larger small customers, indicate they rarely hear about energy efficiency [2]. Similarly, only 3% of the small customers statewide said that they had been approached by firms offering energy performance contracting, whereas about half of the largest commercial customers said that they had been approached [1].

C.4 ENERGY-EFFICIENCY ATTITUDES, BELIEFS, AND BEHAVIORS

Almost 80% of PG&E's small customers state that conserving energy is an important part of being a good corporate citizen [2]. About 60% believe that energy-efficient products perform as well as or better than standard products and about half believe that such products definitely offer other benefits [2].

About three-fourths of PG&E's small customers say that all businesses should consider energy-efficiency investments, but less than half indicate they will actively pursue such investments in the future [2]. The smallest customers differ significantly from the larger small customers in their intentions to pursue such investments: about 40% of the smallest ones and nearly two-thirds of the larger ones indicate they will pursue efficiency investments. Similarly, the smallest customers are about twice as likely (15%) as the larger small customers to say that their decision-makers don't find energy efficiency to be important.

Overall, small commercial customers have implemented many fewer energy-efficiency measures than larger customers. Even T-8 fluorescent lamps, which are generally the most common efficiency upgrade, have been installed only very rarely by small commercial customers statewide, whereas over 20% of the large customers have installed them [1].

Overall, about 80% of the small customers say that their firm does not have a policy for selecting energy-efficient equipment [2]. Again, the smallest of the small customers are less prepared (90% have no policy) than the larger small customers (65% have no policy) to address energy-efficiency issues. The differences are even more pronounced when it comes to applying long-

term investment criteria to energy equipment selections: 70% of the smallest customers use no such criteria, whereas only about 30% of the larger small customers don't.

For customers who have had some experience with energy-efficiency measures, about half the small customers in the PG&E area say that the experience increased their confidence in the energy savings of such measures [2]. About half also say that they are very satisfied with the measures and over 80% say the experience made them more likely to choose efficient measures in the future [2]. About 40% of PG&E's small customers say that they actively advocate energy-efficient investments to others [2], but the percentages differ significantly between the smallest (~30%) and larger small (50%) customers.

C.5 BARRIERS TO INSTALLATION OF HIGH-EFFICIENCY MEASURES

Small customers have confirmed that there are several barriers that impede their installation of high-efficiency measures.

One of the major barriers identified by small customers was the concern that utility bill savings associated with energy-efficiency measures would be less than predicted. Of small customers in the PG&E area, about 40% felt strongly that savings would be less than predicted. The percentage did not vary significantly with customer size or customer type [2].

About a third of the PG&E-area small customers strongly agreed that lack of financing was a significant barrier. The percentage was similar across the size categories within the small customer segment and was consistent across customer type, except for institutional customers for which about half indicated that lack of financing was a significant barrier [2].

About a third of PG&E-area small customers also indicated that, although they were interested in energy-efficient investments, such investments always seemed to fall below other priorities. The percentage did not vary significantly by customer size, but this barrier again appeared to be a more significant issue for institutional customers [2].

About 30% of PG&E's small commercial customers indicated that lack of confidence in the reliability of information provided by contractors and others was a significant barrier to energy-efficiency investment. The smaller the customers, the more likely they were to indicate that this was a significant barrier [2].

About one-fourth of the small PG&E commercial customers indicated that the time and hassle required to get energy-efficiency information and to pick a contractor were significant barriers. Both these barriers were considered to be significant by a larger share of the smallest customers, although the variation by size was not dramatic. The institutional segment was the most likely to identify the effort required to select a contractor as a significant barrier and the retail segment was the most likely to identify the information search effort as a significant barrier [2].

About 15% to 20% of PG&E's small commercial customers indicated that the energy-efficiency information they received was not very helpful and a similar share said that the efficiency measures or products they heard about were not available from their suppliers. Both barriers were more common among the smallest customers. Retail segment customers were the most likely to find that the information they received was not very helpful and customers in the other segment were the most likely to indicate that products and measures were not available from their suppliers [2].

When PG&E's small commercial customers who had not installed high-efficiency lighting were asked why not, the most common customer response—about one-third—was that they were satisfied with their existing lighting. About 15% said that efficient lighting was too expensive, and about 5% said they would not change their lighting because they were leasing their space [2].

The reasons for not installing more efficient air-conditioning equipment were essentially the same. The main difference was that about half of the customers indicated they hadn't installed an efficient air conditioner because they were satisfied with their existing equipment [2].

C.6 EFFICIENT EQUIPMENT INSTALLATION OPPORTUNITIES

Overall, PG&E's small customers reported that they installed new air conditioners at a rate of about 6%/year. This rate was fairly consistent across the small customer size categories. On the other hand, there were significant differences across customer segments. The installation rate was highest for institutional customers, nearly 10%/year, and lowest for retail customers, about 4%/year [2].

When a commercial space is remodeled, this often presents an opportunity to change the energy-using equipment. According to data for PG&E commercial customers, when the adoption of energy-efficiency measures was compared, customers who had remodeled their space in the past three years were about twice as likely to have adopted each of several measures. The PG&E-area data indicated that the space of larger small customers (100 to 500 kW demand) was most likely to have been remodeled during the past three years; 35% of respondents indicated that their space had been remodeled. The mid-size small customers indicated that their space was the least likely to have been remodeled—24% in three years—and 29% of the smallest customers indicated their space had been remodeled. By customer segment, the most likely space to have been remodeled was offices (38%) and the least likely was retail space (23%) [2].

Across all commercial customers in the PG&E/SDG&E areas, new fluorescent lamps representing about 6% of the existing stock are purchased each year. About half are replacement lamps. About 37% are for retrofits, renovations, and remodeling, and 10% are for new construction [4].

Overall, the small commercial customer segment is a "target rich" market for efficiency upgrades. Not only have few upgrades been made, but firms rarely have marketed energy-

efficiency services to this segment; small customers have reported that over a two-year period less than one fourth of them had been offered such services [1].

C.7 PERCEPTIONS OF AND RESPONSES TO EFFICIENCY PROGRAMS

Commercial customer participation in utility efficiency programs varies dramatically across building types and utility areas. Generally, institutional customers have the highest participation rates, largely because of federal efforts to increase the efficiency of their buildings. The effect based on floorspace is even larger because federal facilities tend to be relatively large. Overall, retail buildings that are not part of a chain have had the lowest participation rates [4].

There is evidence that a significant proportion of small customers may have little awareness of utility programs in which they've participated. Based on data from PG&E's Express Efficiency Program participants, over 40% indicated that they had not participated in the program even though they had [2]. Even more PG&E BEMS audit participants, about 60%, indicated that they had not participated in this program [3].

A significant difference between small and large commercial customers is their awareness of the availability of energy-efficiency and other energy services from different providers. Small customers are far more likely (40%) to be aware of such services from their utility than large customers (9%). Conversely, small customers are almost completely unaware of such services from non-utility providers (no more than 6% awareness for any other provider type), whereas large customers are far more aware of such services from other providers (e.g., 49% know that ESPs offer such services) [1].

Small customers also have considerably less understanding of energy performance contracting mechanisms. California-wide, only about 5% of small customers understand these mechanisms, whereas over half of the largest customers understand them [1]. Similarly, awareness of the 1998 Large SPC was very low among the smallest customers (6%), but relatively high among the largest customers (44%) [1].

The most common measure installed by small customers under utility programs has usually been T-8 fluorescent lights. About one third of PG&E's Express Efficiency Program participants said that they installed T-8s. Fewer than 6% of the customers installed other specific measures [2]. PG&E small customers audited under the BEMS received recommendations to install T-8s in 16% of the cases, and about half these recommendations were implemented [3].

Participant responses about the Express Efficiency Program have indicated that the rebate had a significant effect on reducing the cost barrier of efficiency measures; 63% of PG&E's small customer participants indicated that the rebate was very important. Despite these results, about half the participants said that they would have made the efficiency improvements even without the rebate. Over half (55%) of the participants also indicated that the Express Efficiency Program and the rebate significantly increased their confidence in the performance of energy-efficiency measures [2].

There is evidence that experience with both audit and rebate programs increases the likelihood that small customers will make energy-efficiency investments in the future. Of PG&E's Express Efficiency Program participants, 70% indicated that the program had a positive effect on the likelihood that they would choose energy-efficiency measures in the future [2]. Among BEMS Program participants, about half indicated that the audit program had had a positive effect [3].

Both rebate and audit programs appeared to have had some effect on customer use of long-term investment analysis for energy-efficient equipment. For PG&E small customers who participated in the Express Efficiency Program, 45% said that the program had had a significant effect on their use of long-term investment analysis [3]. For audit participants, the influence was less, but nearly three-fourths of participants said that the BEMS Program had had at least some effect [2].

D

ESCO/EESP INTERVIEWS

Interviews were conducted with ten EESP representatives to obtain input on their opinions regarding the 1999 Small SPC and Express Efficiency Programs. Of the ten companies interviewed, nine were participants in the 1998 Nonresidential SPC Program. All of the respondents were aware of both the Small SPC and Express Efficiency Programs.

This appendix summarizes the information gathered through these interviews.

D.1 1999 SMALL NONRESIDENTIAL SPC PROGRAM RESULTS

D.1.1 Knowledge and Participation

All ten respondents were questioned about their knowledge of and opinion regarding the Small SPC Program. Six of the ten respondents stated that they were "very familiar" with the Program, two stated that they were "somewhat familiar," while two others said they were "not very familiar." Only three of the ten companies had already been involved in a Small SPC project in 1999. Of the seven companies that had yet to participate, three stated that it was "not at all likely" that they would participate this year, three stated that they were "somewhat likely" to participate, while only one company was "very likely" to participate this year. Six of the ten companies are actively marketing the 1999 Program to prospective customers.

The respondents were questioned about the factors that are most likely to influence their decision to participate in the 1999 Program. The general consensus was that the decision to participate in the Program is one that is made on a case-by-case basis, weighing the needs of their clients, and the potential benefits versus costs associated with involvement. As previously mentioned, however, three of the respondents stated that they were not participating in the Program, regardless. These respondents said that they had determined that the Program was either not a good deal for the customer, had inherent design flaws, or that they had such negative feelings about the 1998 NSPC Program that they were not even considering involvement in this Program.

D.1.2 Strengths of the Program

The most common strength mentioned about the Small SPC Program was the monetary incentive paid for participation. Besides this, the reduced amount of paperwork and program simplicity (compared to the 1998 NSPC Program), and the credibility lent to energy-efficiency projects were the other strengths mentioned by respondents. Comments of those that had already participated in the 1999 Program reflected the same strengths—monetary incentive and program simplicity.

D.1.3 Weaknesses of the Program

The weaknesses of the Program stated by the respondents are listed below:

- Customers must find contractors that understand the Program
- Program goals are unclear
- Not cost beneficial for EESP/ESCO to participate: marketing costs to solicit these small potential customers and the administration costs are not worth the incentive
- Lack of program planning, support, and marketing
- Too many technology limitations
- Not enough program advertising
- Often too difficult to qualify a customer for program participation
- Too much paperwork and M&V to justify program participation
- Program often creates project delays, thereby causing a situation where customers lose interest in going ahead with projects
- The program design sets building owners up to be taken advantage of by EESPs/ESCOs (i.e., it's a poor deal from the customer's point of view and not cost beneficial for the customer)

The most common comments made regarding Program weaknesses were that the Program was not financially attractive given a low incentive-to-participation-cost ratio, and not enough advertising (increasing the participation costs for EESPs/ESCOs by forcing them to spend money to advertise the Program to potential customers). The weaknesses highlighted by those who have already participated in the 1999 Program include: too much paperwork; few ESCOs have the ability to get into this Small SPC market (the respondent had a unique situation that allowed them to take advantage of the Program); difficulty qualifying a customer; and not enough program advertising.

D.1.4 Program Design/Potential Changes

There was a distinct split between those respondents that felt that the Program was designed in a way that would induce small business participation and those that felt it would not. Those respondents who stated that the Program would not be effective in obtaining small customer participants felt that the incentive values were generally too low to justify participation for those smaller companies. One contractor felt that the incentive was probably fine for companies with a demand of 100kW or more, but unsuitable for smaller firms with demand less than 100kW.

Some of the suggestions to increase participation included:

- increase prices/incentive
- simplify the process
- increase advertising
- reduce delays in project start-ups
- change Program focus from product vendor-oriented to contractor-oriented (respondent felt that it would be too easy for a product vendor to cut the EESP/ESCO out of the project simply by offering to share Program incentives with the customer, thereby nullifying any previous efforts on the part of the EESP/ESCO to secure a client)

D.1.5 Program Requirements - Reporting, M&V, and Paperwork Issues

Most respondents felt that although the Program requirements were an improvement over the 1998 NSPC Program, the M&V and reporting requirements were still not worth the incentive paid. One respondent stated that the Program simply required an unreasonably high confidence level for verification and that the cost to do so made Program participation unattractive. Another respondent said that "grouping" of measure M&V should be allowed. A couple of respondents felt that the requirements were reasonable. Several respondents commented about the "strange" incentive pay-out process, saying that it was difficult for some smaller companies to have the incentive withheld for so long.

D.2 1999 EXPRESS EFFICIENCY PROGRAM RESULTS

D.2.1 Knowledge and Participation

All respondents were questioned about their knowledge of the 1999 Express Efficiency Program. Six of the ten respondents stated that they were "very familiar" with the Program, one stated that he was "somewhat familiar," two others said they were "not very familiar," and only one respondent the he was "not at all familiar" with the Program. Six of the ten companies had already been involved in the Express Efficiency Program in 1999, three others had not participated, and one respondent was unsure of any 1999 participation. Of the six companies that have participated in 1999, five said they will be "very likely" to participate again this year, while the sixth respondent said that they were "somewhat likely" to participate again. Two companies had not participated and were "not at all likely" to participate in 1999. One respondent stated that her company's reason for not participating was that the Program did not work well within its current business model, while the other respondent said that the money was just not enough to bother participating in the Program.

Respondents were asked to provide the factors that they felt influenced small customers to participate in the Express Efficiency Program; these factors included:

- Ease of participation—paperwork, administration, etc.
- Ease of grasping Program concept
- Monetary incentive
- Hard deadlines to push customers into a decision
- Customer needs

Respondents were also asked what they saw as the benefits to their firm from participation in a program like Express Efficiency; these benefits included:

- Improved relationship with client
- Increased business
- Helps as a marketing tool
- Rebates can be estimated in proposal
- Forces customer to evaluate the importance of energy efficiency

D.2.2 Strengths of the Program

The respondents were asked to detail the strengths of the Express Efficiency Program. The strengths mentioned included the rebate incentives themselves, the ease of program participation (including administration and cost/rebate calculations), and the level of control that can be retained over a project (compared to other utility-sponsored programs).

D.2.3 Weaknesses of the Program

Respondents were also asked to describe the weaknesses of the Express Efficiency Program. There were relatively few strong complaints regarding this Program, with several respondents saying that they were "digging" when proposing program weaknesses. Four of the respondents said that they could find no faults with the Program. The weaknesses that were mentioned included:

- Difficulty of qualifying potential customers
- Low utility support
- Reduced rebate levels
- Too many technology limitations
- The Program comes across as a utility program, when it is actually a State program (inadvertently making the utilities seem charitable)

D.3 SMALL NONRESIDENTIAL STUDY CONCLUSION - PROGRAM COMPARISONS

In general, the EESP/ESCO respondents were happy with the progress made in the 1999 Small SPC Program compared to the 1998 NSPC Program in terms of program requirement simplification; however, the consensus was that the Program is tight in terms of being cost-beneficial for the customer and contractor. Certain business models and clientele structures lend themselves to participation in this Program, while others do not. Several respondents mentioned that they had had such bad experiences with the 1998 Program that they were avoiding the 1999 Small SPC Program altogether. Comments regarding the Express Efficiency Program were narrowly focused around its ease and simplicity (presumably in comparison with the Small SPC Program).

Opinions regarding both Programs ran from extremely negative to extremely positive. Most felt that the Express Efficiency Program was much easier to use and participate in and, therefore, rewarding. However, even some respondents who agreed that the Express Efficiency Program was easier felt that the SPC Program had more potential and that the larger payoff possibilities were often worth the extra hassle. Several of the respondents who said their company would not be participating in the Program and even several that were participating felt that the small size of the projects and steep project costs under the Small SPC Program made it a fairly undesirable with which program to be involved.